The Land Based Sector in NE Scotland

A Study for the North East Scotland Agriculture Advisory Group

Supported by Aberdeenshire Council, Angus Council, Moray Council, Scottish Enterprise, Highlands and Islands Enterprise – Moray, Forestry Commission Scotland

FINAL REPORT
April 2016

Study Contact:
Peter Cook
2 Mennie Cooks Ltd
cooknewton@btopenworld.com
07774 160246
01467 623222

Client Contact:
Derek McDonald
Industry Support Executive
Aberdeenshire Council
Derek.mcdonald@aberdeenshire.gov.uk
01224 664606

1 CONTENTS

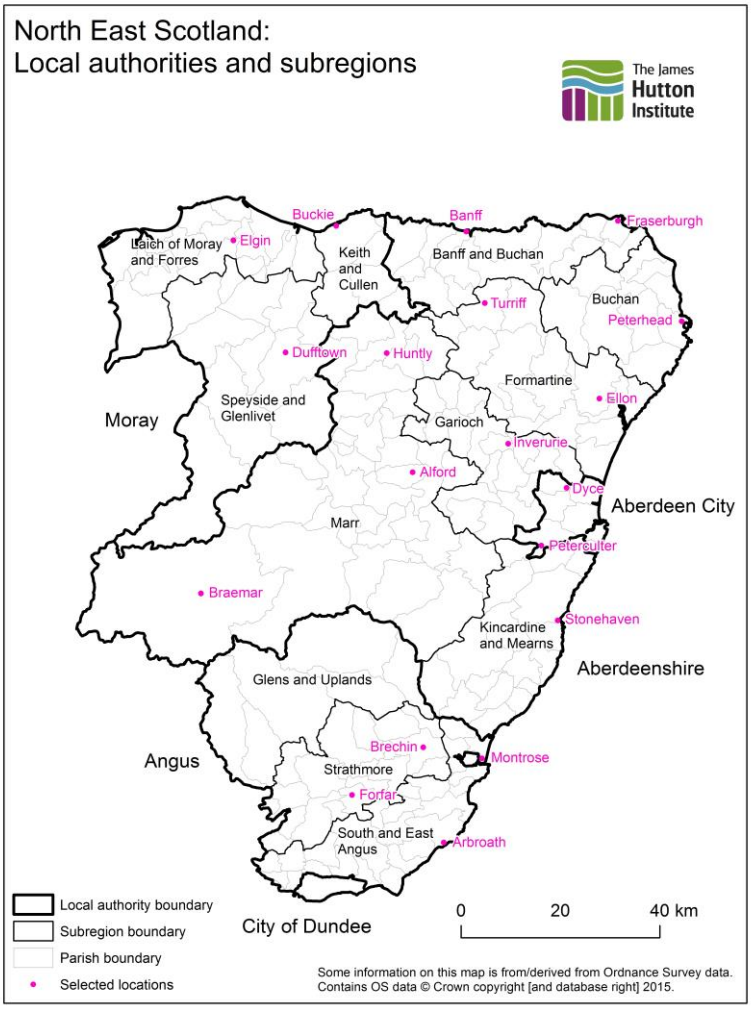
2 INTRODUCTION

Are our land-based industries fit for the future? The industry faces some major challenges: another reform of the Common Agricultural Policy (CAP); a reshaping of the Less Favoured Area Support Scheme; a major commodity slump affecting grain and timber prices (and the oil price which has underpinned the previously buoyant local economy); severe climate events; a Euro crisis and a slowdown in the world economy. It is within this context that NESAAG (the North East Scotland Agriculture Advisory Group) commissioned this study, supported by Aberdeenshire, Angus and Moray Councils, Scottish Enterprise, HIE Moray and Forestry Commission Scotland. The study covers the local authority areas of Aberdeenshire, Angus and Moray focusing on the period 2007 to 2014. It builds on a series of previous reviews of agriculture in Aberdeenshire, the last covering the period 2003 to 2007.

NESAAG is a cross-sector partnership drawn from public and private sectors comprising 4 local authorities, Scottish Enterprise, HIE Moray, agriculture, forestry, tourism, food safety and environment agencies, academia, advisory and business representatives. The group meets regularly and adopts a pro-active approach towards the sustainable development of rural and land-based industries in the North East of Scotland. For this study, the NESAAG steering group comprised Jamie Bell and Gina Ford (Scottish Enterprise), Alison Smith and Merlyn Dunn (Angus Council), Gordon Sutherland (Moray Council), Steven Hutcheon (HIE Moray), James Nott and Ian Cowe (FCS), Prof Ken Thomson (Univ of Aberdeen) and Clive Phillips (Brodies LLP and Aberdeen and Grampian Chamber of Commerce). The Group was chaired by Cllr Bill Howatson and the project was managed by Derek McDonald (both Aberdeenshire Council).

This report includes an analysis of the current position of the land-based sectors focusing on change over the 2007 to 2014 period, an analysis of the impact of imminent policy changes including CAP reform, a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis of the land-based sectors, and the preparation of future scenarios. The key issues for the industry as a whole are identified and recommendations made for the commissioning organisations. Agriculture, farm woodlands, farm diversification (including renewables), the input supply and processing sectors, the skills and education infrastructure and the wider rural economy are considered. Case studies on real businesses are used to explore how individual players are facing the future. The study involved desk research, modelling, widespread consultation with the industry, workshops in each local authority area, workshop sessions with NESAAG members and the preparation of illustrative case studies. An important aspect of the study has been analysis down to sub-region level – Aberdeenshire, Angus and Moray have been split into sub-regions, representing areas of differing agroclimatic conditions and topography. See Figure 1 below, which shows that the total area stretches from Forres in the north-west, to Dundee in the south. This has allowed us to identify where change is happening and postulate why.

Figure 1. NE Study. Local authorities and their sub-regions.



Local authority and subregion boundaries are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). Some parts of parish boundaries differ very marginally from Local Authority boundaries, but otherwise 'fit' the LA boundaries. All subregions except Glens and Uplands and Strathmore were derived from the electoral wards which parish centroids were located within. Aberdeenshire subregions are based on wards grouped to committee areas (see http://www.aberdeenshire.gov.uk/elections/areas_wards_settlements_map.pdf). Actual ward and LA boundaries are not shown. Ward spatial data and information: OS Boundary-Line(TM) data. Selected locations derived from OS 1:250 000 Scale Colour Raster.

A shorter Summary Report has been published in hard copy. It is also available at www.aberdeenshire.gov.uk/facingthefuture/

In addition to this main report and the summary report, one page infographics have been prepared for Aberdeenshire, Angus and Moray to capture the essence of each of these areas and the changes they face. These can also be accessed at the web address above.

In this report, unless otherwise stated, "North East" (NE) means Aberdeenshire, Angus and Moray local authorities plus the small amount of farming within the Aberdeen City boundary. Dundee City is not included as it has virtually no farming within its boundary. The "study period" means 2007 to 2014, while the "previous study period" means 2003 to 2007.

This document uses data and information derived from a range of sources. Some figures may differ from other published figures, and some summary data have not been published for disclosure control reasons. Responsibility for any errors in statistics or interpretation rests solely with the project team.

We would particularly like to thank and acknowledge the Agricultural Census Analysis Team, Rural and Environment Science and Analytical Services, in the Scottish Government for provision of June Agricultural Census data, and to thank Paul Gavin within the Agricultural Census Analysis Team for his excellent advice and support.

3 RECOMMENDATIONS

3.1 OVERVIEW

Over the 2007 to 2014 period, the local agricultural industry has gone through much more change than we may realise.

The industry has simplified, in most areas scaling back its livestock, simplifying and expanding cereals, reducing staff and attempting to reduce risk. This has been done to eliminate the most unprofitable livestock, to accommodate a lack of labour and ageing farmers, to exploit higher but more variable grain prices, to make space for developing other sources of income or an off farm job, and all with an eye to potential reductions in future support as a result of CAP reform. Intensive livestock took a battering in the North East, but may have now stabilized.

The sub-regions within the North East show an increasing degree of specialization in land use, exploiting their natural advantages. A few areas are maintaining beef cattle intensity, some are going sharply part-time, a couple are becoming centres of intensive fruit and veg cropping, and others are extensifying.

There has been a lot of investment in renewables aided by FITs and RHIs, and in buildings and environmental schemes supported by the SRDP. This has created big positive cashflows for some land managers, and an increase in capacity. Forestry has been very active at the processing end, aided by the biomass boom, although this has not been reflected in much more farm woodland planting.

However, while there has been real change over the last 7 years, a key message from this study must be that there is **potential for much more radical change over the next 7 years.** With the change in CAP direct support and a review of the LFASS imminent, we are at a critical decision point, especially for beef farmers. Cashflows are tight, grain prices have recently crashed, and the support for new renewables is ending abruptly. The primary processing sector is weak. In addition, the oil industry is in recession, reducing off-farm and diversification opportunities in Aberdeen and Aberdeenshire.

In addition to changes in the CAP, the Land Reform Bill, changes in UK government energy policies and the forthcoming EU referendum all have potentially major implications for land managers and processors in North East Scotland and make decision-making more difficult.

The outlook is not all negative. There are gainers from the CAP reforms, as well as losers. Land prices are still high, and many of those who have invested are ready to expand. There is no shortage of ideas for tackling the underlying lack of profitability in sectors such as beef. The local food sector is positive and wants to expand. But there is a real threat that, as described in our scenario planning workshops, producers may react to uncertainty by cutting back livestock numbers, with a resulting loss of processor viability, and a knock-on to the food industry and the input supply infrastructure.

3.2 WHAT IS NEEDED?

A vision for the future. This has more impact on decisions than we generally realise. Producers need models for how they can build a successful future on their farms and in related businesses by utilizing their resources to best effect. For example, there are tremendous models for profitable

high-output farming developed by grazing groups and models for successful diversification incorporating active farming in agri-tourism groups. If people do not believe that there is a way to farm successfully, they will scale back and work elsewhere.

Leadership. This is strongly related to the point above. Successful sectors, which survive shocks, generally do so because there is locally rooted leadership. Scottish Pig Producers would be a good example. The industry needs more leadership in other sectors to provide a business/ market-led vision of the future, to give producers confidence in the future.

Flexibility. There will be change. But the more flexible the business and policy environment, the easier it will be for one business's reduction to become another's expansion. The industry needs flexible land tenure laws, flexible labour, the full use of rings' ability to flex machinery and labour, new share-farming mechanisms, a culture which supports innovation and change which includes leadership by the industry's representative bodies, good sources of advice, and good linkages between all the land-based sectors – farming, food processing, tourism, forestry, country sports, environmental interests and the heritage sector. Planning strategies have their part to play.

Education/ Research/ Knowledge Transfer. The North East must have better-than-average technical performers and business people to compete at a distance from markets and with natural disadvantages. Very few land managers feel that they are plugged into their local education centres or into national researchers. There are some good examples of groups of producers working with researchers, but they are few and far between. The input supply sector is more likely to adopt this role. The old Knowledge Transfer structures – RNAS, Grassland Societies, FMA, discussion groups with which the NE is well served – provide a good service and interesting programmes, but are not at the forefront of applied research or knowledge transfer. If there is no national KT leadership, then local structures could take on part of this transformational role. Monitor farms and similar initiatives have been a real success in the area. There is a need for a hub or a focal point within the North East to facilitate all of this. Building up human capital is key to overcoming our peripherality.

Collaboration/ Cooperation. It could be said that this is always trotted out as a panacea when the industry is under pressure, but it was one of the strongest messages from the future scenario workshops, and especially from farmers famed for their independence. If profits are not there, the industry needs ways to cut costs – sharing machines and labour is an obvious option. Reciprocal cropping – I graze stock on your arable farm, you grow some crops on mine – is an obvious way to specialize without losing the benefit of rotations. And it is a way to add value by organizing marketing, if done properly. The rings are already major facilitators, but more could be done.

Business Skills. It is arguable whether business management knowledge is any better in the industry today than it was 30 years ago. Few farms prepare a forward budget and use it to manage the business. Only small numbers get a third party view of how well they are performing. Few do any sort of benchmarking at all. Only a small proportion could do a robust financial appraisal of a new venture.

Processors. Perhaps the strongest message from this study is that entire sectors depend for their survival and prosperity on having fairly local primary processors, and they are worried about how few there are and how viable they are in the long term. Most sectors are down to two or three main buyers, several effectively down to one. The industry needs to help secure them. Communication with producers needs to improve. More collaboration or simply communication might help eliminate costs in the chain. Contingency planning may be required for those local sectors left with one outlet so they have a plan if it closes. The NE has a surprising number of small farm-based

processors, but few ever get up to even SME scale where they would start to use significant levels of local production. The barriers to their expansion need to be explored. New companies need to be attracted into the area, and macro and constitutional stability/ clarity is required to attract that inward investment to what is a small supply base on the edge of the UK and the far edge of Europe.

Regional Branding. This is strongly related to the point above. Grampian Food Forum and its local awards are looked upon enviously by other regions. More needs to be done, and further afield, to let people know that the North East including Angus has a forward-looking, opportunity-driven food sector closely linked to professional farmers and processors, and with a tremendous provenance story to tell.

Quality Labour. This is a long-standing issue. Oil, image and the loss of the small farm labour pool has made it difficult to find young people who want to work on farms. Mechanisation and East European labour has filled the gap. There are lots of young people looking for jobs, but it has been difficult to get them on to farms early enough to learn simple work skills and the complex requirements of livestock systems. Statutory wage rates and a lack of vocational training have been barriers. The Ringlink model supported by Aberdeenshire Council is a tremendous development if it can be rolled out to a larger-scale apprenticeship/trainee scheme. This needs more work and more farmer commitment. The lack of local labour on farms does not help the image of the industry. The fact that (despite the best efforts of many farmers in the past) thousands of seasonal jobs in Angus are not taken up by youngsters from local towns and Dundee, where there is relatively high youth unemployment, is surely a tragedy.

Adding Value on the Farm. Relatively few farmers develop on-farm enterprises, though one of the features of the last 10 years has been the emergence of very successful farm-based processors of a range of local products including cheeses, meats, drinks and rapeseed oil. They use a relatively small quantity of farm production, but secure a number of businesses, employ more people, and most importantly develop a local food culture which underpins so much tourism and town/city visitors to rural attractions. These developments reflect the emergence at global level of the “slow food” agenda. One or two of these processors may become big and eventually have a major impact on the NE.

Good environmental and carbon credentials. North East Scotland has a reputation for environmentally friendly land use, and much local tourism is underpinned by the region’s unique and extremely diverse landscapes. However, balancing environmental objectives against production objectives is becoming more challenging given Scottish and UK policy in relation to carbon targets. While changes in farm production technologies may go some way towards reducing the level of emissions from agriculture, there is clear potential for better integration of agriculture and forestry to satisfy carbon targets: at present it seems that the two sectors remain very distinct. Dealing with carbon targets and looking after the environment are part of the NE brand.

3.3 RECOMMENDATIONS FOR THE STUDY PARTNERS

Individual businesses and organisations can and should tackle the issues raised in this study. However, the public bodies supporting this study (NESAAG, Aberdeenshire, Angus and Moray Councils, Scottish Enterprise, HIE Moray, FCS) and other development organisations need to concentrate their effort where individual businesses cannot be expected to take action. The following recommendations are presented as a basis for discussion with the commissioning

organisations and the wider industry. All of these recommendations are linked. For example, rural trainee development links into the support for local rural education provision.

1. **Leadership and the role of NESAAG**

NESAAG has no financial or direct political power, but it can communicate the vision of what the industry needs to do, and it can lobby business, industry organisations and Government to tackle some of the specific recommendations listed below. NESAAG can also lead by maintaining its biennial review of the NE land-based sectors and by informally monitoring the delivery of the recommendations.

2. **A Forum for the Angus Agri-Food Sector**

It became clear through our consultations and the Angus Scenario Planning workshop that the Angus industry would very much like a forum similar to NESAAG, to discuss key local issues and provide an ongoing dialogue with public bodies.

3. **Supporting Rural Trainee Development – Modern Apprenticeship Development**

To some extent, this is already underway under the auspices of Ringlink, SRUC and Aberdeenshire Council. Evidence suggests that many more trainees are needed.

4. **Rejuvenation of the Local Knowledge Transfer Infrastructure, prioritising action on CAP change and creation of an Agri-Food Hub**

For the NE industry to prosper, it needs to be better informed than its competitors, with better business skills and stronger links to local processors and food industry.

In the short term, getting the whole industry to plan for subsidy reduction must be a priority. There are lots of consultants who can provide CAP information and advice on business changes. However, there is a general feeling that a sizeable group of farmers have not yet looked at the implications for their business and may suddenly have to cope with lower income without options for change.

The Aberdeen City Region Deal proposes an Agri-Food centre, so there may be scope to expand this to be a centre for knowledge transfer and business skills. It is critical for local farmer organisations to get involved.

5. **Supporting Local Agri/ Rural Education Provision**

Good local agricultural education and learning in its broadest sense must be a cornerstone of our competitiveness. Good education also creates networks, aspirations and a culture of continual learning. NESAAG and the industry can lobby for SRUC Aberdeen, but it would be great to also get the Universities and JHI involved at degree level and above. The industry can help improve quality by opening up farms to students and getting students on to the many KT programmes. More KT partnerships could be created to link the industry to Universities and research establishments.

6. **Mechanisms for getting New Farmers into the Industry**

New entrants = new ideas and enthusiasm. More programmes like the ones operated by FCS and Scottish Pig Producers are required to help young people get started with less capital. Share/partnership mechanisms are required to allow new entrants to slowly buy in to existing breeding livestock businesses. The legal and business expertise is here to do it.

7. **Building the Local Food Brand and Wider Rural Sector through the City Deal and Opportunity North East**

The City Deal and the Opportunity North East initiative established by Sir Ian Wood are tremendous opportunities for coordinating and funding action to build the local food brand and to deliver the programmes needed to get the industry fit for the future. NESAAG and the study partners need to engage with these initiatives immediately, armed with this report.

8. **A Strong Role for the North East in the Forward Strategy Consultation Process**

There is a great opportunity to feed in the results from this study to the Scottish Government Forward Strategy consultation, to the benefit of the North East.

9. **A Small Processor Forum**

To a great extent, the Grampian Food Forum and other general business growth programmes already provide a means by which small farm-based food processors can learn and hopefully expand. However, this report identifies the expansion of existing small food processors, and the establishment of more, as a priority. A farm-based food producer forum, with an allied outreach programme to attract new entrants, might have more impact.

10. **An Agri-Tourism/ Food Tourism Strategy**

Tourism has not been an important diversification in most of the NE, given the opportunities available in the oil-related industry. However, this is changing. We have a great range of food and drink products, tremendous scenery, a unique Doric culture and a fantastic history. There are great examples around the world of how networks of farm-based food tourism providers have developed profitable businesses. The same could be done here. Indeed, an excellent group is being developed with Council support in Angus. There is a need to replace oil visitors. Dialogue is needed with the new and stronger VisitAberdeenshire.

11. **Contingency Planning**

This may seem a negative action, but in volatile times it is essential. The NE pig industry was well ahead in its thinking when the only volume processor closed, and to a great extent this saved much of the local pig farming sector. Are the dairy and other sectors prepared? NESAAG may be able to play a facilitation role.

4 STAGE 1 - UNDERSTANDING THE CURRENT STRATEGIC POSITION OF THE LAND BASED SECTORS IN NE SCOTLAND

4.1 THE STRUCTURE AND PERFORMANCE OF FARMING

The following data is based mainly on the Scottish Government June Agricultural Census of agricultural holdings, an annual census of all registered holdings. The aim is to identify the 2007 to 2014 trends, since the last study in 2008 (though this only covered Aberdeenshire) and where possible to highlight how these compare to the 2003 – 2007 trends identified in the previous study.

Please note that due to disclosure rules (which aim to ensure that individual business details cannot be identified or extrapolated) some tables have gaps, for example with some sub-regions excluded. This is especially the case for enterprises which tend to be concentrated into few businesses e.g. poultry, dairy, pigs and fruit.

4.1.1 Number of Holdings and Average Size

Table 1. Total number of holdings

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Holding counts based on the "area of all land to which this form relates". Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show holding counts, 2007-14 shows percentage change in holding counts.

Region	2007	2014	2007-14 % change
Scotland	**51,319**	**52,249**	**1.81**
NE Scotland	**9,972**	**10,156**	**1.85**
Aberdeenshire	7,122	7,245	1.73
Banff and Buchan	1,084	1,138	4.98
Buchan	1,096	1,096	0.00
Formartine	1,523	1,565	2.76
Garioch	1,121	1,148	2.41
Kincardine and Mearns	858	831	-3.15
Marr	1,440	1,467	1.88
Aberdeen City	255	258	1.18
Angus	1,272	1,301	2.28
Glens and Uplands	116	114	-1.72
South and East Angus	648	660	1.85
Strathmore	508	527	3.74

Moray	1,323	1,352	2.19
Keith and Cullen	433	442	2.08
Laich of Moray and Forres	439	455	3.64
Speyside and Glenlivet	451	455	0.89

The number of holdings in Aberdeenshire continues to increase, rising by 1.73% between 2007 and 2014 (2.56% 2003 to 2007). The same trends are seen in Angus and Moray. This presumably reflects the first registration of pieces of land which previously had no holding number, and the purchase of small areas by non-farming country dwellers for horses or amenity which are then registered. The small reduction in average holding size (table 2) in Aberdeenshire and Angus would seem to back up this sub-division hupothesis. Only in Moray has average holding size increased, due to a jump in average area in Speyside and Glenlivet and Keith/Cullen.

Table 2. Mean holding area

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Holding counts and areas based on the "area of all land to which this form relates".
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show mean holding area (ha), 2007-14 shows percentage change in mean holding area.

Region	2007	2014	2007 – 14 % change
Scotland	**109.07**	**107.10**	**-1.80**
NE Scotland	**86.19**	**86.09**	**-0.12**
Aberdeenshire	72.71	71.20	-2.07
Banff and Buchan	50.59	47.37	-6.37
Buchan	44.35	44.66	0.71
Formartine	51.34	49.69	-3.21
Garioch	41.32	40.45	-2.12
Kincardine and Mearns	69.90	73.61	5.30
Marr	159.65	155.17	-2.80
Aberdeen City	32.86	30.82	-6.22
Angus	149.17	146.23	-1.97
Glens and Uplands	687.43	694.46	1.02
South and East Angus	78.43	75.21	-4.11
Strathmore	116.48	116.59	0.09
Moray	108.53	118.52	9.21
Keith and Cullen	47.53	58.43	22.94
Laich of Moray and Forres	85.84	82.39	-4.01
Speyside and Glenlivet	189.18	213.02	12.60

Average holding size in the NE study area was 86.09 ha in 2014, but varies greatly between regions. Angus holdings average over 146 ha and Moray over 118 ha. In Angus the average is greatly increased by the very large Glens and Uplands holdings which average 694 ha. Likewise Moray holding size is boosted by the 213 ha average holding size in Speyside. While the hill areas of Angus and Moray increase their average holding size, their lowland areas also have much larger holdings than Aberdeenshire e.g. Laigh of Moray 82 ha, South and East Angus 75 ha, Buchan 44 ha.

While there are over 7,000 holdings in Aberdeenshire, 1,300 in Angus and 1,350 in Moray the number of farm businesses will be much lower. The census data also records the number of "occupiers" which allows us to have a stab at the average size of a farm business in each area.

Table 3. Farm Size Estimate – Occupier Number Basis

	No of occupiers	Total holdings	Holdings per occupier	Average holding size (ha)	Average "farm" size (ha)	Average "farm" size (acres)
Aberdeenshire	3,656	7,245	1.98	71.20	141	348
Angus	708	1,301	1.84	146.23	269	665
Moray	733	1,352	1.84	118.52	218	539

As in previous studies, it should be noted that the census data may not reflect who actually operates a holding. An owner may complete the census form for their holding, but have the land let on a seasonal grazing let or cropped under a Contract Farming Agreement. We believe that the average "farmed area" is greater than shown above. Using the number of submitted IACS forms in each area as a measure of the true number of farmers increases average business size to 199 ha, 322 ha and 277 ha in Aberdeenshire, Angus and Moray respectively.

Table 4. Farm Size Estimate - IACS Claim Basis

	No of IACS Claims 2014	Average Farm Size (ha)
Aberdeenshire	2,587	199
Angus	590	322
Moray	578	277

Note that the trend in average farm size since the previous study is steadily upward. In 2007 the average Aberdeenshire farm size calculated on the basis of occupier numbers was 131 ha (324 acres).

4.1.2 Holding Size Distribution

When comparing holding size distributions it is helpful to exclude rough grazing which gives a misleading impression of the scale of businesses in upland areas. The tables below therefore present holding size distribution in terms of their total crops and grass area.

Table 5. Proportion of holdings in each size category, based on crops and grass area, study areas versus Scotland 2014

Area (ha)	Scotland %	Aberdeenshire %	Angus %	Moray %	
< 5	39.71	36.88	29.76	31.52	
5 - 10	11.76	10.30	6.75	10.39	
10 - 20	9.65	8.76	5.65	8.26	
20 - 30	5.69	6.32	3.79	4.94	
30 - 40	3.97	4.43	4.47	4.43	
40 - 50	3.29	3.92	3.46	5.37	
50 - 75	6.72	8.20	8.43	9.20	
75 - 100	4.83	5.57	7.25	6.56	
100 - 150	6.27	7.39	12.56	8.77	
150 - 200	3.33	3.55	7.08	4.86	
200 - 250	1.82	2.02	3.96	2.47	
250 - 300	1.05	1.07	2.28	1.11	
300+	1.91	1.60	4.55	2.13	

The standard Scottish holding size distribution has a large number of holdings below 10 ha (over 50% for Scotland as a whole), small numbers in the 20 ha to 50 ha categories and then a small peak in the 50 ha to 150 ha categories (almost 18% for Scotland) and then the numbers sharply tailing off over 150 ha.

Our 3 local authority study areas roughly conform to the Scottish pattern. However, all 3 areas have a slightly smaller proportion of under 10 ha units and more in the 50 ha to 150 ha groups (Aberdeenshire 21%, Angus 28%, Moray 24%). Angus stands out as having the largest proportion of big holdings (30% are over 100 ha including 4.55% over 300 ha).

Table 6. Rate of change in each holding size category 2003 – 2007 (5 years) and 2007 – 2014 (8 years) for Aberdeenshire and Scotland

	Aberdeenshire		Scotland	
Area (ha)	2003 – 2007 % change	2007 – 2014 % change	2003 – 2007 % change	2007 – 2014 % change
< 5	1.6	8.61	-0.7	9.24
5 - 10	2.2	1.85	0.4	8.71
10 - 20	-1.4	-0.71	-2.5	5.70
20 - 30	-5.6	-4.25	-3.1	-0.41
30 - 40	-4.3	-13.11	-5.2	-5.84
40 - 50	-9.2	-10.32	-8.4	-9.02
50 - 75	-7.4	-7.54	-7	-6.61
75 - 100	-8.7	-12.90	-7.8	-8.81
100 - 150	4.5	-3.06	-3.9	-3.14
150 - 200	-6.9	5.56	-6.9	6.18
200 - 250	0	4.84	4	5.79
250 - 300	-11.9	16.95	-1.3	14.73
300+	8.7	3.00	11.4	19.15

Table 6 shows the percentage change in the numbers of holdings in each size category for this study period (2007 to 2014) and also for the previous (2003 to 2007) for Aberdeenshire alone. Even accounting for the fact that these are different lengths of period, the trend in Aberdeenshire identified under the last study seems to have greatly accelerated. The proportion of very small units (<10 ha) and big units (>150 ha) has increased sharply and the number of "medium" scale holdings (20 ha – 100 ha) continues to decline. The trends for Scotland as a whole are very similar, though the hollowing out of the medium scale holdings is perhaps less severe.

Tables 10 and 11 show the trends for Moray and Angus, and these show the same pattern, but much more extreme. In both these areas the number of over 300 ha units increased by around a third.

As discussed earlier, holding size does not equate exactly to farm business size, but these figures give an indication of the overall farm size trend and suggest that restructuring is accelerating.

Table 7. Median holding area

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Averages based on the "area of all land to which this form relates".

Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show median holding area (ha), all other values show percentage change in median holding area.

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**10.00**	**8.72**	**-2.80**	**-1.44**	**-2.92**	**-2.10**	**-1.15**	**-1.11**	**-2.02**	**-12.80**
NE Scotland	**17.69**	**13.35**	**-5.51**	**-4.46**	**-2.91**	**-4.77**	**-5.15**	**-2.61**	**-2.09**	**-24.51**
Aberdeenshire	14.51	11.00	-6.27	-5.44	-2.80	-3.20	-4.05	-3.06	-2.27	-24.19
Banff and Buchan	13.24	9.70	-4.04	-9.06	-5.58	-3.71	-1.76	-5.96	0.00	-26.71
Buchan	9.84	8.25	-10.52	3.64	-0.38	-3.14	-5.74	-0.42	-0.12	-16.12
Formartine	12.07	9.75	-3.07	-7.26	-1.75	-1.59	0.24	-3.38	-4.04	-19.22
Garioch	10.24	8.50	-0.68	-4.33	3.80	-4.16	-10.33	0.06	-2.13	-16.99
Kincardine and Mearns	22.16	18.30	-0.50	-10.75	-7.22	-6.79	-0.94	0.24	8.28	-17.42
Marr	24.42	18.14	-4.59	-4.81	-0.20	-3.46	-5.66	-6.47	-3.79	-25.72
Aberdeen City	12.09	10.40	-5.96	-4.13	-1.38	5.77	0.00	-4.13	-4.63	-14.02
Angus	45.82	34.68	-1.39	-6.74	-7.82	-6.09	-2.34	-1.14	-1.53	-24.31
Glens and Uplands	137.54	94.35	5.92	-2.79	-20.13	-3.68	-12.39	7.71	-8.23	-31.40
South and East Angus	31.32	21.98	-5.00	-3.26	-13.20	-4.18	-3.11	-2.41	-2.87	-29.81
Strathmore	56.85	46.17	-6.82	-5.64	-0.20	-2.75	-2.66	-0.13	-2.10	-18.79
Moray	23.15	16.96	-2.81	-8.64	-3.28	-5.53	-6.82	1.17	-4.24	-26.76
Keith and Cullen	14.43	12.47	-9.91	-2.85	-2.89	1.59	-2.57	1.24	1.42	-13.62
Laich of Moray and Forres	30.20	19.29	1.99	-6.41	-13.65	-6.89	-3.02	4.34	-17.74	-36.13
Speyside and Glenlivet	34.85	20.93	-1.21	-8.96	-7.77	-16.67	-10.59	2.37	-5.08	-39.94

The median holding size data (table 7 above) shows a very different pattern than does the mean size data. Upland areas like Marr, Speyside and the Angus Glens have relatively small median holding sizes compared to their average – a small number of very large units in these areas contribute to their high average holding size, but there are actually a lot of small/medium holdings in these areas. Also note the very small median holding sizes in Aberdeenshire, where there are lots of old crofts and new lifestyle blocks.

Table 8 . Holding size (crops and grass area) distribution, Scotland

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Data based on the total crops and grass area.

Note that some information below may differ from other published data.

Values: Area ranges include the highest value in the range but not the lowest. No holdings where crops and grass area = 0 ha are included. 2007 and 2014 show holding counts in each area range, 2007 (%) and 2014 (%) show the percentage of all holdings in each area range, 2007-14 shows the percentage change in holding counts for each area range.

Area (ha)	2007	2014	2007 (%)	2014 (%)	2007-14 % change
< 5	15,365	16,785	37.79	**39.71**	**9.24**
5 - 10	4,572	4,970	11.25	**11.76**	**8.71**
10 - 20	3,858	4,078	9.49	**9.65**	**5.70**
20 - 30	2,416	2,406	5.94	**5.69**	**-0.41**
30 - 40	1,782	1,678	4.38	**3.97**	**-5.84**
40 - 50	1,530	1,392	3.76	**3.29**	**-9.02**
50 - 75	3,043	2,842	7.48	**6.72**	**-6.61**
75 - 100	2,237	2,040	5.50	**4.83**	**-8.81**
100 - 150	2,735	2,649	6.73	**6.27**	**-3.14**
150 - 200	1,326	1,408	3.26	**3.33**	**6.18**
200 - 250	726	768	1.79	**1.82**	**5.79**
250 - 300	387	444	0.95	**1.05**	**14.73**
300+	679	809	1.67	**1.91**	**19.15**
Sum	40,656	42,269	100	**100**	

Table 9. Holding size (crops and grass area) distribution, Aberdeenshire

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Data based on the total crops and grass area.
Note that some information below may differ from other published data.

Values: Area ranges include the highest value in the range but not the lowest. No holdings where crops and grass area = 0 ha are included. 2007 and 2014 show holding counts in each area range, 2007 (%) and 2014 (%) show the percentage of all holdings in each area range, 2007-14 shows the percentage change in holding counts for each area range.

Area (ha)	2007	2014	2007 (%)	2014 (%)	2007-14 % change
< 5	2,183	2,371	34.09	**36.88**	**8.61**
5 - 10	650	662	10.15	**10.30**	**1.85**
10 - 20	567	563	8.86	**8.76**	**-0.71**
20 - 30	424	406	6.62	**6.32**	**-4.25**

30 - 40	328	285	5.12	**4.43**	**-13.11**
40 - 50	281	252	4.39	**3.92**	**-10.32**
50 - 75	570	527	8.90	**8.20**	**-7.54**
75 - 100	411	358	6.42	**5.57**	**-12.90**
100 - 150	490	475	7.65	**7.39**	**-3.06**
150 - 200	216	228	3.37	**3.55**	**5.56**
200 - 250	124	130	1.94	**2.02**	**4.84**
250 - 300	59	69	0.92	**1.07**	**16.95**
300+	100	103	1.56	**1.60**	**3.00**
Sum	6,403	6,429	100	**100**	

Table 10. Holding size (crops and grass area) distribution, Angus

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Data based on the total crops and grass area.
Note that some information below may differ from other published data.

Values: Area ranges include the highest value in the range but not the lowest. No holdings where crops and grass area = 0 ha are included. 2007 and 2014 show holding counts in each area range, 2007 (%) and 2014 (%) show the percentage of all holdings in each area range, 2007-14 shows the percentage change in holding counts for each area range.

Area (ha)	**2007**	**2014**	**2007 (%)**	**2014 (%)**	**2007-14 % change**
< 5	310	353	26.66	**29.76**	**13.87**
5 - 10	76	80	6.53	**6.75**	**5.26**
10 - 20	63	67	5.42	**5.65**	**6.35**
20 - 30	43	45	3.70	**3.79**	**4.65**
30 - 40	69	53	5.93	**4.47**	**-23.19**
40 - 50	45	41	3.87	**3.46**	**-8.89**
50 - 75	114	100	9.80	**8.43**	**-12.28**
75 - 100	93	86	8.00	**7.25**	**-7.53**
100 - 150	164	149	14.10	**12.56**	**-9.15**
150 - 200	78	84	6.71	**7.08**	**7.69**
200 - 250	42	47	3.61	**3.96**	**11.90**
250 - 300	26	27	2.24	**2.28**	**3.85**
300+	40	54	3.44	**4.55**	**35.00**
Sum	1,163	1,186	100	**100**	

Table 11. Holding size (crops and grass area) distribution, Moray

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Data based on the total crops and grass area.
Note that some information below may differ from other published data.

Values: Area ranges include the highest value in the range but not the lowest. No holdings where crops and grass area = 0 ha are included. 2007 and 2014 show holding counts in each area range, 2007 (%) and 2014 (%) show the percentage of all holdings in each area range, 2007-14 shows the percentage change in holding counts for each area range.

Area (ha)	2007	2014	2007 (%)	2014 (%)	2007-14 % change
< 5	318	370	27.58	**31.52**	**16.35**
5 - 10	110	122	9.54	**10.39**	**10.91**
10 - 20	114	97	9.89	**8.26**	**-14.91**
20 - 30	63	58	5.46	**4.94**	**-7.94**
30 - 40	67	52	5.81	**4.43**	**-22.39**
40 - 50	51	63	4.42	**5.37**	**23.53**
50 - 75	126	108	10.93	**9.20**	**-14.29**
75 - 100	79	77	6.85	**6.56**	**-2.53**
100 - 150	112	103	9.71	**8.77**	**-8.04**
150 - 200	60	57	5.20	**4.86**	**-5.00**
200 - 250	21	29	1.82	**2.47**	**38.10**
250 - 300	13	13	1.13	**1.11**	**0.00**
300+	19	25	1.65	**2.13**	**31.58**
Sum	1,153	1,174	100	**100**	

A similar analysis of the size trends in the sub-regions within each local authority area shows that they all basically follow the standard pattern with some regional variations. The Angus Glens and Uplands show an extreme version of the standard pattern as does South and East Angus. Buchan has a big increase in the largest holdings, Formartine has a large increase in smallholdings and perhaps the Garioch is the most stable.

4.1.3 Agricultural Land Area

Table 12 shows that there has been very little change in the overall agricultural area in the NE study region at least in percentage terms between 2007 and 2014. However, within the region almost an extra 17,000 ha was declared on census forms in Moray in 2014 compared to 2007. At least part of this may relate to the inclusion of previously unrecorded hill land which was now being used as "naked acres" to support Single Farm Payment entitlement claims. Open grazed woodland and farm

woodlands in general may not have been recorded on census forms in the past, but has now been included as farmers became aware of the pending move to an area based support regime.

Note that the agricultural area of Aberdeenshire increased slightly each year from 2003 to 2007 (as it did in most regions of Scotland over that period). It was speculated in the previous NE study that this was due to first registrations of land for IACS/SFP purposes, but this trend has now ceased.

Table 12. Total agricultural area

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Area based on the "area of all land to which this form relates".
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show areas (ha), 2007-14 shows percentage change in area.

Region	2007	2014	2007-14 % change
Scotland	**5,597,386**	**5,595,968**	**-0.03**
NE Scotland	**859,517.8**	**874,284.5**	**1.72**
Aberdeenshire	517,817.3	515,845.8	-0.38
Banff and Buchan	54,838.75	53,904.22	-1.70
Buchan	48,603.57	48,948.72	0.71
Formartine	78,184.29	77,759.64	-0.54
Garioch	46,323.61	46,431.45	0.23
Kincardine and Mearns	59,976.57	61,165.82	1.98
Marr	229,890.5	227,636	-0.98
Aberdeen City	8,380.228	7,951.07	-5.12
Angus	189,740.2	190,250.8	0.27
Glens and Uplands	79,741.94	79,168.62	-0.72
South and East Angus	50,825.35	49,638.75	-2.33
Strathmore	59,172.88	61,443.42	3.84
Moray	143,580	160,236.8	11.60
Keith and Cullen	20,578.47	25,824.78	25.49
Laich of Moray and Forres	37,681.9	37,487.68	-0.52
Speyside and Glenlivet	85,319.68	96,924.35	13.60

4.1.4 Land Tenure

The long standing steady increase in the proportion of land which is owner occupied continues. In NE Scotland more than three quarters of the land declared on holdings is now owner occupied, an increase of roughly 1% per annum over the 2007 to 2014 period. Within the NE there are major differences however with owner occupation in Angus increasing from a relatively low figure of 58% in 2007 to almost 78% in 2014. The census figures suggest there were major changes in the Angus Glens and Uplands in 2011/12 and 2013/14. In Moray, owner occupation rose from 62% to almost 70%. At a sub-region level, the highest owner occupation rates are in Buchan (89.8%) and the lowest in Speyside and Glenlivet (67.17%). These differences mirror the location of large active estates such

as the Crown Estate in Glenlivet. Note that a rise in owner occupation may reflect both tenants buying land and estates taking land in-hand on the retirement of a tenant. As discussed earlier, the nuances of how land which is owner occupied by one person is actually farmed is more complex than that presented by the census data.

Most farmers are owners of significant capital assets which has a very important impact on their systems, long term decisions and outlook.

Table 13. Owner-occupation rate

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Figures based on area owned and "Total area of this location".
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show the proportion of holding area which is owned (%), all other values show change in percentage points.

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**71.12**	**77.04**	**0.64**	**1.28**	**1.50**	**0.01**	**1.07**	**0.30**	**1.12**	**5.91**
NE Scotland	**69.14**	**76.43**	**1.22**	**0.59**	**1.37**	**-0.33**	**2.28**	**0.96**	**1.20**	**7.30**
Aberdeenshire	75.01	77.95	0.88	0.74	0.65	-0.59	0.43	0.47	0.36	2.95
Banff and Buchan	77.33	83.80	0.33	4.85	0.39	-0.54	0.36	0.49	0.59	6.47
Buchan	87.90	89.80	-0.97	1.44	1.15	0.12	-0.32	0.32	0.16	1.90
Formartine	83.03	86.54	1.35	0.25	0.51	-0.25	0.56	-0.07	1.15	3.51
Garioch	78.39	82.58	0.06	0.54	1.08	-0.54	0.68	0.58	1.78	4.18
Kincardine and Mearns	74.27	76.80	0.75	0.24	0.85	-0.25	0.35	0.61	-0.02	2.54
Marr	68.51	70.76	1.79	0.01	0.70	-1.08	0.40	0.67	-0.25	2.25
Aberdeen City	74.79	76.80	-0.49	-0.47	1.61	-1.31	0.89	2.34	-0.57	2.01
Angus	58.09	77.84	1.31	0.71	3.19	-0.35	8.81	1.34	4.73	19.75
Glens and Uplands	34.59	73.62	1.66	0.68	2.41	2.28	19.96	1.93	10.11	39.04
South and East Angus	82.95	87.64	0.95	0.79	1.19	0.29	0.17	0.82	0.48	4.69
Strathmore	68.40	75.06	0.73	0.35	4.58	-3.75	2.00	0.92	1.83	6.66
Moray	62.24	69.68	2.22	0.22	1.00	1.23	0.48	2.13	0.17	7.44
Keith and Cullen	73.69	80.78	0.13	-0.43	1.90	0.30	0.27	4.67	0.24	7.08
Laich of Moray and Forres	57.67	68.39	-0.22	-0.12	0.65	0.01	3.95	0.89	5.56	10.71
Speyside and Glenlivet	61.50	67.17	3.72	0.49	0.91	1.92	-0.98	1.47	-1.86	5.67

4.1.5 Arable Area

Scotland's total arable area (total crops and fallow area – see table 14) has dropped slightly (almost 3%) over the 2007 to 2014 period, while for NE Scotland there has been virtually no change. Aberdeenshire's arable area has remained static, the Angus area has increased by over 3% and the

Moray arable area has decreased by 2%. It is worth noting that of Scotland's 589,000 ha of arable, 43% is in the NE (27% Aberdeenshire, 12% Angus, 4% Moray).

The proportion of the total crops and grass area which is arable i.e. crops and fallow, gives an indication of the intensity of farming and the prevalence of mixed farming (table 15). In Scotland as a whole less than a third of the agricultural area is cropped and this is slowly declining. In the NE 53% is cropped and this proportion is pretty well static. Within the NE, just over half of Aberdeenshire is cropped (51%), while Angus and Moray are 70% and 39% cropped respectively. The proportion of cropping is falling very slightly in Angus and Moray, but is static in Aberdeenshire. The reality in Angus and Moray is that some areas are moving out of cropping (Angus Glens, Speyside and Glenlivet) while the areas with better soils intensify. Over the NE the highest cropping rates are in South and East Angus (84%), Formartine (61%) and Kincardine (60%), while the lowest are in the Angus Glens and Uplands (11%) and Speyside/Glenlivet (18%). There are major differences over a relatively small distance.

It is worth noting that the changes in the proportion of land which is cropped are smaller in the 2007 to 2014 period than they were over the 2003 to 2007 period. In that period, the arable area dropped almost 7% in Aberdeenshire, which reflected what was previously set aside land going into grass given low grain prices. In the 2007 to 2014 period grain prices have been much higher.

Table 14. Total arable area

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Figures based on the total area of crops and fallow land (which included 'set aside' land in 2007-8).
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show the area of arable land (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**606,167.11**	**589,017.00**	**-2.82**
NE Scotland	**253,480.70**	**254,963.09**	**0.58**
Aberdeenshire	156,040.20	156,316.64	0.18
Banff and Buchan	24,758.30	24,635.84	-0.49
Buchan	22,037.91	22,030.16	-0.04
Formartine	42,943.67	42,861.04	-0.19
Garioch	18,715.56	18,514.20	-1.08
Kincardine and Mearns	26,306.63	26,883.24	2.19
Marr	21,278.14	21,392.17	0.54
Aberdeen City	2,611.92	2,231.65	-14.56
Angus	67,972.15	70,109.02	3.14
Glens and Uplands	1,324.70	1,238.62	-6.50
South and East Angus	36,970.10	38,015.65	2.83
Strathmore	29,677.34	30,854.76	3.97
Moray	26,856.43	26,305.78	-2.05
Keith and Cullen	6,672.92	6,578.58	-1.41
Laich of Moray and Forres	15,848.58	15,391.82	-2.88

Speyside and Glenlivet	4,334.93	4,335.38	0.01

Table 15. Proportion of crops and grass area that is arable

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Figures based on total area of crops and fallow land (including 'set aside' land in 2007-8) and total area of crops and grass.
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show the proportion of crops and grass area which is arable (%), all other values show change in percentage points.

Region	2007	2014	2007-14
Scotland	**32.92**	**31.05**	**-1.67**
NE Scotland	**52.98**	**52.97**	**-0.01**
Aberdeenshire	50.16	50.93	0.77
Banff and Buchan	54.60	55.35	0.75
Buchan	50.61	50.35	-0.26
Formartine	61.61	61.43	-0.19
Garioch	48.11	47.93	-0.19
Kincardine and Mearns	57.07	60.46	3.39
Marr	31.54	32.51	0.98
Aberdeen City	37.15	32.88	-4.27
Angus	72.16	70.45	-1.71
Glens and Uplands	17.09	11.12	-5.96
South and East Angus	83.57	83.82	0.25
Strathmore	70.32	71.72	1.40
Moray	40.58	38.63	-1.95
Keith and Cullen	38.80	37.71	-1.09
Laich of Moray and Forres	59.54	59.25	-0.29
Speyside and Glenlivet	19.39	17.57	-1.81

4.1.6 Total Cash Crop Area

The total area of cash crops (mainly cereals, oilseeds, potatoes, vegetables, fruit) increased by roughly 12% across Scotland between 2007 and 2014 almost totally due to the ending of compulsory set aside following the Health Check of the previously decoupled CAP regime in 2008/9. The increases over Aberdeenshire, Angus and Moray were similar.

It is interesting to note that there is still over 3,500 ha of fallow recorded in the NE in the census of 2014 despite there being no set aside regime. This area will have increased greatly in 2015 as a result of the new 5% Environmental Focus Area requirement for larger arable producers.

Table 16. Total area of cash crops

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figures used for Scotland data.
Cash crops are all crops except areas of fallow and set aside land, and fodder crops. 2007 and 2014 figures in ha, all others show percentage change.

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**498,426.75**	**558,534.62**	**9.87**	**-1.02**	**-2.79**	**3.99**	**1.03**	**-0.31**	**1.21**	**12.06**
Aberdeenshire	131,840.91	150,830.75	10.64	-2.06	-3.67	5.25	1.99	0.77	1.31	14.40
Angus	60,442.55	68,893.36	9.28	0.09	-1.31	3.45	0.30	0.07	1.70	13.98
Moray	22,018.29	24,477.15	7.12	1.31	-8.60	7.17	4.30	1.23	-0.95	11.17

Table 17. Total area of fallow and set aside land

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figures used for Scotland data.
Note that set aside land is only included in 2007 and 2008 totals, data for other years refers to fallow land only. 2007 and 2014 figures in ha, all others show percentage change.

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**77,518.46**	**11,909.74**	**-58.53**	**-31.04**	**-1.04**	**-31.36**	**2.80**	**2.28**	**-24.77**	**-84.64**
Aberdeenshire	19,781.90	2,335.16	-58.97	-30.61	6.98	-47.61	3.07	6.80	-32.80	-88.20
Angus	6,581.62	561.07	-68.83	-45.25	47.08	-56.36	0.57	38.34	-44.05	-91.48
Moray	3,710.50	610.57	-56.62	-62.03	72.14	-36.63	-14.40	15.69	-7.51	-83.54

4.1.7 Cereals

Cereals are by far the most important arable crop across the three NE local authority areas and as set aside disappeared almost all that area went into cereals rather than grass or other arable crops (see table 18). However, there has also been a slow, but steady increase in the cereal area, especially in Aberdeenshire, in more recent years. This likely reflects the high cereal prices throughout the 2010 to 2013 period.

Table 18. Total area of cereals

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change

in area.

Region	2007	2014	2007-14
Scotland	**403,897.68**	**462,123.03**	**14.42**
Aberdeenshire	110,753.67	131,074.54	18.35
Angus	41,402.80	48,460.72	17.05
Moray	19,153.90	21,861.27	14.13

Table 19 shows that there has been a marked change in the proportion of winter cereals (comprising mainly winter wheat, winter barley and some winter oats). In the previous NE study covering 2003 to 2007 the proportion of winter sown cereals increased by 7% (to almost 30%) for the NE region and by over 8% (to 32%) in Aberdeenshire. However, over this study period (2007 to 2014) the winter cereal proportion has declined by around 6% for the NE as a whole. The drop is less in Angus (4.34%) reflecting it's better soils and climate. Over Scotland as a whole the change is less dramatic.

Winter cereals make up almost 40% of the total in Angus, just over a quarter in Aberdeenshire, but only 11% in Moray. Cash cropping dominates in lowground Angus, demanding a cereal rotation to maintain yields and spread workload. The soils and climate also allow high yields of winter cereals without the penalty of a late harvest. In Aberdeenshire mixed grass and grain systems would be complicated by too many crop types and winter wheat harvest is later and more risky. In Moray the predominantly light soils don't favour wheat, but these soils and the mild micro-climate produce excellent spring sown malting barley for the local distilling industry.

The switch to spring barley in the NE reflects the boom in the whisky industry and the premium prices paid up to 2013 for malting barley.

Table 19. Proportion of cereals that are winter sown

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Winter sown cereals are defined as wheat, winter barley and winter oats. The cereals total is not the total used above, but instead is the winter cereals plus spring barley and spring oats.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show percentages, 2007-14 is % change.

Region	2007	2014	2007 - 14
Scotland	**40.42**	**36.78**	**-3.65**
Aberdeenshire	32.64	26.52	-6.12
Angus	43.13	38.79	-4.34
Moray	17.24	10.82	-6.42

Tables 20, 21 and 22 show the trends in the individual cereal crops. The winter wheat area has increased in Aberdeenshire and Angus, which tells us that the big reduction in the swing away from winter cereals has been in winter barley, which has become an expensive crop with only a small yield advantage over spring cereals and no premium markets. The exception is Moray where wheat has declined by 25%. The main market for wheat in the northern half of Scotland was the Invergordon grain distillery, but it switched to maize when grain prices were at their peak. This

switched northern wheat from being the most expensive in the UK to being the cheapest due to the cost of transport south. Table 21 shows that the old set aside area mainly went into spring barley which is the dominant crop across the NE. Oats are a minor crop which have declined in Angus and Moray, though they have held their own in Aberdeenshire assisted by the milling outlet at Boyndie. The oat area is volatile, often grown to fill the gap left by winter cereals where these could not be established in a wet autumn, as was the case in 2012.

Table 20. Total area of wheat

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data.
Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**102,743.63**	**109,022.92**	**6.11**
Aberdeenshire	14,174.62	15,292.60	7.89
Angus	12,880.71	13,736.49	6.64
Moray	1,894.55	1,427.94	-24.63

Table 21. Total area of barley

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Figures in ha, '2007-14' shows percentage change.

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**278,644.13**	**326,884.32**	**14.82**	**3.82**	**-12.58**	**6.22**	**7.66**	**2.14**	**-3.61**	**17.31**
Aberdeenshire	92,692.53	111,925.98	13.58	-1.42	-6.63	7.21	4.95	3.51	-0.83	20.75
Angus	26,017.89	32,792.25	16.54	5.02	-13.14	12.87	5.64	2.64	-3.13	26.04
Moray	16,030.43	19,731.61	11.31	2.17	-9.71	11.12	8.15	0.09	-0.34	23.09

Table 22. Total area of oats

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data.
Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**20,868.11**	**25,050.47**	**20.04**
Aberdeenshire	3,680.19	3,709.15	0.79
Angus	2,439.37	1,860.56	-23.73

Moray	1,089.15	695.00	-36.19

4.1.8 Oilseed Rape

Oilseed rape remains an important part of cropping farm rotations, but has declined as a proportion of the total cash crop area (10% of the Aberdeenshire total in 2007, 7% in 2014). The rape area has dropped by over 12% in Aberdeenshire and by almost 30% in Moray. In contrast, over the 2003 to 2007 period the Aberdeenshire rape area was basically static. Only in Angus has the rape area increased slightly, by 2.42%, which is similar to the overall Scottish position. Clubroot disease has become more of a problem in intensively cropped farms so there is a limit on how much the crop could expand even although prices recently have held up better than cereals.

Table 23 Total area of oilseed rape

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figures used in Scotland data.
Figures in ha, '2007-14' shows percentage change.

Region	2007	2014	2007-14
Scotland	**36,333.86**	**37,140.42**	**2.22**
Aberdeenshire	12,788.39	11,217.58	-12.28
Angus	5,212.79	5,338.96	2.42
Moray	893.25	633.73	-29.05

4.1.9 Potatoes

In 2014 the NE had 51% of the Scottish potato area. Angus alone has 31% of the national total.

In the face of a small overall Scottish decline (by approx. 3% between 2007 and 2014) the total potato area in the NE has shown little overall change, increasing by 1% and 4% in Aberdeenshire and Angus respectively and showing no change in Moray. The notable change is in the proportions of seed and ware potatoes. The last study showed that between 2003 and 2007 seed had come to dominate Aberdeenshire (74% of the total), while ware increasingly dominated in SE Scotland (70% of total area). Between 2007 and 2014 seed production has continued its advance in Aberdeenshire rising from 74% of the area to 81%. However, in Angus there has been a swing away from the dominance of ware, back to seed, increasing from 40% of the area in 2007 to 48% in 2014 i.e. the Angus seed area has increased by almost a quarter.

In Aberdeenshire and Moray potatoes are a minor crop occupying 3% to 4% of the total cash crop area (table 27). However, in Angus they occupy 13%. Given that a 1 year in 6 rotation (16% of the crop area) is recommended to reduce the risk of Potato Cyst Nematode build up, Angus is almost saturated. This must act as a major brake on the shift towards seed and away from ware.

The ware market has become very tough, with especially low prices in 2014. When there is too much production in Scotland the surplus is expensive to transport south, there is no major local processing user, consumption doesn't respond to lower prices and so prices fall sharply. The potato market has always been cyclical, but the ups and downs have been sharper. In contrast the seed export trade has been growing and is seen as less price sensitive.

Table 24. Total area of potatoes (all)

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**29,318.05**	**28,510.62**	**-2.75**
Aberdeenshire	4,704.05	4,759.41	1.18
Angus	8,645.37	8,980.88	3.88
Moray	875.02	874.68	-0.04

Table 25. Total area of seed potatoes

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to d. isclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**11,450.14**	**13,299.79**	**16.15**
Aberdeenshire	3,503.47	3,844.78	9.74
Angus	3,470.12	4,269.25	23.03
Moray	670.37	639.87	-4.55

Table 26. Total area of ware potatoes

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**17,867.91**	**15,210.83**	**-14.87**
Aberdeenshire	1,200.58	914.63	-23.82

Angus	5,175.25	4,711.63	-8.96
Moray	204.65	234.81	14.74

Table 27. Proportion of cash crops area which is potatoes

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show percentages, all other values show change in percentage points.

Region	2007	2014	2007-14
Scotland	**5.88**	**5.10**	**-0.78**
Aberdeenshire	3.57	3.16	-0.41
Angus	14.30	13.04	-1.27
Moray	3.97	3.57	-0.40

4.1.10 Intensive Crops

Table 30 shows the total area of intensive crops. Removing the area of field vegetables (table 29) from this total gives us a feel for the total area of fruit. This suggests that there is 530 ha of soft fruit in Angus. Table 28 shows that only 99.66 ha of this fruit is uncovered – the rest is in tunnels. The uncovered area has fallen sharply while the tunnel area has increased by an even greater percentage.

There have been big percentage increases in field vegetable areas throughout the NE, and though it represents a small hectarage, it represents a large output value. Within the NE, Angus dominates having two thirds of the intensive crops and most of the soft fruit. Intensive crops account for 6% of the Angus arable area but only 1% and 2% of the Aberdeenshire and Moray areas respectively.

Table 28. Total area of uncovered soft fruit

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS,

Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Table 30. Total area of intensive crops

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Intensive crops are defined as the total area of field vegetables, soft fruits and glasshouses.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**13,693.50**	**18,713.23**	**36.66**
Aberdeenshire	1,383.70	1,800.77	30.14
Angus	3,620.53	4,904.09	35.45
Moray	522.11	567.95	8.78

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**1,786.96**	**674.14**	**-62.27**
NE Scotland	**465.34**	**124.72**	**-73.20**
Angus	349.30	99.66	-71.47

Table 29. Total area of field vegetables

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**11,778.37**	**16,262.21**	**38.07**
Aberdeenshire	1,278.25	1,579.73	23.59
Angus	3,215.78	4,373.82	36.01
Moray	512.64	540.72	5.48

4.1.11 Fodder Crops

There has been a steady decline in fodder crops for many years (for example the two previous Aberdeenshire studies noted this trend) and this has continued in the 2007 to 2014 period. The declines in Angus and Aberdeenshire approach 30% over the period, exceeding the national fall of 25%. Only in Moray have these fodder crops retained their place with an 8% increase. In Moray they account for almost 5% of the arable area, more than double the figure for the rest of the NE and above the 3% Scottish average.

With a large feed grain area and ample improved grassland to produce silage there is a reduced role for crops like swedes which are only competitive if grazed in the field. Moray however with its lighter soils suits outwintering of cattle and the strip grazing of brassica forage crops.

Table 31. Total area of fodder crops

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Fodder crops are the combined area of lupins, turnips and swedes for stock feeding, kale and cabbage for stock feeding, rape for stock feeding, other crops for stock feeding including cereal crops for silage, maize and fodder beet.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**24,721.90**	**18,573.50**	**-24.87**
Aberdeenshire	4,417.39	3,150.73	-28.67
Angus	947.98	654.59	-30.95
Moray	1,127.64	1,218.06	8.02

4.1.12 Improved Grass and Rough Grazing

Over the 2007 to 2014 period the reported area of improved grass (table 32) has fallen slightly in Aberdeenshire, but increased in Angus and Moray. The arable area didn't decline over this period,

so the Angus and Moray increases may be due to a reclassification of rough grazing into improved grass and indeed the rough grazing areas in Moray and Angus have declined.

The improved grass area confirms the mixed nature of farming in Aberdeenshire – the grass area is almost exactly the same as the cash crop area (150,000 ha). In Angus the cash crop area is double the grass area, while in Moray the geographic scale of Speyside and Glenlivet means that the balance is exactly the opposite with the grass area double that of cash crops.

Table 33 shows the importance of crop:grass rotations in Aberdeenshire and Moray. In 2014 65% of the grass was under 5 years old in Aberdeenshire and 58% in Moray. In Angus the smaller area of grass is more likely to be on poorer areas and hence is ploughed less often – only 43% is under 5 years old. It is worth noting that there has been a very sharp decrease in the age of grass swards in Moray and Aberdeenshire, most of which seemed to happen in 2008/09, perhaps due to new grass being established on some of the previous set aside area.

Table 32. Total area of improved grass

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**1,235,149.36**	**1,308,129.28**	**5.91**
Aberdeenshire	155,014.95	150,633.73	-2.83
Angus	26,222.09	29,405.42	12.14
Moray	39,324.73	41,800.20	6.29

Table 33. Proportion of grass which is under five years old

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
2007 and 2014 figures are percentages, all others show change in percentage points

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**25.59**	**32.55**	**-0.90**	**5.85**	**0.16**	**-0.41**	**2.05**	**0.89**	**-0.69**	**6.96**
Aberdeenshire	43.55	65.60	-0.86	16.99	0.46	1.15	1.82	2.03	0.45	22.05
Angus	42.29	43.27	0.45	-3.78	2.27	-0.31	1.42	1.12	-0.18	0.98
Moray	41.68	58.07	-0.42	19.68	2.05	-2.29	2.00	0.38	-5.00	16.39

Table 34. Total area of rough grazing

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

Values: 2007 and 2014 show areas (ha), all other values show percentage change in area.

Region	2007	2014	2007-14
Scotland	**3,401,694.49**	**3,056,854.77**	**-10.14**
Aberdeenshire	170,236.41	148,484.42	-12.78
Angus	86,725.01	79,037.61	-8.86
Moray	68,389.19	64,971.06	-5.00

Table 35. Proportion of crops and grass area that is improved grass

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

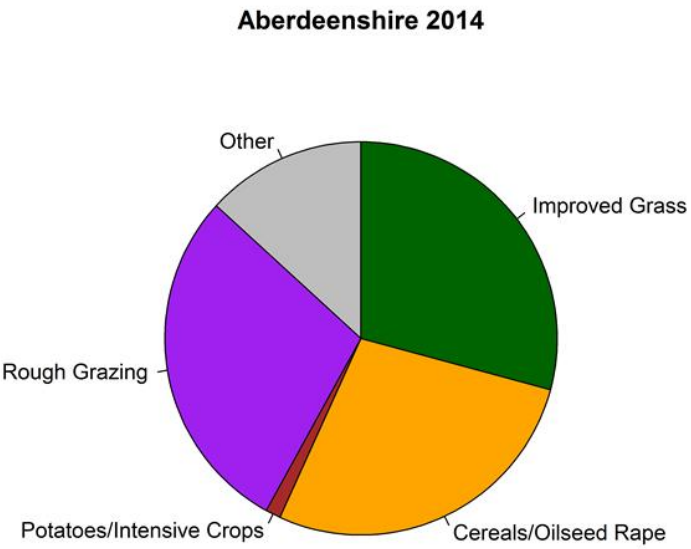
Values: 2007 and 2014 show percentages, all other values show change in percentage points.

Region	2007	2014	2007-14
Scotland	**67.08**	**68.95**	**1.87**
Aberdeenshire	49.84	49.08	-0.76
Angus	27.84	29.55	1.71
Moray	59.42	61.38	1.96

The three local authority areas within the NE study area can very roughly be summarized, in terms of major agricultural land uses, as follows;

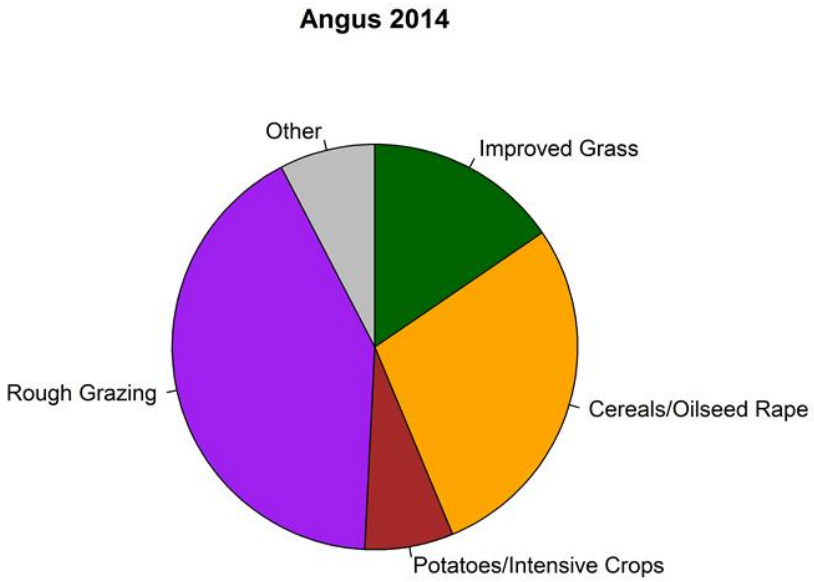
Aberdeenshire is a third each rough grazing, improved grass and arable.

Figure 2.Aberdeenshire Agricultural Land Use Breakdown



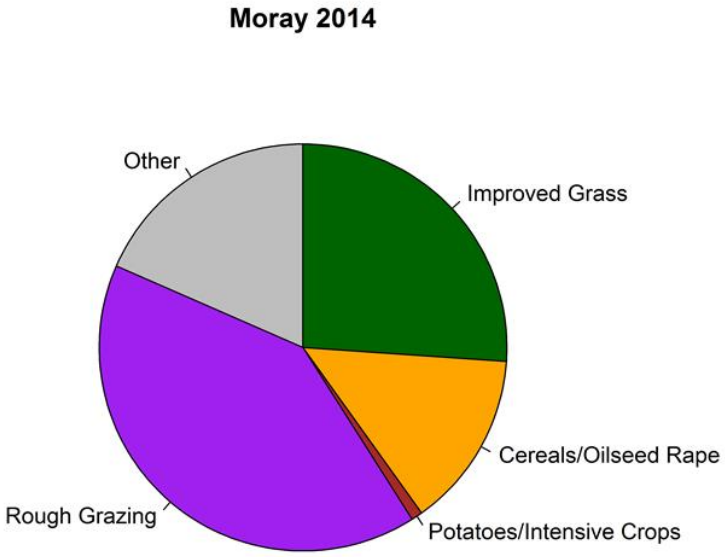
Angus is 40% rough grazing, 20% improved grass and 40% arable.

Figure 3. Angus Agricultural Land Use Breakdown



Moray is half rough grazing, a third improved grass and a fifth arable.

Figure 4. Moray Agricultural Land Use Breakdown



4.1.13 Total Cattle

Scottish total cattle numbers (table 36) have fallen by a little less than 1% per year since 2007. The North East reduction is only slightly less. Of the three local authority areas Aberdeenshire has declined least (3.62%) while Angus and Moray have seen decreases of 14% and 8% respectively. Only two of the sub-regions have seen an increase in cattle; Buchan by 17% and the area around Aberdeen City by 34% (but from a small base and small number of farms). Some areas such as the

Garioch, Laigh of Moray and South and East Angus have seen significant reductions of 12% to 16%. The Angus Glens and Uplands have seen a fall of a third.

Table 36. Total cattle

Data: 2007 figure from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. 2014 figure derived from Cattle Tracing Scheme data, included within the Agricultural Census data tables. Figures show number of animals, '2007-14' shows percentage change

Region	2007	2014	2007-14
Scotland	**1,898,538**	**1,793,356**	**-5.54**
NE Scotland (inc. Aberdeen City)	**424,784**	**402,834**	**-5.17**
Aberdeenshire	297,105	286,335	-3.62
Banff and Buchan	33,595	32,310	-3.82
Buchan	46,754	54,693	16.98
Formartine	63,885	57,090	-10.64
Garioch	37,408	31,241	-16.49
Kincardine and Mearns	40,085	39,306	-1.94
Marr	75,378	71,695	-4.89
Aberdeen City	5,811	7,772	33.75
Angus	50,826	43,677	-14.07
Glens and Uplands	8,351	5,534	-33.73
South and East Angus	15,887	13,897	-12.53
Strathmore	26,588	24,246	-8.81
Moray	71,042	65,050	-8.43
Keith and Cullen	25,102	23,659	-5.75
Laich of Moray and Forres	21,293	18,266	-14.22
Speyside and Glenlivet	24,647	23,125	-6.18

4.1.14 The Beef Breeding Herd

In the previous 2003 to 2007 study the Aberdeenshire suckler herd had only reduced by 1%, significantly less than elsewhere in Scotland. Decoupling of support from headage payments had only just been introduced in 2006 and its impact is probably reflected in the 2007 to 2014 period of this table. In contrast to the previous period, suckler cow numbers have fallen at the same rate in the NE and Aberdeenshire as in Scotland as a whole (all around 7%). The Moray breeding herd decline is slower (5%) and the Angus decline higher (10%). Every sub-region has shown a decline, except Buchan, Formartine and Keith and Cullen. The Angus Glens, Marr and Garioch have shown the biggest reductions (36%, 12%, 17% respectively), but there isn't a clear difference in direction between lowground and upland areas. Neither is there any particular year in which the reductions took place, though there seem to be more increases and signs of stabilization in 2011 onwards.

Table 37. Total suckler cows

Data sources: 2007-2012 information from June Agricultural Census data. Data tables

courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Cattle figures 2014 are derived from Cattle Tracing Scheme data, included within the Agricultural Census data tables. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**472,224**	**436,526**	**-7.56**
NE Scotland (incl. Aberdeen)	**108,252**	**101,095**	**-6.61**
Aberdeenshire	71,074	65,890	-7.29
Banff and Buchan	7,719	7,464	-3.30
Buchan	7,264	7,446	2.51
Formartine	10,422	10,581	1.53
Garioch	9,907	8,210	-17.13
Kincardine and Mearns	9,791	9,293	-5.09
Marr	25,971	22,896	-11.84
Aberdeen City	974	1,518	55.85
Angus	13,781	12,424	-9.85
Glens and Uplands	3,212	2,064	-35.74
South and East Angus	3,959	3,902	-1.44
Strathmore	6,610	6,458	-2.30
Moray	22,423	21,263	-5.17
Keith and Cullen	6,726	6,998	4.04
Laich of Moray and Forres	5,790	5,213	-9.97
Speyside and Glenlivet	9,907	9,052	-8.63

When the total beef breeding herd is considered (cows plus heifers, see table 38) the reduction is more pronounced for all three areas.

These trends are of course negative, but given the complete freedom decoupling gave to farmers to change the scale of their suckler herds without affecting their SFP, and the generally negative Net Margins for suckler herds when subsidy was excluded, and that the good grain prices over much of this period presented an attractive alternative in some areas, it is perhaps surprising that the NE suckler herd reduction has not been much greater than 7%.

Table 38. Beef breeding herd

Data sources: 2007-2012 information from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Cattle figures for 2014 are derived from Cattle Tracing Scheme data, included within the Agricultural Census data tables.
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**606,778**	**522,782**	**-13.84**

NE Scotland	**139,879**	**123,435**	**-11.76**
Aberdeenshire	92,705	81,569	-12.01
Banff and Buchan	10,020	9,382	-6.37
Buchan	10,701	10,318	-3.58
Formartine	14,401	13,773	-4.36
Garioch	14,318	10,345	-27.75
Kincardine and Mearns	12,166	11,293	-7.18
Marr	31,099	26,458	-14.92
Aberdeen City	1,375	1,826	32.80
Angus	17,402	14,782	-15.06
Glens and Uplands	3,874	2,350	-39.34
South and East Angus	5,146	4,701	-8.65
Strathmore	8,382	7,731	-7.77
Moray	28,397	25,258	-11.05
Keith and Cullen	9,023	8,553	-5.21
Laich of Moray and Forres	7,244	6,432	-11.21
Speyside and Glenlivet	12,130	10,273	-15.31

Table 39 shows which areas are most reliant on breeding cattle. Unsurprisingly it is the upland sub-regions of Marr, Angus Glens and Speyside where around 40% of the cattle are breeding stock. Buchan and Formartine – major finishing areas – have the lowest proportions of breeding cattle.

Table 39. Proportion of cattle in beef breeding herd

Data sources: 2007 figure from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Cattle figures for 2014 are derived from Cattle Tracing Scheme data, included within the Agricultural Census data tables.

Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show percentages, all other values show change in percentage points.

Region	2007	2014	2007-14
Scotland	**31.96**	**29.15**	**-2.81**
NE Scotland	**32.93**	**30.64**	**-2.29**
Aberdeenshire	31.20	28.49	-2.72
Banff and Buchan	29.83	29.04	-0.79
Buchan	22.89	18.87	-4.02
Formartine	22.54	24.13	1.58
Garioch	38.28	33.11	-5.16
Kincardine and Mearns	30.35	28.73	-1.62
Marr	41.26	36.90	-4.35
Aberdeen City	23.66	23.49	-0.17
Angus	34.24	33.84	-0.39
Glens and Uplands	46.39	42.46	-3.92
South and East Angus	32.39	33.83	1.44

Strathmore	31.53	31.89	0.36
Moray	39.97	38.83	-1.14
Keith and Cullen	35.95	36.15	0.21
Laich of Moray and Forres	34.02	35.21	1.19
Speyside and Glenlivet	49.21	44.42	-4.79

4.1.15 Finishing Cattle

Note that we have presented feeding cattle numbers only up to 2012. After this date the cattle numbers were not collected from the census forms, but from the Cattle Tracing Scheme (CTS). The CTS promises much better accuracy, but does not provide categories of livestock which we could compare directly to what was recorded in census forms to 2012.

There had been a concentration of Scotland's feeding cattle in Aberdeenshire over the 2003 to 2007 period (June census numbers increased from 108,000 to 112,000 while the rest of Scotland showed declines). However, in the 2007 to 2012 period Aberdeenshire feeder numbers fell by over 9%, though this is lower than for Scotland as a whole. The decline was much greater in Angus (18%) and Moray (16%).

Aberdeenshire dominates feeding cattle in the North East with over 101,000 head (78% of the total). This is 26% of the Scottish total. In 2007 38% of the cattle in Aberdeenshire were feeders and this proportion had only fallen by 1% by 2012. 55% of the cattle in Buchan and only 15% in the Angus Glens are finishing cattle.

The reduction in the number of feeding cattle is inevitable if breeding cow numbers are falling across Scotland. However, it is worth noting that the change in the numbers of feeding cattle may be distorted by a shift to faster finishing after the end of headage payments. For example male spring born suckled calves finished as bulls by 14 months of age will never appear in the June census as finishing cattle. In the past these may have been kept to 24 months of age to collect two Beef Special Premium payments.

Table 40. Total feeding cattle

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2012 show numbers of animals, all other values show percentage change.

Region	2007	2012	2007-12
Scotland	**432,754**	**386,940**	**-10.59**
NE Scotland	**145,763**	**129,322**	**-11.28**
Aberdeenshire	112,124	101,479	-9.49
Banff and Buchan	12,545	11,432	-8.87
Buchan	25,450	24,844	-2.38
Formartine	29,372	21,903	-25.43
Garioch	11,910	11,990	0.67
Kincardine and Mearns	14,180	13,861	-2.25

Marr	18,667	17,449	-6.52
Aberdeen City	2,405	2,013	-16.30
Angus	15,624	12,720	-18.59
Glens and Uplands	1,055	1,148	8.82
South and East Angus	5,898	4,551	-22.84
Strathmore	8,671	7,021	-19.03
Moray	15,610	13,110	-16.02
Keith and Cullen	8,273	6,795	-17.87
Laich of Moray and Forres	4,202	3,882	-7.62
Speyside and Glenlivet	3,135	2,433	-22.39

Table 41. Proportion of cattle that are feeding cattle

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2012 show percentages, all other values show change in percentage points.

Region	2007	2012	2007-12
Scotland	**22.79**	**21.64**	**-1.16**
NE Scotland	**34.31**	**33.01**	**-1.30**
Aberdeenshire	37.74	36.62	-1.11
Banff and Buchan	37.34	34.46	-2.89
Buchan	54.43	55.15	0.71
Formartine	45.98	40.06	-5.92
Garioch	31.84	33.64	1.81
Kincardine and Mearns	35.37	35.01	-0.36
Marr	24.76	25.30	0.54
Aberdeen City	41.39	40.10	-1.29
Angus	30.74	28.08	-2.66
Glens and Uplands	12.63	15.76	3.13
South and East Angus	37.12	32.42	-4.70
Strathmore	32.61	29.28	-3.34
Moray	21.97	20.38	-1.59
Keith and Cullen	32.96	30.19	-2.76
Laich of Moray and Forres	19.73	20.03	0.30
Speyside and Glenlivet	12.72	10.84	-1.88

4.1.16 The Dairy Herd

Note that some caution should be exercised in the interpretation of the changes in dairy cattle numbers between 2007 and 2014. The 2007 figures were derived from the June Agricultural Census returns while the 2014 figures are derived from the Cattle Tracing Scheme. We cannot be sure that we are comparing like with like. However, we can have some confidence in the trend.

There were only a little over 11,000 cows on NE Scotland farms as at June 2014. This was only 5% of Scotland's dairy cows and a massive 49% drop since 2007. Over that period the number of dairy cows in Scotland as a whole, if the data comparison is correct, had also declined but by half the NE rate. This continues the 2003 to 2007 trend when Aberdeenshire cow numbers fell by 16% while Scottish numbers were roughly static. Dairies are a rare sight in the NE, making up less than 3% of total cattle numbers. Dairying has become concentrated in SW Scotland where dairy cows make up a quarter of total cattle numbers.

Three quarters of the NE dairy cows are in Aberdeenshire where the drop between 2007 and 2014 was 41%. The bigger reductions were in Angus (44%) and especially Moray where the herd fell by 84%. There are little over 600 dairy cows in Moray.

Anecdotally we believe there were increases in cow numbers in some sub-regions due to expansions of individual herds; for example in Buchan, Kincardine & Mearns and Strathmore. The small numbers of herds involved mean that we cannot disclose cow numbers in some sub-regions.

Table 42. Dairy breeding herd

Data: 2007 figure from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. 2014 figure derived from Cattle Tracing Scheme data, included within the Agricultural Census data tables. Figures show number of animals, '2007-14' shows percentage change

Region	2007	2014	2007-14
Scotland	**286,698**	**218,476**	**-23.80**
NE Scotland (inc. Aberdeen City)	**21,801**	**11,084**	**-49.16**
Aberdeenshire	14,101	8,256	-41.45
Aberdeen City	774	518	-33.07
Angus	3,059	1,707	-44.20
Moray	3,867	603	-84.41

Table 43. Proportion of cattle in dairy breeding herd

Data: 2007 figure from June Agricultural Census data. Data

tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. 2014 figure derived from Cattle Tracing Scheme data, included within the Agricultural Census data tables. Figures show percentages, '2007-14' shows change in percentage points

Region	2007	2014	2007-14
Scotland	**15.10**	**12.18**	**-2.92**
NE Scotland (inc. Aberdeen City)	**5.13**	**2.75**	**-2.38**
Aberdeenshire	4.75	2.88	-1.86
Aberdeen City	13.32	6.66	-6.65
Angus	6.02	3.91	-2.11
Moray	5.44	0.93	-4.52

4.1.17 Sheep

Total sheep numbers are declining faster than cattle numbers in both Scotland and our NE study area. Ewe numbers have fallen by 11% in Scotland, 8% in Aberdeenshire, 12% in Angus and 2% in Moray. Sheep are a relatively small enterprise in the NE carrying only 11% of the Scottish total (10% of the breeding ewes). Unsurprisingly upland areas like Marr, Speyside and the Angus Glens carry a lot of sheep, especially ewes, but lowland areas of Aberdeenshire also have substantial numbers - for example Formartine has more ewes than the Angus Glens and Uplands region.

Note that the June census data will not capture the number of store lambs finished in each region. This is an important enterprise on many lowground farms, often alongside cattle finishing. In December total sheep numbers could be very much higher than in June in lowland regions.

There are some major sub-regional differences, but these do not seem to follow the expected pattern of decline in hill sheep, increase in upland. The biggest reductions in ewe numbers are in Buchan (25%), Angus Glens (15%), the Mearns (14%) and Keith/Cullen (13%). There has been no change in the hill/upland Speyside area and small increases (1% - 3%) in Formartine, Garioch and South East Angus.

The reduction in ewe numbers has not been accompanied by an improvement in lambing % from the remaining ewes. The lambs per ewe figures are fairly static. The best areas have a lambs per ewe figure of 1.55 (lowground) and the worst 1.15 (hill). The NE average is 1.44.

Overall breeding sheep are perhaps most resilient in some of the very mixed farming areas, but the picture is very mixed in the main upland/hill regions.

Table 44. Total sheep

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**7,498,216**	**6,692,621**	**-10.74**
NE Scotland	**814,644**	**751,310**	**-7.77**
Aberdeenshire	499,344	460,821	-7.71
Banff and Buchan	60,943	55,584	-8.79
Buchan	56,981	46,819	-17.83
Formartine	82,004	76,220	-7.05
Garioch	57,017	57,628	1.07
Kincardine and Mearns	47,435	42,925	-9.51
Marr	194,964	181,645	-6.83
Aberdeen City	6,362	5,270	-17.16
Angus	151,194	130,507	-13.68
Glens and Uplands	81,985	68,073	-16.97
South and East Angus	23,619	21,660	-8.29
Strathmore	45,590	40,774	-10.56
Moray	157,744	154,712	-1.92
Keith and Cullen	33,117	28,936	-12.62
Laich of Moray and Forres	23,393	23,898	2.16
Speyside and Glenlivet	101,234	101,878	0.64

Table 45. Total breeding ewes

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**2,919,571**	**2,604,185**	**-10.80**
NE Scotland	**294,509**	**272,207**	**-7.57**
Aberdeenshire	177,793	163,847	-7.84
Banff and Buchan	21,812	19,784	-9.30
Buchan	20,666	15,512	-24.94
Formartine	27,546	28,265	2.61
Garioch	20,012	20,613	3.00
Kincardine and Mearns	17,769	15,340	-13.67
Marr	69,988	64,333	-8.08
Aberdeen City	2,503	2,175	-13.10
Angus	54,952	48,374	-11.97
Glens and Uplands	31,784	27,145	-14.60
South and East Angus	7,517	7,620	1.37
Strathmore	15,651	13,609	-13.05
Moray	59,261	57,811	-2.45
Keith and Cullen	12,431	10,811	-13.03
Laich of Moray and Forres	8,702	8,745	0.49
Speyside and Glenlivet	38,128	38,255	0.33

Table 46. Total lambs

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**3,677,279**	**3,270,509**	**-11.06**
NE Scotland	**422,169**	**391,413**	**-7.29**
Aberdeenshire	261,062	243,061	-6.90
Banff and Buchan	32,500	30,148	-7.24
Buchan	28,992	23,445	-19.13
Formartine	44,209	41,353	-6.46
Garioch	30,701	30,683	-0.06
Kincardine and Mearns	24,191	22,108	-8.61
Marr	100,469	95,324	-5.12
Aberdeen City	3,278	2,747	-16.20
Angus	74,542	63,410	-14.93
Glens and Uplands	38,031	31,293	-17.72
South and East Angus	12,856	11,552	-10.14
Strathmore	23,655	20,565	-13.06
Moray	83,287	82,195	-1.31
Keith and Cullen	18,542	16,746	-9.69
Laich of Moray and Forres	12,708	13,103	3.11
Speyside and Glenlivet	52,037	52,346	0.59

Table 47. Lambs per ewe

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2014 show the number of lambs per ewe, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**1.26**	**1.26**	**-0.29**
NE Scotland	**1.43**	**1.44**	**0.31**
Aberdeenshire	1.47	1.48	1.03
Banff and Buchan	1.49	1.52	2.27
Buchan	1.40	1.51	7.74
Formartine	1.60	1.46	-8.84
Garioch	1.53	1.49	-2.97
Kincardine and Mearns	1.36	1.44	5.86
Marr	1.44	1.48	3.22
Aberdeen City	1.31	1.26	-3.56
Angus	1.36	1.31	-3.37
Glens and Uplands	1.20	1.15	-3.66
South and East Angus	1.71	1.52	-11.36
Strathmore	1.51	1.51	-0.02
Moray	1.41	1.42	1.16
Keith and Cullen	1.49	1.55	3.85
Laich of Moray and Forres	1.46	1.50	2.60
Speyside and Glenlivet	1.36	1.37	0.26

4.1.18 Pigs

Of all the sectors, perhaps pigs have had the most upheaval over the last 7 years. In the 2003 to 2007 period pig numbers in Aberdeenshire had been fairly stable, but since 2007 they have dropped by 100,000 head (37%) due to the feed cost:pig price squeeze and the exit of the Vion pig breeding and finishing business from the NE. The impact in Moray is even greater with a fall of 63% from over 46,000 pigs in 2007 to only 17,000 in 2014. In Angus pig numbers have been much more stable, registering only a 4% drop in numbers. Some sub-regions have seen massive change with Banff and Buchan numbers down 82% and Formartine down 62%, many being finishing pigs which are either no longer being produced or are shipped south as weaners rather than being finished locally. Only Kincardine and Mearns has registered an increase, of almost 40%. Pigs are mainly found in the lowground arable areas of the NE near to feed grain supplies.

The NE is still an important pig rearing area, carrying 67% of Scotlands pigs (52% Aberdeenshire, 10% Angus, 5% Moray), though its share has fallen from 74% in 2007. The pressures on the pig sector are described in detail in the agri-processing section of this report.

Table 48. Total pigs

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figure used in Scotland data.
Figures show number of animals, '2007-14' shows percentage change.

Region	2007	2014	2007-14
Scotland	**456,669**	**316,298**	**-30.74**
NE Scotland (inc. Aberdeen City)	**340,169**	**213,219**	**-37.32**
Aberdeenshire	260,542	164,210	-36.97
Banff and Buchan	37,803	6,928	-81.67
Buchan	24,840	22,878	-7.90
Formartine	108,599	41,520	-61.77
Garioch	42,299	31,189	-26.27
Kincardine and Mearns	34,487	48,204	39.77
Marr	12,514	13,491	7.81
Aberdeen City	51	44	-13.73
Angus	33,128	31,777	-4.08
Moray	46,448	17,188	-63.00

4.1.19 Poultry

The poultry sector in NE Scotland has declined. It accounted for 24% of the Scottish total in 2007, but 18.7% in 2014. While Scottish bird numbers increased slightly over the period they declined by over 17% in the NE. The SE of Scotland remains the major poultry area.

Angus carries a third of the NE total, but numbers have declined by 22%, compared to 10% for Aberdeenshire. Moray has been severely hit, with a 66% fall.

However, the totals hide two very different stories, as described in more detail in the agri-processing section of this report. The broiler industry (meat birds) has declined sharply. There is no significant scale non-organic broiler production north of Aberdeen – an enormous change since the days of Grampian Country Chicken (Aberdeenshire poultry numbers were 40% higher than the 2007 figure in 2005). The nearest processing plant is in Coupar Angus and it will only take birds from a limited radius. However, the traditionally smaller egg laying sector has been expanding, especially on the back of contract egg production for Farmlay near Strichen in Aberdeenshire, which helps explain the large increase in numbers in Buchan and Formartine.

Table 49. Total poultry

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**14,128,954**	**14,742,096**	**4.34**
NE Scotland	**3,346,725**	**2,762,400**	**-17.46**
Aberdeenshire	2,049,032	1,845,895	-9.91
Banff and Buchan	841,206	603,135	-28.30
Buchan	196,072	433,163	120.92
Formartine	393,015	492,012	25.19
Kincardine and Mearns	327,886	240,865	-26.54
Aberdeen City	4,118	2,564	-37.74
Angus	1,099,870	848,982	-22.81
Glens and Uplands	211	172	-18.48
South and East Angus	813,710	606,739	-25.44
Strathmore	285,949	242,071	-15.34
Moray	193,705	64,959	-66.46

4.1.20 Other Livestock

The “miscellaneous livestock” category in the June census picks up a surprising number of animals – deer, horses, goats, camelids, etc. Beehives are included. Large numbers of horses will not be included on the census forms. There are some large % increases for Angus and Moray, though from a low base in terms of actual numbers.

Table 50. Total miscellaneous livestock

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

The number of species in the “miscellaneous livestock” category within the JAC has

increased since 2007; the 2014 total represents a sum of deer, horses and ponies, female goats, alpacas, llamas, other camelids and beehives (1 hive = 1 animal). Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.

Values: 2007 and 2014 show numbers of animals, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**42,899**	**52,790**	**23.06**
NE Scotland	**10,587**	**13,291**	**25.54**
Aberdeenshire	7,429	8,348	12.37
Banff and Buchan	890	1,030	15.73
Buchan	929	1,062	14.32
Formartine	1,722	1,798	4.41
Garioch	1,091	1,020	-6.51
Kincardine and Mearns	1,078	1,282	18.92
Marr	1,719	2,156	25.42
Aberdeen City	341	509	49.27
Angus	1,470	2,287	55.58
Glens and Uplands	80	96	20.00
South and East Angus	833	1,234	48.14
Strathmore	557	957	71.81
Moray	1,347	2,147	59.39
Keith and Cullen	470	582	23.83
Laich of Moray and Forres	309	554	79.29
Speyside and Glenlivet	568	1,011	77.99

4.1.21 Labour and Occupiers

As of June 2014 14,506 people were recorded as being employed or engaged in some way whether full time, part time, seasonal or casual, in agriculture in NE Scotland. In previous periods we had expected the total farm labour figure to drop slowly, but steadily, by about 1% per annum (for example 3.4% between 2003 and 2007), but if anything this rate of decline has slowed over the 2007 to 2014 period to only 0.37% per annum. The rate of decline in the NE is however higher than for Scotland as a whole.

There are big variations within the NE. The Aberdeenshire and Moray labour forces have dropped by 7% and 5% respectively, pretty much in line with the long term trend. However, the Angus labour force is going in the opposite direction, increasing by more than 10%. At the extremes the South and East Angus and Kincardine and Mearns labour forces have increased by 18% and 15% respectively while the core Aberdeenshire sub-regions have all cut labour by more than 10%, Banff and Buchan the most at -13%.

Table 51. Total farm labour

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Total farm labour is defined as working occupiers and spouses, and all regular casual and seasonal staff.

Values: 2007 and 2014 show numbers of people, all other values show percentage change.

Region	2007	2014	2007-14
Scotland	**67,152**	**66,296**	**-1.27**
NE Scotland	**14,892**	**14,506**	**-2.59**
Aberdeenshire	9,229	8,578	-7.05
Banff and Buchan	1,489	1,298	-12.83
Buchan	1,342	1,207	-10.06
Formartine	2,025	1,766	-12.79
Garioch	1,325	1,175	-11.32
Kincardine and Mearns	1,247	1,440	15.48
Marr	1,801	1,692	-6.05
Aberdeen City	292	290	-0.68
Angus	3,431	3,796	10.64
Glens and Uplands	185	187	1.08
South and East Angus	2,270	2,668	17.53
Strathmore	976	941	-3.59
Moray	1,940	1,842	-5.05
Keith and Cullen	560	517	-7.68
Laich of Moray and Forres	773	714	-7.63
Speyside and Glenlivet	607	611	0.66

The proportion of this total labour force (farmers and employees) which is part-time/seasonal/casual has remained fairly static at around 58% in the NE, 61% in Scotland (table 51). The part-time proportion has been static in Moray and Aberdeenshire and increased slightly in Angus. The intensive crop areas in Kincardine and South and East Angus have seen the biggest increases in part-time working (but within a growing workforce) and almost three quarters of the workforce is part-time in SE Angus.

Table 52. Proportion of total farm labour that is part time, seasonal or casual

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Note that part-time business partners are not included in the total of part-time labour.

Values: 2007 and 2014 show percentages, all other values show change in percentage points.

Region	2007	2014	2007-14
Scotland	**60.93**	**61.27**	**0.34**
NE Scotland	**58.45**	**58.62**	**0.17**
Aberdeenshire	57.82	57.44	-0.38
Banff and Buchan	58.56	58.55	-0.01

Buchan	63.64	60.07	-3.57
Formartine	54.81	54.81	0.00
Garioch	62.26	60.60	-1.67
Kincardine and Mearns	51.96	56.11	4.15
Marr	57.02	56.38	-0.64
Aberdeen City	57.19	52.76	-4.43
Angus	62.72	63.91	1.19
Glens and Uplands	51.89	48.66	-3.23
South and East Angus	68.50	72.45	3.95
Strathmore	51.33	42.72	-8.61
Moray	54.07	54.13	0.05
Keith and Cullen	59.29	59.19	-0.10
Laich of Moray and Forres	50.97	50.42	-0.55
Speyside and Glenlivet	53.21	54.17	0.96

The rate of decline in the number of occupiers i.e. farmers, is accelerating (table 53). The NE decline is double that of Scotland as a whole and the annualized 2007 to 2014 Aberdeenshire decline is 60% higher than the 2003 to 2007 rate. The sub-regions with traditional mixed farming and smaller holdings – Banff and Buchan, Buchan, Formartine, Garioch, Keith and Cullen - are restructuring most rapidly with declines of 10% or more in the number of farmers. Areas with larger farms and intensive cropping are perhaps seeing the least change in farmer numbers.

Note that there were only 5,205 recorded working occupiers in the NE in 2014.

Table 53. Total occupiers

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figure used in Scotland data. Note that only working occupiers are included in these totals.
Figures show number of people, '2007-14' shows percentage change.

Region	2007	2014	2007-14
Scotland	**27,178**	**26,289**	**-3.27**
NE Scotland (inc. Aberdeen City)	**5,642**	**5,205**	**-7.75**
Aberdeenshire	4,003	3,656	-8.67
Banff and Buchan	659	586	-11.08
Buchan	629	549	-12.72
Formartine	838	741	-11.58
Garioch	588	549	-6.63
Kincardine and Mearns	445	435	-2.25
Marr	844	796	-5.69
Aberdeen City	111	108	-2.70
Angus	742	708	-4.58
Glens and Uplands	68	63	-7.35

South and East Angus	379	353	-6.86
Strathmore	295	292	-1.02
Moray	786	733	-6.74
Keith and Cullen	268	244	-8.96
Laich of Moray and Forres	252	238	-5.56
Speyside and Glenlivet	266	251	-5.64

While the number of occupiers has declined the full time/part time split amongst occupiers (table 54) has remained fairly static both in Scotland and the NE study area. Overall the NE is less part time than the Scottish average (55% versus 63%). In Aberdeenshire 57% of farmers are part time, in Moray 53%, but in Angus only 44%. In Angus the proportion who are part time has actually reduced since 2007, suggesting that the fall in farmer numbers was skewed toward part timers. Strathmore has the least part time farmers (39%) while the Garioch has the highest (64%). This difference pretty well matches the differences in holding size (116 ha versus 41 ha), farming intensity and availability of well paid off-farm employment.

Table 54. Proportion of occupiers that are part time

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figure used in Scotland data. Note that only working occupiers are included.
Figures show percentages, '2007-14' shows change in percentage points.

Region	2007	2014	2007-14
Scotland	**62.43**	**63.33**	**0.91**
NE Scotland (inc. Aberdeen City)	**55.71**	**55.04**	**-0.66**
Aberdeenshire	58.06	57.22	-0.84
Banff and Buchan	56.75	57.17	0.41
Buchan	65.02	61.75	-3.28
Formartine	55.61	54.12	-1.49
Garioch	65.14	64.30	-0.84
Kincardine and Mearns	53.48	54.02	0.54
Marr	53.79	53.89	0.10
Aberdeen City	61.26	61.11	-0.15
Angus	45.15	43.93	-1.22
Glens and Uplands	42.65	42.86	0.21
South and East Angus	48.55	47.88	-0.67
Strathmore	41.36	39.38	-1.97
Moray	52.93	54.02	1.10
Keith and Cullen	54.48	57.79	3.31
Laich of Moray and Forres	55.16	53.78	-1.38
Speyside and Glenlivet	49.25	50.60	1.35

The age structure of those recording themselves as occupier in the census forms (table 55) is deteriorating, with an increase in the proportion who are over 65 and a decline in the proportion under 55. This does not mean of course that there is not a young successor working on the farm or indeed working off the farm, but keen to return at some point. There doesn't seem to be any strong geographical pattern. For example there's a higher proportion of under 55 year old occupiers in the "declining" Angus Glens than in "dynamic" South East Angus.

Table 55. Changes in Age Structure of Occupiers 2007 to 2014

	Occupiers aged under 55 %		Occupiers aged over 65 %	
	2007	**2014**	**2007**	**2014**
Scotland	**47.41**	**43.12**	**24.71**	**30.53**
North East	**45.75**	**39.71**	**25.01**	**32.24**
Aberdeenshire	**45.94**	**39.39**	**24.33**	**32.44**
Banff and Buchan	42.94	36.69	25.04	35.67
Buchan	47.85	39.71	20.19	30.60
Fprmartine	49.28	39.68	25.18	33.33
Garioch	46.09	36.25	24.66	33.88
Kincardine	44.94	41.84	23.37	28.51
Marr	43.96	41.71	26.30	31.66
Angus	**41.44**	**35.19**	**28.83**	**41.67**
Glens	48.38	41.67	22.51	29.52
SE Angus	47.06	46.03	23.53	26.98
Strathmore	45.91	40.79	24.80	32.29
Moray	**51.86**	**41.78**	**19.32**	**26.71**
Keith and Cullen	42.88	40.11	30.28	32.47
Laigh of Moray	45.90	36.89	29.10	32.38
Speyside	45.24	42.44	27.78	28.57

While the number of occupiers i.e. farmers, has declined, in some regions sharply, the remaining farmers have in absolute terms employed slightly more labour (7.4% more in the NE, 5.3% more nationally). This is a big change from the 2003 to 2007 period when the number of staff fell by about 6% in Aberdeenshire and was static at a Scottish level. Angus has had by far the biggest increase in staff numbers (17%) while Aberdeenshire and Moray increased by around 2%. Increases of 34% in Kincardine and 25% in South and East Angus tell the story of intensive cropping (soft fruit, vegetables, daffodils) and its need for lots of seasonal staff. High proportions of the staff in Angus, Kincardine (and the Laigh of Moray) are hired (85%, 77% and 75% respectively) rather than being family members. 90% are hired in South and East Angus. In contrast, in Aberdeenshire and Moray the family share of the total workforce is increasing, sharply so in Garioch and Keith and Cullen.

Table 56. Total regular, casual and seasonal staff

Data: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government. Scottish Government figure used in Scotland data. Occupiers and spouses are not included in these totals.

2007 and 2014 show number of people, all other figures show percentage change.

Region	2007	2014	2007-8	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14	2007-14
Scotland	**25,938**	**27,314**	-2.97	4.09	1.99	1.98	0.82	1.02	-1.57	**5.30**
NE Scotland	**6,285**	**6,751**	-5.27	6.03	-1.06	4.43	0.54	2.59	0.34	**7.41**

(inc. Aberdeen City)										
Aberdeenshire	3,077	3,130	-4.13	2.71	1.52	2.83	2.12	-1.49	-1.63	1.72
Banff and Buchan	466	434	-4.08	2.91	1.09	5.16	-0.41	-8.42	-2.69	-6.87
Buchan	373	390	-6.97	4.03	0.55	4.13	9.52	-4.59	-1.27	4.56
Formartine	744	641	-14.92	-1.74	4.66	2.61	2.10	-5.43	-0.62	-13.84
Garioch	395	361	-15.70	9.01	-1.93	-1.97	6.30	-0.27	-2.43	-8.61
Kincardine and Mearns	589	791	18.34	4.16	3.99	4.11	-2.29	6.25	-3.06	34.30
Marr	510	513	-3.33	1.01	-2.41	1.44	3.04	0.39	0.59	0.59
Aberdeen City	130	138	19.23	-3.23	-6.00	4.26	-3.40	-19.72	21.05	6.15
Angus	2,329	2,719	-8.59	14.33	-8.26	12.40	-1.16	7.70	1.76	16.75
Glens and Uplands	83	85	-13.25	16.67	-2.38	6.10	-5.75	-7.32	11.84	2.41
South and East Angus	1,711	2,141	-9.70	15.99	-11.38	18.89	1.01	9.86	2.20	25.13
Strathmore	535	493	-4.30	8.98	0.90	-4.97	-8.04	1.83	-1.60	-7.85
Moray	749	764	-3.87	-2.92	13.88	-11.68	0.28	7.80	0.53	2.00
Keith and Cullen	148	154	1.35	-12.67	19.08	-4.49	-1.34	8.84	-3.75	4.05
Laich of Moray and Forres	395	374	-12.91	-2.62	8.66	-7.97	-2.39	11.31	2.75	-5.32
Speyside and Glenlivet	206	236	9.71	3.10	18.45	-20.65	5.48	2.16	0.00	14.56

In livestock areas with smaller farms like Buchan, Marr, Keith/Cullen and Speyside the majority (51% to 55%) of staff are family members (see table 57). In contrast 85% of the staff working on farms in Angus are hired, 90% in the South and East Angus sub-region. There are hugely different employment structures across the regions of the North East requiring very different management skills and creating different pressures.

Table 57. Proportion of regular, casual and seasonal staff that are hired

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
In addition to hired full- and part-time staff, casual and seasonal staff are also defined as hired.

Values: 2007 and 2014 show percentages, all other values show change in percentage points.

Region	**2007**	**2014**	**2007-14**
Scotland	**67.70**	**68.05**	**0.35**
NE Scotland	**70.87**	**70.72**	**-0.15**
Aberdeenshire	62.04	60.58	-1.47
Banff and Buchan	62.66	57.83	-4.83
Buchan	53.08	47.44	-5.65
Formartine	69.49	63.18	-6.31
Garioch	65.57	53.74	-11.83
Kincardine and Mearns	67.23	77.12	9.88
Marr	48.43	48.93	0.50
Aberdeen City	76.15	76.81	0.66
Angus	84.76	84.92	0.16
Glens and Uplands	62.65	62.35	-0.30

South and East Angus	87.67	90.05	2.38
Strathmore	78.88	66.53	-12.35
Moray	63.02	60.60	-2.42
Keith and Cullen	52.70	44.81	-7.90
Laich of Moray and Forres	79.24	75.13	-4.11
Speyside and Glenlivet	39.32	47.88	8.56

Table 58. Proportion of regular, casual and seasonal staff that are part time

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Part time business partners are not included in the total of part time staff.

Values: 2007 and 2014 show percentages, all other values show change in percentage points.

Region	2007	2014	2007-14
Scotland	**45.80**	**47.65**	**1.85**
NE Scotland	**48.04**	**51.09**	**3.05**
Aberdeenshire	38.74	42.11	3.37
Banff and Buchan	40.56	42.63	2.07
Buchan	39.95	41.28	1.34
Formartine	37.23	38.53	1.30
Garioch	38.23	36.84	-1.39
Kincardine and Mearns	39.39	49.68	10.30
Marr	38.04	38.79	0.75
Aberdeen City	39.23	33.33	-5.90
Angus	64.53	65.98	1.45
Glens and Uplands	45.78	38.82	-6.96
South and East Angus	70.89	75.48	4.58
Strathmore	47.10	29.41	-17.69
Moray	36.45	38.09	1.64
Keith and Cullen	37.84	35.71	-2.12
Laich of Moray and Forres	34.68	36.90	2.21
Speyside and Glenlivet	38.83	41.53	2.69

The proportion of employed staff who are part time (table 58) has increased slightly over the 2007 to 2014 period (2% increase at Scottish level, 3% in the NE). Across the NE there are major differences, matching the geographic distribution of intensive crops: 42% are part time in Aberdeenshire, 38% in Moray, 66% in Angus. 75% of employees in South and East Angus are part time.

Table 59. Contract labour: average number of person working days worked

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Figures show the mean number of person working days worked by contract labour, for holdings reporting contract labour.

Values: 2007 and 2014 show mean person working days, all other values show percentage change in averages.

Region	2007	2014	2007-14
Scotland	**34.69**	**49.34**	**42.24**
NE Scotland	**29.26**	**47.53**	**62.46**
Aberdeenshire	24.65	42.91	74.10
Banff and Buchan	20.45	34.57	69.02
Buchan	18.66	42.79	129.29
Formartine	30.62	55.56	81.45
Garioch	31.40	28.81	-8.26
Kincardine and Mearns	30.76	88.91	189.09
Marr	17.40	17.18	-1.22
Aberdeen City	19.84	30.57	54.02
Angus	47.89	64.25	34.15
Glens and Uplands	16.21	38.78	139.24
South and East Angus	59.01	59.70	1.17
Strathmore	44.93	74.52	65.84
Moray	31.22	53.13	70.17
Keith and Cullen	15.78	23.58	49.42
Laich of Moray and Forres	50.53	97.10	92.18
Speyside and Glenlivet	23.18	21.78	-6.05

Contract labour (table 59) may be a difficult concept for some of those filling in agricultural census forms and the migrant labour category was quite recently added to the census, so the figures probably need some caution in interpretation.

Contract labour usage, very often organized through the Machinery Rings, has increased at a Scottish and NE level, but is increasing much faster in the NE. The use of contract labour does not match the location of intensive crops as much as it matches the distribution of areas with very busy harvests (and high usage of machinery rings) – Kincardine and Mearns, Strathmore and Laigh of Moray. On average a business in the NE which reports using contract labour, uses a month and a half each year, which implies that some businesses use a lot of contract workers. Ringlink, the main machinery ring in the study area, reported having 500 contract workers out on the busiest day of 2015 and 100 tractor drivers with trailers carting potatoes on the busiest day of the potato harvest.

Those businesses which report using migrant labour (table 60), use a lot of contract labour – on average about 1,155 days (231 man weeks) for Angus businesses. The figures suggest that at a Scottish level those businesses using migrant labour are using them more, but in the NE those using migrant labour are scaling back usage.

Table 60. Migrant labour: average number of person working days worked

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

Figures show the mean number of person working days worked by contract labour, for holdings reporting migrant labour.

Note that some information below may differ from other published data. Some totals have been suppressed due to disclosure control.

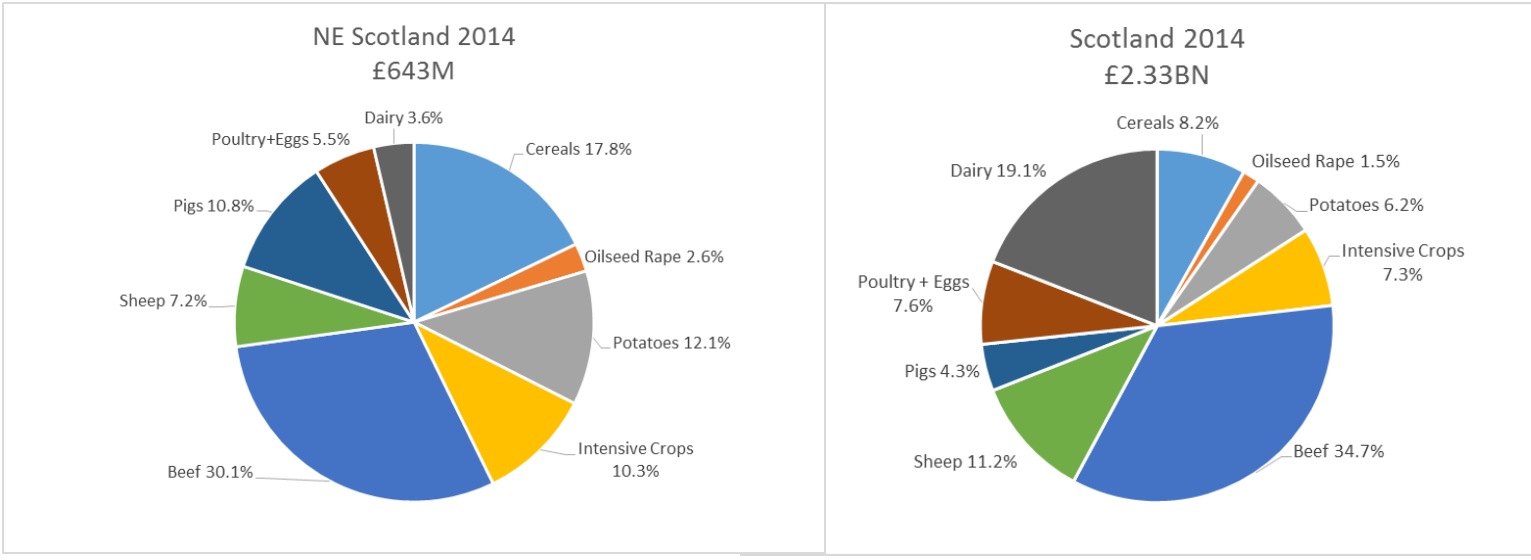
Values: 2007 and 2014 show mean person working days, all other values show percentage change in averages.

Region	2010	2014	2010-11	2011-12	2012-13	2013-14	2010-14
Scotland	**1,692.54**	**1,969.47**	**-4.54**	**39.81**	**2.86**	**-15.24**	**16.36**
Aberdeenshire	1,102.51	398.28	-45.58	4.09	-6.72	-31.64	-63.87
Angus	1,695.50	1,155.58	-25.63	201.24	-52.84	-35.49	-31.84
Moray	480.40	353.60	-12.99	13.72	76.04	-57.74	-26.39

4.2 AGRICULTURAL OUTPUT ESTIMATES

A simple model was prepared to estimate the value of the main agricultural outputs from Aberdeenshire, Angus and Moray in comparison to Scotland as a whole. The results are shown as pie charts below. Output was modelled using data from the June Agricultural Census, the Economic Report on Scottish Agriculture (ERSA), and technical data from a range of sources including the SRUC Farm Management Handbook and QMS Enterprise Costings. The models included estimates of internal movements and internal consumption. This included the numbers of store cattle and sheep moving in and out of each area, and calculations for the quantities of production consumed on the farm and within the area e.g. home-saved barley seed and feed. Our Scottish output figure differs from the ERSA figure for 2014 (over £3Billion) due to the exclusion of capital formation, other agricultural activities, non-agricultural activities, and minor crops and livestock. We only wanted to model the output of the main farming enterprises so that a comparison could be made on the nature of production value in each of the three local authority areas. Note that no subsidies are included and the NE total excludes agricultural output within the Aberdeen City boundary. The estimates use 2014 prices, so enterprise shares of total output value will have changed since.

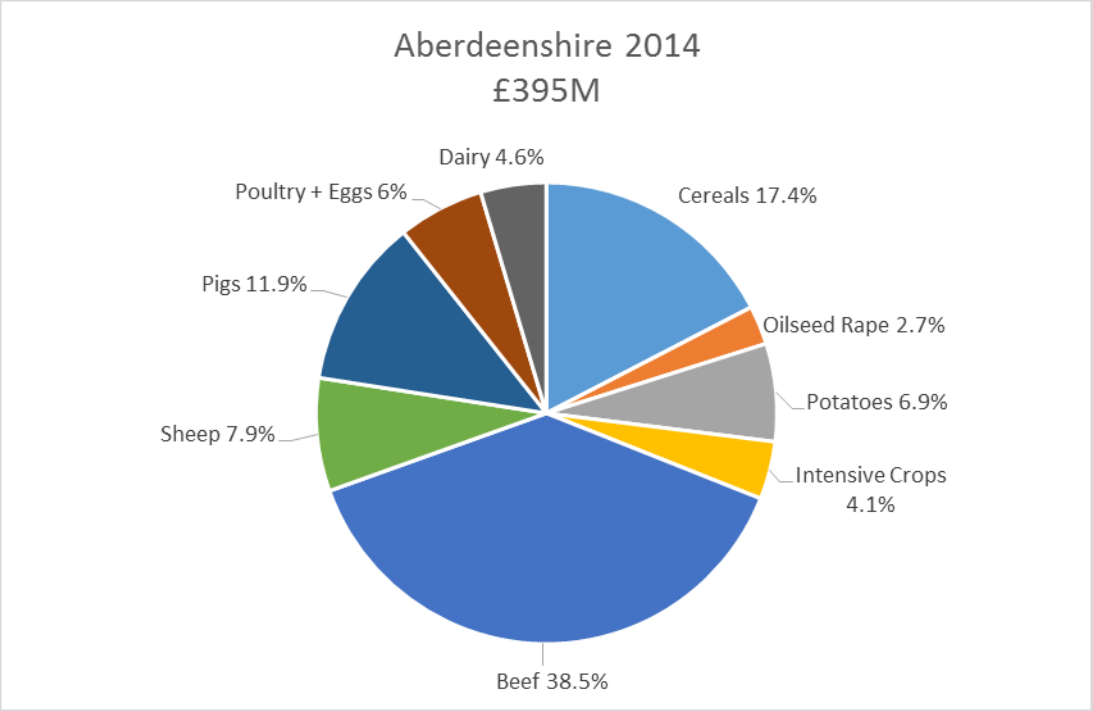
Figure 5. Individual Enterprise Shares of total NE and Scottish Agricultural Output 2014, excluding subsidies.



Beef and cereals have dominated NE output (providing almost 50% of the £643M total), especially in recent years of high grain and cattle prices. However, it is worth noting that a few hundred pig, potato and intensive crop producers have a disproportionately large impact on regional output due

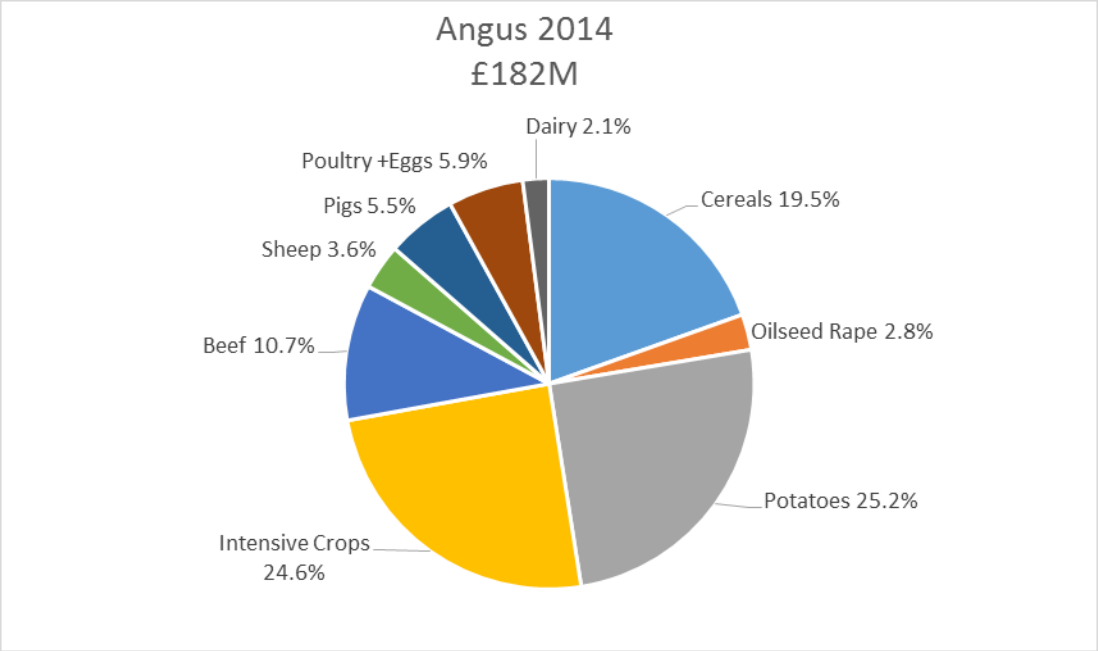
to their high productivity per head and high value per hectare. In Scotland as a whole, milk is much more important, but pigs and all types of cropping much less so.

Figure 6. Estimated Aberdeenshire Agricultural Output Structure Excluding Subsidies 2014



For Aberdeenshire total output in 2014 for the main enterprises is estimated at around £395M (Figure 6). Beef dominates output in Aberdeenshire, reflecting the number of cattle bought into the county for finishing. Given Aberdeenshire's large cereal area, grain output might have been expected to be higher, but a large proportion, perhaps 30% to 40%, is retained for feeding. However, crop sales still constitute almost a third of the area's output. It is worth noting that intensive livestock enterprises (eggs, broilers, dairy, pigs), though operated by few producers, account for more than a fifth of output.

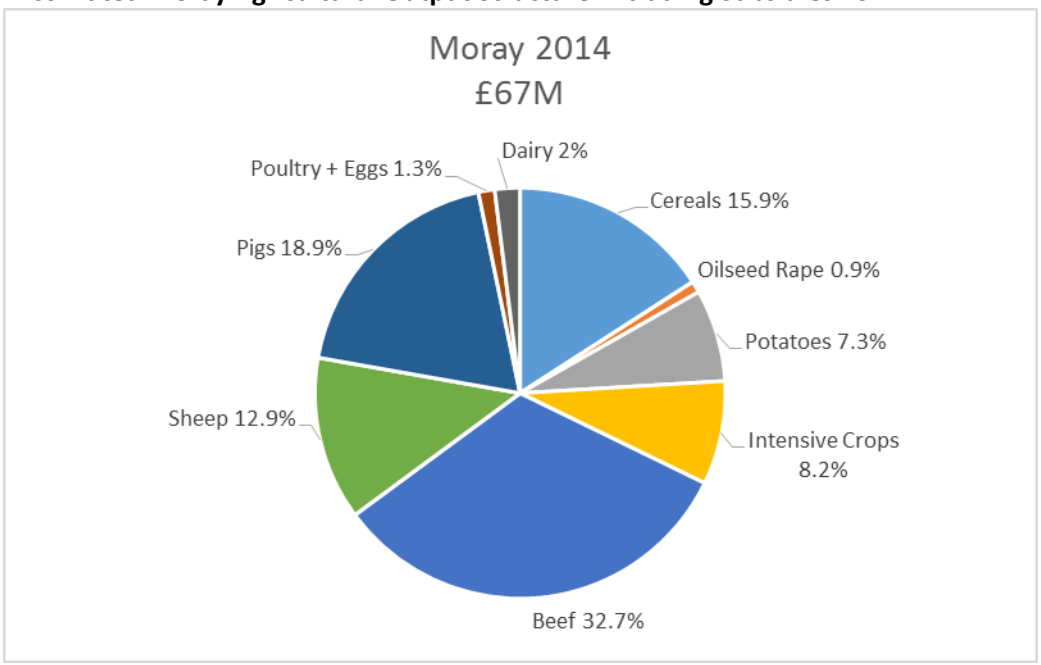
Figure 7. Estimated Angus Agricultural Output Structure Excluding Subsidies 2014



While the farmland area of Angus is roughly 40% rough grazing, 20% improved grass and only 40% arable, in terms of output (Figure 7) this is very much a cropping area. The high output per hectare of potatoes and intensive fruit, vegetable and flower crops means that these generate around 50% of regional output (estimated total output £182M in 2014). Cereals and oilseed rape provide another 22%.

Unlike Aberdeenshire, beef production in Angus is relatively insignificant as a share of regional output. Intensive livestock (mainly pigs and poultry) on arable units is more important.

Figure 8. Estimated Moray Agricultural Output Structure Excluding Subsidies 2014



Like Aberdeenshire, Moray is a very mixed farming area, and like Aberdeenshire beef dominates providing around a third of regional output (Figure 8). Sheep are more important than in the rest of the NE, reflecting the large numbers in Speyside and Glenlivet. Cereals and other crops occupy a

similar share of regional output, as in Aberdeenshire. Pigs, though with numbers declining sharply, provided a very significant share of output in 2014, while poultry output is heading towards zero. Total Moray agricultural output for the major crop and livestock enterprises, at around £67M in 2014, is a third of the Angus level, reflecting the smaller arable area, large rough grazing area and smaller scale of intensive cropping and livestock in the area.

4.3 STRUCTURE AND PERFORMANCE OF THE FARM WOODLAND SECTOR IN NE SCOTLAND

4.3.1 Introduction

There are three major challenges in identifying and enumerating the farm woodland sector in north east Scotland. First, the ***farm sector*** is an increasingly heterogeneous entity making the identification of an explicitly farm woodland sector ever more difficult. Second, ***farm woodland*** is also a very heterogeneous entity, ranging from open semi-derelict woodland used as sacrificial areas for out-wintering stock with no silvicultural management whatsoever, to productive woodland with varying degrees of management. A third challenge is to establish the extent of recent changes in farm woodland cover because different public sector estimates for farm woodland area change vary greatly.

In Aberdeenshire, Moray and Angus, farmed land ranges from large, highly productive farms to hobby farms, to the in-hand farmed parts of estates and from very high quality farmland, to extremely extensively managed land, often in association with sporting use. Given the growing tendency for some estates to reassume control of tenanted farms and conduct in-hand or arm's length farming operations with commercial partners (such as the Wellcome Trust (formerly Co-op farms) or neighbouring commercial farms) the definition of 'farm' is becoming increasingly problematic. Non-contiguous holdings under common management may be thought of as a number of discrete farms but nonetheless may be managed as a single business entity. The owner occupier single farm owner may be the predominant type of holding but there is a diverse range of ownership and management structures additional to that of the stereotypic farmer.

A working definition of farm woodlands might be considered as those woodlands about which management decisions are made by the same person who manages the co-located farmland. This would exclude estate woodlands with separate management structures and amenity woodlands around country residences, but include the woodlands on hobby farms. However, many hobby farms now resemble small estates in that they are by definition not primarily commercial and exist, *inter alia*, to provide attractive amenity space and multifunctional use benefits for the owner. We thus define farm woodland as any woodland coterminous with farmland where the same person/household who runs a farm business makes decisions about its use, and where the woodland is part of an agricultural holding. It may be used for a variety of purposes, including agriculture (winter shelter, agroforestry) or game management or timber production or any combination thereof.

Farm woodland is also highly heterogeneous in character. Woodland (forest) in the UK is defined as land under stands of trees with a canopy cover of at least 20% (Forestry Commission, accessed 2015)[1]. Up until the late 1980s, there was very little active management of most farm woodland which was more a relict feature of a former rural economy than an integral functional part of the farms, although use for sport shooting and firewood was common practice. These woodlands comprise:

[1] http://www.forestry.gov.uk/website/foreststats.nsf/byunique/sources.html

- the shelter belts widely planted in the 19th century on the estates at a time when almost all farmland was tenanted;
- some patches of commercial woodland that had been part of estates but is now within owner occupied farms;
- pockets of scrub woodland on steep banks or boggy sites with low agricultural potential; and
- since 1989, when new grants were introduced, new farm woodlands, most of which are productive conifers but which also include some broadleaved woodlands. However, many of these notionally 'productive' woodlands have experienced little active management, although first thinning might well have been desirable by now from a silvicultural perspective.

The bulk of forest and woodland in north-east Scotland is either in the public sector or is in mixed land use estates with a concentration in the upland fringe on the eastern edge of the Grampians in mid and upper Deeside, mid and upper Donside and in both lowland and upland parts of Moray. There is less woodland in Angus than in the other two council areas although there are modest concentrations in Montreathmont and in some of the Angus glens. There are amenity woodlands around many of the estate houses and parklands and a mixture of shelter belts and forested areas which are concentrated on the larger landholdings.

The substantial wood supply chain and contracting services in the region exist to take advantage of the substantial commercial forest estate rather than farm woodland. The productive forests create a degree of concentration of woodland-related businesses in the region from advice to nurseries to contracting services, machinery suppliers and processors, to sawmills and wood energy companies. The connected wood energy boiler suppliers/heating engineering sector (the woodfuel supply chain) could also be regarded as part of the forest-related rural economy. These provisioning, processing and advisory sectors potentially provide goods and services to farm woodland owners and buy from the farm sector, although the farm sector is almost certainly more closely connected to the woody biomass energy and nursery sectors than other parts of the wood supply chain. Indeed,, the farm sector tends to be much closer to agricultural advisory services than forestry advisors. Further, the size and scale of commercial forestry harvesting and extraction equipment may make it unsuitable for use on individual small pockets of farm woodland.

4.3.2 A short historical perspective

As defined above, that is woodland managed coterminously with farmland by the same owner/manager/land use decision maker, farm woodland really only became significant with the growth of owner occupiedfarms from the early 20th century. Previously woodland had always been a landlord's asset, which meant it was managed by the estate and not the farmer. This right to woodland even included individual trees. This historical and contemporary feature of Scottish rural property law has often been said to create negative attitudes to woodland by working farmers, especially tenants. The three counties of Aberdeenshire, Moray and Angus all still have a mix of tenanted and owner occupied farms. In some cases, for example the Crown Estate at Glenlivet, the landlord has given tenants the right to manage woodland and benefit from the sales of forest products, but this remains an exception rather than the norm in tenancy agreements. In the upland fringe and hill areas, where farm woodland potential is relatively high, tenancy is a more common tenurial form than in the lowlands.

After centuries of decline in the area of native forest from the early middle ages, from the early 19th century Scottish landowners began to develop plantation forestry and this, combined with the

residual areas of native pinewoods in Deeside and Speyside, created the core of the private forest estate that was then added to by the state forestry sector after 1919. The Forestry Commission acquired substantial holdings in Morayshire, West Aberdeenshire, mid Donside and the far eastern edge of the Grampians from the 1920s, mostly but not exclusively in the uplands, often alongside private estates with forests. From that time, there was a marked shift towards production forestry to meet a national strategic need. In Moray, coastal stabilisation was an important driver of state forest planting (as at Culbin) and shelterbelts are also important in mitigating wind-blown soil erosion on farms and estates. Elsewhere, apart from policy woodlands around big houses and adjacent patches of commercial woodlands, often on patches of poorer soil, shelter belt planting, mostly of beech or Scots pine, provides a significant visual feature in the north east landscape, with oak tending to replace beech in the Strathmore area. More recently, some farmers have developed shelter belts of faster growing exotic softwoods, usually using dedication schemes or forestry grants to finance the development.

Private forestry was supported after the Second World War by a so-called dedication scheme which committed woodland owners to manage their forests productively. Relatively few farmers participated, although many estates engaged in a comprehensive manner. These support schemes were changed into a forestry grant scheme in the 1980s with a shift in the emphasis of grants to support of native species, especially broadleaves, but also Scots pine. But it was only after the introduction of grant schemes specifically designed for farms in the late 1980s, which compensated farmers for the loss of farming income for periods up to 15 years, that farmers became more active in planting woodland. Two disastrous harvests in 1985 and 1987 encouraged many farmers to plant a crop where income was rather less related to inclement weather. Reputedly, banks were significant influences on the development of some farm woodland schemes, seeing a regular return over 10 or 15 years as more desirable than the uncertainty associated with farm crop products.

As well as being funded by the Scotland-wide woodland grant schemes and farm woodland premium schemes, some parts of north–east Scotland, in Buchan and flanking the A96 Aberdeen Inverness road have been supported by Challenge-funded forestry from the late 1990s for about five years which resulted in about 3,000 hectares of new commercial woodland (See Table 1 for a summary of relevant grant schemes). This produced larger blocks of commercial coniferous forestry (always with an obligatory broadleaf component), sometimes leading to whole farms or at least extensive areas of farms or estates being planted. These islands of new forestry often stand out in any aerial photo of north-east Scotland. The motivation for this planting was predominantly commercial - to diversify income sources, grow commercial forest and to take difficult land out of farm production were the dominant motives (Crabtree et al. 2004).[2] A similar shorter-lived scheme supported new native pinewood planting in Deeside and the Cairngorms but was aimed at regenerative forestry on undermanaged pinewoods and much less connected to farms. A further nation-wide scheme increased rates of grants around towns for both amenity and productive purpose and has been used in the region, for example near Inverurie.

Table 61. Summary of support for farm forestry in last 30 years

[2] CJC Consulting (2004) Economic Evaluation of the Central Scotland Forest and Grampian Challenge Funds Final report for Forestry Commission Scotland.

Time period	Nature of grant	Implications for NE Scotland farmers
1987-1992	Farm Woodland Scheme 1987-1992	WGS + farmland top up for income foregone. Attractive at time of difficult income situation
1992-2002	Woodland Grants Scheme + Farm Woodland Premium Scheme 1992-2002	WGS grant for planting and maintenance. FWPS offers annual payments for 10 or 15 years to compensate for the loss of agricultural income. Some engagement often by hobby farmers
1997-8 to 2002/3	Grampian Challenge Fund	Significant top up payments for commercial forestry in Buchan and along A 96 corridor (Farm woodland premiums often payable)
2003-2006	Scottish Forestry Grant Scheme + Farmland Premium	Scottish Forestry Grant Scheme + Farmland Premium. Essentially continuity of support to farmers
2006-2013	Scottish Forestry Grant Scheme + Farmland Premium	Some minor changes to Farmland Premium (from 15 to 12 years loss of income payment in 2012)
2015-	Suite of measures to support woodland creation, woodland restoration and woodland for climate change	Planting + maintenance grants but no farmland premium. Some uncertainty over farmer engagement with woodland grants alone

Recently, the Forestry Commission has been rationalising its estate. Several farms have been purchased by the Commission for planting in the Huntly-Rothiemay area and this has led to an outcry from farming interests seeking to retain this land in sole farming use.[3] However, it has also established a number of starter tenancies on some of the land[4]. At the same time, it has sold off a number of areas of woodland, for example in the Kemnay and Cushnie areas. It is not known whether these woodlands have been incorporated into farms. More likely they have become amenity woodlands owned by non-farmers.

4.3.3 Recent evidence on woodland planting and management

Structure of woodland ownership in Aberdeenshire Angus and Moray

There is a strong productive forest sector in upland Aberdeenshire and Moray but a much smaller forest estate in Angus. In both Aberdeenshire and Moray, there is a mix of state and private

[3] Scottish Farmer 4th October 2012

[4] Press and Journal 18th June 2015

woodlands, much of it on landed estates. The share of woodland on farms is limited but not insubstantial, but the share of productive farm woodland is much smaller. As more estates take in hand land for farming, so the historically clear distinction between estate and farm is blurring. As in the past more land was tenanted and woodland was a landlords asset, there was a stricter distinction between farm and estate woodland. The growth of owner occupancy (with embedded woodland in the holding) and hobby farming have further blurred the distinctions.

Farm woodland area in Aberdeenshire, Angus and Moray

The analysis of the datasets for farm woodland area has thrown up a significant challenge in that different public sector datasets show very different figures of the extent of farm woodland and rates of change (see tables 62 and 63 below). The datasets we interpret derive from the grant-aided farm woodland dataset and from the June Agricultural Census returns. The headline observation is that there is a greater than fourfold difference between the two datasets over a five year period with the June census figure showing a growth in the area of farm woodland of nearly 16,000 hectares between 2009 and 2014 in Aberdeenshire, Angus, Moray and Aberdeen City, and the grants dataset suggesting less than 4,000 hectares of funded planting over the same period.

The disparity merits explanation.

- Some of the increase may be in relation to estates taking formerly tenanted land in hand and declaring associated woodland on the June census. This strategic reorganisation is almost certainly a response to the threat of tenant right to buy under the Land Reform agenda. In consolidating their holdings, landowners may well have increased the declared area that is farmed as well as the declared area of farm woodland.
- The requirement to possess a land parcel identifier (LPID) when claiming grant on forest plans could explain the level of newly mapped/ registered woodland. The forest plans must cover all woodland on a holding; hence long established woodland habitats are maybe appearing on the stats for the first time.
- Some forestry agents may have been registering woodlands, just in case of potential future grant applications.
- Some of the increase may be real, reflecting planting without grants, most especially on hobby farms (but this is thought to be minimal).
- Some of the increase may represent purchases of woodland by established farmers from estates, often land that is now embedded in owner occupied holdings, but was initially retained by estates at the time of farmland sale of land to sitting tenants.
- Some of the increase may be declaration of pasture woodland as farm land, potentially to capture Single Farm Payment (SFP) under a flattened farm support regime (although loss of LFASS could also arise).
- Most of the purported increase in the June Census is considered by key informants and the author not to be a real increase in woodland planting but almost certainly represents a more realistic estimate of the area of existing low grade woodland associated with upland fringe farming, which is often used for rough grazing by farmers.

The reasons for the massive increase in June Census recorded woodland may merit further research. Some commentators argue that forestry land commands a much lower market price than farmland, not least because under forestry grant schemes the land is committed to forestry as a condition of the grant. This limits flexibility for the owner. However, if non-grant aided woodland is declared

there may be benefits in its inclusion in ecological focus areas or as land that might potentially attract SFP. Our suspicion is that farmers are now more willing to declare pasture woodland as farm woodland; and this woodland, most of which does not currently attract grant aid for forestry, provides a flexible resource which could be used for grazing or wood-fuel production. The increased area of farmland in the study area, in contrast to Scotland as a whole, suggests that rural land managers are now keener to declare farm woodland as part of their holdings than was the case in the past.

The Agricultural Census datasets show big regional variations in farm woodland cover (as a proportion of agricultural land area), with a range across the region from 5-15% by council area (in 2014) but even bigger variations if sub-areas are examined, with Keith and Cullen (Moray) and the Laigh of Moray and Forres the two areas with greatest woodland cover, with that in Keith and Cullen approaching 25% of the farmed area.

Table 62. Summary data on June Census changes in woodland area 2007-2014

Farm woodland areas and change in areas, reported as part of the June Agricultural Census					
Note that some information below may differ from other published data. No data is included from City of Dundee in the NE Scotland total due to disclosure control.					
Values: 2007, 2009 and 2014 show areas of farm woodland (ha) in those years, other data shows overall change in total farm woodland area (ha) between the years shown.					
Region	**2007**	**2009**	**2014**	**2009-14**	**2007-14**
Scotland	**279,850.96**	**350,835.9**	**479,359.12**	**128,523.22**	**199,508.16**
NE Scotland	**40,225.15**	**64,158.85**	**80,021.51**	**15,862.66**	**39,796.36**
Aberdeenshire	28,431.26	42,726.19	46,515.17	3,788.98	18,083.91
Banff and Buchan	3,273.38	2,990.85	3,308.71	317.86	35.33
Buchan	1,795.76	1,978.62	2,418.11	439.49	622.35
Formartine	2,801.68	3,657.93	4,196.84	538.91	1,395.16
Garioch	2,802.69	2,771.02	3,703.14	932.12	900.45
Kincardine and Mearns	2,107.96	2,439.79	2,797.29	357.5	689.33
Marr	15,649.79	28,887.98	30,091.08	1203.1	14,441.29
Aberdeen City	223.03	276.1	413.7	137.6	190.67
Angus	4,617.24	4,560.87	9,598.86	5,037.99	4,981.62
Glens and Uplands	1,121.23	1,319.15	2,239.28	920.13	1,118.05
South and East Angus	1,205.45	1,225.59	1,854.59	629	649.14
Strathmore	2,290.56	2,016.13	5,504.99	3,488.86	3,214.43
Moray	6,953.61	16,595.68	23,493.78	6,898.1	16,540.17
Keith and Cullen	913.88	1,321.88	6,428.13	5,106.25	5,514.24
Laich of Moray and Forres	2,609.14	5,681.06	6,397.52	716.46	3,788.38
Speyside and Glenlivet	3,430.59	9,592.74	10,668.13	1,075.39	7,237.54

Data source: June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.

More detailed information is available regarding new woodland planted (Tables 63 and 64). The mix varies from area to area.

Table 63. Total area approved for new planting under the SRDP, and Farmland Premium analysis

Data values: All areas are in hectares. Periods shown are based on claim years (the year planting is due to take place) and years noted in Farmland Premium data tables.

	Area approved for new planting: SRDP		Area of planting under Farmland Premium		Proportion of new planting under Farmland Premium (%)	
Region	**2009-14**	**2009-15**	**2009-14**	**2009-15**	**2009-14**	**2009-15**
Scotland	**35,121.57**	**39,670.96**	**22,779.98**	**26,482.84**	**64.86**	**66.76**
NE Scotland	**3,719.15**	**3,904.11**	**2,311.54**	**2,418.31**	**62.15**	**61.94**
Aberdeenshire	2,333.66	2,424.95	1,423.24	1,455.68	60.99	60.03
Banff and Buchan	111.02	111.02	86.25	86.25	77.69	77.69
Buchan	87.87	87.87	68.34	68.34	77.77	77.77
Formartine	166.53	166.53	124.36	124.36	74.68	74.68
Garioch	67.84	70.94	32.17	35.27	47.42	49.72
Kincardine and Mearns	225.19	232.15	136.74	143.70	60.72	61.90
Marr	1,639.67	1,710.42	948.97	960.87	57.88	56.18
Aberdeen City	65.30	65.30	3.10	3.10	4.75	4.75
Angus	430.73	487.74	306.25	345.52	71.10	70.84
Glens and Uplands	209.49	246.65	203.86	231.48	97.31	93.85
South and East Angus	84.00	87.00	8.39	11.39	9.99	13.09
Strathmore	105.32	122.17	62.08	70.73	58.94	57.89
Moray	819.93	856.59	520.94	556.00	63.53	64.91
Keith and Cullen	50.89	50.89	48.12	48.12	94.56	94.56
Laich of Moray and Forres	141.49	143.09	127.03	127.03	89.78	88.78
Speyside and Glenlivet	620.77	649.88	341.51	370.62	55.01	57.03

Data source: Data shown is derived from data downloaded from the Forestry Commission website (Woodland Creation Options – RDC) and tabular data provided by the Forestry Commission on the Farmland Premium scheme. Woodland Creation Options – RDC data © Crown copyright and database right 2015. Ordnance Survey Licence number 100021242 and tabular data © Crown copyright and database right 2015 Ordnance Survey 100021242. Woodland areas were allocated to local authority areas and sub-regions in North East Scotland using ESRI ArcGIS. No woodland linked to the City of Dundee was identified.

Table 64 Farmland Premium planting breakdown

Region	2009-14 Planting	Conifers	BL	BL-C ratio	2009-15 Planting	Conifers	BL	BL-C ratio
Scotland	**22,779.98**	**9,175.96**	**13,588.58**	**1.48**	**26,482.84**	**11,008.46**	**15,455.94**	**1.40**
NE Scotland	**2,311.54**	**1,194.09**	**1,115.75**	**0.93**	**2,418.31**	**1,226.99**	**1,186.62**	**0.97**
Aberdeenshire	1,423.24	769.18	654.06	**0.85**	1,455.68	778.93	676.75	**0.87**
Banff and Buchan	86.25	20.04	66.21	3.30	86.25	20.04	66.21	3.30
Buchan	68.34	5.55	62.79	11.31	68.34	5.55	62.79	11.31
Formartine	124.36	35.98	88.38	2.46	124.36	35.98	88.38	2.46
Garioch	32.17	6.01	26.16	4.35	35.27	6.01	29.25	4.86
Kincardine and Mearns	136.74	50.62	86.12	1.70	143.7	55.62	88.08	1.58
Marr	948.97	650.97	298	0.46	960.87	655.73	305.14	0.47
Aberdeen City	3.1	0	3.1		3.1	0	3.1	
Angus	306.25	133.22	171.33	1.29	345.52	135.93	204.89	1.51
Glens and Uplands	203.86	100.67	103.2	1.03	231.48	100.67	130.81	1.30
South and East Angus	8.39	3.35	3.35	1.00	11.39	3.35	3.35	1.00
Strathmore	62.08	17.61	44.47	2.53	70.73	20.32	50.41	2.48
Moray	520.94	267.63	253.31	0.95	556	288.07	267.93	0.93
Keith and Cullen	48.12	14.18	33.94	2.39	48.12	14.18	33.94	2.39
Laich of Moray and Forres	127.03	74.08	52.95	0.71	127.03	74.08	52.95	0.71
Speyside and Glenlivet	341.51	179.36	162.15	0.90	370.62	196.82	173.8	0.88

Data source: Data shown is derived from spatial/tabular data provided by the Forestry Commission on the Farmland Premium scheme. Data © Crown copyright and database right 2015 Ordnance Survey 100021242. Woodland areas were allocated to local authority areas and sub-regions in North East Scotland using ESRI ArcGIS. No woodland linked to the City of Dundee was identified.

Farm woodland has increased in North East Scotland in response to the post-1987 support structures. The recent increase has not been geographically even. The area of Aberdeenshire approved for new planting under the SRDP from 2009-14 was only equal to c. 0.4 % of the local authority area[5], with a similar figure for Moray, but the respective figure for Angus was only around 0.2 %. Table 3 shows that a considerable amount (over 40 %) of all approved new planting in the North East of Scotland is situated in the Marr sub-district of Aberdeenshire. The Farmland Premium data shows that Aberdeenshire farm woodlands were more likely to be coniferous whereas in Moray the extent of conifers planted was about the same as broadleaves and in Angus, broadleaved tree planting exceeded conifer planting. Broadleaved planting normally is associated with a greater emphasis on amenity than production. Over the longer term higher rates of coniferous planting probably reflect the increment to farm woodlands created by the Grampian Challenge scheme with its emphasis on productive woodland.

4.3.4 Key drivers

4.3.4.1 Actual

Woodland Planting Grants and Farm Woodland Premium Scheme

The emergence of farm woodland premia from the late 1980s provided a financial stimulus for farmers to engage with woodland planting. The presence of two very difficult harvesting years in 1985 and 1987 nudged farmers (sometimes with banks nudging them further) into taking on an enterprise with a fixed period of guaranteed return of 10 or 15 years. The increase in planting during the Challenge Fund period (1997-2002-3) was almost certainly financially motivated and a significant tranche of new planting occurred with Challenge funding. Farmland premium payments have been removed under SRDP 2014 – 2020. However, afforested land will continue to be eligible for the new basic payment scheme. Individual cases will determine whether the new basic payment is a sufficient incentive for new planting on farmland.

Agroforestry grants

Agroforestry grants have been included in the new 2014-2020 RDP. These include two options to support creation of small scale woodlands on agricultural pasture or forage land. This will allow for an integrated approach to land management where there is a mix of trees and sheep grazing. Each option relates to how many trees are planted per hectare:

- 400 trees per hectare
- 200 trees per hectare

Given that most current 'rough and ready' agroforestry comprises grazing of (or feeding ring in) existing low-grade woodland, no major changes are anticipated. Given the small target (in terms of available funds) and general reluctance of farmers to engage with woodland development of any type and a number of conditions that must be satisfied, high rates of uptake are extremely unlikely. Advocacy and support by forestry advisors who can relate to farmers might help to stimulate uptake.

More amenity and non-traditional farming landownership (biodiversity, sporting shooting, recreation)

A significant proportion of all farms sold and a smaller but by no means insignificant proportion of all land sold in North East Scotland in recent years has been sold to amenity buyers. The general wealth

[5] Local authority areas calculated from Agricultural Parish Boundaries (Scotland).

of the city region around Aberdeen and attractive landscapes in some areas generated strong interest in amenity-related land purchase. Such owners are widely considered to have a stronger predisposition to plant trees than core farmers. Amenity farming is probably concentrated in the Dee and Don valleys and on small- and medium-sized holdings. The high degree of part-time farming in Garioch has been noted elsewhere in this report. The recent slump in the oil-based economy may slow down the rate of amenity purchase of land; but could also potentially increase the intensity of hobby farming as people drop out of the oil industry.

RHI

The capacity to develop heat energy from wood products for household, diversified enterprise and farm enterprise heat production is well known. It has been significantly incentivised by the Renewable Heat Incentive (RHI)[6] which was introduced in 2011. Whereas previously many farmers dabbled with their woodland for conventional log production, the RHI requires state of the art boilers based on chip or pellet fuels and requires proper monitoring and recording of wood use. It is almost certainly a major driver of current farmer interest in woodland. The RHI is highly attractive financially, with reports of arable farmers paying off capital costs of grain drying installations in the first year of operation. As well as using woody biomass, it can use oilseed rape straw or other farm waste products. However, while it is a major incentive to manage existing woodland for woody biomass, by the time any newly planted woodland reaches harvest stage, rates of support will almost certainly have changed. The scheme is due for review in spring 2016. This may make it a weak incentive to plant new woodlands but a strong incentive to manage currently undermanaged woodland or other biomass resources.

Emergent co-ops or collaborative means for management extraction and marketing

SAOS have actively promoted farmer co-ops to provide management and contracting services for farm woodland. By the second decade of the new millennium it was increasingly apparent that many farm woodlands that had been grant aided since the late 1980s were in need of active management, but the farmer owners often had little silvicultural knowledge and were reluctant to rely on unknown and untrusted external sources of advice. At the same time, the growth of the woody biomass market and the incentives of RHI created a significant opportunity to exploit woodland. The legacy of recent investments in biomass heating systems will mean that they will continue to create demand for chips and pellets in spite of the recent decline in fuel oil prices.

Existing infrastructure (including advice)

Arguably the existence of an infrastructure of firms that provide advice, sales of equipment and contracting (including the machinery rings) provides a basis for the technical aspects of woodland management to be better supported. This is significantly strengthened by the entry of machinery rings as trusted intermediaries into woodland management and the wood energy supply chain.

Price

Price of wood products can be thought of as a weak driver of farm woodland creation, primarily because the revenues from timber fall so far into the future as to be discounted to a low (present value) sum. However, after years of low prices timber prices, the last 5-10 years have shown a marked improvement in prices and even in the last year or so, prices of both standing timber and sawlog sales have been strong (see Appendix 1). Price is likely to be more a driver of management of existing woodland than of new woodland creation. The rise of the woodchip and wood pellet

[6] Information on the domestic and non-domestic versions of the RHI is available from the OFGEM website: https://www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive, https://www.ofgem.gov.uk/environmental-programmes/non-domestic-renewable-heat-incentive-rhi

markets has also created a market for lower-grade wood and has put pressure on supplies to a large OSB manufacturer in north east Scotland. Given that the RHI offers a relatively long-term payment for burning renewable material, the strong prices for low-grade roundwood look set to remain for some time, but perhaps not long enough to guarantee returns on new planting.

4.3.4.2 Future Potential Drivers

Changes in levels of grants/SFP

It is not clear whether farmer interest in woodland creation is in any way related to the level of SFP. Intuitively it would seem likely that those who historically received a high SFP per ha would be less likely to afforest than those with lower SFP/ha, if afforestation meant loss (or even risk of loss) of SFP. However, the decision in the last RDP period to allow the SFP to be paid even if land was planted with trees is likely to have reduced the disincentive, as does decoupling, although the tapering in of the changes in the RDP are likely to reduce the stimulus. In practice, those farms with high per ha SFPs are likely to have more intensive operations and, as core productivist farmers, may well resist more extensive land uses such as trees. LFASS payments are relatively high on many Aberdeenshire, Angus and Moray farms and these are lost if land is planted with trees. This is likely to further discourage farm woodland planting. However, the basic support scheme for forestry remains in place and may still provide sufficient incentive for some farmers.

Payments for carbon sequestration

Should any payment system be established to parallel sequestration payments for moorland restoration, forest planting on new land would receive a major boost. Currently, DECC/DEFRA value the social cost of carbon at c £65 tonne. A payment of less than half this could be expected to stimulate very considerable afforestation. Although entirely economically logical and in tune with polluter pays/provider paid principles and with significant support from the European Union, this would most likely generate protest from the farming sector. Land-based sequestration does generates significant monitoring challenges but nonetheless merits serious attention in strategic thinking about land use.

Carbon taxes

Carbon taxes of a sort are already in place in some sectors which consume large amounts of energy but farms currently fall outwith the EU ETS. The CRC Energy Efficiency Scheme imposes charges by requiring participants to buy allowances for every tonne of carbon they emit (relating to electricity and gas), as reported under the scheme. As climate change issues continue to be headlined, it would seem only a matter of time before a widening of carbon taxes is introduced and payments for sequestration are offered. Scottish Government officers acknowledge the need for the land use sector to play a greater role in meeting emissions reduction targets. This would strongly favour tree planting over farming, especially on marginal land on gleyed wet upland soils. However, recent policy changes in renewables at UK level tend to suggest that climate change mitigation is rather less important than economic recovery and low energy prices.

4.3.5 Key constraints

4.3.5.1 Transaction costs

Non foresters have consistently complained about the high transaction costs of undertaking afforestation if grant aid is to be received. The so-called McRobbie report (CONFOR, 2008)[7] on the

[7] Report available at http://www.confor.org.uk/Upload/Documents/24_ConForSRDPReviewReport161208.pdf

2007-2013 SRDP forestry schemes was highly critical of the complexity of the application process. Even the new agroforestry scheme in the 2014-20 SRDP has detailed specifications on management obligations. Farmers tend to have trusted advisers but they are rarely experts on afforestation. Venturing outside their known world of farming imposes the transaction costs of obtaining reliable and useful information.

4.3.5.2 Lack of knowledge

Farmers often have very limited knowledge of forestry and woodland management. Many agricultural agents also have limited knowledge of forestry and are not able to provide advice in this area leaving possible options for farm forestry unexplored. Farmers are often reliant for work undertaken on contractors that they may well not know and whom they may not trust, simply because they are not part of the social and business networks of farming. Most agriculture students receive no, or almost no, training and education in forestry. Although there is a body of evidence on the benefits of shelterbelts and growing evidence of savings obtainable from farmers with trees through engagement with RHI, it is unlikely that this knowledge is on any normal agricultural curriculum.

4.3.5.3 Farmer antipathy and the dominant productivist farming discourse

There is widespread evidence of antipathy of some farmers to afforestation of farmland. The farming trade press is replete with letters of opposition to afforestation proposals on farm land. This antagonistic stance needs to be overcome, if the core farming community is to engage more fully with tree planting. It is not universally held by all farmers, but was strongly evident in focus group discussions.

4.3.5.4 Concern about risk of loss of SFP/LFASS

Although there is no loss of SFP when farmers plant land with trees, this has not always been the case and there is a constant suspicion that subsidies will be cut if trees are planted, even if the prima facie case for support for tree planting for environmental services (including climate mitigation) is almost as strong as any food security argument. Under the changes required for LFASS which will become Areas of Natural Constraint, the case for continued payment of support if land is afforested seems strong.

4.3.5.5 Lock in

Farmers who use grant aid to plant trees are effectively obligated to retain that land in forestry. This irks many farmers who may wish to retain flexibility in land use decision making. In many cases, it also effectively devalues their land price on the afforested area and reduces their overall asset value. There are clear precedents in the Flow Country of Caithness and Sutherland for changing from forest to moorland for biodiversity conservation. In the event of a stronger demand for food, it might be hoped that a more flexible policy would apply. Many pastures in north east Scotland were woodlands before the world wars and arguably there is a need for greater long-term flexibility on marginal farmland which is often technically appropriate for tree planting.

4.3.6 CONCLUSIONS

There is a strong and vibrant forest sector in north east Scotland in which farm forestry plays a very small but growing role. The large afforested estates and the state forests dominate the markets for sawlogs and woody biomass and are the core elements of a productive forestry industry. There is a significant processing sector in the region in Moray and Aberdeenshire and an associated set of contractors and haulage operators. Nonetheless, the farm sector has operated largely outwith this

infrastructure, with a few exceptions. There is however, potential for farms to engage more fully in woodland management and woodland creation.

Woodland often remains a dormant and/or neglected part of the farm enterprise mix. In 2014, almost 15 % of the farmed area in Moray is woodland, compared with 9 % of Aberdeenshire and 5 % of Angus (the overall figure for the North East of Scotland is just over 9 %). This is the proportion of farmland under woodland as recorded in the June Census. Most farm woodland is un-managed, and most consists of relict woodlands on poorer land that has not been incorporated into farm operations other than for rough or sacrificial winter grazing; and even the more recently planted grant-aided farm woodlands of the last 25 years are often largely unmanaged, although many have reached a stage in their rotation where management (especially thinning) is needed for silvicultural reasons. Some of the area of grazed and unmanaged woodland is likely to have high conservation values. The Challenge-funded forests are quite often in larger blocks and offer greater potential for commercial management.

Some exemplar farmers have engaged much more with their woodland resource for sawlog production and/or for woodfuel. A significant number are using wood as the energy source for grain drying. These engaged farms offer demonstration possibilities that could be used rather like monitor farms to nurture a deeper understanding and stronger involvement by farmers of the opportunities that farm woodlands offer.

In spite of growing interest and engagement in RHI, which is a highly profitable venture for farmers able to source woody biomass or farm wastes cheaply, it is unlikely to stimulate new planting to a significant degree because newly planted crops take 15 or more years to even reach a thinning age and grant aid is unlikely to be stable over such a period.

Beyond the farm/forest gate, a woody biomass supply chain has grown significantly in recent years and there has been considerable farmer uptake of RHI-supported heat production systems. The RHI can be used for both domestic and industrial heating and grain drying. Where farmers own woodland that can be used as feedstock for RHI supported grain drying very fast payback of capital invested is reported. Only some of this is contingent on farm woodland as a feedstock. Some smart RHI adopters will be using own-produced feedstocks for their boilers and a strategic appraisal of their assets may lead them to consider new planting or enhanced management of existing woods to increase yields to help ensure continuity and low cost of future supplies.

We should anticipate more policies to reduce emissions and address climate change in the medium term (but not expect too much too soon). The recent Paris COP agreement strengthens the obligation of countries to act and climate change mitigation through the SRDP remains a Brussels priority. The Scottish Government has reiterated its target of substantial new forestry in Scotland in the latest Land Use Strategy (2015). If significant attempts were made to address farm emissions, the growth of trees to offset farm emissions would be a very plausible strategy. It is not inconceivable that in the longer term, farm-level carbon accounting and sequestration incentives could lead to much more planting of trees, especially if carbon taxes were instituted. Increased farm woodland planting may thus be contingent on a much more aggressive policy to reduce emissions from the farm sector, which remains unlikely in the short to medium term, but is intuitively reasonable and closely in tune with wider climate mitigation targets. In the shorter term, woody biomass for heating is an obvious win-win strategy that delivers carbon savings and low cost heat, so continued support is likely, even if currently high rates of support cannot be sustained. Woody biomass displaces (mostly) oil emissions and over the life cycle is almost carbon neutral. However,

many support schemes are Westminster-based and vulnerable to political influences therefrom, which at present seem more likely to weaken than strengthen any commitment to address climate change through renewable heat or energy.

Given the low rates of planting and the significant aspirations and targets set in the Scottish Forestry Strategy and reiterated after the WEAG report, it seems unlikely that in the short to medium term there will be significant engagement in farm forestry from the core productivist farming community. However, amenity farms may be much more willing to plant trees and engagement with tree planting for amenity/environmental demands and heating is likely from this subset of farmland owners. Recent Defra work (Quick et al. 2013) suggests that segmentation of landowners followed by active targeting may be a way of increasing woodland cover and management.

Within the new SRDP there is a small tranche of money for agro-forestry and continued grants for farm woodland creation. These are likely to generate a trickle of engagement mostly through hobby farms and estates. Existing *ad hoc* outwintering strategies in areas with some tree cover as protection and where ground is sacrificed to avoid poaching better grazings is likely to remain the predominant form of woodland use by farmers. The transaction costs of engaging with agroforestry measures in the RDP may be rather high for many to engage.

The biggest barriers to planting new woodland are financial and attitudinal. Land that receives grant aid is legally committed to forestry and must be replanted after the rotation is complete. This is asserted to lower land values in many cases and reduces farmer flexibility. Additionally, the legacy of a predominantly tenanted farm structure in the past has created a farming community that is often less than enthusiastic about trees and woodland planting. These factors, coupled with an educational system that typically separates out forestry and agriculture as land uses, militates against good and active woodland management on farms.

There remain some uncertainties about the rate of change in farm woodland area. June Census figures show big recent increases but this is not substantiated by grant aid data. We consider that this merits further investigation by the Scottish Government. We are uncertain as to why *bona fide* farmers should want to register current IACS land as farm woodland rather than grazing, unless they have potential interests in woodland planting grants. We are sure that the increase in woodland area is much less than the recorded June Census data suggests. We suggest some possible explanatory factors but recommend that this is investigated further.

Overall, the contribution of woodland management and woodland products to mainstream commercial farming in the region is small, unless the notion of farm is widened to embrace the multifunctional estates which are such an important part of the rural land use mix in the region. Woodland is more likely to provide a fuel source for the average farmer (for space heating or grain drying) or part of a sport shooting enterprise rather than an income from sawlogs, but for the mixed use estates and a handful of commercial farms, sawlog sales will be an important part of the assortment of forest products.

Farm woodlands comprise nearly 10 % of the farm area in the study region. These woodlands have potential to contribute much more to amenity, income, climate change and biodiversity than has been realised to date. They are a dormant resource that needs awakening. A concerted programme of farmer engagement with woodland and woodland management, drawing on examples from respected farmers who have planted and managed woodland and who have engaged profitably with RHI could go some way to enhancing the considerable integrative opportunities between farming and forestry. Ideally, there should be a dual emphasis on woodland planting and woodland

management and attempts to give farmers the skills and the confidence to better manage their woodland resource. However, a step change in traditional farmer engagement may well need the additional fillip of payments for carbon sequestration or some form of taxation of emissions from farming.

4.3.7 References

Aberdeen City and Shire (2005) Forest and woodland strategy.

CJC Consulting (2004) Economic Evaluation of the Central Scotland Forest and Grampian Challenge Funds Final report for Forestry Commission Scotland. FC Accessed July 2015

CONFOR (2008) Recommendations for changes to the systems and operations of SRDP. A Forestry Perspective, ConFor SRDP Review Group (chair G McRobbie)
http://www.forestry.gov.uk/forestry/beeh-9vvczl

Quick, T., Smith, S., Johnson, M., Eves, C., Langley, E., Jenner, M., Richardson, W., Glynn, M., Anable, J., Crabtree, B., White, C., Black, J., MacDonald, C., and Slee, B. (2013). Analysis of the potential effects of various influences and interventions on woodland management and creation decisions, using a segmentation model to categorise sub-groups - Volume 4: Woodland creation segmentation and assessment of interventions. Defra, London.

Slee, W., Polson, R. and Kyle, C., (2013) Technical Advice on WEAG Recommendation 10: Integrating woodland management and farming, a report to the Forestry Commission

Stubbs, B., Moxey, A. and Yuill, B. (2011) Responding to the woodland creation targets in the Grampian Conservancy area: final report, Forestry Commission.

WEAG (2012) Report of the Woodland Expansion Advisory Group to the Cabinet Secretary for Rural Affairs and Environment, Richard Lochhead MSP

Farm Woodland Appendix

Table 65. Percentage Change in Sawlog Price Index UK March 2015

Changes over time up to March 2015	Nominal	Real
5 years	44.4%	32.2%
10 years	66.3%	32.4%
20 years	2.5%	-34.8%

Source: based on data within Forestry Commission (2015) Forestry Statistics 2015. Available at http://www.forestry.gov.uk/pdf/ForestryStatistics2015.pdf/$FILE/ForestryStatistics2015.pdf

Table 66. Change in Coniferous Standing Sales Index

Changes over time up to March 2015	Nominal	Real
5 Years	87.3%	69.9%
10 Years	182.1%	123.9%
20 Years	-8.5%	-42.3%

Source: based on data within Forestry Commission (2015) Forestry Statistics 2015. Available at http://www.forestry.gov.uk/pdf/ForestryStatistics2015.pdf/$FILE/ForestryStatistics2015.pdf

4.4 RENEWABLES IN NORTH EAST SCOTLAND

Since the last *Agriculture in Aberdeenshire* report was published in 2008, there has been a substantial increase in the level of renewable energy generation in the North East of Scotland. This has been driven by ambitious Scottish Government renewable energy targets (set out in the *2020 Routemap for renewable energy in Scotland*) and, in April 2010, the introduction of a Feed-in Tariff (FiT) programme, designed to promote the uptake of a range of small-scale renewable and low-carbon electricity generation. Given the strong natural resource base in North East Scotland for renewable energy generation, the scheme has provided new and potentially significant income opportunities for land managers at a time when traditional primary sector markets are becoming more volatile. It is therefore not surprising that - as predicted in the previous report - renewable energy has become an important form of diversification for land based businesses.

This section describes the number and capacity of renewable developments across the region and the contribution they make to renewable energy generation in Scotland as a whole. It also presents estimates of employment and income from renewable energy generation in North East Scotland. At time of writing, the support for renewables is being reviewed by the UK government and this will have significant implications for the future of renewables in the region.

4.4.1 The contribution of the North East to Scottish Renewables

Table 67a shows the total number of renewable installations in the region supported through the FiT scheme (wind, photovoltaic, hydro geothermal and biomass) and Table 67b their capacity as at the end of March 2015. For purposes of the statistics, our understanding is that whether or not an installation is defined as domestic or non-domestic depends on a self-classification system. In this way it differs from the Renewables Heat Incentive scheme where the definition of sectors is more rigorous. In particular, farmer-owned schemes may be classified as Domestic installations in the FiT data.

Table 67a. Total installations of feed-in tariff schemes, all technologies (March 2015)

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**42,797**	**96.01**			
NE Scotland	**8,281**	**96.47**	**19.35**	**19.44**	**17.12**
Aberdeenshire	4,220	96.80	9.86	9.94	7.91
Aberdeen City	772	96.89	1.80	1.82	1.41
Angus	1,476	94.44	3.45	3.39	4.81
City of Dundee	499	96.99	1.17	1.18	0.88
Moray	1,314	97.26	3.07	3.11	2.11

Data source: Department of Energy & Climate Change, Sub-regional Feed-in Tariffs statistics. © Crown Copyright.

Table 67b. Installed capacity (kW) of feed-in tariff schemes, all technologies (March 2015)

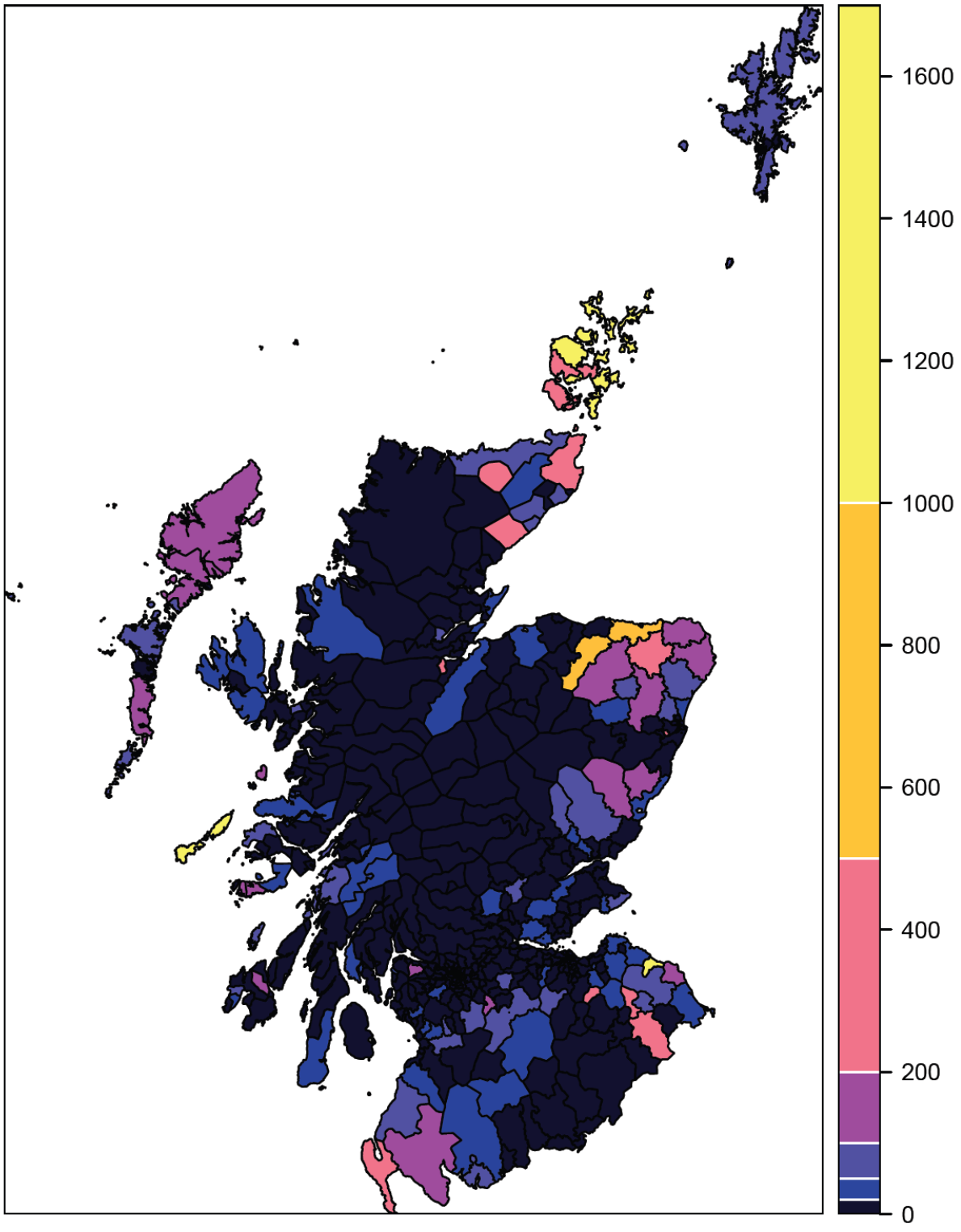
Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**316,775**	**51.01**			
NE Scotland	**82,948**	**44.43**	**26.19**	**22.81**	**29.70**
Aberdeenshire	48,938	40.92	15.45	12.39	18.63
Aberdeen City	4,575	71.43	1.44	2.02	0.84
Angus	13,851	47.59	4.37	4.08	4.68
City of Dundee	2,244	80.30	0.71	1.12	0.28
Moray	13,340	38.73	4.21	3.20	5.27

Data source: Department of Energy & Climate Change, Sub-regional Feed-in Tariffs statistics. © Crown Copyright.

The North East region accounts for just over 19% of the total number of installations in Scotland but 26% of capacity indicating that the average size of installations is larger in the region than in Scotland as a whole. Aberdeenshire dominates with more than half of the region's total number of installations and almost 60% of renewable capacity in the Aberdeenshire LA area. Almost all (96%) of the total FiT developments are classified as domestic as opposed to non-domestic (commercial) schemes.

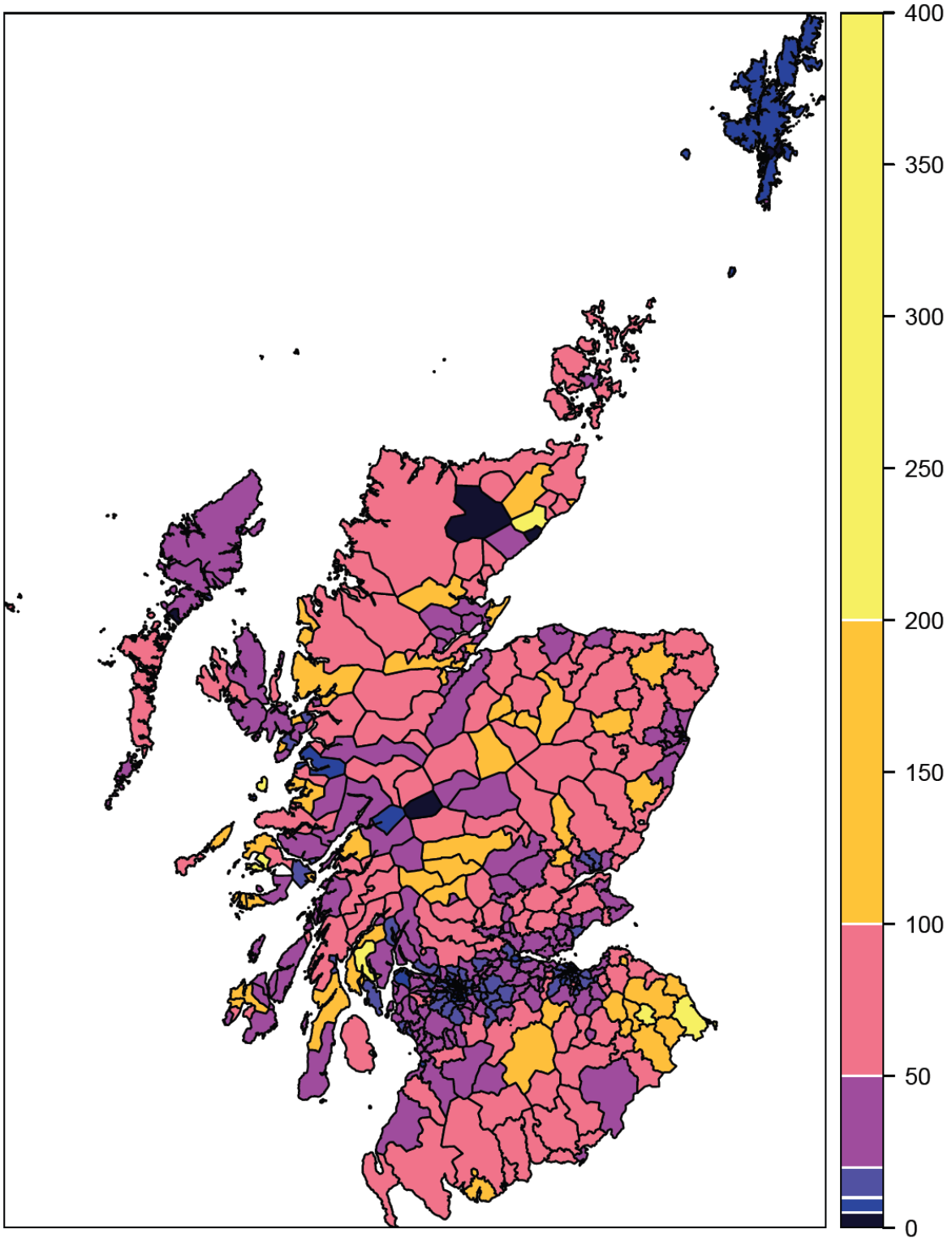
Figures 9 and 10 below show per capita FiT installed capacity (based on 2011 census population figures) for wind and photovoltaic installations respectively. Figure 9 highlights the relative importance of wind installations in North East Scotland region, particularly in Moray. Figure 10 suggests uptake of photovoltaics is more evenly spread across the region although, as noted below, several large projects are coming 'on stream' in South and East Angus which will change this pattern.

Figure 9: Wind: Watts of installed capacity per person



Source: http://www.sruc.ac.uk/info/120402/rpc_news/1562/2015_sruc_research_reveals_huge_demand_for_renewables_in_scotland

Figure 10: Photovoltaic: Watts of installed capacity per person



Source: http://www.sruc.ac.uk/info/120402/rpc_news/1562/2015_sruc_research_reveals_huge_demand_for_renewables_in_scotland

A survey commissioned by Scottish Renewables (O'Herlihy and Co., 2014) found 11,695 Full-time equivalent (FTE) jobs in Scotland's renewable energy industry in total with 14% (1,238 FTEs) located in the North East Scotland Parliamentary region. Only the Central Belt and Highlands and Islands region had a higher number of jobs in this area.

Table 68 shows employment by type of renewable (segment) and by region in cases where such information was available (for 9002 FTEs in total). The majority of employment is shown to be associated with Wind Energy with Onshore Wind being dominant. However, Offshore Wind is also significant at 21%, particularly in the North East region.

Table 68. Employment (FTE) by type of renewable and region

	Onshore Wind	Offshore Wind	Bioenergy	Hydro	Wave, Tidal	Solar, Heat Pumps & Geothermal	Grid	Other	Total
Highlands and Islands	405	155	140	311	195	83	4	13	1,306
Glasgow	687	297	62	141	215	90	111	206	1,809
North East Scotland	**244**	**510**	**49**	**34**	**173**	**31**	**25**	**6**	**1,072**
Mid Scotland and Fife	160	34	172	59	10	117	7	1	560
South Scotland	290	61	37	13	12	43	2	22	480
West Scotland	75	0	167	4	0	20	0	0	266
Lothian	582	297	120	52	185	548	32	13	1,829
Central Scotland	180	61	63	19	6	12	1	0	342
No area specified	774	427	26	17	10	4	347	3	1,608
Total	3,397	1,842	836	650	806	948	529	264	9,272

Source: O'Herlihy and Co., 2014

4.4.2 The relative importance of different type of renewables

Tables 69 to 74 provide more detailed information on the relative importance of wind, photovoltaic and hydro schemes supported by FiTs in the region. Data has not been provided for anaerobic digestion and micro CHP (micro combined heat and power) due to the very low numbers of installations involved for these technologies8.

[8] For anaerobic digestion, the database records only 2 installations across Scotland (999 kW installed capacity), neither of which located in north east Scotland. There are 27 micro CHP installations across Scotland (all domestic: 27 kW installed capacity), of which a third (9) are located within north east Scotland: 7 within Aberdeenshire and 2 in Aberdeen City.

From Table 70, North East Scotland accounts for 41% of Scotland's total wind capacity supported through the FiT scheme, reflecting the rapid uptake of renewables following the introduction of the scheme. Comparison with Table 2 indicates that on-shore wind installations account for 58% of total renewable capacity. Apart from in Aberdeen City, most of the installations supported through the FiT scheme are classified as domestic but a higher proportion of wind installations receiving FiTs are owned by the non-domestic sector than is the case with other technologies.

In relation to the sub-regions, the dominance of Aberdeenshire overall in terms of wind developments is clear. At the end of March 2015, Angus has more wind installations than Moray (69 versus 57) but a lower capacity associated with this form of technology (6MW compared to 8.3MW). Not surprisingly, the two cities have very few wind energy installations and limited capacity from this source.

Table 69 **Number of on-shore wind installations supported by FiT , as of end of March 2015**

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**2,521**	**72.95**			
NE Scotland	**491**	**72.91**	**19.48**	**19.47**	**19.50**
Aberdeenshire	355	76.06	14.08	14.68	12.46
Aberdeen City	7	42.86	0.28	0.16	0.59
Angus	69	57.97	2.74	2.18	4.25
City of Dundee	3	66.67	0.12	0.11	0.15
Moray	57	75.44	2.26	2.34	2.05

Table 70 **Capacity of on-shore wind installations supported by FiT (kW), as of end of March 2015**

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**116,398**	**18.13**			
NE Scotland	**48,272**	**13.73**	**41.47**	**31.41**	**43.70**
Aberdeenshire	**32,893**	15.74	28.26	24.53	29.08
Aberdeen City	**937**	9.18	0.80	0.41	0.89
Angus	**6,035**	11.75	5.18	3.36	5.59
City of Dundee	**26**	80.77	0.02	0.10	0.01
Moray	**8,381**	7.58	7.20	3.01	8.13

Photovolatics

Tables 71 and 72 show the equivalent statistics for photovoltaic installations. Here the number of installations is much higher reflecting the much smaller average size of this type of installation (less than 4kW).

North East Scotland accounts for a lower percentage of the Scottish total capacity of photovoltaic energy than wind energy (21.74% versus 41.47%) but still dominate s the region in terms of both number of installations and capacity. In contrast to the wind, Angus as a higher capacity for photovoltaic energy production than Moray, even before allowing for the planned developments (see further below).

Table 71 **Number of photovoltaic installations supported by FiT, as of end of March 2015**

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**40,045**	**97.70**			
NE Scotland	**7,768**	**98.02**	**19.40**	**19.46**	**16.74**
Aberdeenshire	3,852	98.73	9.62	9.72	5.33
Aberdeen City	763	97.38	1.91	1.90	2.17
Angus	1,401	96.43	3.50	3.45	5.43
City of Dundee	496	97.18	1.24	1.23	1.52
Moray	1,256	98.33	3.14	3.16	2.28

Table 72 **Capacity of photovoltaic installations supported by FiT (kW) , as of end of March 2015**

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**156,872**	**88.61**			
NE Scotland	**34,099**	**88.31**	**21.74**	**21.66**	**22.30**
Aberdeenshire	15,957	92.57	10.17	10.63	6.63
Aberdeen City	3,636	87.46	2.32	2.29	2.55
Angus	7,377	79.29	4.70	4.21	8.55
City of Dundee	2,218	80.30	1.41	1.28	2.45
Moray	4,911	92.26	3.13	3.26	2.13

Hydro

The number of hydro renewable schemes in North East Scotland is currently limited and the region plays a far less important role in Scotland as a whole in terms pf hydro renewable energy, generating just 1.34 of Scotland total capacity for energy production from this type of technology. Angus has the highest generating capacity accounting for 1.03% of the Scottish total with almost all of this (over 92%) categorised as non-domestic).

Table 73 **Number of hydro installations supported by FiT , as of end of March 2015**

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**202**	**49.50**			
NE Scotland	**13**	**61.54**	**6.44**	**8.00**	**4.90**
Aberdeenshire	6	83.33	2.97	5.00	0.98
Aberdeen City	0	NA	0.00	0.00	0.00
Angus	6	50.00	2.97	3.00	2.94
City of Dundee	0	NA	0.00	0.00	0.00
Moray	1	0.00	0.50	0.00	0.98

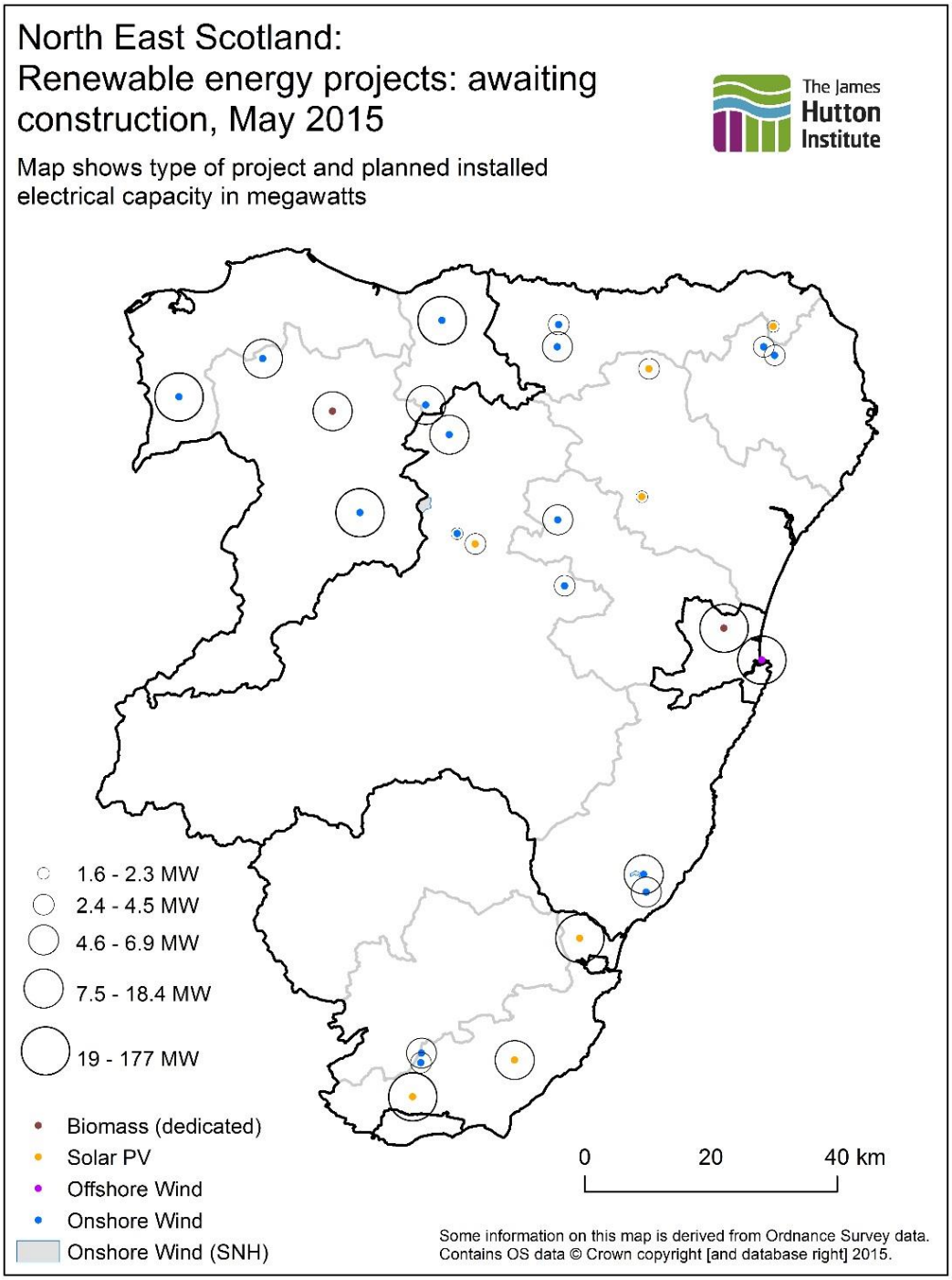
Table 74 **Capacity of hydro installations supported by FiT (kW) , as of end of March 2015**

Region	Total	Domestic (%)	% of Scotland total	Domestic: % of Scotland domestic total	Non-domestic: % of Scotland non-domestic total
Scotland	**42,478**	**3.45**			
NE Scotland	**568**	**18.31**	**1.34**	**7.09**	**1.13**
Aberdeenshire	81	86.42	0.19	4.77	0.03
Aberdeen City	0	NA	0.00	0.00	0.00
Angus	439	7.74	1.03	2.32	0.99
City of Dundee	0	NA	0.00	0.00	0.00
Moray	48	0.00	0.11	0.00	0.12

4.4.3 Developments awaiting construction

Figure 11 shows the type, number and magnitude of renewable energy projects awaiting construction at the end of May 2015. While here a number of large onshore wind schemes being constructed in Moray (with total installed capacity of 271MW), the figure also suggests a switch

away from wind towards alternative technologies particularly solar in the Angus Local Authority area.



Geographical areas shown are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). Derived areas: Local Authorities (black), subregions (grey). Point data shown sourced from Department of Energy & Climate Change Renewable Energy Planning Database: May 2015. © Crown copyright. Contains public sector information licensed under the Open Government Licence v3.0. Map also shows other approved windfarms, which appear to be not included within the above database. Data sourced from Scottish Natural Heritage Natural Spaces. Copyright Scottish Natural Heritage Contains Ordnance Survey data © Crown copyright and database right (2015).

Figure 11: Renewable Energy projects in North East Scotland awaiting construction.

Table 75 provides further details on the ten largest renewable energy projects (by capacity) which are awaiting construction, in North East Scotland, as of May 2015. These include two Biomass schemes, one in Aberdeen city, and the other in Glenlivet.

Table 75. The ten largest renewable projects in NE Scotland awaiting construction

Name	Operator	Type	Installed capacity (MW)	Region
Dorenell Wind Farm (Previously Site A and B Scaut Hill)	Infinergy	Wind	177	Speyside and Glenlivet
Tealing Airfield PV	Green Cat Renewables	Solar PV	31	South and East Angus
Aultmore Wind Farm -resubmission	Vattenfall Wind Power Ltd	Wind	29.9	Keith and Cullen
Hill of Glaschyle Wind Farm	Muirden Energy	Wind	27.6	Laich of Moray and Forres
Stoneywood Paper Mill	Estover Energy Ltd	Biomass	22	Aberdeen City
Ballochy Solar Farm	Strathcaro And Careston Estates	Solar PV	19	South and East Angus
Kellas Wind Farm	Renewable Energy Ventures Ltd	Wind	18.4	Speyside and Glenlivet
Edintore Wind Farm	Vento Ludens	Wind	18	Keith and Cullen
Speyside Biomass CHP Plant	Speyside Renewable Energy Partnership Ltd	Biomass	12.5	Speyside and Glenlivet
Cairnborrow - resubmission	West Coast Energy	Wind	10	Marr

Data source: Project data and locations sourced from Department of Energy & Climate Change Renewable Energy Planning Database: May 2015. © Crown Copyright. Contains public sector information licensed under the Open Government Licence v3.0.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/434482/Public_Database_-_May_2015.xlsx
(Downloaded 22/06/2015)

4.4.4 Renewable Heating

Almost half of energy demand is for heat and how heat is generated and used is closely linked to carbon emissions. Thus it is not surprisingly that heat policy is a high priority for the Scottish Government with a target of sourcing 11% of heat demand from renewable sources by 2020. Current policy and support for renewable heating is targeted towards off gas-grid, and developments which maximise heat use and local supply.

In 2012, the UK government launched a Renewable Heat Incentive (RHI) scheme to support the UK's non-domestic sector. This was followed in April 2014, by the launch of an RHI scheme for the domestic sector. [9]

Table 76 indicates the number and capacity of all installations supported via the Domestic RHI scheme in North East Scotland since the scheme was launched. Figures show the number of installations, while the figures in brackets show percentages of the region and sub-regional totals. The number of developments is still relatively limited and, in some cases, could not be provided for disclosure reasons.

The region has a higher proportion of biomass installations than in Scotland as a whole. Unlike wind and (roof mounted) solar developments which have only limited direct land and labour use, biomass schemes tend to be more land and labour intensive and, depending on the feedstock, can have

[9] Domestic users in this scheme are defined as being for people that own the homes they live in, social and private landlords for properties where one heating system only serves a single household, and people that build their own homes, or have them built for them and meet certain other requirements.

knock-on effects for other production sectors . It follows that the likely further growth in biomass schemes in North East Scotland will have both direct and indirect implications for the land based sectors in the region.

Table 76 **Domestic Renewable Heat Incentive, total accredited installations and type of technology , April 2014 to March 2015 (Scotland), July 2015 (North East) .**

Indicator: Domestic Renewable Heat Incentive, total accredited installations and type of technology						
Values:						
Region	**Installations**	**% of Scotland total**	**Air Source Heat Pump (% region total)**	**Ground Source Heat Pump (% region total)**	**Biomass (% region total)**	**Solar Thermal (% region total)**
Scotland	**5,827**	**100**	**2,577 (44.2)**	**574 (9.9)**	**1,987 (34.1)**	**689 (11.8)**
NE Scotland	**1,038**	**17.8**	###	###	###	###
Aberdeenshire	595	10.2	204 (34.3)	88 (14.8)	215 (36.1)	88 (14.8)
Aberdeen City	37	0.6	***	***	***	***
Angus	115	2.0	33 (28.7)	16 (13.9)	45 (39.1)	21 (18.3)
City of Dundee	83	1.4	24 (28.9)	***	34 (41.0)	19 (22.9)
Moray	208	3.6	59 (28.4)	17 (8.2)	87 (41.8)	45 (21.6)

Data source: Figures for all of Scotland derived from data contained within OFGEM Domestic Renewable Heat Incentive Annual Report, July 2015 (available at **https://www.ofgem.gov.uk/sites/default/files/docs/2015/07/es910_drhi_annual_report_issue1_web_2.pdf. Downloaded 14/08/2015**).
'***' indicates suppression of data for data protection purposes, '###' indicates a total not calculated due to suppressed data.

Less information was available on non-domestic heat installations in the region. However Table 77, from the Forestry Commission, provides information on identified industrial and commercial wood fuel installations for each Scottish Local Authorities in 2013. The same report estimated a steady increase in the demand for wood fuel by commercial and industrial over the next few years which again has implications for the land-based sectors in the region.

Table 77: Industrial/commercial woodfuel installations by Local Authority, 2013

Local Authority	Number of installations
Aberdeen City	3
Aberdeenshire	64
Angus	25
Argyll and Bute	21
City of Edinburgh	3
Clackmannanshire	0
Comhairle nan Eilean Siar	0
Dumfries and Galloway	31
Dundee City	1
East Ayrshire	2
East Dunbartonshire	0
East Lothian	9
East Renfrewshire	0
Falkirk	3
Fife	12
Glasgow City	5
Highland	153
Inverclyde	1
Midlothian	5
Moray	24
North Ayrshire	5
North Lanarkshire	13
Orkney Islands	0
Perth and Kinross	30
Renfrewshire	3
Scottish Borders	32
Shetland Islands	1
South Ayrshire	10
South Lanarkshire	35
Stirling	8
West Dunbartonshire	1
West Lothian	5
Total	**505**

http://scotland.forestry.gov.uk/images/corporate/pdf/woodfuel-demand-and-usage-in-scotland-2013.pdf

4.4.5 Income from renewables

As noted above, in 2010 support for renewable developments shifted from Renewable Obligation Certificates ("ROCs") to a Feed-in Tariff (FiT) scheme. The change was driven by UK and Scottish government ambitions to increase the extent of local engagement in the sector. The Scottish Government for example has a target of 500MW (capacity) in community and locally owned renewable energy by 2020. The shift in support has meant that smaller renewable energy developments have become far more financially attractive than was previously the case and locally-owned developments have increased dramatically. Bell and Booth estimate for example that back in April 2010, 70% of wind farm developments were owned by farmers or landowners. Most of these developments were between 0.8 – 0.85MW capacity as compared to the average size of 23.2MW for externally-owned developments.

One of the factors underlying policy targets in relation to local ownership is that renewable energy offers potential income and employment benefits to rural areas which otherwise have limited

economic opportunities. It is difficult to estimate the income flowing to local residents from renewables as ownership is not always clear. However Allan (2013) estimated that in January 2012 renewable energy developments generated an annual net income of £42 million for local organisations and/or businesses in Scotland. The breakdown by type of organisation and type of renewable is shown in Table 77.

Table 77. Annual net income (£m) by organisation type and technology, for facilities operating in Scotland as of January 2012

	Wind	Biomass	Hydro	Heat Pump	Solar	Total
Local Authorities	0.13	3.07	-	0.57	0.29	4.06
Housing associations	0.15	0.55	-	0.74	0.53	1.98
Community groups	2.07	2.35	0.54	0.05	0.05	5.06
Other public sector and charities	0.32	2.02	0.17	0.00	0.08	2.59
Farm Estates	9.29	4.26	0.05	0.02	0.00	13.63
Local Businesses	0.19	13.13	0.00	1.41	0.10	14.84
Total	12.16	25.37	0.76	2.81	1.05	42.15

Source: Allan (2013)

Farm owned wind and biomass developments, together with local business owned biomass developments together account for 63% of the total net income shown in the table. No such equivalent analysis has been carried out at regional level but given the high proportion of wind and biomass developments in North East Scotland, it is likely that the land based sector in the region receive a high share of the total farm estates values shown in Table 77.

At an individual business level, income from a renewable development can be significant. Table 78 taken from Bell and Booth (2010) shows that a single farmer owned 0.8MW turbine will boost farm incomes by around £156k per year, a 3 turbine cluster, £175k per year and a single 2.3MW turbine, £238k per year. The high returns reflect the high level of risk and capital investment required by such developments. Planning risk in particular is high, as is grid connection, and as the number of developments has increased, saturation is becoming an issue (Scott et. al, 2014).

Table 78. Typical returns for on shore wind developments under FITs

	Single 0.8MW turbine	Cluster of 3 0.8MW turbines	Single2.3MW turbine
Income	£322,929	£639,130	£634,662
Annual Cost	£166,900	£463,800	£395,800
Annual Return	£156,029	£175,330	£238,862

Source: Bell and Booth, 2010

The extent to which income from renewables gives rise to knock-on benefits for the regional economy is unclear. Bell and Booth suggest that these knock on effects are significant, in part because farmers are more likely to spend locally than other types of owners. However, further information on how renewable energy income is used by local owners is needed before this assumption can be verified. However it is clear for those businesses who receive income directly from renewables, it represents a valuable means of protecting them against uncertain market returns.

A very simple extrapolation of net income per MW from table 78 for the existing and planned renewable energy MW capacity for NE Scotland, would suggest that annual net income from renewables will greatly exceed farm profitability. While electricity tariffs will vary over time, the renewable subsidy element is fixed over the agreed period. This regular ongoing source of income clearly has the potential to boost levels of spending and hopefully investment in rural areas.

References

Allan, G. (2013) The economic scale of community and locally owned renewable energy in Scotland and projections to 2020. Climatex change report. http://www.climatexchange.org.uk/files/1514/0831/1537/CXC_Brief_-_Economic_Scale_of_Community_Renewables.pdf

Bell J and Booth, E (2010) The economic benefits of on-farm wind energy clusters in Aberdeenshire. SAC Consulting

O'Herlihy & Co. Ltd (2014) Employment in Renewable Energy in Scotland, 2013. Report for Scottish Renewables. https://www.scottishrenewables.com/publications/employment-renewable-energy-scotland-2013/

Scott, A., Shannon, P., Hardman, M., & Miller, D. (2014). Evaluating the cumulative impact problem in spatial planning: a case study of wind turbines in Aberdeenshire, UK. *Town Planning Review*, *85*(4), 457-488.

4.5 STRUCTURE AND PERFORMANCE OF THE SUPPLY AND PROCESSING INFRASTRUCTURE

4.5.1 Contribution of the processing sector to agriculture and the wider rural economy

The agri-processing sector plays a pivotal role in supporting farm activity in the region and adding value to primary production. There is a mutual dependence between the supply and processing sectors and the land based sectors. Entire farming sectors depend on how these businesses develop, and this is starkly apparent in the pig, chicken, dairy and soft fruit sectors. Likewise, upstream and downstream businesses are dependent on the continuing viability of farm businesses for their custom.

The contribution of the agri-processing sector extends beyond simply adding value to produce, its presence and performance is important for a number of reasons:

- Local processing facilities provide local markets for farm produce, encouraging farmers to grow livestock or crops for those markets. Arguably local processing grounds farm production of that commodity in the region.
- The sector adds value to primary produce ensuring a larger share of the final retail price stays in the region /Scotland.
- The sector plays a key role in ensuring the whole supply chain operates efficiently, facilitating information flows up and down the chain, and any waste is reduced. Importantly processors ensure market specification is communicated back to farmers and that they are aware of market trends and changes.
- The sector also plays a key role in innovation, often providing leadership, technical knowledge and support to farmers.
- It provides local employment, often in rural areas which helps support fragile, vulnerable communities.
- It provides demand for a range of local trades and support services.

Understanding the supply and marketing chains within which farming operates has become critically important. Farmers are increasingly part of dedicated chains supplying specific markets. Input suppliers, processors and retailers are consolidating and becoming international and the rate of change amongst these businesses is faster than at the farm level. Parts of these chains once based in the north-east have now disappeared, at the same time new, local niche market chains may develop.

4.5.2 An overview of the food sector

To define the strategic position of the land based industries in the region it is necessary to first understand what is happening in the food and drink sector. Understanding the dynamics of the food and drink market is a fundamental component in ensuring the primary sector can deliver market requirements. What is happening in the grocery sector has a major bearing on farming. Note that the food sector in NE Scotland is discussed further in section 4.6.

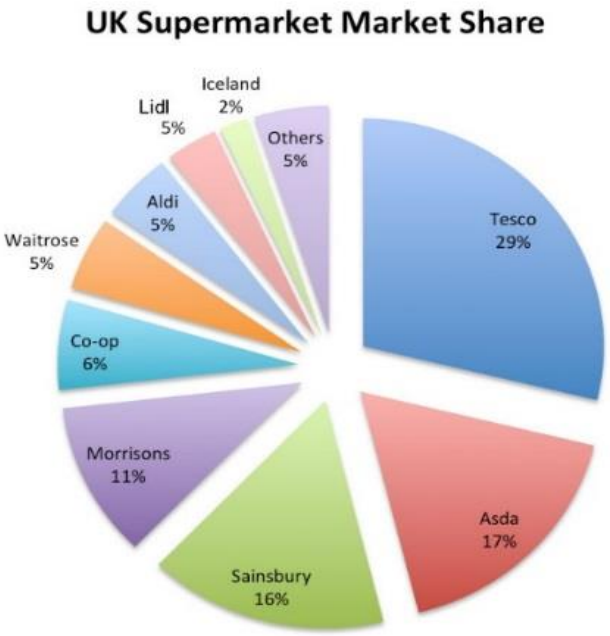
The changing supermarket landscape and rise of the 'Discounters'

The UK grocery sector has experienced significant change in recent years, with the inexorable rise of the 'Big 4' multiple retailers having slowed in the face of economic downturn. Competition from the

leaner, more agile 'discounters', such as Aldi and Lidl, who have capitalised upon a growing consumer preference to split their weekly shopping trips across multiple occasions and retailers have also impacted on the Big 4.

The discounters' low cost business model of operating smaller stores, and offering reduced product lines at low prices have been winning customers. Aldi and Lidl have seen rapid growth and now account for over ten percent of the UK Grocery market – see diagram below. Aldi and Lidl are predicted to capture 20% of UK grocery market in the future which will present both opportunities and threats to UK food suppliers.
In addition, the growth in other food retail channels such as convenience stores and online shopping is likely to further erode the market share of the 'Big 4'.

Figure 12. UK Supermarket Market Shares (2014)



As a result of the bitter price war between supermarkets, food manufacturers and everyone along the supply chain are being squeezed. Insolvency specialists Begbies Traynor[10], recently reported that the number of food suppliers in significant financial distress has risen by 54% over the year. Not only are supplier margins being squeezed, but supermarkets are also taking longer to pay. Prospects are that this new tough grocery environment is not a short-term reaction, but likely to become the new norm.

The big 4 supermarkets are reacting to discounter threat by cutting their own product lines and store size, and as a result it now is harder for SME food companies to build brands.

Regional Food & Drink strategy
The regional strategy is about driving growth and maximising the contribution that North East of Scotland's added value food and drink sector can make towards Scotland's Food & Drink Industry

[10] http://www.begbies-traynorgroup.com/news/business-health-statistics/uk-food-supply-chain-on-the-brink-as-supermarkets-tighten-belts-still-further. July 2015

Strategy growth target of increasing the turnover to £16.5 billion and securing Scotland's global reputation as a 'Land of Food and Drink' by 2017.

In 2012 the food and drink sector generated £14 billion turnover and employed around 118,000 people. The North East made a disproportionately large contribution to this, supporting 18% of employment and generating 17% of gross value added (GVA) despite being home to just 11% of the Scottish population. The success of the Scottish food and drink sector is therefore critically dependent on the success of the primary and processing sectors in the north east.

Summary
New market entrants and changing consumer habits has left the UK food retail market in a state of flux. This fluid environment presents both opportunities and threats for food and drink processors, and ultimately farmer producers. Being tuned into, and responding to, market signals is going to become increasingly important for the entire food and drink supply chain if it is to create a sustainable future. Smaller food companies could see their markets contract as a result of reduced shelf space.

4.5.3 Meat Processing

The north-east has the highest concentration of livestock in the country so it is no surprise that the meat processing sector is the most important agri-processing sector in the region, particularly in Aberdeenshire. The cluster of meat processing plants is a real strength. The region enjoys an unrivalled reputation for the quality of its stockmanship and the ability to finish cattle and lambs.

The fallout following the BSE crisis and two foot and mouth disease outbreaks is now in the past. Consumer confidence in UK meat and in beef in particular has now recovered. A legacy of these animal health outbreaks is that the sector has had to adopt stringent health and hygiene regulations for the handling of meat and safe disposal of waste, which has all added considerable cost burdens.

Over the last decade the region has experienced considerable restructuring and loss of capacity, notably:

- Closure of pig processing plant at Buckie (2005, 330 staff)
- Closure of chicken processing plant at Banff (2007, 130 staff)
- Merger of Scotch Premier and Mathers Inverurie into Scotbeef Inverurie (2012)
- The sale of Vion's redmeat & poultry business to the 2 Sister Food Group (2013)
- The sale of Vion's pig business to a management buy-out, Karro Foods (2013)
- 2 Sister Food Group's one third reduction in throughput at its Coupar Angus chicken plant (2013, 200 staff)
- Closure of the One Stop Halal poultry plant at Letham (2015, 100 staff)

The livestock abattoirs /processing sector can largely be described as a very traditional, low margin business. Most of the plants operate a kill line undertaking primary processing, deboning with little or no added value activities. There is limited retail packaging in any site in Scotland. The investment required for retail packaging is substantial, demanding huge throughputs to justify the expenditure. That is why it is often more economic to transport primal cuts to English plants for further processing rather than invest in Scotland. Distance from the main markets is a weakness for the north-east, and Scotland is seen as a small niche player in the world market.

Livestock processed in the NE study area

The region has a total of five approved slaughterhouses and 5 cutting plants–see table below. Changes since the last study include the acquisition of Scotch Premier and Mather to form Scotbeef Inverurie and the re-opening of the Brechin plant for pig processing. The net effect is that the number of abattoirs remains unchanged at 5. Cutting plants include all the abattoirs plus other smaller businesses who process meat e.g. Donald Russell, The Store, Gordon McWilliam and Aberdeenshire Larder.

Table 79: Approved Meat Facilities in region

Approved facilities	Abattoirs	Cutting Plants
Aberdeenshire	3	5
Angus	1	0
Moray	1	0
Total Scotland	38	83

Source: FSA web site[11]

The five approved abattoirs are shown in the following table along with the livestock species they process.

Table 80: Species Processed by Abattoir

Facilities	Cattle	Sheep	Pigs
McIntosh Donald	√	√	
Woodhead Bros, Turriff	√	√	
Scotbeef Inverurie	√	√	√
Dunbia, Elgin	√	√	√
Quality Pork Processors, Brechin			√

Source: FSA web site

Region's Importance

Data was obtained from QMS on livestock slaughtered in the north-east during the last seven years and national figures for comparison. The following table show the trends in slaughterings for the period 2008-14 for the 3 main livestock species.

Table 81: Livestock Slaughterings, North-East and Scotland 2008-14.

	Cattle			Sheep			Pigs		
Year	**Region**	**Scotland**	**Share%**	**Region**	**Scotland**	**Share%**	**Region**	**Scotland**	**Share%**
2008	147,330	504,344	**29.2**	342,138	1,395,226	**24.5**	32,592	679,530	**4.8**
2009	157,308	498,154	**31.6**	530,948	1,514,977	**35.0**	30,672	593,763	**5.2**
2010	156,245	517,978	**30.2**	688,245	1,474,816	**46.7**	29,421	574,411	**2.1**
2011	160,982	523,827	**30.7**	730,071	1,519,934	**48.0**	59,102	628,926	**9.4**
2012	143,746	480,321	**29.9**	663,460	1,363,579	**48.6**	135,915	583,575	**23.3**
2013	149,729	474,358	**31.6**	646,015	1,358,842	**47.5**	152,908	302,307	**50.5**
2014	154,929	468,879	**33.0**	573,473	1,370,406	**41.8**	215,631	297,728	**72.4**

Source: QMS 2015

[11] FSA https://www.food.gov.uk/enforcement/sectorrules/meatplantsprems/meatpremlicence

Cattle

The region killed and processed 154,929 cattle in 2014, a third of the total Scottish cattle kill. The national cattle kill has declined over the last 7 years as a result of falling livestock numbers, however, the kill in the region has remained relatively high, capturing a bigger share of the national kill. This underlines the regions importance as the principal destination for cattle slaughtering in Scotland.

Looking at the different classes of cattle, table 82 shows the region's share of the national prime cattle is high at 39% of heifers, 36% of steers and 26% of the country's young bulls. In contrast, a low share of cull cows and bulls are killed in the region, the majority going to other Scottish abattoirs.

Table 82: Breakdown of 2014 Cattle slaughterings

	North-East	National	Region's %
Prime cattle:			
Steers	77,003	213,655	**36.0**
Heifers	61,665	159,517	**38.7**
Young Bulls	9,660	37,793	**25.6**
Mature Cattle:			
Cows	4,574	55,568	**8.2**
Bulls	310	2,315	**13.4**

Source: QMS 2015

Sheep

A total of 573,473 lambs were slaughtered in the north-east in 2014, some 40% of the total prime lambs killed in Scotland (1,341,719). Over the period 2008-14, the region's share of finished lamb slaughterings increased from 25% to 40%, emphasising its importance to the sheep sector. Previously the region did kill a high % of the national cull ewes and rams but that has now declined with cull stock moving out of the region to other abattoirs.

Pigs

As section 4.1 of this report showed, the north-east is the home for the majority of the national breeding herd. The region has 60% of the total national sow herd (2014). Pig slaughterings in the region have experienced significant change - most notably the closure of Vion's Hall's of Broxburn plant, near Edinburgh in 2012 which at the time processed 85% of the Scottish pig kill. Fortunately since then things have taken a change for the better.

Expansion at the Pig Processor at Brechin

Following the closure of Vion's Broxburn plant, Tulip (UK arm of Danish Crown) leased and re-opened the former livestock abattoir at Brechin. In 2014 the plant was then acquired from AP Jess by Quality Pork Limited (QPL) a collaboration between 3 pig co-ops; Scottish Pig Producers, Scotlean Pigs and Tulip UK. Scottish Government Grant funding was secured to expand and upgrade the site's facilities so that capacity would double to 8,000 pigs per week. The £10m investment includes a new slaughter line, additional chills and lorry wash facilities. Work is ongoing and due to be completed by autumn 2015. Since the closure of the Broxburn plant, it is believed some 5,000 pigs per week are transported south into England either as weaners or finished pigs. With the expansion at Brechin the need for pigs to travel south, which has both commercial and welfare costs, is greatly reduced.

The value of Scottish Red Meat and Market Outlet.

The contribution from each of the red meats and the market outlets for each is shown in the following two tables. It clearly shows the importance of beef (79%) in terms of the livestock species and of the supermarkets (54% of beef, 85% of sheepmeat) as a route to market. At a regional level,

using the share of the national livestock kill suggests that he region's abattoirs generate a combined turnover of circa £303m, directly employing an estimated 1,000 staff.

Table 83: Share of Scottish Red Meat Sales (2014) at first point of sale

	Scotland		Region Value	
	Value (£m)	**% by value**	**Share**	**Value (£m)**
Beef	675	79%	33.0	222.8
Sheepmeat	149	17%	41.8	62.3
Pigmeat	25	4%	72.9	18.2
Total red meat	**£849m**	**100**		**£303.3m**

Source: QMS, The Scottish Red Meat Industry Profile 2015.

Table 84: Red Meat Sales by market outlet (2014)

	Beef	**Sheepmeat**
Multiple Retailers	47	84
Independent Retailers	6.5	1
Wholesalers	18	5
Food Manufacturers	19.5	5
Food Service & Catering	8.5	5
	100%	**100%**

Source: QMS Processing Survey

Importance of Exports

Exports contribute an estimated 9% of the meat processing sectors sales with France being the key market, accounting for nearly half of Scottish red meat sales. Exports to France comprise 30% of Scottish exported beef and 70% of the exported lamb. Exports provide processors with the ability to balance the market and to add value to cuts which have low demand in the domestic market.

Fifth-quarter (hides, organs, offal, hoofs, bone) sales overseas play a huge role in the overall profitability for a livestock carcase. The Far East (China & Hong Kong), Eastern European and formerly Russia (pre-import ban) are key markets. Some 20% of export sales are accounted for by fifth-quarter. Interestingly companies interviewed reported only a limited interest in growing overseas markets principally due to insufficient product being available, with current supplies all being required for the UK market. Interviewees commented that the risks are too high in the export market so they prefer to focus on the UK market.

Good news story - new abattoir planned for Thainstone

The two abattoirs at Inverurie (Scotch Premier and Mathers) have gone through major restructuring following the majority takeover by JW Galloway to form 'Scotbeef Inverurie', with the farmers' co-op ANM Group retaining a 25% share in the new joint-venture. The current site at Inverurie has now secured planning permission to be redeveloped for housing. Scotbeef Inverurie will move into a new state-of-the-art livestock processing plant being planned at Thainstone Agricultural Centre, near Inverurie. A suitable site has already been identified within Thainstone.

The precise details of the new plant are still to be confirmed, but it is believed it will contain a cattle and sheep line and be capable of handling 1,000 head of cattle per week. It is anticipated that the new plant would also have on-line hair clipping facilities which would negate farmers having to undertake the dangerous task of manually clipping cattle prior to consignment to the abattoir. It is hoped that a grant application could be submitted to Scottish Government late 2015, and all being well, work on the new plant would commence some time in 2016. This would mean the new facility could be open for business by mid-2017. This is a major boost for livestock production in the region.

Future Issues and challenges for the meat processing sector

There are real concerns amongst meat processors over future livestock supplies and farmers ability to make cattle pay. The lack of profitability, the dependence on subsidy and move to decoupled area payments all suggest a continuing decline in livestock numbers. Increasingly abattoirs in the region have to procure livestock from outwith the region, adding transport costs. The shortage of cattle is also forcing processors to pay too much, eroding margins. This also impacts on the effectiveness of market signals; high prices and low penalties result in many cattle being out of spec, increasing waste and cost.

There is still over-capacity in the processing sector, the precise level is unclear but believed by the trade to be at least 20%. This impacts on plant efficiency, operating costs and overall competitiveness. As plant throughput increases, the cost per unit of production falls as costs are spread over a progressively larger number of units. Although there has been some restructuring with the acquisition of Inverurie plants, there is a risk that further consolidation may be required.

The average number of moves for a cattle beast over its life-time is 2.4 in Scotland. Processors and retailers would like that to be reduced to a maximum of two moves (that is max of 3 farms in total). It is believed there is a need for more professional finishers, finishing over 1,000 head of cattle a year. It is thought these farmers are normally better at finishing cattle more efficiently, meeting market specs and working more closely with the abattoirs /meat processors.

There are ongoing concerns about future labour supplies. The region has always been an area in which it is difficult to recruit staff (particularly skilled trades; electricians, plumbers, and engineers). With the downturn in the oil sector, that may eventually ease a little. The share of migrant workers from Eastern Europe is slowly declining with more home based staff returning. Typically overseas migrants create their own community and may have lower long term commitment to their employer. Often employee engagement is harder with migrant labour. However, without migrant labour meat plants would have had very serious manning problems over the last 15 years.

There is a deficiency in butchery skills and skilled slaughter line operators. Related to labour and skill shortages is the high cost of housing in the region, particularly in Aberdeenshire. The high cost of housing is a barrier for the migration of labour from other regions in Scotland.

Material destined for the rendering sector has experienced a collapse in prices since last year. There are only three players in the UK rendering market with some processors claiming the market lacks competition. The local plant at Kintore – formerly Dundas Knackery - has never opened after significant refurbishment, so product from the region's abattoirs must go south to Dumfries, Motherwell or into England. The price for fat and tallow oil is linked to crude oil prices which have halved over the last year.

Exports of fifth-quarter into the Far East, particularly China, were working well, however, there has been a crackdown by the Chinese authorities on back street factories and blackmarket trading. Lots of meat products were confiscated and tanning operations were clamped down on, all impacting on UK export prices.

All the major meat plants supply supermarkets so have been impacted by the recent retailer wars. Lots of the carcass is sold in lower value cuts of meat (visual leans), with a high share of a cattle's carcass not gaining the 'Scotch' premium. Although discounters such as Aldi and Lidl's are not making huge inroads in meat sales their impact is still being felt. A consistent theme of the feedback provided by processors was the highly competitive and commoditised nature of the meat market.

Processors are under constant pressure as they contend with rising livestock prices which they find difficult to recoup from retail and other customers.

The number of compliance audits carried out by retailers has increased as a result of the 'horsegate' scare. These audits cover integrity, welfare, food safety and environmental impact. This all adds cost and hassle, taking up a lot of staff time, but is a necessary requirement to supply supermarkets both directly and indirectly through secondary manufacturers and packers.

There is an urgent need for stability in the livestock markets to avoid the price volatility that has been experienced over the last few years. Farmers could play a role by ensuring a more stable supply of cattle throughout the year. The trend toward spring calving suckler cows has caused seasonal over-supply and shortages at other times of the year.

The crisis within the Euro zone and the low € value has resulted in unfavourable sterling £ exchange rates. This causes a double whammy, the export trade is depressed, while cheaper imports become more attractive, particularly Irish beef and Danish /Dutch pigmeat. The net effect is a downward drag in livestock prices.

The current aggressive retail pricing between supermarkets has meant there is a real pressure on prices and margins all along the supply chain. Recent analysis by Plimsolls[12] on the UK Abattoir market reveals that 40 companies are making a loss and 27 companies are in danger. The industry average profit margin is only 0.6%, while 95 of the least profitable abattoir companies are only achieving an average 0.1% profit margin. In contrast, the most profitable companies (30) in the sector are managing a healthy 3.6% profit margin. 19 abattoir companies have lost a quarter of their value. These headline figures underline that the meat processing sector operates in a tough environment.

Poultry Sector Update

The Scottish chicken meat processing sector has had a tough time over the last few years. Falling production and reduced plant throughput coupled to higher producer prices have reduced processor margins and competiveness. There have been a number of significant changes amongst local chicken processors.

Restructuring at 2 Sisters' Coupar Angus Poultry Plant

In November 2013 2 Sisters Food Group announced it was cutting its labour force by a third at its Coupar Angus poultry plant in an effort to stem losses. The plant employed 658 people and made over 200 redundant. 2 Sisters took over the former Grampian Country Foods poultry plant from food manufacturer Vion in March 2013. As well as the job losses, many poultry farmers had their supply contracts cancelled. Poultry farmers in Aberdeenshire and further north lost their market completely – their contracts were cancelled as transport costs were deemed too high. Producers in Angus and Perthshire continue to supply the Coupar Angus plant. Aberdeenshire and Moray, once the home of the Grampian Country Chicken Group, now has no volume poultry meat production – an entire sector has been lost.

Closure of One Stop Halal poultry plant

Earlier in the year (May 2015), the One Stop Halal plant at Letham was closed with the loss of 100 jobs. It is understood some of the work was transferred to a new plant in Suffolk and also to the 2

[12] https://www.plimsoll.co.uk/market-reports/abattoirs July 2015

Sister poultry plant at Coupar Angus. Although separate companies, the owner of 2 Sisters, Ranjit Singh Boparan, also has a stake in One Stop Halal. The chicken plant was acquired by 2 Sisters from Mitchells of Letham in 2007 and then sold to One Stop Halal in 2013. One Stop Halal contracts with Scottish farmers have been taken over by 2 Sisters at Coupar Angus.

Meat Processing Summary

Strengths of the Meat Processing Sector

- There is an effective cluster of 5 major abattoirs in the study region providing critical mass and a ready market for cattle, sheep and pig production.
- The 'Scotch' beef brand is universally recognised as a premium product and attracts higher prices. Consumer perception is of quality and natural production.
- The sector has strong links and good relationships with a range of market outlets, and importantly with all the major supermarkets.
- The concentration and presence of abattoirs has enabled a number of small, but growing, speciality meat businesses to emerge.
- The new abattoir planned for Thainstone will be one of the most modern livestock processing plants in the UK.

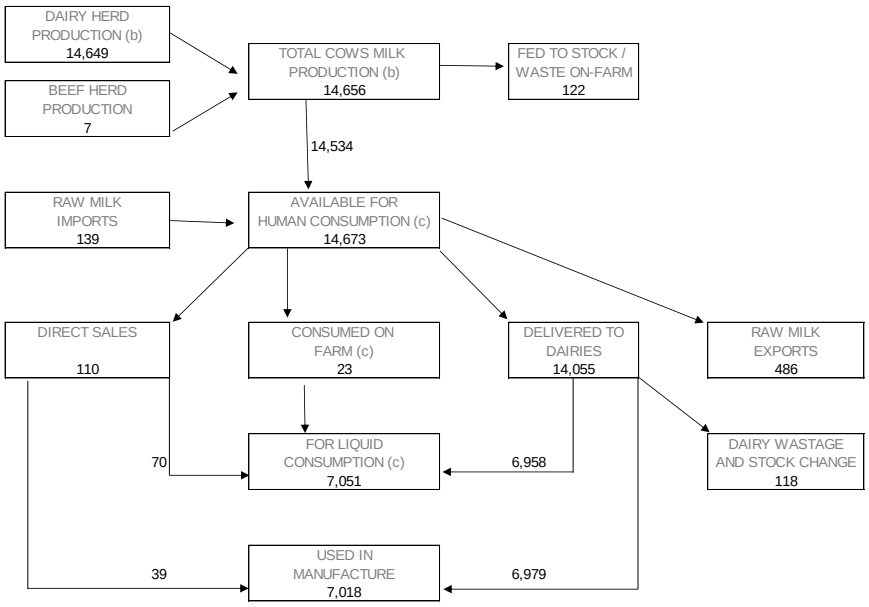
Weaknesses of the Meat Processing Sector

- Continues to be a low margin sector, so difficult to justify reinvestment.
- Estimated 20% overcapacity in the sector – this impacts on plant efficiency, operating costs and overall competitiveness.
- All the abattoirs are very traditional businesses (boning and primal cuts), there is little secondary added-value processing.
- Distance from the main markets – central Scotland and England.
- Difficult to attract labour – not an attractive industry.
- Little investment in product development
- No local renderer for livestock waste – adds cost to transport to central Scotland and increases biosecurity risk

4.5.4 Milk Processing Sector

The current crisis in the dairy sector is well documented. Dairy farmers have seen unprecedented milk price volatility with prices plummeting by a third over the year (currently 22.3p/litre), well below the cost of production. A combination of low world milk commodity prices, supermarket price wars, the Russian import ban, and the weak € have all combined to provide the perfect storm. The current pain being endured by dairy farmers is also being felt by the milk processing sector which has experienced major restructuring and consolidation in its drive for processing efficiency to improve margins. The landscape of the UK milk processing sector has dramatically changed over the last few years. The following diagram shows the overall picture for the UK milk market.

Figure 13. The UK Milk Flow Diagram 2014



Source: AHDB Dairy

Major Restructuring amongst Dairy Companies

The first signal of change in Scotland occurred when the private German dairy company Müller purchased Robert Wiseman Dairies for £279.5M in 2012. Then this year (2015), Müller Wiseman agreed to acquire (for £80M) Dairy Crest's loss making UK liquid milk business, subject to an investigation by the Competition and Markets Authority (CMA). This latest acquisition makes Müller Wiseman the second largest milk processor (1,900 suppliers) in the UK. Previously they had also invested in a new 45,000t butter plant at Market Drayton in Shropshire.

The largest dairy company in the UK is now Arla Foods with a turnover of £2.5bn. It has a milk pool consisting of 3,000 suppliers accounting for (26%) one in every four litres of milk collected from UK farms. Arla is a global co-op owned by 13,500 European dairy farmers spread across six countries - Denmark, Sweden, Germany, Luxembourg, Belgium and the UK. In 2012 Arla merged with the co-op Milk Link which was based in Bristol with 1,600 members. In 2013 Arla opened a one billion litre super-dairy (cost £150m) at Aylesbury in Buckinghamshire (Scotland's total annual milk production is 1.1bn litres). This is the world's biggest fresh milk plant and has been strategically located to supply London and the Home Counties.

Fierce competitive tendering to win supermarket supply contracts have also exerted downward pressure on the wholesale price of milk, contributing to restructuring. For example, in early 2015, Dairy Crest lost a third of its Morrisons supply contract to Arla Foods UK, with Graham's Dairies supplying Morrisons Scottish stores with milk and butter. This culminated in Dairy Crest selling its liquid business to Müller Wiseman, leaving it with its cheese and butter plants.

The net effect of all these mergers and acquisitions is that two companies dominate the UK liquid milk market, Arla Foods and Müller Wiseman, both European global companies. It should also be noted that most of the recent investments have been in the liquid milk sector. This has historically been seen as the 'premium' market by processors – one where profits should be high and investments worthwhile.

End of Milk Quotas

A major factor in the milk market is the end of the ECs milk quota regime (31st March 2015), meaning production is now solely managed by market forces. With the demise of quotas the milk market is entering a new era. The big question is, with the brakes off, will European dairy producers expand their production? Inevitably there will be a period of major adjustment with market volatility only expected to increase until production and demand is more aligned. Irish dairy farmers, for example, are predicted by some to expand production by between 50-100% over the next 10 years, with the UK as one of their main target markets. Prospects are for continued volatility and turmoil.

The removal of quotas has encouraged progressive dairy companies to expand faster in an attempt to capture economies of scale. On the positive side, Scotland (and the UK as a whole) now has the opportunity to participate more in global markets through the export of added value products.

Russian Import Ban

Following the crisis in Ukraine (conflict in Crimea) and the imposition of Western sanctions on Russia, Russia responded by announcing an import ban on food products from the EU, the USA, Canada and Australia. The import ban includes milk and dairy products, beef, lamb, pork, vegetables and fish.

The loss of the Russian butter and cheese markets created surplus stocks within the EU and distorted world trade. The EU supplied 260,000t of cheese and 35,000t of butter - accounting for 80 per cent of Russia's dairy imports. Initially the Russian import ban was imposed for a year to August 2015, but this has now been extended for another year. These markets may now be lost for the long term.

Supermarket producer groups.

One of the trends over the last few years has been establishment of producer groups aligned to a particular supermarket e.g. Tesco's Sustainable Dairy Group, Sainsbury's Dairy Development Group. Often members of the producer groups have to participate in a benchmarking scheme which aims to drive efficiency and reduce production costs. Most of the pricing formulas used are based on a cost plus model. This has allowed supermarkets to get a better understanding of the cost of milk production and the margins along the supply chain.

Milk supply contracts have become more complex and numerous – there may now be over 30 different milk contracts operating in Scotland. Generally those producers who have aligned contracts with a particular supermarket producer group are typically getting 5p/L more than the standard price. Who is in an aligned contract and why is not clear. 16 of the 43 dairy producers in the north-east will be on an aligned dairy contract attracting a premium. Increasingly AB pricing mechanism are becoming popular, with A pricing being paid for 90% of a contract and a lower B price for the balance of production. Some B price contracts have been as low as 7p per litre so farm gate prices could currently range from 31p – 7p/L (productions costs are believed to be circa 26p/L).

What does it mean for Scotland?

Looking at the Scottish situation there are effectively 5 main milk buyers:

- Arla Foods – liquid, butter and cheese plants at Lockerbie
- Müller Wiseman– liquid processing plants East Kilbride and Aberdeen.
- First Milk – no liquid plant, only cheese plants in Campbelltown, Arran and Fife
- Graham's Dairies – liquid plant at Bridge of Allan, processing at Nairn (ex-Claymore)
- Lactalis – cheese plant at Stranraer, supplied by MSA

The table below shows the supply and demand balances for Scottish milk. Nearly 60% of production goes to the liquid fresh market, with the balance into further processing. Cheese is the dominant

added value activity, taking 29% of annual production, of which three-quarters is made into cheddar cheese.

Table 85. Scottish Milk Utilisation Scotland (2014)

Total Milk Intake (1,150M Litres)	% Share
Milk used for liquid sales	59
Cheese	29
Butter	2
Other Products*	8
Transfers to other sectors	1.6
Stock change & waste	0.4
	100%

*Other Products includes yogurt, cream, ice cream, and milk drinks.
Source: AHDB Dairy

It is acknowledged that Scotland does suffer from a lack of milk processing facilities which does impact on the market. At present for example, First Milk are transporting milk down into England, principally to its Aspatria Creamery and Westbury plant in Wiltshire which process 2M litres per day into milk powder. With the collapse in world skim milk powder prices and a haulage charge of 3-4p/l this is currently a loss making venture. Previously, First Milk would have supplied Wiseman's plant but now Müller Wiseman largely procure directly from farmers.

The situation in the north-east.

The trend of declining dairy farming in the NE is ongoing. The latest stats show that there are only 51 dairy herds left in the region with 9,917 cows. The average herd size in Scotland is the largest in the UK at 178 cows compared to the UK average of 126 (2014). At an average yield of 7,500 litres, the region produces 74.38m litres or 204,000L per day. Using the UK average liquid milk consumption of 103 litres per head means the region is actually in deficit in terms of supply to meet local demand.

Table 86. NE Dairy Herd Structure

	No of Herds	No. of cows	Av size of herd
Aberdeenshire	37	6,263	169
Angus	9	1,875	208
Morayshire	5	1,776	355
Scotland	**982**	**174,487**	**178**

Source: Scottish Dairy Cattle Association (July 2015)

The only significant milk processing plant in the region is the Müller Wiseman liquid milk plant in Aberdeen. This was acquired by Wiseman Dairies in 1994 from Kennerty Dairies. The plant has the monopoly of supply from the majority of milk producers in the region. Precise throughput figures are unavailable but it is believed the plant is only operating at c40% capacity (used to process 2.3ML per week). With the changes to their supply contract, Müller Wiseman are thought to move up to a third of the milk collected from the region down to their East Kilbride site. In the previous Aberdeenshire study (2008), milk was being transported into the region, but as a result of changes in supermarket supply contracts and the shift to centralised distribution centres in central Scotland, milk is now being transported out of the region.

The future of the Aberdeen plant must now hang in the balance. What would happen to local dairy production if the Aberdeen plant closed and milk had to be transported south to the central Scotland? Such a scenario would clearly have an adverse effect on local dairy farms.

The potential for inward investment into the Scottish Dairy sector.
The Scottish Dairy Growth Board, which is chaired by Paul Grant from McKays Ltd of Arbroath, have being working behind the scenes to land a multimillion £ investment from an international company to locate a new dairy processing plant in Scotland. Discussions are at an advanced stage with an announcement due this autumn if the bid is successful. It is believed there is another country competing to attract the inward investment. If this does come to fruition it has the potential to be a game changer, which would have implications for all dairy producers including those in the NE region.

Milk Processing Summary
Strengths of Milk Processing Sector

- Demand for milk is increasing, there is a ready market from Aberdeen and Dundee and the various towns in the region. Population is growing.
- Those producers who are left in the industry are professional and technically efficient.

Weaknesses of Milk Processing Sector

- Scotland is short of milk processing capacity which limits growth potential.
- There is only one significant processing plant in the region. This only handles liquid milk and is believed to be operating at half capacity. There is a real risk the plant will close in the future which would have a major bearing on local production.
- Cost of milk production is higher in north-east compared to the south-west of Scotland - longer winters and less favourable climate for grass growth.
- The lack of profitability at farm level is forcing producers to rethink their future. There are less than 51 dairy herds left in the region with numbers only expected to decline in the future, so is there enough critical mass for all the support infrastructure?

Future issues / challenges for the sector

- The major upheaval in the UK dairy market is now forcing restructuring at farm level.
- The sector is at a critical level for scale, major concern if milk production continues to contract.
- Profitability of milk production is vital to maintain dairy producers.
- The sector is driven by the major retailers and vulnerable to their procurement policies and decisions. Centralised Scottish distribution does not favour Aberdeen.
- Investment in additional milk processing in Scotland would open opportunities to develop added value products and to increase export markets.

4.5.5 Combinable Crop Sector.

As section 4.1 showed, combinable crops continue to rise in importance to farmers in the region. As livestock numbers decline, farmers replace their grass with arable crops, land quality permitting. The region is important in a national context with over a third of the national combinable crop area. The structure and performance of the combinable crop processors and merchanting sector will have a major influence on arable production in the region.

Malting, brewing and distilling
With growing international demand for Scotch whisky, distillery production has been at full capacity over the last 5 years. On the back of the growing demand a number of distilleries and maltsters have undertaken major investment to upgrade or expand facilities. Following this period of full

production there is now a slow down in the world economy. The growth in whisky demand has slowed and as a result the market is now stabilizing, so we are now entering a phase of more normal production.

Apart from the new malting plant at Arbroath, the maltsters did not take the opportunity to re-invest so malting capacity is a limiting factor in the market. With Scottish malting plant capacity estimated at 750,000t of malt, this provides demand for 900,000t of malting barley. Whisky distilleries however, have an estimated malt demand of 1,000,000t, meaning circa 250,000t has to be imported either from England, or the continent. Some of this 'imported' malt is Scottish barley taken south, malted and shipped back.

The number of maltsters remains at 5 - Diageo which is an integrated maltster and distiller, plus 4 'sales malsters';

- Diageo
- Simpson's of Berwick
- Boortmalt
- Baird's Malt
- Crisp Malt

The decline in UK beer consumption means there is now excess malting capacity in England so some brewing malting plants are now switching to whisky malt to increase their plant efficiency.

The expectation is that demand for malting barley will increase which provides real market opportunities for arable farmers in the region.

The following table shows those companies with malting plants in the region which account for 60% of Scotland's total capacity. It should be noted that the distillery sector requires low nitrogen (N) malt which is a speciality of Scotland and not widely available from competitor countries. Scotland is unique in that virtually all the malting barley produced (90%) is low N for malt distilling, with only a small percentage (10%) high N for the grain distilling market.

Table 87. Malting plants in the north-east and their demand (2014)

Maltings	Company	Est Tonnage
Buckie	Boortmalt	75,000
Glenesk	Boortmalt	60,000
Port Gordon	Crisp	50,000
Burghead	Diageo	45,000
Roseisle	Diageo	130,000
Arbroath	Bairds Malt	85,000
	Total	**450,000**

Source: Trade estimates

The Scotch Whisky Association (SWA) say their members remain committed to buying Scottish cereals (88% of their need currently comes from Scottish producers), but that they need to have some flexibility to procure stocks outwith Scotland in years of poor quality.

Access to good grain handling and storage capacity is essential for Maltsters - malting barley has to be dried down to 12% moisture content which places enormous pressures on infrastructure. The malting barley market supply period is very short; operating from mid-August to mid-December.

Impact of imported maize

The switch by some grain distilling plants from wheat to imported maize is having an impact on the Scottish wheat market and prices. For example, the Invergordon distillery (Whyte and Mackay) switched to imported maize from wheat over 2 years, resulting in the loss of a 60,000t market for wheat. Previously wheat prices in the Black Isle were the highest in the country attracting a £5 premium over future prices, but today ex-farm wheat prices in the region are the lowest, priced at a £6/t penalty to cover the transport cost to central Scotland, meaning a combined £11/t drop in price. The other major factor in the declining feed wheat price in the north has been the decline in the chicken and pig sectors.

Oats

The region has one of the two Scottish oat plants. This is at Boyndie (30,000t) near Banff. Although not a major crop, it provides an important market for an alternative cereal crop. The consumption of oats in the UK continues to grow as it is increasingly seen as a healthy food.

Animal Feed Sector

At the UK level, animal feed is the largest market for combinable crops, though this is not the case in Scotland. Although the region is fortunate in having a number of animal feed mills who provide compounds and straights to the livestock sectors, the total quantity demanded continues to decline. This decline is attributed to a number of factors; the decline in livestock numbers, the trend for less purchased compounds and the increasing own feed use on-farm, and the change in company policy.

The biggest change came as a result of the sale of the Vion pig unit to Karro Foods, whose production policy subsequently changed from finishing pigs in the NE to selling weaners in England. The net effect is the tonnage of feed being produced at their Mill of Brydock mill has declined by an estimated 100,000t per year.

Table 88: Major Aberdeenshire Animal Feed Firms and Mills, 2014

Feed Mill	Tonnes
Harbro, Turrif	
East Coast Viners, Drumlithie	
Karro, Mill of Brydock	
Norvite, Insch & Oldmeldrum	
Total	**150,000**

One of the big changes in the animal feed sector is the rise in importance of 'blended feed'. Some 20-years ago feed blending plants didn't really exist but today nationally some 60% of animal feed is now thought to be provided by blends with the balance coming from compounds. The growth in feed blends is largely a result of the BSE crisis and a loss of trust in animal feed compounders. Farmers wanted to see for themselves what is in livestock rations and its quality. Blends use a range of feed by-products such as wheat feed, sugar beet, dark grains, pot ale syrup, soya meal and rape meal, which are mixed with either feed barley or wheat to produce specific rations for different classes of livestock. The main benefits of blends for farmers are; it produces a tailored ration for specific needs, the source of the ingredients is more transparent, and the fact blends are normally cheaper than equivalent compound feeds. The advantage for animal feed companies is that blending plants have lower capital and operating costs.

Another trend has been the uptake of mobile mill and mix services with a number of operators in the region. This allows farmers to process some of their own feed grain which is balanced with supplements of protein and minerals to a high standard without the need for capital investment in plant on the farm. Livestock producers are also increasingly moving to total mixed rations (TMR) which uses feed wagons to mix complete diets for specific classes of stock using home grown silage, straw and concentrates. The benefits of TMR are improved livestock performance through higher feed intakes plus savings in labour.

Grain Merchanting Sector

Following a previous period of restructuring the number of grain merchants in the region remains largely unchanged since the previous review in 2008. Generally, the number of people employed in the sector has declined as firms centralise their business functions. It is not unusual to have specialised functions such as accountancy, HR and logistics management removed from a local level and undertaken at a central location. This is in response to economic pressure and the need to improve efficiency. Improved IT and operating systems have allowed this change in work practices to occur with the minimum of disruption to operations. The market appears to operate effectively with a good range of suppliers and competition.

The main players in the grain merchanting sector include:

- Frontier
- Scotgrain
- Grainco
- WN Lindsay

Farmer grain co-ops

There are two active farm co-ops involved in grain storage and marketing in the region - Aberdeen Grain and Angus Cereals. Aberdeen Grain, based in Whiterashes, has over the last 6-years undertaken major capital investment and expansion, resulting in one of the most modern grain stores in the country. Total storage capacity now extends to 65,000t, with the co-op recently installing a wood chip biomass burner for grain drying. The co-op is owned by 180 farmer members.

Angus Cereals was the first new grain store built in the UK for over 20-years. The store was opened in 2011 and being located at the Montrose port allows both import and export opportunities. Storage capacity now extends to 45,000t and it is owned by 65 farmer members. Investment in drying and intake infrastructure allows quick unloading and drying, ensuring the quick turn round of vehicles and the ability to ensure a maximum wait of 72 hours from time of combining to collection during the harvest.

Future issues / challenges for the Combinable Crop Sector

The future of the whisky industry is the critical factor. It is the dominant market for Scottish cereals and importantly pays growers a premium (normally £20/t) over feed grain. This underpins the entire arable rotation on many farms. Although we are entering a period of stabilisation, the longer term prospects for the malting barley sector are good. Distilleries will require increased quantities of malting barley in the future.

Volatility is a feature of this sector. Arguably of all the processing sectors, the combinable crop sector is the one most exposed to international markets and global prices. Cereals and oilseed rape are simply commodities traded on the world market. The volatility increases the inherent risks in the sector and the need for effective risk management strategies.

The grain haulage industry is now felt to be at a critical point with too few hauliers, aggravated by largely seasonal work. Standard loads are now 28 –30 tonnes so loading and unloading times and logistics management are important to improve efficiency and reduce costs. Many of the national firms will arrange to bring vehicles up from England to help meet the demand for hauliers at harvest.

The impact of climate change on the crop sector is unclear. It may provide opportunities for new crops to be grown in the region. The world demand for combinable crops is expected to increase as population and standards of living increase, particularly in developing countries. The impact of carbon management is still unknown although it could have a major impact in the future.

Maltsters have commented that the impact of the compulsory ecological focus areas (EFA) and the 3-crop rule (part of CAP Reform phased in 2015 to 2019) will impact on the national cereal area, particularly spring barley and especially in the north-east. Provisional plantings for 2015 show the area of spring barley (258,000ha) is the lowest since 2010.

Combinable Crops Summary
Strengths of Combinable Crop Sector

- Combinable crops in the region have a range of market outlets in close proximity. It is estimated that crops on average need only travel 30 miles to a destination, which lowers transport costs and improves efficiency.
- The geographic location relative to whisky distilleries and maltsters. The Scottish whisky industry is large, demand is increasing, and a market for malting barley is on the region's doorstep.
- The strategic location and ready access to a number of ports in the region allow efficient exporting e.g. most of the OSR grown in the region is transported via a port. Ports regularly used include: Banff, Fraserburgh, Peterhead, Aberdeen and Montrose. These facilities also permit import opportunities.
- The region is well serviced by a range of grain merchants and co-operatives. Good mix of regional and national companies ensure a competitive, quality service.
- The climate and soils particularly suit OSR production which is an important break crop. The yields of OSR can be the highest in the country. Ready access to a range of ports means OSR is efficiently transported to markets in mainland Europe.
- The two farmer-owned grain co-ops which provide over 110,000t of modern grain drying and handling systems fit for the future. This has allowed arable farmers the opportunity to replace aging on-farm infrastructure with modern grain drying and storage facilities at a lower cost.
- A supportive Scottish Government. Access to capital grant funding through the 'Food Processing, Marketing, Co-operation Grant' (FPMC) scheme was crucial to ensure farmers invested in modern central grain stores.
- The presence of a major livestock sector and associated animal feed compounders in the region ensures a strong demand for feed grains.

Weaknesses of the Combinable Crop Sector

- Restrictions in soils, northern location and climate limit the range and yield of combinable crops. Harvest is late relative to other areas of the UK and Europe. This can affect final yield and quality and does increase risks, especially in a late wet season.

- Lack of haulage companies and infrastructure. The number of haulage firms and lorries have steadily declined over the last five years. The region has few national fleets e.g. nobody has over 50 lorries.
- The demand for animal feed continues to decline with falling livestock numbers and changes in company policy (e.g. Karro Foods selling weaner pigs into England).

4.5.6 Potatoes

Market Overview

Potatoes are a very important cash crop in Scotland with Angus being the main potato growing area in Scotland. However, there are no potato processing facilities in the region and very little processing activity nationally which does impact on the viability of potato growing in Scotland. It is estimated only 24,000t is processed in Scotland by various small players e.g. Mackies crisps, Scotchip, and Stir Fresh.

Potato production has become specialised with growers either focusing on ware or seed production. These are two distinct markets each with their own distinct challenges and issues. The trend over the last 10 years has seen producers move into ware growing for the pre-packing retail market (allowing a concentration on yield and simpler growing regimes), with seed producers seen as the poor relation. With ware prices being very low for the last two years, that may no longer be the case.

Impact of supply & demand balance.

Price volatility has always been a feature of the potato sector, driven by production and demand imbalances. Potatoes are a 'staple' food and as such demand is inelastic to price. Normally, the lower the price of an item, the more people buy, however, inelastic demand means that a change in price has little impact on demand. Annual GB potato production is shown in table 89 below which also shows the estimated average free-buy price.

Total 89. GB Potato Production

	2010	2011	2012	2013	2014
Total Planting ('000ha)	127	128	122	122	121
Average Yield (t/ha)	46.1	47.4	36.9	45.8	47.2
Total Production (MT)	5.9	8.1	4.5	5.6	5.7
Av free-buy price/t	£95	£101	£311	£154	£100

Source: AHDB Potato

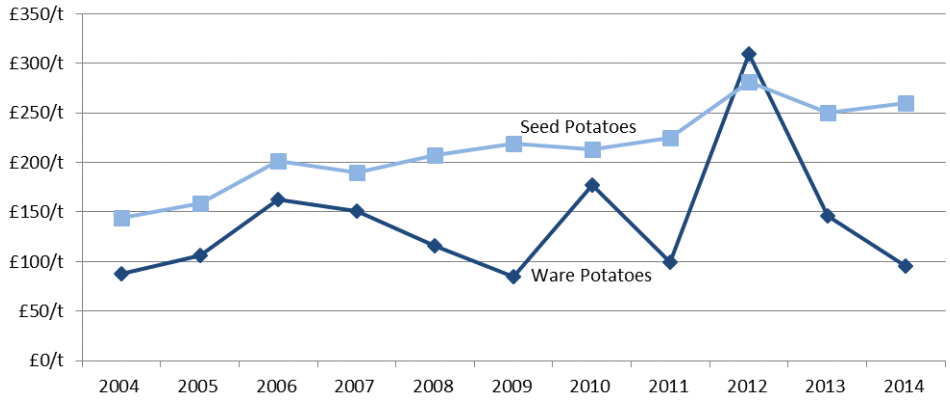
Changing consumption

Consumption of fresh potatoes continues to decline (15% in last 5 yrs) while processed potato consumption shows steady growth. The main processed forms are; frozen chips, frozen potato products, crisps, chilled potatoes, convenience and canned potatoes. From around 2-3 years ago, processed potato consumption exceeded fresh consumption.

Changing consumer buying patterns with smaller, more frequent shops is also contributing to the decline in fresh potatoes sales, as smaller pack sizes reduces waste at home. A feature of the market is that fresh potatoes are perishable so can't be stored any length of time and therefore have to be processed for an extended shelf life.

Scotland grows 22% of total GB production but with only 8% of the population this means surplus potatoes have to be transported to a market (haulage to England costs £40+ per tonne). In general, 55% of the Scottish crop is down to ware with the balance (45%) grown for seed potatoes. Average prices for both markets is shown in the following graph.

Figure 14. Scottish Seed and Ware Potato Prices 2004 to 2014



Source: Economic Report on Scottish Agriculture 2015

The following table shows the intended utilisation of the national potato crop, showing the importance of the pre-pack market and seed which take a combined 92% of production.

Table 90: 2014 Scottish Potato Production by intended market sector

Total Production (1.22mt)	% Share
Fresh bags	2.3
Fresh chipping	1.5
Pre-pack	52.7
Processing	2.0
Other ware	2.9
Seed	38.4
	100%

Source: AHDB Potato

Scottish Ware Packers

The 5 main packers in Scotland who handle the bulk of the ware crop are shown below with estimated tonnages. The annual output value of ware potatoes varies each year depending on the average sale price. At an estimated average ware price (2014) of £100, this contributes £76m.

Table 91. Scottish Ware Packers

Company	Scottish Depots	Tonnages
Bartlett's	Airdrie	130,000
Greenvale AP	Duns, Berwick	85,000
Branston	Abernethy	85,000
IPL	Taypack, Dundee	90,000
Co-op	Carnoustie	50,000

		440,000

Source: Trade Estimates

In a recent development, Asda's direct supply arm IPL, acquired QV Foods which includes their Scottish packing depot at Taypack outside Dundee. Asda's move into direct supply with the acquisition of IPL five years ago is seen as a way to take costs out of their supply chain to improve their competitiveness.

The rise of the supermarket discounters is also impacting on the ware market. For example, some discounters did monthly tendering last season, taking advantage of the glut of potatoes and falling prices.

Distance from the main market in England and the high cost of haulage does add cost and reduces the competitiveness of the Scottish potato sector. Typically is costs £35-£40 per tonne to deliver potatoes to Yorkshire.

At the farm level, the availability of 'clean' land is an issue; free of eel worm, ground keepers and disease carryover. The field testing regulations have become more stringent. Potato growers are very professional and committed and are reluctant to reduce their growing area. Due to rotational constraints most growers rely on rented land and intense competition results in high seasonal rents (£400-£500 per acre in the major growing areas).

The consistency in potato yields is generally improving with less variability due to better agronomy techniques including access to irrigation.

Seed Sector

The seed sector is generally doing well, certainly faring better than the ware market. 2014 saw lots of disease issues in terms of tuber health; blight, tuber blackleg and watery wound rot. One of the problems was that many of these health issues didn't manifest until arrival at their export destination on encountering warm conditions.

In general, 60% of the Scottish seed crop is destined for domestic markets (England), with the balance (40%) going for export. The trend in recent years is that the domestic market is shrinking with exports expanding. Nationally some 320,000t of seed potatoes are grown for sale with c100,000t going for export.

The trend is to grow seed crops on contract - it is an expensive crop to grow so too risky to grow on the open market. Most varieties (all new ones) are now controlled by plant breeders with less free varieties (e.g. Maris Piper, Hermes & Lady Rosetta are all free varieties).

The number of potato merchants has shrunk dramatically over the last 20 years as a result of re-structuring or retirement. Most of these business were small with local staff.

There are lots of inherent risks when exporting seed potatoes. Being comprised of 80% water, potatoes are a very perishable commodity. Latent diseases on the tuber can suddenly manifest once arriving at the export destination. Currency fluctuations and the strength of sterling relative to other currencies can make Scottish potatoes relatively expensive compared to Dutch seed.

Issues

The main challenge for the sector is the continued decline in fresh potato consumption in the UK. Over the 10-year period to 2013, in-home fresh consumption fell by 27% (AHDB Potatoes). The demand for fresh potatoes is affected by both lower consumption and less waste at home. Companies such as Bartlett's have done a lot to build potato brands such as 'Rooster' which grows the market and earns a premium.

There is a major structural issue in Scotland resulting from the lack of a major potato processor. As previously stated, Scotland grows 22% of the GB total area resulting in some potatoes having to be exported to markets. Seed exports are competitive and successfully growing markets. In contrast, surplus ware struggle to find sustainable markets in England.

The restrictions in the availability of some agrochemicals following EU directives is a growing challenge for the potato sector. Controlling blight is a major issue.

In addition to the lack of a major processor, there is a need for new product development to create new markets for potatoes. Examples such as 'rip & tip' where baby potatoes are ready to boil have proved popular. It shows the value of convenience for busy consumers, which attracts a premium.

4.5.7 Soft Fruit Sector

The Scottish Soft Fruit sector is worth an estimated £92m (RESAS 2014), contributing some 10% of total Scottish crop output value. Although the area of soft fruit may be relatively small, its output value is very high. The sector has experienced spectacular growth over the last 10-years with the introduction of new growing techniques, polytunnels and new varieties. The area of strawberries and raspberries has doubled over the last 10-years, to the extent that a quarter of the UK's production of strawberries and raspberries is now in Scotland.

Some 40 years ago the berry sector largely consisted of raspberries which were picked over a 3-week period destined for the processing market. Today the Scottish berry sector has been transformed; the growing season has been extended to 6 months (April to October), produce is now targeting the premium fresh market, and the range of crops grown has been extended. There has been a real revolution in the sector thanks to innovation and the introduction of new technology.

The main soft fruit is strawberries which accounts for 75% (£68m) of the sector's value with 913ha grown. Some 317ha is down to raspberries which contributes £13m (14% of the sectors' value). The other most popular soft fruit is blackcurrents with 308ha grown in 2014.

Scotland enjoys some natural climatic advantages with its long summer day length and cool temperate climate helping to produce high yields of well flavoured fruit. New varieties and growing techniques have also led to improved efficiency and yields. Over the last 5 years for example, the average yield of strawberries has risen from 23t/ha to 27t/ha with the shift to poly tunnels and table top production systems.

The introduction of new crops, such as blueberries and more recently cherries, has also opened up new markets. The demand for blueberries has exploded and with 90% imported into UK there is a huge opportunity to capture some of this market. The introduction of these new crops is helping extend the domestic berry market. With their health advantages and being home grown, Scottish soft fruit is meeting a growing demand.

A major factor in the Scottish berry sector's success has been the role played by the James Hutton Institute with their facilities at the crop research centre near Invergowrie, Dundee. They have been successful in securing a number of UK funded research projects into soft fruit particularly into breeding new varieties.

One of the contributory factors for the success of soft fruit in the region has been the role and leadership provided by Angus Soft Fruit and Angus Growers, the producer organisation based in Arbroath which comprises of 20 grower members. Importantly, as a producer group they have been eligible for EU funding to support technical and environmental innovation. It is believed that Angus Soft Fruit account for nearly 60% of the Scottish soft fruit market.

The group's links to overseas soft fruit growers has also allowed it to provide all-year supply to the major retailers. Angus Soft Fruits also runs its own breeding programme for strawberries, raspberries and blackberries which has successfully launched retail preferred varieties. Support for member growers include; full range of technical support and quality assurance, agronomy, plant breeding, financial, procurement, marketing and supply chain logistics.

One of the barriers to improved competitiveness is the continuation of the Scottish Agricultural Wages Board, while in England, the Wages Board has now been disbanded. The result is that Scottish growers have to pay their pickers higher wages resulting in higher production costs and lower margin that their English counterparts. The Scottish Agricultural Wages Board is an Executive Non-Departmental Public Body set up under the Agricultural Wages (Scotland) Act 1949. The SAWB exists to set minimum rates of pay and other conditions of service for agricultural workers in Scotland. Soft Fruit growers would like to see the SAWB abolished. The proposal to introduce a higher "Living Wage" is also of concern for growers who employ large numbers of seasonal pickers and packers.

4.5.8 The input supply and service sector

The agricultural input supply sector provides the raw materials and services which underpin farm activity. The sector makes an important contribution to the industry and represents the starting point for all food and drink supply chains. The sector is represented by a wide range of businesses, many of which are small, operating only on a local basis. Detailed information and statistics on the scope and scale of the sector do not exist. The sector does, however, have a number of trade associations which include the following:

- Agricultural Industries Confederation (AIC) see www.agrindustries.org.uk
- Agricultural Engineers Association (AEA) see www.aea.uk.com/
- British Agriculture & Garden Machinery Association (BAGMA) see www.bagma.com/
- British Veterinary Association see www.bva.co.uk
- Road Haulage Association see www.rha.net/

There are three elements of the service sector that are worthy of comment.

Agricultural Machinery Sector

- Currently agricultural machinery companies are going through a tough spell. With the squeeze on farm incomes, farmers are not investing in machinery. The fortunes of the sector are closely linked to the profitability and confidence amongst farmers.

- The collapse of the € against sterling £ hasn't helped as the main market for second hand machinery was export sales which is important for putting a floor on prices. The export market for 2nd hand tractors and machinery is now dead. Lots of farm machinery companies will have to write down 2nd hand machinery values and are expected to report trading losses in the future.
- UK tractor registrations are taken as a broad indicator of the strength of the domestic market for agricultural equipment. Figures from the Agricultural Engineers Association (AEA) show that new tractor sales were down for the first 6-month of 2015 by -10.2%. The average horsepower of new tractors continues to grow at 155hp compared to 120hp 10-years ago.
- There have been no major changes amongst the companies in this sector which are all regional rather than national companies. In the future the sector expects to see contraction.
- In response to the dependency on the farming sector, the majority of the companies have diversified into other sectors such as ground care /landscaping, construction equipment and the equine market.
- One of the challenges for the agricultural machinery market is the continual restructuring at farm level resulting in fewer farms and a declining farm machinery market.

Veterinary Practices

- Rural veterinary practices have seen their farm work decline sharply, struggling to remain profitable if reliant on the farm animal market. Large animal work (except horses) has severely contracted with activity levels halved. The slack has been taken up by a move into small animal (domestic pets) work.
- In the past rural veterinary practices would typically involve 75% large animal and 25% small animal work, typically these activity levels have now been reversed.
- The decline in dairy herds is cited as one of the reasons for the loss of business. Traditionally dairy cows provided the core of farm work (fertility, calving, feet, etc.).
- Other reasons for the loss of business include animal medicines and drugs being more widely available, pressure from livestock producers to reduce costs and increasing competition from practices outwith the region.
- For example, veterinary services to specialist pig producers are now largely provided from the North of England, due to the high degree of specialist knowledge required. This involves regular health visits, but no emergency service, which now has to be covered by farm staff.
- As a result of these pressures many rural practices have restructured and merged to form larger practices to drive down costs and improve profitability.

Livestock Hauliers

- The number of livestock hauliers has declined markedly over the last 10 years, especially amongst small, single lorry operators.
- Operating costs continue to rise, particularly fuel, licensing and maintenance, with margins squeezed.
- New EU legislation has impacted on the sector, requiring more checks, more down time, cleaning and continual upgrade costs.
- There are concerns about the future of this important support service.

4.5.9 Impact of European Agricultural Co-ops moving into the UK

Over the last 10 years we have seen the big European agricultural co-ops move into the UK market in the search of growth. It is anticipated this trend will only increase in the future. Part of the reason is

UK farm co-ops have an estimated market share of less than 25% and are characterised as being 'young' and 'small' co-ops. In contrast the European farm co-ops are 'mature' businesses with market shares of over 50% due to past mergers so are very large and multinational. Examples of European farm co-ops operating in the UK include Arla, Danish Crown (Tulip) and ForFarmers. The drive for scale is seen as a route to deliver value to member farmers and to become a more global agri-business. With scale comes more capital, knowledge, managerial skills, market access and negotiating power.

4.5.10 Summary and Key conclusions

A number of conclusions can be drawn from this review

1. The agri-processing sector is very important for the region and its future. It provides ready markets for farm production, adds value to primary produce and often provides the leadership for the chain. Without a vibrant, thriving processing sector farms in the region would be disadvantaged. There is a symbiotic relationship between farms and processors, both being inter-dependent on each other.

2. Businesses are operating in a totally different environment since the last study. The world has changed and things have not got any easier. Volatility and risk has increased, as has the speed of change. Successful businesses now have to be agile, quick to respond to market changes, and more resilient to manage risk more effectively.

3. The continued loss of processing facilities in the region is a real concern. Some elements of the sector are very fragile and in need of reinvestment. The trend for continued consolidation to get scale and production efficiency to improve competitiveness is ongoing. There is a move from local regional facilities to larger, more central national (and international) plants. Across the sector, firms report a squeeze on margins and low profitability. This is affecting their ability and confidence to undertake much needed reinvestment.

4. What is happening with the major retailers, the rise of the discounters and the resulting supermarket wars are all having a profound effect on the sector. There is real downwards pressure on wholesale prices and margins, while expectations continue to rise. Local processors are vulnerable to changes to procurement policies and requirements of individual supermarkets. Market expectations and specifications are increasing as consumers become increasingly more sophisticated. The trend towards supermarkets carrying less product lines has seen the culling of product listings. As a result regional food companies are finding it harder to build 'brands'.

5. Processors have a concern about future supplies at the farm level. The consolidation and restructuring going on at the processor level is not happening on farms. There is a belief many farmers have been slow to tackle poor technical performance and have not adopted a market driven supply chain approach. Improvements in productivity have in general been slow, and the reliance on subsidy may be holding farmers back.

6. Future labour supplies, skill shortages and an aging work force are a concern. Succession is an issue for many companies in the sector, particularly for key senior positions. The lack of agricultural graduates in Scotland has been highlighted.

7. Although many companies are involved in Carbon Management Plans there is still uncertainty about the potential impact of climate change and in particular meeting Scottish Government's targets for an 80% reduction in GHG emissions by 2050. The main concern is with the livestock sector which produces large quantities of methane which is claimed to be 23 times more damaging than carbon dioxide.

8. The importance of Scottish Government support and access to grant funding particularly for capital investment and as a route to drive innovation and technology improvements is crucial.

4.6 THE FOOD SECTOR OVERVIEW

4.6.1 Introduction

A detailed analysis of the North East food sector is not a requirement of the brief for this study. However, if we are to define the strategic position of land based industries (especially agriculture) in Aberdeenshire, Angus and Moray we need to understand what is happening in the local food sector. A vibrant and competitive food sector using local produce provides the premium prices which help farms prosper.

Note that the primary processing sector is discussed in more detail in section 4.5, so there will be some overlap with this section.

This section is presented as a series of key points, drawing heavily on a number of existing studies; The *North East Food and Drink Sector Survey 2014* prepared by the Aberdeen and Grampian Chamber of Commerce Research Unit for the Grampian Food Forum; The *NE Scotland Fish Processing Strategy Report* 2015; The *TERC Staff Recruitment and Retention in the Tayside Food and Drink Manufacturing Sector* study; The *AFCMA project final report*. Most available analysis covers Aberdeenshire, Aberdeen and Moray.

4.6.2 Economic Importance of the Sector: Employment and Gross Value Added (GVA) Trends NE and Scotland

In the following tables "North East" is Aberdeen, Aberdeenshire and Moray. Note also that food service businesses, wholesalers and retailers are excluded from the food sector categories below.

Table 92. Food Sector Employment Aberdeen, Aberdeenshire, Moray

	Employment			
	NE Total 2012	NE as % of Scotland	NE change 2009 - 2012	Scotland change 2009 - 2012
Agriculture	11,306	17	-7	+3
Fishing	2,386	40	+25	-2
Manufacturing (food)	7,194	22	+6	+2
Manufacturing (drink)	1,258	12	-9	+13
Total	**22,144**	**19**	**0**	**0**

Table 93. Food Sector GVA Aberdeen, Aberdeenshire, Moray

	GVA			
	NE Total 2011	NE as % of Scotland	NE change 2009 - 2011	Scotland change 2009 – 2011

Agriculture	150	17	+31	+44
Fishing	113	39	+54	+41
Manufacturing (food)	297	21	+13	+6
Manufacturing (drink)	366	13	+11	+14
Total	**926**	**17**	**+18**	**+17**

- Angus (excl Dundee) adds at least another £30M and 1,000 FTE jobs to the GVA and employment figures above.
- There are clearly some strong regional clusters hidden within the totals, with 900 of the drink sector jobs and many of the biscuit and baking sector jobs in Moray. Most of the fishing-related jobs are in NE Aberdeenshire.
- Given that the NE has 11% of Scotland's population, the region has a disproportionately high share of Scottish food sector employment (22%) and GVA (21%), and in food manufacture it's share of both is increasing over the period analysed above.
- This growth has taken place despite one of the deepest world recessions, though the North East has been sheltered by the buoyant oil industry.
- Given the recent level of activity in distilling and the partial recovery of the world economy we could expect that the growth figures after 2011/12 have been even higher.

4.6.3 NE Food Sector Development Trends

The following key points were identified from the survey of 93 NE food businesses for the AGCC NE Food and Drink Sector Survey. 37% of the businesses responding were micro-enterprises (<10 employees), 53% SME's and 10% large.

- Only 6% of surveyed NE food businesses have not invested in their operations in the last 2 years. More than two thirds have invested in equipment to improve productivity and capacity. Over half have invested in staff development and process improvements. A fifth have made some sort of investment in energy efficiency or renewables.
- More than 80% of the added value businesses expect to expand (at about 4% per year).
- Margins vary. About a quarter have tight margins (2% or less), but expectations across the board are of margin improvements.
- Only one business expects to relocate out of the area.
- 64% do not trade outwith the NE. However, for the whole group it is estimated that 38% of revenue is generated from exports beyond the UK. Clearly there are a small number of businesses heavily involved in overseas markets, though the proportion of businesses involved in exporting has risen to 36% from 29% in 2011. A quarter expect to export for the first time in the next 2 years. England is a critical market; 50% of the revenue of surveyed businesses is generated south of the border. Most of the businesses, however, see plenty scope for expansion of sales within Scotland.

- Seafood and whisky are the number 1 and 2 export items. The key export growth market is the USA (which according to Scottish Development International has overtaken France as Scotland's top export destination).

- Skills shortages are a major issue. This is a problem when 65% want to increase their workforce over the next 2 years. Engineers and senior management are the most difficult to recruit, but over half rate even production staff as difficult or very difficult to recruit. Low average salaries in the sector don't help; £20,344 vs. £25,690 for Scotland as a whole.

- 68% in the survey were family businesses (according to Scotland Food and Drink 80% of Scottish food businesses are family run). As with employees, attracting family members in to the business when wages are higher elsewhere is an issue.

- Many of the food businesses are diversified e.g. they do retailing as well as manufacture, are perhaps involved in tourism and primary production

- Three quarters expect to expand their range of products, half expect to increase online or direct sale via their own retail outlet and 30% expect some future involvement in tourism. Many are aware that the spending power of NE consumers may fall permanently.

- The majority of the food businesses do not collaborate with others, though processors are most likely to, especially to share supply chain costs.

- Fuel, energy, transport, general running costs and raw material costs are listed as the biggest constraints to growth. Broadband speed is a problem for a minority. Major external costs are of course competition, but also Government policies. Availability of finance is becoming less of a problem, when compared with previous surveys.

- Almost all the surveyed businesses had an on-line presence though only about a third actually sold on-line, with almost half using it as an advertising medium. 91% were on Facebook, 70% Twitter, 49% Linkedin and 20% YouTube.

4.6.4 Farmers Markets

The AFCMA final report and our discussions with traders give some insight into the development of **Farmers Markets** in the area.

- In 2009 there were 8 active Farmers Markets affiliated to the AFCMA in Aberdeenshire; Aberdeen City, Macduff, Peterhead, Ellon, Huntly, Inverurie, Banchory, Stonehaven. Subsequently 5 more were established in Alford, Turriff, Westhill, Balmedie and Torphins. Ellon and Alford have now ceased operating. In Angus there are regular markets in Dundee, Montrose and Forfar.

- The number of businesses using Farmers Markets has grown (Aberdeenshire Council site listed 31 in 2009, 55 in 2014) though a good number have ceased trading but been replaced by other new starts.

- Only a limited number of Farmers Markets can be viable in the area, depending on the sites available, their footfall and the capacity of the small food businesses to service them. Having the critical mass and range of stalls at each market is critical to draw consumers. The proportion of food sales through these markets can only ever be small, but traders report that they are an excellent starting point for a new business; cash sales, instant feedback on their products, learning about consumer attitudes, developing confidence. They are a

springboard. Most businesses then go on to get real growth via direct deliveries to retail/deli/restaurant outlets, but often continue to value Farmers Markets as a buffer – a means to sell what has not been taken up by other outlets each week, and to test new products.

- Taking a wider view, they reconnect consumers with producers, they foster a local quality food culture which influences buying patterns in other outlets and knocks-on to tourism, and they can invigorate local towns (e.g. Torphins, which has few shops). The local capacity created by the markets can lead to more events such as Food and Fiddle Fortnight in Banchory and Stonehaven Feein' Market.

4.6.5 Fish processing

NE Scotland has now overtaken Humberside as the most important centre for seafood processing in the UK with 78 seafood processing businesses in Aberdeen and Aberdeenshire alone, out of a total Scottish industry of approx. 120 businesses. Peterhead remains the largest landing point for whitefish in Europe. In 2013 the area had 50% of Scottish seafood landings by volume (157,859 tonnes) and 40% by value (£160M).

The scale of the seafood processing sector in the area and its export orientation clearly can have important knock-on effects for land based produce.

Seafood processors share many of the problems of farm produce processors.

4.6.6 Use of the SRDP Food Processing, Marketing and Cooperation Scheme by the food and agri-processing sectors in NE Scotland.

These schemes were aimed at helping food, drink and agri-processing businesses to invest in facilities and technologies, to carry out feasibility studies and also to employ marketing development staff. The tables below show that the North East absorbed 30% (over £17M) of the total Scottish awards. This is a big proportion given the areas small share of the Scottish population, but probably not surprising given the range of livestock and crop produce which derives from the very varied and often intensive agriculture in the area.

Aberdeenshire had a larger number of awards than Angus and Moray, but Angus had the biggest share of the funds (even more so if Dundee is included) due to major investments at the Brechin pig abbatoir, the new Angus Cereals coop facility at Montrose, Mackays jams, the Dundee cold store and a good number of fruit and vegetable processing and packing investments. These investments will strengthen the long term position of specialist cropping in the area. Moray had 7 successful awards and a share of funds which generally matches its share of agricultural output. Looking at the sub-regional distribution of awards makes little sense as, for example, investment in a pig abbatoir in one location has benefits throughout the NE. However, it is perhaps worth noting that there were no awards in the Angus Glens and Uplands sub-region.

While 58 NE businesses in total benefited from these schemes, 5 businesses received almost 50% of the funds.

Table 94. Awards made under Food Processing, Marketing and Co-operation and Marketing Development grant schemes, August 2008-February 2014

Data source: All data derived from details of grant recipients on the Scottish Government website, http://www.gov.scot/Topics/Business-Industry/Food-Industry/granttimetable/pmcgawards. © Crown copyright. Contains public sector information licensed under the Open Government Licence v3.0.
All data is based on capital and other non-capital grants awarded. Local authorities and subregions information was based on the locations provided and internet searches (© Google 2015), with reference made to the parish-based subregion boundaries. Note that no awards were received by companies that could be linked to the Glens and Uplands subregion (Angus).

Values: as shown, Total awarded (%) shows the total of grants awarded going to companies in the regions and subregions, shown as a proportion of all awarded grants between August 2008 and February 2014.

Region	Number of awards	Total awarded (£)	Total awarded (%)
NE Scotland	**58**	**17,294,539**	**30.38**
Aberdeenshire	33	6,874,214	12.08
Banff and Buchan	7	1,456,357	2.56
Buchan	6	572,678	1.01
Formartine	4	1,640,930	2.88
Garioch	7	2,450,908	4.31
Kincardine and Mearns	5	451,890	0.79
Marr	4	301,451	0.53
Aberdeen City	1	174,371	0.31
Angus	14	7,089,311	12.45
South and East Angus	9	3,995,489	7.02
Strathmore	5	3,093,822	5.44
City of Dundee	3	828,211	1.46
Moray	7	2,328,432	4.09
Keith and Cullen	1	122,909	0.22
Laich of Moray and Forres	5	930,839	1.64
Speyside and Glenlivet	1	1,274,684	2.24

Table 95. The twenty largest grants received by companies in North East Scotland as part of the Food Processing, Marketing and Co-operation and Marketing Development grant schemes, August 2008-February 2014

Data source: All data derived from details of grant recipients on the Scottish Government website, http://www.gov.scot/Topics/Business-Industry/Food-Industry/granttimetable/pmcgawards. © Crown copyright. Contains public sector information licensed under the Open Government Licence v3.0.
Local authorities and subregions information was based on the approximate locations provided and internet searches (© Google 2015), with reference made to the parish-based subregion boundaries. 'FPMC' refers to "Food Processing Marketing and Co-operation", this is derived from the table header and is likely to be the same as the Capital grants in other years.

Values: as shown.

Type	Company	Location (approximate)	Award (£)	Year	Subregion, Local Authority
FPMC	A P Jess Ltd	Brechin	2,662,693	2014	Strathmore, Angus
Capital	Angus Cereals Ltd	Angus	2,262,351	2008	South and East Angus, Angus
FPMC	Ballindalloch Distillery	Ballindalloch	1,274,684	2013	Speyside and Glenlivet, Moray
Capital	Aberdeen Grain Storage Ltd	Aberdeen	1,004,880	2008	Garioch, Aberdeenshire
Capital	Alba Proteins	Kintore	911,937	2009	Garioch, Aberdeenshire
Capital	Dundee Cold Stores Ltd	Dundee	587,960	2010	City of Dundee
Capital	BrewDog plc	Ellon	551,662	2012	Formartine, Aberdeenshire

Capital	Mackies Ltd	Rothienorman	467,589	2008	Formartine, Aberdeenshire
Capital	A J Duncan	Turriff	459,850	2012	Banff and Buchan, Aberdeenshire
Capital	Stirling Potatoes	Angus	437,372	2009	South and East Angus, Angus
FPMC	Mackays Limited	Carnoustie	382,939	2013	South and East Angus, Angus
Capital	Mackies Limited	Rothienorman	362,293	2009	Formartine, Aberdeenshire
Capital	Benzies	Turriff	341,437	2012	Banff and Buchan, Aberdeenshire
Capital	Donald Russell	Inverurie	312,256	2009	Garioch, Aberdeenshire
FPMC	AJ Duncan	Turriff	292,877	2013	Banff and Buchan, Aberdeenshire
FPMC	Anniston Farms	Lunan	292,460	2013	South and East Angus, Angus
Capital	Farmlay Eggs	Strichen	292,120	2009	Buchan, Aberdeenshire
Capital	Mackies	Rothienorman	259,386	2010	Formartine, Aberdeenshire
Capital	Speyfruit Ltd	Elgin	256,190	2008	Laich of Moray and Forres, Moray
Capital	The Jerky Group	Forres	245,959	2012	Laich of Moray and Forres, Moray

4.6.7 Conclusions

- The growth figures and survey responses paint a very positive picture for the future of the food processing sector in the NE.
- However, as discussed elsewhere, this hides major differences between sectors and types of businesses. Primary processors, especially of meat and milk, have small margins, often caught between a limited supply base and a very competitive retail sector. There have been closures and consolidation. Added value processors and those selling direct to consumers have a much more positive outlook, but may handle quite a small proportion of farmers output.
- A strong food processing sector does not always mean good prospects for farms. The bakery and biscuit sectors are doing well, but use little local ingredient (the major exception being oatcakes and oat biscuits).
- There have been a number of very successful new entrants to the food sector in the NE and a number of notable expansions over the last 10 years. While their impact should not be underestimated, the quantity of product they use equates to the output of only a handful of farms. The real gauge of success will be if many more new businesses are created and if the existing new starts can grow beyond micro-business scale (<10 employees) and start to use quantities of produce which impact on farmers prices and hence growth decisions.
- Growth means selling beyond Moray, Aberdeenshire and Angus. Some of the areas big food and drink companies sell worldwide, but two thirds don't sell outwith the study region. This is the No 1 priority for the North East of Scotland Food and Drink Strategy 2015 – 2020.
- The NE has absorbed a big share of the SRDP food related grant awards (30%) and the range of investments and sectors covered is very broad. This sectoral breadth and the geographic coverage must be encouraging. Angus has been the focus for a lot of primary processing investment partly due to the new Brechin pig abbatoir and Angus Cereals facility at

Montrose, but also due to a lot of fruit, potato and vegetable sector developments which will underpin specialist cropping in the area.

4.7 TRENDS IN THE WIDER RURAL ECONOMY

Political, economic, social and technical drivers are continuously changing the nature of rural areas across Scotland and, as a consequence, the role of land based sectors. The previous report noted that agriculture has some impact on the prosperity of rural areas in North East Scotland, but, increasingly, non-agricultural developments in rural areas are creating opportunities and threats which shape agriculture. This section reviews recent changes in the nature of rural economies in North East Scotland focussing, in particular, on population trends, changes in economic structure (including key sectors), income and employment before considering a broader indicator of socio-economic performance in the region area. The aim is to place the analysis of land based sectors into a wider context before considering their medium and longer term prospects. Data has been drawn from a number of sources including the Census, the Scottish Neighbourhood statistics website (www.sns.gov.uk) and the Socio-Economic Performance Index developed by James Hutton Institute (http://www.hutton.ac.uk/research/mapping-rural-socio-economic-performance).

4.7.1 Population and demographic change

Table 96 shows the level and change in population in the study region and compares this to data relating to Scotland as a whole.

Table 96. Population: level and change.

Region	2007	%	2013		% change 2007-13
Scotland	**5,170,000**	100.00	**5,327,700**	100.00	**3.05**
NE Scotland	**805,530**	15.58	**843,630**	16.32	**4.73**
Aberdeenshire	244,390	4.73	257,740	4.99	5.46
Banff and Buchan	38,019		38,260		0.63
Buchan	38,767		39,818		2.71
Formartine	40,949		43,169		5.42
Garioch	48,487		53,900		11.16
Kincardine and Mearns	41,122		44,071		7.17
Marr	37,046		38,522		3.98
Aberdeen City	212,460	4.11	227,130	4.39	6.9
Angus	113,540	2.20	116,240	2.25	2.38

Glens and Uplands*	1,578		1,588		0.63
South and East Angus	76,462		78,975		3.29
Strathmore	35,500		35,677		0.5
City of Dundee	143,700	2.78	148,170	2.87	3.11
Moray	91,440	1.77	94,350	1.82	3.18
Keith and Cullen	21,391		21,665		1.28
Laich of Moray and Forres	59,316		59,680		0.61
Speyside and Glenlivet	10,733	0	13,005	0	21.17

The table shows that just over 16% of the Scottish population lived in North East Scotland in 2013. Overall, the population in North East Scotland grew by 4.73% between 2007 and 2013 compared to an increase of 3.05% in Scotland as a whole.

Aberdeen city and Aberdeenshire had the highest growth rates of 6.9% and 5.46% respectively while Angus has the lowest population growth rate of 2.38% which was below the national average. At sub-regional level the pattern is far more mixed, driven by localised housing and infrastructure developments. However it may be surprising that, even in the most rural parts of the region and despite the economic downturn, there is no evidence of population decline.

The last report noted that changes in population levels were increasingly due to migration patterns as opposed to changes in numbers of births minus deaths or out-migration. Table 97 considers the proportion of the population in each region that have moved into the UK within the last five years, and of those resident, the proportion of total residents who were born outside the UK.

Table 97. Migration and place of birth.

Region	% Resident in UK for less than 5 years	% Born in EU outside UK	% Born outside EU
Scotland	**3.06**	**3.03**	**3.96**
NE Scotland	**4.60**	**4.21**	**4.67**
Aberdeenshire	2.42	3.20	2.77

Banff and Buchan	3.85	5.44	1.68
Buchan	3.19	4.28	1.82
Formartine	1.65	2.32	2.59
Garioch	2.30	2.53	3.71
Kincardine and Mearns	1.85	2.33	3.30
Marr	1.83	2.69	3.19
Aberdeen City	9.74	7.07	8.85
Angus	1.53	2.38	2.15
Glens and Uplands	0.96	1.78	3.00
South and East Angus	1.43	2.26	2.24
Strathmore	1.80	2.69	1.88
City of Dundee	4.74	3.78	5.23
Moray	1.80	3.13	2.12
Keith and Cullen	0.82	1.70	1.19
Laich of Moray and Forres	2.20	3.74	2.46
Speyside and Glenlivet	1.40	2.29	1.96

Data source: figures derived from 2011 Census data, bulk data tables. © Crown copyright. Data supplied by National Records of Scotland.

http://www.scotlandscensus.gov.uk/ods-web/data-warehouse.html#bulkdatatab (Downloaded 26/05/2015)

The two cities in the region (Aberdeen and Dundee) have been the main recipients of migrants from outside the UK. Aberdeen city in particular has a higher than average rate of migrants at 9.74% reflecting the international nature of the oil industry which dominates employment in the city as well as the importance of the higher education sector in the city. In terms of place of birth, the pattern varies by sub-region with, for example, Banff and Buchan having a much higher proportion of migrants who were born in EU countries than non EU countries, while in other parts of Aberdeenshire, eg Marr and Kincardine and Mearns, the opposite holds true. The issue of temporary migrants is discussed in section 4.5 in relation to agricultural employment.

Table 98 shows the demographic structure of the population by Council area in 2012 and population projections to 2037. Angus in particular but also Moray and Dundee City had a higher proportion of over 75 year olds than Scotland as a whole in 2012 (in Angus's case, 9.5% compared to 7.8% in Scotland). More critically, the table shows clearly how the population in North East Scotland is expected to age further over the next twenty-five years, putting increasing pressure on particular services in rural and urban areas alike. Overall population levels are expected to increase dramatically in Aberdeen City and Aberdeenshire, decrease in Moray and Angus.

Table 98. Projected population (2012-based) by sex and broad age group, Council and NHS Board areas, selected years

	(thousands)						% Change		
Age	2012			2037			2037		
group	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
	SCOTLAND								
All Ages	**5,313.6**	**2,577.1**	**2,736.5**	**5,780.4**	**2,835.5**	**2,944.9**	**8.8**	**10.0**	**7.6**
0-15	914.7	467.9	446.8	965.0	493.4	471.6	5.5	5.4	5.6
16-29	975.8	486.9	488.9	938.6	476.3	462.4	-3.8	-2.2	-5.4
30-49	1,450.7	707.2	743.6	1,424.5	723.9	700.7	-1.8	2.4	-5.8
50-64	1,046.6	512.2	534.4	979.1	475.4	503.7	-6.5	-7.2	-5.8
65-74	507.3	239.0	268.3	694.4	326.0	368.4	36.9	36.4	37.3
75+	418.5	164.0	254.5	778.7	340.5	438.2	86.1	107.6	72.2
	Council areas								
	Aberdeen City								
All Ages	**225.0**	**111.3**	**113.7**	**288.8**	**143.4**	**145.4**	**28.4**	**28.8**	**27.9**
0-15	32.9	16.9	16.0	47.6	24.5	23.1	44.8	44.9	44.7
16-29	56.7	28.0	28.7	58.2	28.1	30.0	2.6	0.6	4.5
30-49	62.7	32.3	30.3	82.8	41.4	41.4	32.1	28.1	36.4
50-64	39.5	20.0	19.6	48.7	25.2	23.5	23.1	26.1	20.0
65-74	17.2	8.0	9.1	24.2	11.8	12.4	41.1	47.3	35.7
75+	16.0	6.1	9.9	27.3	12.3	15.0	70.6	102.3	51.1
	Aberdeenshire								
All Ages	**255.5**	**126.7**	**128.8**	**299.8**	**149.7**	**150.1**	**17.3**	**18.1**	**16.5**
0-15	47.8	24.6	23.2	54.3	27.7	26.6	13.8	12.8	14.8
16-29	38.8	20.0	18.8	43.5	22.7	20.9	12.1	13.1	11.0
30-49	72.4	35.5	37.0	75.3	38.9	36.5	4.0	9.6	-1.3
50-64	53.6	27.0	26.6	51.7	25.4	26.3	-3.4	-5.7	-1.2
65-74	24.4	11.9	12.5	35.0	16.6	18.3	43.6	39.9	47.1
75+	18.6	7.8	10.8	39.9	18.3	21.5	114.7	135.6	99.7
	Angus								
All Ages	**116.2**	**56.5**	**59.8**	**115.3**	**57.2**	**58.2**	**-0.8**	**1.3**	**-2.7**
0-15	20.0	10.2	9.8	18.1	9.2	8.9	-9.4	-9.8	-8.9
16-29	17.6	9.0	8.6	15.2	7.8	7.3	-13.7	-13.2	-14.1

30-49	29.7	14.4	15.3	25.0	13.3	11.7	-15.7	-7.9	-23.0
50-64	24.8	12.1	12.6	19.8	9.7	10.2	-19.9	-20.2	-19.6
65-74	13.1	6.3	6.9	16.3	7.8	8.5	23.9	24.7	23.1
75+	11.1	4.5	6.6	20.9	9.4	11.5	88.6	110.3	73.9
	Dundee City								
All Ages	**147.8**	**71.1**	**76.7**	**170.8**	**83.4**	**87.4**	**15.6**	**17.3**	**14.0**
0-15	23.7	12.2	11.5	29.9	15.2	14.7	26.0	24.7	27.3
16-29	36.5	17.9	18.6	35.5	17.3	18.3	-2.6	-3.6	-1.7
30-49	36.2	17.7	18.5	46.8	24.0	22.8	29.4	35.8	23.3
50-64	26.2	12.7	13.5	25.5	12.3	13.1	-3.0	-2.8	-3.2
65-74	12.9	6.0	6.9	15.3	7.1	8.2	19.0	20.2	18.0
75+	12.3	4.7	7.6	17.8	7.4	10.4	44.9	58.9	36.3
	Moray								
All Ages	**92.9**	**45.6**	**47.3**	**90.9**	**45.2**	**45.7**	**-2.2**	**-0.9**	**-3.4**
0-15	16.7	8.6	8.1	14.5	7.4	7.0	-13.3	-13.5	-13.0
16-29	15.0	7.8	7.2	12.8	7.0	5.8	-14.8	-10.7	-19.3
30-49	24.4	11.9	12.4	20.7	10.9	9.8	-14.9	-8.8	-20.8
50-64	18.9	9.3	9.6	15.5	7.4	8.1	-18.0	-20.1	-15.9
65-74	10.0	4.7	5.2	12.6	5.9	6.6	26.4	25.6	27.0
75+	8.0	3.2	4.8	14.8	6.5	8.3	85.3	101.7	74.3

4.7.2 Economic structure

Table 99 shows the relative importance of different sectors in the region. In North East Scotland as a whole, the primary sectors (Agriculture, Forestry and Fishing) are relatively more important than at national level particularly in Aberdeenshire and Angus (4.38% and 4.03% respectively compared to 1.66% in Scotland). The importance of upstream and downstream sectors related to primary sector activity (such as the agricultural supply industries and food processing and retailing) is masked in the table due to their inclusion with other sectors and are discussed separately in this report.

There are some important differences in economic structure between the non-urban areas in the region with, for example, Aberdeenshire having a higher higher share of employment in professional and administrative services (11.97%), Moray a greater reliance on public administration (11.93%), and Angus a higher share of employment in Health and Social work (16.22%).

Table 99. Employment by industry sector, North East Scotland.

	Scotland	NE Scotland	Aberdeen -shire	Aberdeen City	Angus	City of Dundee	Moray
Agriculture, forestry and fishing	**1.66**	**2.41**	**4.38**	**0.24**	**4.03**	**0.30**	**3.22**
Mining and quarrying	1.35	5.64	7.37	8.91	2.36	0.53	2.91
Manufacturing	8.04	9.10	10.17	6.92	10.73	7.38	12.06
Elect. gas and water	1.57	1.05	1.18	0.75	1.17	1.29	0.95
Construction	7.96	7.78	8.76	6.01	9.08	6.96	9.09
Wholesale and retail	14.96	15.15	14.36	15.12	14.64	17.55	14.85
Transport and storage	4.97	4.73	5.07	5.54	3.81	3.69	4.18
Accomm. and food	6.28	6.06	4.83	7.36	5.36	6.87	6.04
Information and comm.	2.74	2.10	1.63	2.44	1.67	3.54	1.07
Finance and Real Estate	5.68	2.49	2.24	2.29	2.77	3.35	2.26
Prof. and admin services	9.56	11.15	11.97	15.48	7.62	7.42	6.76
Public administration	6.97	5.85	4.29	3.99	7.13	7.20	11.93
Education	8.42	8.45	8.10	8.17	8.61	10.01	7.88
Health and social work	14.97	13.84	11.81	12.85	16.22	18.82	12.73
Ent. and recreation	4.86	4.19	3.82	3.92	4.79	5.07	4.08

Information on economic structure at the sub-regional level is shown in tables 100 to 102 below. At this level, the differences in structure are more distinct with, for example the importance of the primary sector in the Glens and Uplands area of Angus particularly noticeable.

Table 100. Employment by industry sector, Aberdeenshire.

	Aberdeen-shire	Banff and Buchan	Buchan	Formar-tine	Garioch	Kincard. and Mearns	Marr
Agriculture, forestry and fishing	4.38	7.09	4.68	4.60	2.25	3.35	5.68

Mining and quarrying	7.37	5.20	6.29	7.32	9.15	9.00	6.02
Manufacturing	10.17	16.61	13.78	8.96	8.35	8.12	6.91
Elect. gas and water	1.18	1.26	2.35	1.10	0.85	0.87	0.79
Construction	8.76	9.05	8.76	9.12	8.30	7.80	9.91
Wholesale and retail	14.36	14.15	15.37	14.41	14.44	14.32	13.37
Transport and storage	5.07	4.89	5.56	5.45	5.41	4.76	4.11
Accomm. and food	4.83	5.30	5.30	4.27	4.01	4.74	5.91
Information and comm.	1.63	0.71	1.23	1.80	2.00	2.00	1.76
Finance and Real Estate	2.24	1.63	1.59	2.25	2.65	2.28	2.83
Prof. and admin services	11.97	7.05	9.31	12.79	14.34	13.90	12.57
Public administration	4.29	3.59	4.40	4.32	4.58	4.78	3.82
Education	8.10	6.94	7.04	8.49	8.46	8.61	8.71
Health and social work	11.81	12.96	11.01	11.36	11.64	11.76	12.42
Ent. and recreation	3.82	3.55	3.34	3.76	3.57	3.70	5.18

Table 101. Employment by industry sector, Angus.

	Angus	Glens and Uplands	South and East Angus	Strathmore
Agriculture, forestry and fishing	4.03	16.47	3.19	4.94
Mining and quarrying	2.36	2.21	2.65	1.75
Manufacturing	10.73	6.70	10.08	12.45
Elect. gas and water	1.17	0.63	1.19	1.18
Construction	9.08	8.35	8.59	10.19
Wholesale and retail	14.64	9.38	14.62	15.07
Transport and storage	3.81	2.99	3.90	3.67
Accomm. and food	5.36	6.70	5.52	4.91
Information and comm.	1.67	1.42	1.76	1.51
Finance and Real Estate	2.77	5.59	2.73	2.65

Prof. and admin services	7.62	8.43	7.71	7.35
Public administration	7.13	3.86	7.53	6.52
Education	8.61	9.22	9.18	7.34
Health and social work	16.22	11.98	16.60	15.72
Ent. and recreation	4.79	6.07	4.75	4.76

Table 102. Employment by industry sector, Moray.

	Moray	Keith and Cullen	Laich of Moray and Forres	Speyside and Glenlivet
Agriculture, forestry and fishing	3.22	3.81	2.43	6.95
Mining and quarrying	2.91	6.20	2.11	1.35
Manufacturing	12.06	13.34	9.64	24.68
Elect. gas and water	0.95	0.79	1.04	0.66
Construction	9.09	10.33	8.59	9.75
Wholesale and retail	14.85	16.59	15.10	9.77
Transport and storage	4.18	5.36	3.88	3.67
Accomm. and food	6.04	6.70	5.82	6.12
Information and comm.	1.07	0.85	1.21	0.62
Finance and Real Estate	2.26	2.15	2.29	2.32
Prof. and admin services	6.76	6.57	6.95	5.92
Public administration	11.93	4.08	15.54	4.88
Education	7.88	6.34	8.36	7.92
Health and social work	12.73	12.61	12.99	11.36
Ent. and recreation	4.08	4.28	4.03	4.03

4.7.3 Business trends.

The above discussion shows the importance of different sectors in the study region but mask differences in firm sizes across the region. Figure 8 shows, for Scotland as a whole, the number of business sites per 1,000 working age persons by intermediate zone (the smallest areas for which data is available).

Broadly speaking the Central Belt and the Ayrshire coalfield area show up as having relatively small numbers of businesses per 1,000 adults, whilst most of the remoter areas have more businesses per 1000 adults. In parts of the Moray coast low densities may be explained by large numbers of service personnel. Aberdeenshire is interesting showing high business densities to the south and west of Aberdeen city, perhaps associated with sub-contracting for the oil and gas industry. This pattern of business "density" is counterbalanced by substantial differences in size structure of firms. Large firms, employing more than 250 persons dominate the distribution of the urban areas while in remote rural Scotland large firms account for only one-fifth of employees. In all the non-urban categories, the dominant size group is 1-49 employees.

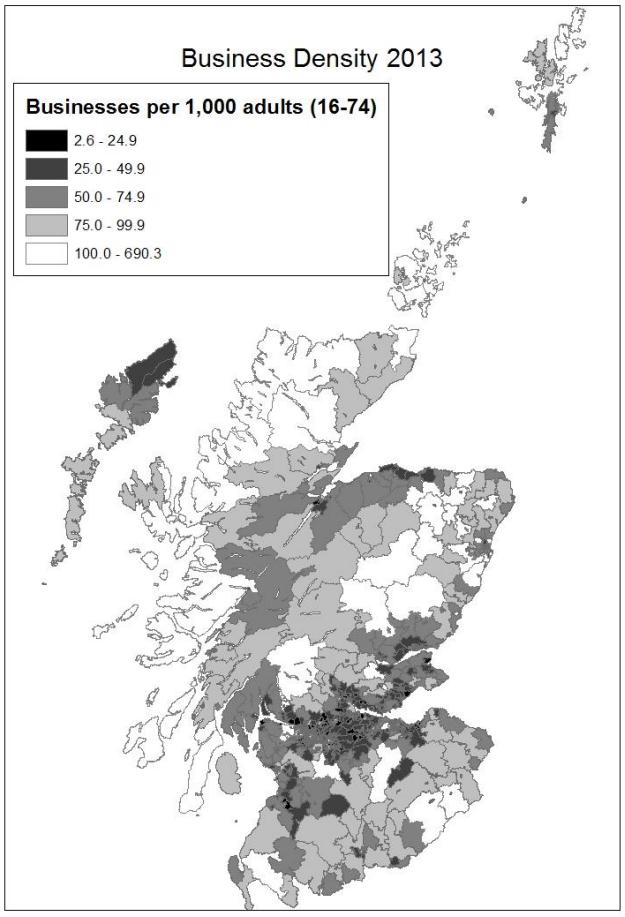


Figure 15: Business sites per 1,000 persons of working age, 2013, by Intermediate Zone
Source: IDBR (via Scottish Neighbourhood Statistics) and 2011 Census.

Business demography

Business demography relates to the "birth" and "death" of registered businesses. A registered business (or "enterprise") is "born" when it registers for VAT or PAYE, and "dies" when it deregisters. VAT registration is triggered by a turnover of £73,000 or more (2011-12 figures), and PAYE registration by employing one person. The ONS (2013 p2) argues that unregistered businesses (i.e. sole traders with turnovers less than £73,000) are not a serious omission from the database, since they account for a relatively small proportion of total UK GDP however it should be noted that such businesses are probably proportionately more important in rural areas.

The Scottish Neighbourhood Statistics (SNS) report business demography data for the Council Areas in the study region with rates expressed as a ratio to adult population (per 10,000 persons). Table 103 provides the three basic business demography rates (a three year average covering 2010-12), and for urban, accessible and remote areas overall.

Table 103: Business Demography by Scottish Council Area 2010-12

Council Area	**Births**		**Deaths**		**Net Rate**	
	Per 10,000 adults	*Rank*	Per 10,000 adults	*Rank*	Per 10,000 adults	*Rank*
Aberdeen City	62.0	*1*	42.0	*4*	20.0	*1*
Aberdeenshire	52.7	*2*	39.3	*5*	13.3	*2*
Angus	32.0	*21*	30.3	*19*	1.7	*10*
Dundee City	29.0	*26*	28.0	*24*	1.0	*17*
Moray	28.0	*27*	27.0	*27*	1.0	*17*
Urban Councils	**37.5**		**34.8**		**2.7**	
Accessible Councils	**36.9**		**33.7**		**3.2**	
Remote Councils	**38.0**		**36.8**		**1.1**	
SCOTLAND	**37.9**		**34.9**		**2.7**	

Source: Scottish Neighbourhood Statistics.

During the three years 2010-12 Aberdeen and then Aberdeenshire had the highest birth rate of new businesses in Scotland, surpassing both Edinburgh and Glasgow. At the other extreme, Moray was 27th out of the 32 Council areas. Aberdeen and Aberdeenshire were also in the top five in terms of business death rates but, despite this, had the largest net increases in enterprises in the whole of Scotland. The net increase in businesses in the other three areas in the region were far lower.

4.7.4 Income and activity levels

Table 104 reports unemployment and inactivity rates in North East Scotland based on 2011 census data. Unemployment rates in the region are shown to be relatively low with the exception of Dundee city where the rate is higher than the Scottish average (5.73% compared to 4.77%). Inactivity rates (showing the percentage of those who are not in employment or unemployed as a result of for example studying, looking after family or long term sick) follow the same pattern across the region as unemployment rates.

Aberdeen and Aberdeenshire are renowned for having particularly high levels of employment as a result of oil industry activity and, in the previous report, this was highlighted as an issue for the land based sectors as they are forced to compete for employees in a context where wages even for relatively unskilled employees are high. However, this situation has changed dramatically over the last twelve months as, with falling oil prices, many major oil-related companies have reduced staff numbers. There are likely to be sub-regions within Aberdeenshire as well as in Aberdeen city itself which are affected by this downturn in coming years.

Table 104. Unemployment and inactivity levels

Region	Unemployed	Economically inactive
Scotland	**4.77**	**31.02**
NE Scotland	**3.63**	**28.55**
Aberdeenshire	2.55	25.11
Banff and Buchan	3.39	30.48
Buchan	3.53	27.27
Formartine	2.19	22.92
Garioch	1.93	21.46

Kincardine and Mearns	2.21	23.71
Marr	2.25	26.48
Aberdeen City	3.07	26.74
Angus	4.17	30.72
Glens and Uplands	2.99	31.29
South and East Angus	4.15	30.89
Strathmore	4.29	30.29
City of Dundee	5.73	35.57
Moray	3.92	28.48
Keith and Cullen	3.92	30.11
Laich of Moray and Forres	4.06	27.84
Speyside and Glenlivet	3.06	29.12

Data source: figures derived from 2011 Census data, bulk data tables. © Crown copyright. Data supplied by National Records of Scotland.

http://www.scotlandscensus.gov.uk/ods-web/data-warehouse.html#bulkdatatab (Downloaded 26/05/2015)

As shown in Table 105, estimated incomes across the region are high, again with the exception of Dundee where average household income per week is substantially below the Scottish average (£349 as compared to £468). Aberdeenshire has the highest incomes although there are significant sub regional variations with estimated weekly incomes in Banff and Buchan for example, more than £150 less than in Garioch.

Table 105. Median gross household income per week, 2008-9 estimates

	Household income (£/w)		
Region	**Median**	**Standard Deviation**	**range**
Scotland	**468**		**201 - 1029**
NE Scotland	**520.5**		**244 - 971**
Aberdeenshire	595		331 - 971
Banff and Buchan	506		373 - 677

Buchan	582	331 - 696
Formartine	655.5	464 - 753
Garioch	659	464 - 971
Kincardine and Mearns	646.5	471 - 745
Marr	611	425 - 740
Aberdeen City	525	338 - 945
Angus	499	339 - 674
Glens and Uplands*	539.5	518 - 561
South and East Angus	526.5	339 - 674
Strathmore	513.5	362 - 637
City of Dundee	349	244 - 566
Moray	529	393 - 873
Keith and Cullen	497.5	396 - 597
Laich of Moray and Forres	544.5	393 - 873
Speyside and Glenlivet	541	445 - 629

Income data produced as part of the Income Modelling Project, carried out by Heriot-Watt University and sourced from Scottish Neighbourhood Statistics. © Crown copyright. Contains public sector information licensed under the Open Government Licence v3.0. : Scotland and local authority figures downloaded separately, otherwise figures show the "median of data zone medians".

Socio-economic performance

This section draws on the findings from research on the pattern of socio-economic performance across rural Scotland. In particular it presents the results from a Socio Economic Performance (SEP) index designed to help in the targeting of support to different parts of rural Scotland.

The Index designed to reflect the strategic objectives of the Scottish Government's National Performance Framework (NPF). In particular, the index combines 20 measures, mostly dated 2011, relating to the first four strategic objectives in the NPF: wealthier/fairer, healthier, safer/stronger, and smarter. Each is estimated and mapped at the data zone level. Details of the indicators included for each objective are given in Appendix A.

Figure 16 presents the overall index results for all of Scotland, Figure 17 presents more detail for the North East Scotland region.

Figure 16. SEP Index map, Scotland.

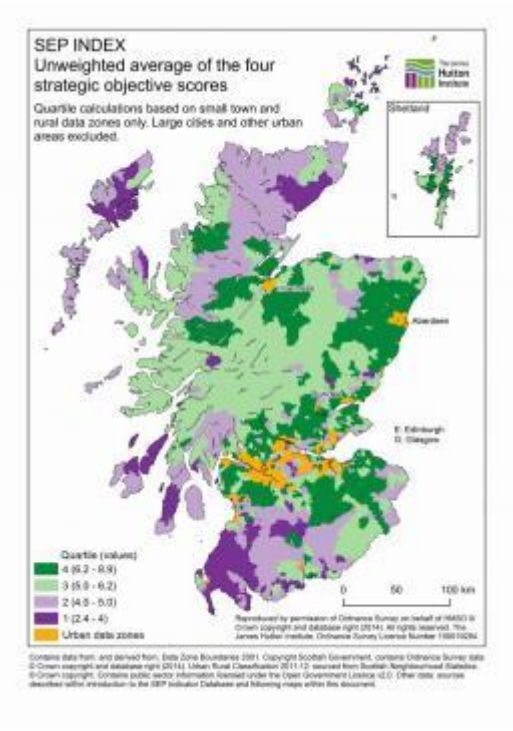
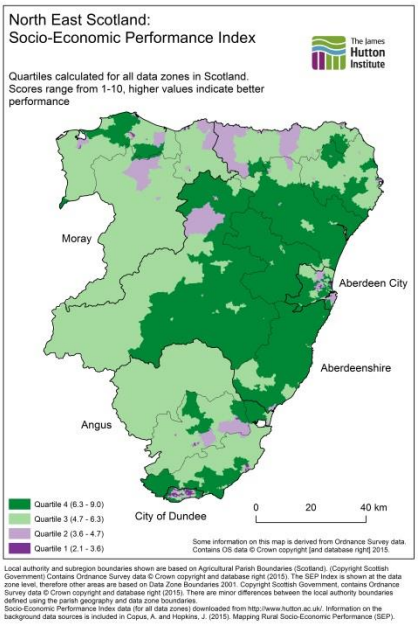


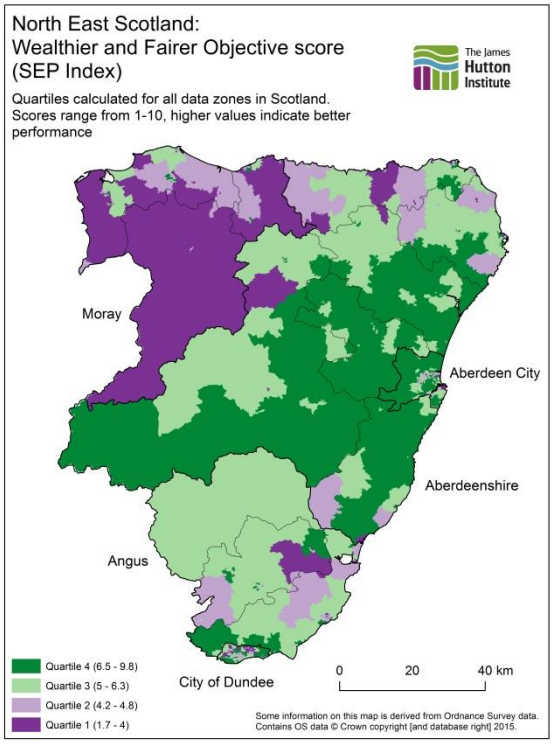
Figure 17. SEP Index map, NE Scotland.



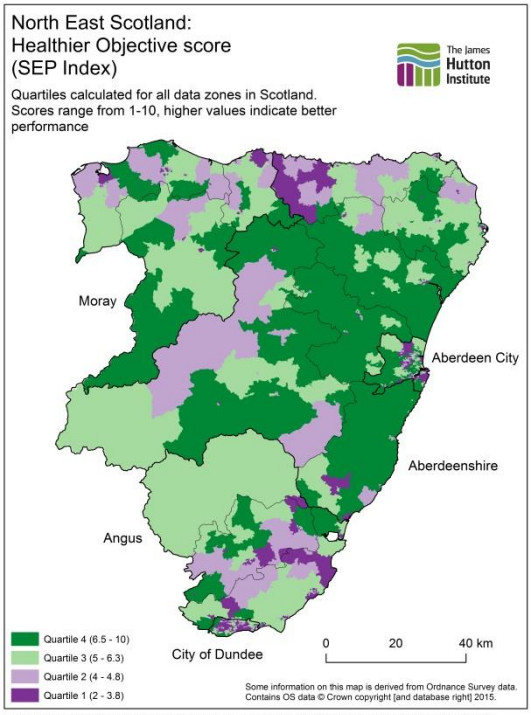
The results from the Index map captures two dimensions of spatial variation in performance; accessibility-remoteness and structural legacy effects. The data zones with the strongest socio-economic performance (coloured dark green) are clustered around urban areas: notably in Aberdeenshire, to the south and east of Edinburgh, the East Renfrewshire area near Glasgow and regions around the Tay Estuary, Perth, and Inverness. Meanwhile, the quarter of data zones with the lowest social and economic development (purple) are often situated in remote areas: Dumfries and Galloway, more isolated islands (including the Western Isles), the far north of Scotland and Argyll. Within North East Scotland, the less accessible sub-regions tend to be those with the lowest performance. However, this is a broad generalisation, with some remote areas (for instance, the mainland of Shetland) having high socio-economic performance. Similarly, communities in North East Scotland relatively close to large urban areas display low socio-economic performance.

All four of the separate domains which underlie the index (wealthier/fairer, healthier, safer/stronger, and smarter) are positively related to each other to some extent. For example, the wealthier/fairer and smarter thematic indices are relatively strongly correlated – i.e. data zones with a more highly educated population tend to be wealthier and to have lower levels of inequality. Data zones with healthier populations tend to perform better on the safer/stronger objective, suggesting a nexus of well-being. However the pattern of inter-relationships is interesting and neither aspect of well-being is closely related to the wealthier/fairer index; i.e. well-being appears to be to some extent independent of economic performance. Figure 18 below shows performance in North East Scotland for each domain. The highest divergence appears to lie in relation to the Wealther/Fairer domain with Moray and some of the sub-regions in Angus in the bottom quartile of performance.

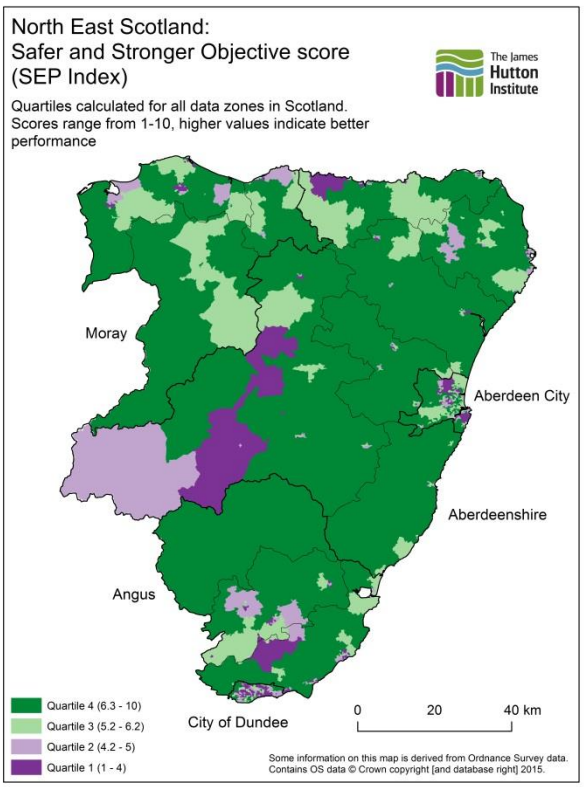
At a general level, the index suggests a strong positive performance of accessible rural areas, many of which are out-performing the larger urban areas. It is not clear whether this is due to “spread” effects due to congestion in nearby urban areas, or to the intrinsic attractiveness of accessible rural areas in terms of well-being and access to countryside public goods. It is important to distinguish between these two alternative processes since they point to different policy responses.



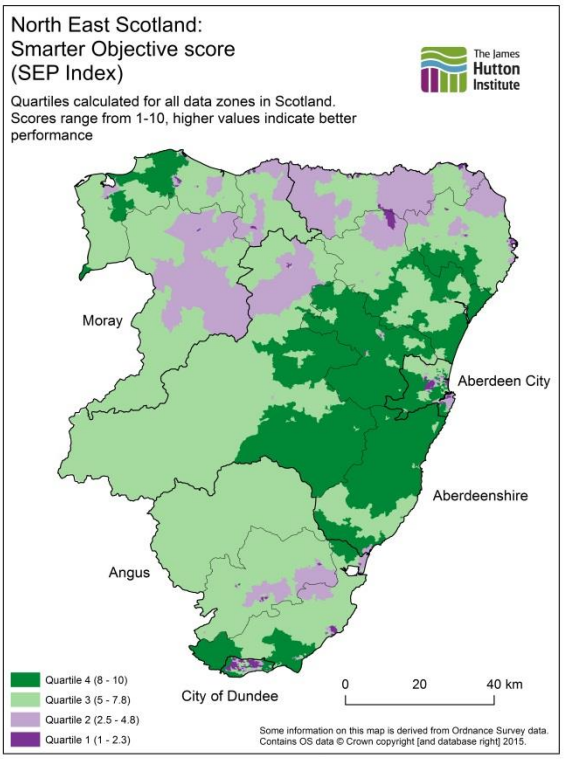
Local authority and subregion boundaries shown are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). The objective scores are shown at the data zone level, therefore other areas are based on Data Zone Boundaries 2001. Copyright Scottish Government, contains Ordnance Survey data © Crown copyright and database right (2015). There are minor differences between the local authority boundaries defined using the parish geography and data zone boundaries.
Socio-Economic Performance Index data (for all data zones) downloaded from http://www.hutton.ac.uk/. Information on the



Local authority and subregion boundaries shown are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). The objective scores are shown at the data zone level, therefore other areas are based on Data Zone Boundaries 2001. Copyright Scottish Government, contains Ordnance Survey data © Crown copyright and database right (2015). There are minor differences between the local authority boundaries defined using the parish geography and data zone boundaries.
Socio-Economic Performance Index data (for all data zones) downloaded from http://www.hutton.ac.uk/. Information on the background data sources is included in Copus, A. and Hopkins, J. (2015). Mapping Rural Socio-Economic Performance (SEP).



Local authority and subregion boundaries shown are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). The objective scores are shown at the data zone level, therefore other areas are based on Data Zone Boundaries 2001. Copyright Scottish Government, contains Ordnance Survey data © Crown copyright and database right (2015). There are minor differences between the local authority boundaries defined using the parish geography and data zone boundaries.
Socio-Economic Performance Index data (for all data zones) downloaded from http://www.hutton.ac.uk/. Information on the background data sources is included in Copus, A. and Hopkins, J. (2015). Mapping Rural Socio-Economic Performance (SEP).



Local authority and subregion boundaries shown are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). The objective scores are shown at the data zone level, therefore other areas are based on Data Zone Boundaries 2001. Copyright Scottish Government, contains Ordnance Survey data © Crown copyright and database right (2015). There are minor differences between the local authority boundaries defined using the parish geography and data zone boundaries.
Socio-Economic Performance Index data (for all data zones) downloaded from http://www.hutton.ac.uk/. Information on the background data sources is included in Copus, A. and Hopkins, J. (2015). Mapping Rural Socio-Economic Performance (SEP).

Figure 18. NE Scotland Sub-Region Mapping of the Four Socio Economic Performance Indices.

4.8 SKILLS AND CAPABILITIES

4.8.1 Background conditions

According to Lantra, the land-based and environmental sector employs approximately 121,500 people in 23,680 businesses across Scotland. Looking at this in greater detail the analysis shows that:

- 84% of businesses in the sector employ fewer than five staff.
- 28% of all workers are over 55 (compared with 16% across Scotland's workforce as a whole).
- The sector is forecast to need 3,000 new entrants per annum.
- 74% of the sector's workforce is male.
- 52% of the workforce is self-employed compared with just 11% across the whole workforce in Scotland.

Over the coming years, the sector is forecast to grow. It is estimated that the UK land-based and environmental sector will need 148,000 more people between now and 2020 as the industry grows in real terms. It is also estimated that another 447,000 people will be needed to replace those who leave the sector through retirement. There is a clear workforce development issue associated with these projections.

In 2011 Lantra estimates for Scotland suggested a need for 12,000 entrants by 2021 to meet demand. They stressed the more rapidly ageing workforce and poorer levels of qualification as key challenges. Pathways into employment in the sector were poorly defined and understood, Modern Apprenticeships uptake was poor.[13]

In its 2012 report **The UK Commission for Employment and Skills (UKCES)** confirms this expectation of greater demands on people and skills within the sector and highlights the significant and substantial changes which the sector is facing. Many of these drivers of change will affect the role of the land based sector within the wider economy, environment and society. Responding to these and will require a workforce able to demonstrate high degrees of flexibility and adaptability.

Balancing the linked challenges of addressing and adapting to the increasing threats and opportunities arising from climate change whilst dealing with feeding a growing global population and concerns over food security will clearly place additional socio-economic importance on the sector.

These factors are complex and cannot be addressed in isolation and other factors will place further demands on the sector and its workforce. For example environmental regulations e.g. in the control of water and emissions are key areas where science and technology skills will increasingly be required.

In addition to being expected to meet these food related demands agriculture, forestry and fishing are increasingly seen as providing environmental and health benefits and services over and above

[13] Lantra Scotland Skills Assessment 2011 and UK Skills Assessment 2014

the production of commodities. Animal health and welfare regulations and CAP reform drive change and increasing pressures on farm balance sheets and training budgets. The resultant demand and associated increase in ethical consumerism is generating market opportunities for the sector. This in turn will place greater importance on effective leadership and management.

Looking ahead the sector is likely to be more science and technology focused in dealing with the pressures of climate change, food security and demographics as precision agriculture and sustainable intensification are implemented.

At the same time the study acknowledges the ageing workforce in the sector and highlights the risks which this poses in terms of the loss of tacit skills and capabilities. It stresses that taken together these factor markedly raise the importance of career progression.

The **National Strategy for Land Based Training and Education** prepared by the SFC and SRUC homes in on the key factors in planning such career and workforce development at the Scottish level. This strategy is quite clear that a more coherent, more focused and better resourced national approach to land based workforce development is required and should be implemented. Learning and employment pathways need to be clearer for land-based employers, schools and learners to improve recruitment. That this should include a coherent career development pathway was a priority and this demands that appropriate coordination bodies should be established and implemented. Employers are willing to work with other stakeholders to improve sector image and perceptions by young people.

The strategy found that relevant and appropriate local provision is important in meeting learner demand. The larger industry sectors of Agriculture and Horticulture reiterated their need for local practical skills training and provision to be available up to National Certificate (NC) level. Alongside this a more central and co-ordinated approach to online and flexible learning developments must be adopted, and these approaches need further development.

Several land-based sector training and education providers have moved towards predominantly full-time or part-time delivery models to reflect learner or employer demand and funding drivers, this has resulted in a loss of provision/choice. Growth sectors are having difficulty filling skills needs.

The approach therefore needs to be more driven by industry (employment and opportunity) rather than by learner demand. There should be a focus on practical skills development and employability e.g. by expanding the provision of legislative courses to ensure new entrants gain these certificates during education.

There is therefore a clear need for stronger engagement between providers and industry. The importance of the provision of practical vocational skills needs recognition by schools, college centres and the wider community who should all play a role.

A major limitation on progressing this lies in the fact that Labour Market Intelligence (LMI) data availability to the land-based sectors is limited and is now at least 5 years out of date. More recent data did not provide sufficient detail of the land-based sectors. The lack of nationally available LMI data made it difficult to assess employer demand accurately.

4.8.2 Labour and employment

The details of labour and employment in the sector are addressed at Section 4.1, however the following main trends are relevant to the consideration of labour and skills in the North East.

Economic activity rates have been higher than the Scottish average across Aberdeenshire and Moray, markedly so in Aberdeenshire. Angus is very close to the Scottish average and only in the Glens does this drop below. The proportion of Scottish employment in agriculture, forestry and fishing is 1.66%. The rates in the study area are much higher but vary markedly within the areas from 2.25% to 16.47%. Both demand and competition for labour and skills are therefore high in the area with some very significant concentrations geographically and seasonally.

Labour demand and supply was explored with Ringlink who have a clear perspective based on their direct experience of managing the demand for and sources of labour to meet sectoral needs across the North East.

The cooperative reports that farm staff levels appear to be at the bare minimum with little if any flexible capacity. There are high demands for staff capable of operating the upscale in equipment size and capability to which the limitations on staff availability have to an extent contributed. There are high levels of demand for staff who are multi skilled and adaptable.

A characteristic of the sector in the area is that there are particularly high peak time demands, this varies by season but has been a particular problem this year. The lack of predictability is a very significant limiting factor on the sector e.g. this season with the overlap in cereal and potato harvest periods. Livestock sector skilled labour needs are markedly the most acute.

In response to these needs Ringlink have increased their contract labour pool from circa 60 to 100 skilled people. Even with this increase and effective resource management they are finding that there are considerable difficulties in retaining the necessary flexible capacity to cover agricultural demand peaks. They are apparently increasingly bringing in Irish staff to meet this peak demand. Bringing in external labour to the area brings its own challenges e.g. the lack of suitable accommodation is a limitation.

There is almost a complete reliance on migrant/ seasonal labour for fruit and veg production in Angus, and there is also a major need for seasonal contract labour and machines e.g. at harvest peaks. Ringlink are reported to have had 500 people out on contract on farms and 200 tractors and trailers from non-potato farms working during the potato harvest carting boxes. (It is worth noting that the total labour force increased in SE Angus between 2007 and 2014 – the only sub-region in this study recording any significant rise.)

Aberdeenshire (and to a lesser extent Moray) also depends heavily on migrant labour on its farms. Here these tend to be working longer term e.g. as stockmen. There is a major reliance on long term migrant labour for the meat processing sector. Overall the industry reports a small swing back to local labour, but typically this remains around 80% East European.

There is a particularly big problem is accessing skilled and specialist labour across the region to the extent that this is driving changes in farming systems. In some cases skills availability is reaching the point where there is insufficient critical mass in the sector to ensure their continuation. For example there is high demand for skilled tractormen but provision appears to be in decline. There is less supply of capacity from small farms (due to hollowing out of farm size) and in some cases competition from the oil sector (there are some conflicting views here given the oil sector

downturn). Livestock skills are also a problem, there is big competition for pigmen and dairymen and evidence of poaching within a small pool of skilled staff.

On the positive side the previous trend of the industry losing skilled operators to the North Sea industries has been affected by the downturn in that sector. The flow of labour and skills to the oil sector has started to, or is anticipated shortly to reverse, this may be significant although some contend that those with good skills remain attractive to and attracted by the sector. There is no evidence of offshore staff becoming available yet but this is anticipated. It appears that there may be problems however in matching staff wage expectations. The core labour pool which Ringlink deploys at the moment remains land based.

Although the industry feels that there is a plentiful supply of migrant labour this is transitioning through successive waves of EU accession nationalities starting with the Poles to the Bulgarians now. There are concerns as to where the next tranche will come from and the UK Governments anti-immigration stance.

The increasing dependence on these forms of labour and skills provision present a considerable challenge to meeting the long term needs of the sector. Whilst there is a degree of current flexibility with seasonal and part time solutions this is not a basis for long term labour and skills planning.

The industry apparently feels that there is little if any prospect of finding a UK labour force. For example parts of Dundee have reportedly 30% youth unemployment and the City has low average wages, but this has ceased to become a pool of labour for Angus farming. During the scenarios workshops words used to describe this pool included “unemployable”, no experience of work, poor numeracy and literacy, surely a very sad situation.

A further major concern is the newly announced living wage and uncompetitive rates of pay for youngsters as set by the Scottish Agricultural Wages Board. One producer quoted that this would result in an extra £60K per annum on their wage bill due to the living wage proposal. It was suggested that the sector has got to have a mechanism to enable it to employ youngsters at competitive rates, to get them on farms, developing the correct skills, and moving up the wage scale as they get more productive. Some suggest that the Scottish land based sector is losing competitiveness as a consequence.

4.8.3 Training and education in the North East

The following section presents a summary analysis of SFC data relating to further education for students originating in the study area[14].

2013 – 2014 Position

In 2013 – 14 there were 733 FTE students from the North East studying Agriculture, Horticulture and Animal subjects at 14 Scottish FE colleges. In the North East local colleges, Angus College (201 FTE and 323 individuals) and Aberdeen College (190 FTE and 232 individuals) were the largest providers in 2013-14, Dundee college was next (103 FTE and 190 individuals). North Highland attracted 67 FTE but 190 individuals, Moray 53 and Banff and Buchan 20. The specialist colleges (SRUC) took a relatively small proportion, Elmwood (39 FTE and 94 individuals), Oatridge (41 FTE and 78 individuals) and Barony (10).

[14] It should be noted that changes in the structure of FE colleges in the period has affected the location at which some provision is reported. Analysis of this is beyond the scope of this element of the report.

The local colleges tend to draw on the local catchment to a large extent, the specialist colleges catchments are more evenly spread geographically. North Highland College draws on all areas.

Table 107. Student numbers by College 2007/08 and 2013/14

College	07 – 08 FTE	13 – 14 FTE	07 – 08 individuals	13 – 14 individuals
Aberdeen College	258	191	409	232
Angus College	124	201	266	323
Banff & Buchan College of FE	27	20	147	50
Barony College	4	10	38	27
Borders College	0	1	0	5
City of Glasgow College/Glas metro	0.4	0.3	5	5
Dundee College	83	103	144	190
Edinburgh College/Telford	8	5	20	20
Elmwood College	63	39	198	94
Inverness College	4	0.3	18	13
Langside College	0.5	0.3	5	5
Moray College	32	53	39	55
North Highland College	29	67	87	189
Oatridge College	10	41	52	78
Orkney College	0.5		5	0
	642	**733**	**1433**	**1286**

Within this total eight colleges provide general agriculture to 456 students. Dundee is the biggest provider (167 student places) and source (169 students).

Change since 2007 – 2008

Between 2007/08 and 2013/14 the overall number of individual students in these subjects in the North East has decreased but the total FTE level has risen. Over all Scottish colleges the numbers of individual agriculture students declined enormously over the period (from 11,000 in 2007 – 08 to 6,742 in 2013 – 14). Specialist colleges such as Elmwood (now merged into SRUC) have sustained the greatest losses, while on the other hand Angus has grown its student numbers very substantially and North Highland has doubled over the period. Aberdeen College has lost 177 individuals over the same period.

Student origins

Table 108 illustrates the position in 2013 -2014 and how that has changed from the situation in 2007 – 2008.

Table 108. Origin of Agric/Rural Study Students

Area of origin	No of FTE students 2007 - 2008	No of FTE students 2013 - 2014	Actual students 2007 - 2008	Actual students 2013 - 2014
Aberdeen	121	112	264	166
Aberdeenshire	192	196	401	341
Angus	153	191	361	368
Dundee	117	157	256	281
Moray	59	76	151	130
	624	733	1433	1286

Both Aberdeen and Aberdeenshire have seen a significant decline in the number of individual students but much less change in terms of student FTEs. The other three areas see marked increases in the numbers of FTEs, both Angus and Dundee see an increase in the numbers of individuals whilst Moray's number of individual students drops over the period.

In 2013 – 2014 of a total of 59 Aberdeenshire students 27 appeared to attend Oatridge and seven Elmwood. Of 63 Moray students 35 attended Moray College and 18 Oatridge, 15 Angus students attended Elwood and 13 Oatridge, 19 Angus students attended North Highland whilst 62 attended Angus College. It should be noted that a proportion of NE students studying NC agriculture are currently registered via Elmwood but attend the Craibstone campus, and this may also apply to other registrations.

The following table (table 109) illustrates the distribution of students by available subject and home area of origin in 2013 – 2014. Agriculture and horticulture (general) is the most heavily subscribed overall although amongst students originating in Aberdeen and Aberdeenshire Animal Husbandry ranked highest (and second overall). Pets and domestic animals ranked third overall with low uptake only in Moray. There is a strong uptake of agricultural and horticultural maintenance in Angus.

Table 109. Student numbers by home area and course of study

Subject superclass summary	Agr, Hort general	Crop prot, fert etc	Crop production	Gard, Floristry	Amenity hort, sports	Forestry, timber prod	Animal Husb	Fisheries, prod	Agr Eng, machinery	Agr, Hort Maint	Vet services	Pets, Dom Animal	Rural, agri business org
Student's home area prior to study	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count
Aberdeen City	9				19		57	21	5	20	5	44	
Aberdeenshire	51	5		51	15	5	90		5		5	62	
Angus	133	5		5	12	5	78		5	68	5	70	
Dundee City	164	7		24	7		29		5	10	5	28	
Moray	55				6	8	30	5	5		5	7	
Total	412	17	0	80	59	18	284	26	25	98	25	211	0

Higher Education

SRUC delivers the following Higher and Further Education courses at their Craibstone campus. The focus here is primarily on Higher Education at present although it is anticipated that the balance will shift to approximately 50 : 50 with the introduction of new courses and transfer of others (Animal Care and Veterinary Nursing from NORCOL) next year.

- Agriculture at BSc / BSc Hons, HND and NC levels.
- Animal Care HND, Introduction and NC levels.
- Countryside and Environmental Management HNC
- Countryside Management BSc / BSc Hons, HND and NC.
- Environmental Management and Sustainability HND
- Environmental Resource Management BSc / BSc Hons
- Rural Business Management BA / BA Hons and HND.
- Veterinary Nursing City and Guilds Level 3 Diploma
- SRUC will be introducing a rural skills course from February 2016.

The range of Agriculture and Rural Business management options which SRUC deliver are set out in Table 110 below ranging from entry level workplace based provision through to remote learning postgraduate qualifications.

Table 110: SRUC Craibstone agriculture and rural business education provision 2015

	SCQF Level	**Delivery**
Agriculture		
Ringlink/ SRUC Internship	4	Work-based
NC	6	Full Time
HNC	7	Full Time
HND	8	Full Time
BSc/ BSc (Hons)	9, 10	Full Time
MSc Agricultural Professional Practice	11	Distance Learning
Rural Business Management		
HNC	7	Full Time
HNC D/L	7	Distance Learning
HND	8	Full Time

BA/ BA (Hons)	9, 10	Full Time
MSc	11	Distance Learning
Organic Farming (by Distance Learning)		
PG Cert	11	Distance Learning
PG Dip	11	Distance Learning
MSc	11	Distance Learning

The following table sets out the trends in agricultural student numbers at the SRUC (SAC) campus over the last 10 years.

Table 111: SRUC Craibstone agriculture student numbers, FE and HE, 2006/07 to 2015/16.

	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 – 12	2012 - 12	2013 -14	2014 -15	2015 -16
NC	7	12	18	14	16	9	11	15	16	19
HNC	25	26	30	46	37	27	27	28	31	31
HND	9	13	23	29	27	23	24	21	29	23
BSc	16	3	8	20	20	21	14	23	14	19
BSc (Hons)	6	11	3	3	8	6	9	3	13	7
Total	63	65	82	112	108	86	85	90	103	99

This shows an overall increase in student numbers albeit with some marked fluctuations and the relative importance of the HNC and HND provision.

It should be noted that prior to the merger which created SRUC in 2013 SAC was unable to access funding for Further Education courses. Now that this is available it is the intention to increase the Further Education provision in Aberdeen. Considerations include SVQ (MA's) Level 2 and 3 in Agriculture.

Table 112, below shows the trend in Rural Business management student numbers and their distribution. HND and BA student numbers have fluctuated considerably over the period.

Table 112. SRUC Rural Business Management student numbers.

	2006 - 07	2007 - 08	2008 - 09	2009 - 10	2010 - 11	2011 - 12	2012 – 13	2013 -14	2014 -15	2015 -16
HNC	10	9	20	12	11	16.5	10	13	16	16
HND	7	7	6	19	11	8	12	7.5	8	15

BA	12	17	18.5	11	12	13	8	10	8	8
BA (Hons)	3	5	7	4.5	6.5	6	8	5	8	5
Total	32	38	51.5	46.5	40.5	43.5	38	35.5	40	44

SRUC is adapting its North East provision and has added or is adding the following provision to their offer across a range of academic and vocational levels.

MSc Agricultural Professional Practice

A new part-time, distance learning MSc course, started in September 2015 recognising the increasing need for well trained and suitably qualified specialists within Agriculture who have an understanding of both the business and technical aspects of the industry. This course is targeted at those who are interested in pursuing a career within the land based industries in a professional capacity such as consultant, farm manager/owner, agronomist and animal nutritionist. It also focuses on developing their skills to interact professionally with their clients.

MSc Rural Business Management

This part-time, distance learning MSc course commenced in September 2014 focusing on developing rural business managers' intellectual, business and personal skills and particularly entrepreneurial and business development skills to enable them to anticipate and respond to change. This course aims to enhance graduates employability by preparing them for a management role in the rural and land-based industries (including tourism, forestry, fishing, consultancy and social enterprise), both at the primary end of the production chain as well as the value-added end of the supply chain.

Ringlink Internship

SRUC and Ringlink collaborated in 2015/16 to deliver the Land Based Internship Programme. SRUC is able to source funding and offer a Certificate of Work Readiness as part of the internship.

In addition to helping to deliver the Ringlink internship programme providing three weeks of residential preparatory training prior to trainees going on industrial placement, SRUC is also involved in delivering a limited amount of short course training provision.

NPA Rural Skills

SRUC Aberdeen is also delivering a National Progression Award (NPA) in Rural Skills to pupils at Alford and Aboyne Academies. Staff from Craibstone deliver the course at Alford Academy for 0.5 day/ week. Discussions are in place to expand this provision with another Academy acting as a host or hub.

Training Provision

Ringlink is the major short course training provider for the sector in the region. The cooperative also provides labour services as part of its wider portfolio of activities. Overall Ringlink provides services to almost 3,000 members (including Ringlink Services members), and their core farm business membership in the area is circa 600.

They report that their training delivery has grown significantly over a period of 17 years with an annual growth in turnover of circa 10% per annum. Although there has been sustained growth they stress that this has not all been in agriculture suggesting that some 75% of their delivery has been non-agricultural recently and has tended to be in areas where the demand has been strong.

Overall the type of training they provide remains land based and transferable between agriculture and other sectors e.g. Fork Lift Truck, chainsaws, spraying etc. In recent years this has been further reinforced by their increasing involvement in assessment for which they are the major provider in the North East.

The wider training activity which Ringlink delivers underpins the agricultural provision, to an extent enabling the organisation to maintain and expand the scale and scope of what is available. Continuing to support their core membership in terms of their basic skills requirements is a priority but as the costs of shared course provision are high, these courses are sometimes promoted more widely with Ringlink acting as a training centre and brokering provision.

The training need / demand equation for agriculture appears to still be largely driven by legislative and Quality Assurance considerations rather than business performance with agriculture tending to do the minimum required. Ringlink deliver a significant amount of refresher and certification linked activity e.g. FLT and other HSE driven activity.

Ringlink report that there 'not enough' management training uptake by the agricultural sector in the North East. This has been historically difficult to generate uptake for and remains so. It appears that there is little focus on this in the sector other than when specific funding support is available. The majority of such management training is externally driven e.g. by supply chain considerations or customers' requirements.

Ringlink Internship:

For the last three years Ringlink has operated an internship programme for groups of young workers placing them with member businesses, providing mentoring support and training over 9 months leading in the majority of cases to full time employment. The project is a partnership approach involving funders, a local trust fund, the HGCA and NFU amongst others, the industry, SAOS, Aberdeenshire Council and most recently SRUC. In each of the past 3 years the project has achieved between 12 and 15 placements for young workers. Although the scale of this is limited it has proven successful and potentially to have wider applicability. There is a stated aim to see this approach extended in future.

As one aspect contributing to developing this wider applicability this scheme is now being delivered in conjunction with SRUC who provide a three week induction training package. This results in interns being awarded a certificate of work readiness, SRUC in turn is looking for this to feed into further education and training for trainees feeding into the industry. Although this can be viewed as the first step on a career path the vast majority of interns go straight in to full time employment and may

therefore drop out of the education system (proposed changes in SRUC provision may attract some of this group to progress further).

Outwith Ringlink there is no short course training provision of any significance in the North East of Scotland. Colleges are generally not focused on short course provision.

SRUC are able to deliver short course provision and do so e.g. to student groups. SRUC provision therefore tends to be student oriented as is other college training provision in the region. Additionally, from an industry perspective these courses appear expensive and consequently SRUC do little direct on-farm delivery.

4.8.4 Training, education and workforce development needs

As a training provider Ringlink promote training provision to the sector but indicate that they do little if any diagnosis of training needs. There is no comprehensive training needs analysis activity or skills checking process in the region as there is no funding provision to support this. At the same time there is no commercial imperative for training providers to do any with farm businesses as it just doesn't pay.

LANTRA, who previously undertook or supported such activities has had to become more commercial and has withdrawn. Their main roles are now to develop course provision to meet sectoral needs, but these are not being identified on a business by business basis. LANTRA are perceived to no longer engage as directly on the ground with the industry or with training providers and to be focused on their own activities and their own network of instructors.

It therefore appears that there is no strategic overview of skills and labour for the area and that there is no skills assessment activity undertaken. The current workforce appears to be inadequate, but there is no clear forward view on this. The sector needs to know who is out there and where the workforce trends are heading.

SRUC staff perceive that there is a career and workforce development gap for young entrants to the industry. This is impacting on the progression of the workforce e.g. in the conversion from basic college level to the next level. Once trainees achieve basic competencies they become involved in the workplace and stay there. There is a high demand from agriculture for good students, and succession considerations also result in significant demands. Both of these factors militate against wider and longer term career development and progression.

Overall it is suggested that there has been a loss of critical mass in HE and FE provision in the sector in the North East since the last report. Such provision as remains is thought to be less well connected with the local industries and businesses. SRUCs intention to extend vocational FE provision may help to address this. On a further positive note Aberdeen University has seen the reintroduction of degree courses, but again students are not necessarily connected to the North East industries.

SRUC staff see a big progression gap between entrants at the basic vocational skills level and the formal certificated level. The Ringlink internship programme may help to close this by offering the group the opportunity for progression through SRUC. The likelihood is however that they will go straight into employment if they perform well in placements.

There is therefore a real difficulty in introducing young people to structured careers in the industry; this is due in part to both farmer and trainee expectations. There is a basic challenge in squaring the short term needs of farm businesses with the long term strategic workforce development needs of the industry. SRUC report that in promoting careers in the sector they are increasingly focusing on schools, as non-farm based students tend to be less influenced by conventions and more open to new ways of doing things. Overall it is evident that there is a need for a much clearer career development structure.

4.8.5 Conclusions

- Overall it is clear that demand for a (increasingly) skilled and adaptable workforce is only going to expand. This will be driven by local, national, European and wider factors.
- Global drivers and policies which will influence these workforce and skills needs include food security and supply, adapting to climate change and green, bio and circular economy considerations.
- As a consequence of these drivers workforce development will continue to be a very strong focus in emerging EU rural development and employment policy.
- There is increasing demand in the North East for technical competencies to improve productivity, adaptability, innovation, and contribute to rural vitality.
- There is a big challenge for the sector in competing for the available workforce. This varies across the country and region but this is more acute in the North East than in many other areas.
- A lack of technical skills is preventing some businesses from achieving their potential. Specific skills development priorities for the region include high levels of competency in livestock skills, especially intensive livestock, field operations, especially tractormen and multi skilling for flexibility, enhanced IT and new technology skills. This includes highly self-motivated and self-employed individuals.
- Clearly structured career development is a priority to meet these needs and challenges with more clearly defined and employment oriented pathways. The sector then needs to communicate this better to attract the calibre of entrants required.
- Education and training provision appears to currently be more student driven than is ideal. A large number of students from the area are engaged in various forms of part time land based FE, attending a wide range of colleges. Resolving labour and skills needs at the sectoral level demands a significant level of sectoral involvement.
- Education and skills development / provision therefore needs to be much more strategically driven to meet the demands of sector – but this is difficult in a fragmented and predominantly small /micro business sector who may require assistance in this.
- Short course training and vocational education provision needs to be balanced with the requirement for local delivery, for both business and workforce if local industry connections are to be strengthened.
- There are additional cross cutting priorities in improving basic numeracy and literacy and improving work readiness but these are long term problems in the sector which may require new approaches.
- There is therefore a clear need to square the sectors short term labour demands with the longer term strategic needs and planning. The sector will have difficulty in addressing this whilst caught

in the classic small business dilemma of working in the business while also needing to work on the sector.

4.8.6 Specific recommendations

- A proactive labour / skills initiative led by NESAAG would be very valuable, as there is a vacuum. The priority is a robust analysis of what is happening in the sector and what the emerging needs are. At present the sector is operating on the basis of high level estimates. This study has not been resourced to drill down more deeply.
- NESAAGs role in "pump priming" the internship scheme with Ringlink is seen as representing its proper role. NESAAGs role in this is to advocate skills and workforce development, demand attention, to facilitate, to point out the gaps, bringing the correct bodies together and helping find training funds etc.
- The focus of this should be to help expand the Ringlink internship scheme over the next two years taking full advantage of SRUC becoming involved. NESAAG should work with SRUC and Ringlink to support and encourage this development.
- This further development could see a fully operational apprenticeship scheme in place which gives trainees the basic farm skills training, so they are up and running when they enter the workplace.
- SRUC / Ringlink could collaborate further as part of this initiative and the overall approach to workforce development.
- Specific industry sectors e.g. pigs, dairy should take more of a lead in managing/ driving their own training regimes to continually improve employee skills.

4.9 CASE STUDIES

Case Study 1

A FUTURE FOR THE BUCHAN FINISHER?

Kininmonth Home Farm, Mintlaw

The Business

Gray Gall and his son Noel farm the 570 acres (230 ha) of Kininmonth Home Farm to the north of Mintlaw bordering the Rora and St Fergus Moss. In many ways this is a typical Buchan farm with a mix of cropping and livestock finishing. Two thirds (around 400 acres) of the farm is in combinable crops – oilseed rape, winter wheat, winter barley and spring barley with the latter making up half the crop area. Around half the barley produced is retained for feeding cattle with the rest sold for feed. Hitting the low grain N levels required for malting is difficult given the high level of soil fertility. The remaining third of the farm (approx. 170 acres) is in grass, predominantly grazing with 50 acres cut once for silage (pit and bales) and a small area of hay. The farm has the typical rolling, open aspect of Buchan. The soils are good loams capable of high yields, but with 150 acres slightly heavier and hence more likely to be retained in grass for longer. Only 15 acres of mossy ground cannot be ploughed. This is very much a family farm with Noel and Gray doing all the work, excepting specialist tasks such as swathing and silage chopping which are contracted. Grays wife Kate is also a partner in the business, but works full time off the farm, as does Noels wife Jo.

The business finishes 500 cattle per annum with around 200 cattle on-site at any one time. All the cattle are Charolais and Limousin cross steers bought at 400kg to 500kg liveweight. Cattle are sold and purchased all year round. 150 stores are bought on to grass in the spring, but almost all are finished on an intensive cereal based ration which is a mix of approximately 40% forage (silage and straw) with the remainder homegrown barley, purchased pot ale syrup and minerals. The cattle are all housed in bedded courts producing a lot of dung for the arable ground. Chicken manure is also imported from a nearby egg unit. In addition to the finishers there is a small herd of 40 spring calving beef cows. The male calves are finished as bulls and the heifers follow the store cattle ration.

500 store lambs are purchased in the autumn and are mainly finished off surplus grass after the cattle are housed. Most are sold between December and February hopefully without any supplementary feeding.

Development History

As with all farms the big change has been the reduction in the number of staff and their replacement with bigger machines and mechanised feeding systems. However, the farm has had only two workers for the last 20 years – Gray and an employee, with the employee replaced more recently by Noel.

Feeding cattle numbers have been increased over the last 5 to 10 years, returning to the levels they were at 30 years ago. In the period in between the farm swung toward cropping. However the system 30 years ago was very different – much more grass, more finishing off grass, more UK breeds, smaller fields, and swedes an important part of the ration. Feed wagons, the adoption of simple cereal based rations, new buildings and the conversion of old courts for machinery access have all allowed more stock to be handled by fewer people. Breeding cows were added in 2002/03 when part of the farm was designated LFA and hence attracted extra support.

The family has invested steadily in the farm infrastructure to allow these changes to happen. A grain store was built in 2004, straw sheds in 2007, new courts in 2013. Over the last 7 years a lot of ditching and re-draining has been completed. Precision farming technology has been adopted recently with parts of the farm now GPS mapped for nutrient status.

A 75kW biomass boiler has been installed for heating the farmhouse and outbuildings. Roundwood is purchased and chipped on-farm.

Challenges and Threats

Cattle attracted high headage payments under the old CAP regime so this type of business typically will lose a lot of subsidy support by 2019 as payments shift to uniform flat rate area payments. The Galls expect their Single Farm Payment to reduce by 30%. How will they react?

Over the last 10 years they have used the SFP to invest in the farm and "tool up" for the future – machines, buildings and infrastructure – and they will now keep capital expenditure down. They don't aim to change the farm system, but will stick with the cattle/ crop balance and the "free gains" and self sufficiency the mixed system creates. As finishers they will buy stores with the aim of ensuring a margin, which may mean lower prices for store producers as the SFP declines.

The Galls point out that while the SFP decline is a concern the movement in the £:Euro rate is equally important, not just because it affects the amount of support in Sterling, but because of its impact on UK commodity prices.

Other challenges include Grays retirement from the business. Quality farm workers are few as local people have moved into the oil industry, though this may change with the current downturn. East European labour is common in the area, but there is a concern that anti-immigration policy and a move up to higher paid jobs could reduce the supply.

Growth is a challenge. How does the business expand to maintain and improve profit if land prices are so high? Land prices have always looked out of kilter with farming margins, but they feel that oil money may have pushed this further and reduced opportunities for farmers to expand. However, they do feel there are opportunities for contract farming or short term rents as smaller and medium size farm owners retire.

The Galls are concerned about the reduction and specialisation of outlets for cattle. While there are 3 abattoirs in the area they are increasingly tied to particular retailers or markets which means that for one type of cattle there may be only one outlet. The loss of another abattoir would be a big concern. The loss of intensive pig and poultry enterprises locally is also a concern for a producer of feed grains.

Strengths, Opportunities and the Future

A major strength of this type of farming business is its integration and self sufficiency – the cattle eat the feed grain and straw produced on the farm, they are bedded on the surplus straw, their dung boosts soil fertility, as does the grass break, providing high crop yields, and the mix of enterprises and range of crops spreads risk. They believe in knowing their costs of production (Noel is in an Arable Benchmarking Group which compares Net Margins), but as Gray says, they want the whole farm to work, so individual enterprise net margins only tell half the story.

Improving efficiency of input use is a priority, especially if energy prices return to high levels. Hence the move into precision mapping to better understand where there are deficiencies and surpluses in soil nutrient status so that inputs are applied only where they are needed.

With low grain prices Gray and Noel are reviewing an increase in finishing cattle numbers – they have the housing capacity, especially in the summer, and could consider growing less grass. Increasing cattle numbers is one route to expansion.

With grain prices very low the family feel that some farms in the area which have been relying on simple cropping systems may look for alternatives, including renting out their land. Being tooled up to exploit these opportunities is important.

Both generations of the family are buttressed by off-farm income (which is typical of most farming businesses). This gives the business more resilience to get through tough times. However, the whole family are committed to commercial farming and they see steady incremental improvement as the way ahead.

A major strength is the family nature of the business. Gray's wife Kate is a partner in the farm, and Noel's wife Jo runs her own café and has a background in the high end hospitality industry. In a major move and with confidence in the NE, the family has recently taken over the Saplin Brae Hotel with plans to deliver the best in Buchan food, drink and hospitality.

Case Study 2.

FARM WOODLANDS AS A KEY FARMING ENTERTPRISE

Braco, Hatton

The Business

John Munro and his wife Shona farm the 400 acre tenanted unit of Braco near Hatton on a Limited Partnership lease from the Dr Anderson Trust – a small estate with three tenants. In addition he owns 25 acres near Peterhead and a block of 150 acres of woodland at Earlston also near Hatton. He has one full time employee and his son Stuart, who has his own forestry contracting business based on the farm, helps out at peak times.

The farm grows 180 acres of barley (70 acres winter barley, the remainder spring sown) and carries 110 mainly Limousin cross suckler cows. Breeding bulls are two Limousin and one Stabiliser. Replacement heifers are homebred with all other progeny finished, the bull calves on a barley beef regime. The cows are mainly spring calving with one batch calved in January, from which replacements are selected. Winter feeding has been based on silage, but is now switching to ammonia treated straw for the cows. Some of the grassland is in a "grassland for nesting birds" scheme which requires taking a late cut. Once that scheme is finished the silage area will be reduced. Soils are relatively heavy so all stock are in-wintered.

300 store lambs are purchased in the autumn for finishing mainly on surplus grass, with a small area of forage rape established this year on the Environmental Focus Area required under the new CAP Greening regime.

The business has diversified strongly to make full use of its area of woodland (mostly Sitka with corners and edges of Larch and small areas of hardwoods). Many people have installed wood burning stoves and there is a strong local demand for good quality dry firewood logs. With this in mind a Glenfarrow 175kW biomass boiler was installed in 2014 to heat the farmhouse and a kiln (an adapted shipping container) for drying firewood. This boiler also heats a radiator in a shed which houses a laser shooting simulator, which was an earlier diversification. As the firewood business grew it was clear that this one boiler could not dry enough firewood and so a second Glenfarrow boiler was installed with heat exchangers and fans to blow hot air through an insulated calf house which was converted into a kiln. This made good use of an old, redundant, low roofed building. The drying firewood is held in a converted cart with mess floor and sides and in cages which hold IBC tanks and which are easily handled with a telescopic loader. The cartload takes 4 or 5 days to dry, an IBC cage 2 days. A tractor driven wood processor was purchased to chop roundwood into split logs with an elevator dropping the wood

into the drying cart or IBC cages. The first thinnings are being taken from their own woodland and the rest of the timber is sourced through Stuarts contracting business. Demand is 50:50 hardwood and softwood, with current demand 25t of each. The firewood business fits well with the pattern of work on the farm. They build up a stock of wood whenever they have free time so that a big pile is ready for the start of winter. Deliveries are throughout the winter, including evenings, in all sizes of bags from builders tote bags down, mainly locally but as far as Banchory. Customers have been very happy with the kiln dried wood as it burns so well – many of those installing stoves did not realise how poorly damp wood performs. The firewood business does take a lot of labour – one justification for having an employee – but the financial margin is good. In addition the RHI income from the boilers is paying off their investment over only a few years. It has transformed the financial position of the farm.

In addition to biomass, two Axis A29 turbines (rated 225kW each), installed by Greenergy, have been operating since the end of March 2015. Braco is very close to the coast so these are good wind turbine sites. As these are on tenanted land the turbines are a partnership set up as a separate business. It wasn't easy for John to pull together the finance for the turbines being a tenant and given the simultaneous investment in the biomass/firewood business, but he felt it was very important to do that to get the full return on the wind energy opportunity.

Development History

John was a grieve for 10 years on a farm near St Fergus before securing the tenancy at Braco 26 years ago, starting with 260 acres and expanding to 400 acres.

In 1991 a 150 acre block of very heavy clay land came up for sale nearby. The late 1980's had been a very tough time with difficult harvests, very high interest rates and falling property values following the sharp fall in oil prices in 1986. The land had been owned by developers and rented out for 1 year and was in poor condition. John bought the land with the sole purpose of planting trees, which would have been an unusual move for a farmer at that time. Half the land was planted in 1991/92 and the other half in 1993/94. The Farm Woodland Grant Scheme helped cover the planting cost and the Farm Woodland Premium Scheme provided 10 years of annual payments. Most of the area was planted with conifers (Sitka) which have done very well. Part was hardwoods which have grown very poorly on the heavy, wet soils. Larch planted on the edges has done moderately well.

The woodland is 21 years old so is just producing its first thinnings. The wood will be progressively thinned over the next 15 years, removing around 70m3 to 100m3 per annum. The far woodland assessment service provided by Ringlink, the machinery ring, and supported by SAOS, was in Johns view very useful in identifying a plan for the woodland.

The Ringlink assessment work has also stimulated a lot of other farmers to think about their farm woodlands and this has helped create a business for John's son, Stuart, who has made a speciality of wood extraction from small woods with an appropriate scale of harvester and forwarder.

Challenges and Threats

Years ago John could see where the CAP was heading – a flattening of payments and reductions for those who had large cattle headage payments. He decided to do something about it well in advance, especially using their own resources better. He encouraged his own son to buy a wood harvester rather than a bit of farm kit to go contracting. Stuart built up from a tractor and grab, wood cart, harvesting head for the grab and a chipper. Today he has a larger harvester and forwarder. The woodburning stove market and RHIs appeared at just the right time giving John the chance to add value to his own wood. John got into biomass boilers and turbines early, securing higher rates of support. Now the drop in CAP support up to 2019, which John expects to be around £10,000, looks insignificant. A chunk of the gap will be filled by the increased calf scheme payment anyway. However, they are well set up to cope with the next CAP reduction, the current crash in grain prices and any shocks around the corner. The overall risk profile of the business has been reduced.

A major challenge during the renewables investments has been getting good, confident advice e.g. on turbine types. Larger turbines would have been more profitable, but would have needed more surveys and planning delay and would as a result have secured lower FIT rates. The lack of examples of new technology actually operating meant there was a big risk in early adoption.

Time pressure has been a challenge, managing a sizeable farm and looking to diversification. However, the biomass/firewood business has justified a full time employee who was previously only part-time. John reckons that the output of the second biomass boiler pays his wages.

One threat from the rapid diversification of the business is a decline in attention to detail and progress on the farm. However, John has tried to keep the farm, firewood and turbines in separately accounted businesses. He wants the farm to stand on its own feet.

Strengths, Opportunities and the Future

The major strength of this business has been its ability to look ahead, see opportunities and adopt new enterprises which add value to the resources and location of this farm.

The cash generated by the new enterprises creates opportunities for further diversification. John and Stuart have considered producing dried woodchip for other people's biomass boilers, but this would require building a tray drier, there's quite a bit of competition from larger players and the margin from logs is better.

The Munros don't supply kindling – they buy it in for customers - and they also get inquiries about pellets and briquettes. They see lots of brash left after their wood harvesting work. This could be chipped. The log business also produces quite a lot of sawdust.

The solar panel opportunity has now disappeared, but being close to a 35kV line and a substation John had been approached by solar companies.

The family are happy with the balance of the farming business with its cattle/crop mix. However, they want to simplify it with the shift from making silage to ammonia treatment of their own straw, and the

introduction of the Stabiliser bull to produce easily calved, docile replacements with longevity and better feed efficiency.

Overall this is an excellent example of a farm which has had a sharp eye on future threats and opportunities, which has grabbed those opportunities when they have appeared and which has made the very best use of the skills and farm resources available.

The 150 acres of woodland may have seemed a wasted investment 20 years ago, but it is now a big asset both in terms of capital value for this largely tenanted business and in its supply of raw material for the log and biomass businesses.

FARMING WITH RENEWABLES

Ednie, St Fergus

The Business

Elaine Booth and Peter Robertson farm approximately 1,170 acres near St Fergus in Aberdeenshire, operating as tenants of Elaine's family. The cropping breaks down as follows.

Approx areas 2015	**Acres**	**Hectares**
Winter cereals (roughly equal areas OSR, WW, WB)	450	182
Spring barley	350	142
Grass (mix of permanent and temporary, all ploughable)	200	81
Trees	170	69
Total	**1,170**	**474**

The farm is not fully rotational. Part of the arable is continuously cropped, part of the grassland is permanent, but the aim is to get more of the farm into a grass:crop rotation. Yields vary greatly between years, especially for OSR. Normal grain expectations would be 3t/ac WB, 3.5t/ac WW, 2.25 t/ac SB and 1.25t/ac WOSR.

The farm is characterised by heavy soils, with the toughest land planted in trees after the wet harvests of the 1980's. In dry years these soils can produce high yields, but in wet years establishment is difficult and structure is easily damaged. Further south these soils would naturally restructure as they dry out and crack in the height of summer, but this happens far less often this far north. The farmland is rolling, low lying and open to the North Sea. The maturing woodland provides useful shelter and the Ednie steading is south facing and sheltered from the coast to the north.

Most crop work is carried out by the farms own staff (two full time employees, one part-time/ seasonally full-time contract worker through the Ring) and equipment, but contractors are used for spraying, baling and silage making. Min till rape establishment has worked well, in some years when conditions are favourable. Given the nature of the soils, timeliness is important in the design of the entire system.

The cattle enterprise is based on 160 spring calving Aberdeen Angus cross cows. The herd has been built up over the last 25 years and includes a small nucleus herd of pure AA cows. Aberdeen Angus and black Limousin bulls are used. A 'micro-co-op' has been formed with a finisher and stots are sold store as weaned calves in October. They are weighed on farm and 85% of their value, based on the Autumn Aberdeen Angus sale price at ANM native breeds sale is paid, with the remainder due as a bonus/penalty once the cattle are finished. The herd has Hi Health status so a £200 to £300 premium is achieved for heifers sold for breeding (including ET) as yearlings. Later born heifers are sold for finishing to the same buyer under the same agreement and about 25 are retained annually for replacements.

The cows are housed at Ednie for wintering and calving. Feeding is ammonia treated wheat straw or barley straw supplemented with bruised barley, rapeseed meal and molasses. The overwintering heifers are housed at Overside a few miles away on an ad lib big bale silage ration supplemented with bruised barley and rapeseed meal. All housing is straw bedded.

In addition to the traditional farming, Ednie has been a leader in renewable energy, especially turbines. They have 7 turbines (3 x 0.8MW and 4 x 2.3MW) held within three companies separate from the farming business.

There is also a 750kW biomass boiler providing heat for the tray driers to dry grain and woodchip and 50kW of solar panels on south facing roofs.

Development History

Elaine and Peter succeeded a previous family partnership and rent the farm from Elaine's family. Elaine was a crop scientist with SAC based in Aberdeen, following a BSc(Hons) and PhD. Peter worked for ANM after leaving College where he completed a HND and FBOM, and later went back to SAC at Craibstone to undertake a BSc Honours degree.

Ednie was at one time a traditional cropping and cattle finishing farm, but Peter and Elaine developed a suckler herd initiated by Elaine's father and increased the cropping enterprise. The farmed area was expanded through contract farming agreements on over 200 acres.

In the 1980s there were a series of wet harvests and poor growing years which were especially hard on heavy land farms like Ednie. The decision was taken to plant 170 acres of the hardest land in trees (90% Sitka) using the Farm Woodland Grant Scheme and the ongoing annual payment from the Farm Woodland Premium Scheme. This land had been losing money at that time and land values had collapsed, so the aim was to develop another long term income source and capital asset while at least guaranteeing some annual income for the 15 years of the FWPS. In addition the blocks of trees provided shelter in a windswept location and it was anticipated that timber would eventually be sold for paper pulp.

The farm has invested in its infrastructure, especially over the last 10 years, with old courts reroofed in a single span and a further court built to provide space for at least 200 cows. Also 1700 tonnes of new on floor grain storage has been built plus two new tray driers each holding 300t.

Peter and Elaine would like to eventually purchase the farm and so have been looking for profitable diversification opportunities. Renewables, especially turbines, presented a great opportunity and they were among the first to get involved in the North East. They have excellent open sites exposed to the North Sea – surely some of the best and yet most easily accessible windfarm sites in the UK.

The first development was a single 0.8MW Enercon turbine in 2009. Two more 0.8MW Enercon machines were built and started operating in 2011. Finally in 2013 four 2.3MW Enercon turbines started operating. The total investment has been a substantial 8 figure sum with support from the Co-operative Bank and Triodos Bank. This has included significant personal investment along with family contribution in the first 3 turbines. The latest 9.2 MW project is a joint venture with neighbouring farming relatives and with a 25% share owned by other local investors.

In early 2015 a 750kW biomass boiler (running on woodchip) was installed by Topling Ltd. This provides the hot air for two 300t tray driers. This will dry the farm's grain and also dry woodchip for sale to other biomass users. Roundwood for chipping is now being harvested as thinnings from their own woodlands.

Also in 2015 they invested in 50kW of solar panels on the south facing roofs of the farm steadings at Ednie. Planning permission was granted late in 2015 for 2 larger solar PV projects which would operate in conjunction with the 2 wind turbine clusters and utilise the existing grid connections. Development of these projects is currently stalled due to the changes in support for renewables, but it is hoped that progress can be made in the future.

Throughout these major investments the aim has been to retain as much ownership as possible so as to reap the maximum benefit.

Challenges and Threats

The sheer amount of cash needed to buy a farm is a major challenge for Peter and Elaine. They needed to make large, bold investments if they were to have any chance of achieving that goal. And like any tenant lacking collateral, raising capital is a major problem. For the renewables the only route was to secure finance against the cashflow of the machines from a specialist bank.

On paper the turbine investment is very profitable and seemingly low risk as the FITs (applicable to the first 3 turbines) are secure for 20 years and inflation proofed. However, the contracted electricity price is not fixed and could decline.

Ednie is a heavy land farm in a relatively climatically exposed position so profits can be hit hard in a bad year. This risk makes investment decisions more difficult.

The new CAP regime will have a big impact. This farm with its cattle history has a big Single Farm Payment. By 2019 it is projected to fall by almost 40% which would wipe out the current farm profit.

Strengths, Opportunities and the Future

The major strength of the business must be Elaine and Peter's management ability. They have successfully researched, planned and delivered very large renewables investments – much larger than typical farm investments. And they have done this while still investing in the farm business and working on its improvement. The employment of the contract worker through Ringlink has created some slack in the system to allow Peter and Elaine to do this extra work.

Peter and Elaine's drive, clear goals (a sustainable, cash independent business to pass on to their daughter) and willingness to scrutinise their own situation through Whole Farm Reviews and participation in benchmarking groups is a tremendous strength. They are continually looking for the next improvement.

This is a great example of using the unique characteristics of your farm to advantage – in this case wind and woodland.

Most of us would be happy to allow the renewables to fill the gap in farm profits resulting from the SFP cuts. However, Peter and Elaine are looking closely at the farm to keep it profitable despite the big subsidy reduction. The farm has the capacity to carry more cattle without greatly increasing fixed costs so an increase in cow numbers would be profitable. They feel there is scope with rotational grazing to get much more out of their grassland – more cows could be carried on the same grass area. Precision farming technology has the potential to improve input use and increase yields – even modest improvements across the farm could generate £20,000 extra profit. The industry has not even started to improve cattle feed conversion efficiencies. Higher daily liveweight gains could reduce fixed costs by freeing up buildings and labour.

Case Study 4.

GETTING INTO FARMING THE INTENSIVE WAY

Crossfields, Turriff

The Business

Derek Robson and his father operate a stand-alone 370 sow pig unit with no land at Crossfields, Turriff. Derek's wife Sally, a qualified vet, assists at peak times and does the veterinary work for the unit. The facility is leased, initially for 5 years, but now on an annual basis. They sell 4 week old weaners to one finisher in Yorkshire on a priced contract (min price plus formula related to current finished price) and they expect to sell around 13,000 weaners this year. The weaners are transported south in insulated lorries resulting in virtually no losses. Small piglets < 5kg are retained and finished on another unit. These bacon pigs and sows are marketed through the Scottish Pig Producers Coop at Huntly.

The Robsons operate a 5 weekly batch farrowing system with typically 90 to 100 sows in a batch farrowing over 3 days. This has a number of advantages. It allows a concentration of effort at peak times – at farrowing Derek and his father do a night and a day shift and Dereks wife Sally takes days off her work to assist. This can mean better attention to detail than is the case when continually having to check small numbers of farrowing sows in a continuous farrowing system. It also produces a large number of weaners all ready for sale at the same time ensuring full loads for transporting south. Total labour requirement is reduced and in the quieter weeks between farrowings maintenance, cleaning out and new building work can be fitted in.

AI is used throughout, with some semen collected from own boars to reduce cost. Conception has been good over the last 12 months at 95%.

Performance levels are good; 13.3 piglets weaned per sow per litter and just over 30 weaners per sow per year.

Derek feels the weaner system is best for them; new entrants with limited capital and no land. They cannot grow their own grain so couldn't be competitive in finishing based on entirely purchased feed. It makes best use of their limited labour and capital. And if they were to lose their lease or hit bad prices they can get out of a sow/weaner system very fast.

Development History

Derek started working with pigs at weekends and holidays, helping his father who was a pig manager with Kevin Gilbert at Womblehill near Kintore. 15 years ago he started an Agricultural Degree course at

Aberdeen, but left after 3 months when his wife Sally moved to Glasgow to study at the vet school. Derek found work with Alex Brewster and Sons who have a large pig unit nearby, and eventually became the unit manager. Both he and Sally gained a tremendous amount of experience at this unit, but resolved to move north again to set up their own pig business if they could find an opportunity. Vions move out of the UK and the subsequent reduction in pig production in the North East created an opportunity and in 2010 with the assistance of Harbro they located the Crossfields unit, a set of easily managed modern buildings constructed in 2000, and they negotiated a lease.

Dertek identified a customer in Yorkshire for weaners from his existing contracts, but they needed a minimum of 800 weaners in a batch. The Crossfields unit had only 40 sow crates and matching dry sow accommodation so it could not supply a batch of uniform age weaners of that number. The sow accommodation was doubled using three portable farrowing units which are classed as moveable assets and so could be purchased using asset finance. Two farrowing units were initially leased from another pig producer, Sandy Howie at Mintlaw, which was a great help until finance could be secured. They started with 200 sows and have steadily built up to 370.

The start-up period was tough. Feed prices shot up and pig prices relatively poor. With little collateral the banks wouldn't look near them. When they worked in central Scotland Derek and Sally had purchased a house near Livingstone which they sold. Derek's father also had a house to rent out. These provided the seed capital for the business. Sows were initially bought from the Brewsters who were a great help in the start-up period.

Challenges and Threats

All feed is purchased so changes in grain and soya prices are a major threat. As a result they continually monitor forward buying prices and have fixed prices months ahead with their supplier on the basis of a base weaner price.

A fall in the pig price is clearly a major threat. Once again setting a minimum contract price with their weaner buyer is a priority as is providing a consistent number and quality of pigs for that finisher.

Disease is an ever present threat – small reductions in piglet and sow performance have a huge effect on profitability. The reduction in the density of pig production locally helps, but maintaining biosecurity is critical. The batch system allows systematic cleaning out of sheds. Supplying one customer with deliveries only once every 5 weeks also helps reduce the potential for introduction of disease.

Finding good quality experienced labour is exceptionally difficult. Polish labour was a great success in his previous job, but even east European labour has been hard to source in the North East. As a result the Robsons want to expand, at least in the near future, without employing staff. They would rather invest in automation.

The ultimate risk is the lease which is on a rolling 1 year notice basis, though for the owner there would be few if any alternative uses for the facility. In agreement with the owner the Robsons have submitted a planning application for an underground slurry store, but making substantial investments in a unit for which you have only 1 years' security is clearly not ideal.

The big challenge is how to expand. They are up to capacity at Crossfields. Taking on another distant unit stretches their management and limited labour. Major investment in the leased Crossfields unit is not ideal.

Strengths, Opportunities and the Future

Technical performance is good and the return on their labour input is also good, but there are still lots of opportunities for improvement. They are currently installing an auto-feed system for the sows (dry feed drop feeders) which will save 3 hours of labour per day. Most of the installation work other than electrical they are doing themselves. Derek is also looking at trialling "balanced floors" in the farrowing facilities to avoid "laid on" piglets, which are the biggest source of loss. These were installed at the Brewsters unit and reduced mortality from 5% to 1%.

There are lots of empty pig buildings in the North East and arable farmers who would be very keen to have the slurry. There is clearly an opportunity there, but Derek feels there are big risks in building a geographically fragmented business based on short term leases. He would like to buy a unit and invest in one location.

With low feed grain prices and cheaper soya, finishing the weaners might be seen as an obvious opportunity. However, they do not have finishing buildings on-site, they would be open to any sudden increase in grain prices and they could not exit finishing quickly. Protecting their capital is a priority, especially in this start-up phase. Without the collateral buffer of an owned farm they would find it difficult to survive a pig crisis if they find themselves stuck with lots of unmarketable/low value pigs.

Building up collateral is clearly a priority. Derek and Sally are doubling the size of their house, partly to meet the needs of their young family, but also to boost the capital value of their home. They are doing much of the work themselves.

Perhaps the greatest strength of this business is that they have a clear plan and strategy. Their focus is on building up cash and capital value and avoiding debt, so that they can one day buy a unit. To achieve this they are operating a simple, but highly technically efficient system with a fast turnover. And they are mitigating their risks with sensible contracts and a focus on delivering what their customer needs. It's a very good new entrant strategy. Surely the pig sector is an opportunity for more new entrants in the North East?

Case Study 5.

DIVERSIFICATION: FARMING AS A FOOD BUSINESS

The Devenick Dairy

The Business

The Devenick Dairy is based on the 320 acre dairy farm of Bishopston, Banchory-Devenick just to the south of Aberdeen. Farmed by the Groat family for 60 years, it is one of the last of the many dairies which used to ring Aberdeen. Over the last 9 years the business has moved rapidly into adding value to its production and is now well known for its range of Doric denominated cheeses: "Fet Like", "The Coos R Oot", "The Reeds A Richt" and "Crynoch Blue". The business also manufactures yoghurt, a range of cheesecakes with local flavours, homegrown veal and related meat products (burgers, sausages, mince, blackpuddings, local pork and lamb) and markets unique flavoured oatcakes (mealie pudding, blue cheese) manufactured by Kindness the Bakers.

This is very much a family business. Father, Richard, is the number one cheesemaker, son Kenny provides overall management and supervision and is the driving force behind the diversification, while Kenny's brother Iain manages the farm. Richard's sister Jackie looks after all the accounts and her two daughters work part-time in sales. In addition the business employs 6 staff – an assistant cheesemaker, two cheesecake makers, a butcher, a part-time van driver and a farm worker. All the staff are local.

The major route to market is via van deliveries to around 200 shop, deli, restaurant and food service outlets from Keith to St Andrews (and a few in Edinburgh and Glasgow). Every customer is contacted each week and van deliveries are made every Wednesday, Thursday and Friday. Farmers Markets and seasonal events are the second most important outlet with the family servicing 4 Angus markets, 4 Aberdeenshire markets and around 30 mainly summer events (shows, rallies, game fairs, food events). After attending their first Farmers Markets people started turning up at the farm so a small shop was built onto the cheese factory. During the peak summer show period and pre-Christmas every member of the family can be operating a stand at a different event.

Development History

Until 10 years ago the farm had a typical development story. In Richards fathers' time the dairy grew from 100 cows to 180 cows. The farm took on more land and adopted technology such as total mixed rations and high concentrate usage to boost yields. The family were also well known for pedigree Blonde d'Aquitaine cattle and pedigree Texel sheep. When Richards two sons came home from College the next step might have been to add another 100 cows and to intensify further. But milk prices were

poor and they were running faster to stand still. There had to be a change; the boys were keen to diversify so Richard and his wife went on cheesemaking courses. Fast maturity products like yoghurt and soft cheeses were tried first – they could be made on Monday and sold on Saturday. Farmers Markets were emerging at that time and were a tremendous starting point as they generated cash, gave rapid consumer feedback (because the maker meets the consumer), provided a "safe" learning environment and were cheap to service. The small farm shop came next and finally the deliveries to shops and deli's once they had improved their confidence, products, packaging and selling skills. Richard used 4 years SFP payments to finance the establishment of the Devenick dairy (product development, packaging, factory, shop, kit, van) which meant tight management of the farm and a deal of sacrifice.

Diversification was tremendously labour intensive and as cheese and other product sales took off the decision was made to totally reorganise the farm so it could operate as a one man unit. Around £400,000 was spent on a new parlour and buildings with simpler layout. Winter feeding switched back to self feed silage and in-parlour concentrates and away from time consuming mixer wagons and TMRs. A New Zealand style paddock grazing system has been adopted to maximise production from grass. Tracks have been laid across the farm to allow cows a dry route to all fields and to extend the grazing season. Cow numbers have been reduced from 180 to 120. Most are Friesians with a small number of Jersey crosses.

One aim is to have an integrated, waste free system. Whey by-product from the cheesemaking process is fed to the dairy bull calves (which are nearly worthless and often would be culled in other dairies) to produce rose veal. Slurry and dung from the dairy fertilises the grassland. A Biomass Boiler produces heat and hot water for the factory, houses and milking parlour. Currently half the milk produced on the farm is processed (50% of that into cheese) with the other half sold to Muller Wiseman at Altens.

Developing a wide range of products has been very important. It creates interest and increases sale volume per customer which is critical for the viability of van deliveries. For the cheeses they feel they must have the three generic types – blue, brie, cheddar – and 2 or 3 variants of each. In addition they create six seasonal/ summer cheeses to match the nature of seasonal demand and to cope with the peak summer milk yield. Yoghurt – mainly natural – is now a minor product, but an important part of the package for catering outlets. Cheesecakes have grown into a major product with two full time staff making them. Once again a range of flavours is essential. Oatcakes are the perfect accompaniment to cheese and the relationship with Kindness Bakers grew out of an experimental use of blue cheese as a flavouring. Veal, as cuts or processed products, is the most recent addition. They easily market all the veal meat they produce. With the employment of a full time butcher, locally sourced pork and lamb was added to the range. Retail outlets and individual consumers are looking for an interesting range of unique products and their chef customers are often looking for good quality, locally sourced primals so that they can create their own dishes. For all products they have learned that continual innovation and good packaging are critical.

Range creates interest, but it also creates problems, especially the high cost of selling lots of small quantities of many products. Packaged deals are therefore a central part of their sales strategy; any 3 cheeses (and a packet of oatcakes) for £10, any three cheesecake slices for £6, any four meats for £10. It simplifies customers decisions, reduces the amount of change needed, speeds up sales and overall

boosts sales volume. With van deliveries dominating sales during the week, the weekend Farmers Markets provide an opportunity to market the products in surplus at the end of each week. They are a buffer for the whole system.

Challenges and Threats

The Groats freely admit that their management skills have been a major barrier to success. As farmers they were not accustomed to employing staff and they started out as dictators. Now they have team meetings over coffee to discuss problems and plans. This has transformed the environment. Everyone needs to feel part of the team.

Sourcing skilled labour is difficult. There are no local cheesemakers so everyone needs trained up from scratch. Finding good people is time consuming.

For a maker of speciality product, volume per customer and per van trip is a real challenge. Securing more outlets and some higher volume outlets is therefore important. However, they do not want to sell to the big multiple retailers at this stage – they don't want to get back into the rat race of ever higher output at ever lower margins.

The farm is a dilemma (as it is for anyone who diversifies successfully). In some ways it holds back the new business, demanding labour and management input and periodic investment. Kenny says he sometimes changes his clothes 4 times per day as he swaps between farm and food business. However, the farm, its heritage and the way the raw material is produced is the basis of the credibility of the food products. The shift in CAP support toward area payments has little effect on the business in comparison to the Devenick Dairy opportunities.

The Devenick Dairy business has a website, but does very little internet sales. It hasn't invested effort into online and they feel this may be a lost opportunity.

Strengths, Opportunities and the Future

The family are entrepreneurial in the way they have taken risks, invested capital, expanded their range and packaged their product deals. The extended family involvement gives the business some resilience and flexibility. They have roots – a story which people are interested in. They have quickly learned an amazing range of skills – from food technology skills through to understanding consumers buying practices. They have made a conscious decision to be involved in the Farmers Markets boards and the Grampian Food Forum so that they can influence, spot opportunities and keep up to date. Kenny and Iain are part of a group of young farmers (including Gregor MacKintosh of rapeseed oil fame) who were at College together in Aberdeen, who did a Grampian Food Forum Business Growth programme together, who have diversified into food products and who clearly spark off each other. The relative wealth of customers in the North East has undoubtedly been an advantage.

So what's the next step? The Groats have clear plans for the future. They aim to develop the old farm steading at Bishopston into an improved shop with cafe and viewing gallery overlooking the milking parlour. The converted building will also house a kids play centre. The existing butchery will be relocated. An expansion of van sales is planned to utilise more of their own milk production and minimise the impact of falling retail milk prices. The Farmers Market sales, though useful, cannot easily be expanded.

As part of the AWPR development a new road will cut through the farm. This is causing disruption in the short term, but easier access for visitors in the long term. In the meantime the Groats have established a residential caravan site for the AWPR workers; a good example of how this business continues to see change as an opportunity.

Case Study 6.

NORTH EAST MEAT PROCESSING

McIntosh Donald

The Business

McIntosh Donald is a red meat processor based at Portlethen just outside Aberdeen, supplying some of finest quality beef and lamb in Scotland. With fifty years of experience, the "McIntosh Donald" name is synonymous with quality, being recognised by both farmer suppliers and retail customers alike. The plant comprises of livestock lairage, an abattoir, cutting /deboning hall, waste water treatment plant, refrigerated chills and a separate distribution centre. There are two separate killing lines, one for cattle and one for sheep, although the same staff operate both lines. Normally lambs are handled first, followed by cattle later in the morning. Over time the plant has deliberately followed a strategy to add more value on site, moving from carcasses and basic primal cuts, to complete deboned cuts, normally into vacuum packs which are trayed/boxed then palletised for dispatch.

The business employs 315 FTE staff, with just over half coming from Eastern Europe. Previously, the number of East European workers had been increasing, but over the last few years has now stabilised. Competing for skilled labour has always been difficult, particularly being in a region dominated by the oil and gas sector. Production staff operate normally from 6.30am till 3pm, followed by a backshift hygiene team who work 4pm-11pm whose job it is to thoroughly clean down the plant ready for the next day's operation. Although the abattoir and boning hall staff work five days a week, the business is actually open every day to complete and dispatch orders on a daily basis.

The business has a turnover of £125 million and a weekly throughput of 1,500 head of cattle and 2,500 lambs, making it one of the biggest red meat processors in Scotland. Abattoir operations recover the edible portions of slaughtered animals for human consumption, however, significant quantities of waste materials are also generated. These by-products include the hide, bones, blood, specified risk material (SRN), fats and gut contents. The handling and safe disposal of these by-products is strictly controlled, ensuring good health and environmental management practices. There is a vet permanently on site and six Meat Hygiene Inspection officers.

The key for a successful abattoir is achieving carcass balance in sales. Demand for the various meat cuts will never equate to what is available from the carcass. A given amount of waste is inevitable when trying to match supply and demand. The key to profitability is finding a good market for all of the cuts, not merely the higher-value steaks and roasting joints. Each cut has its own profit margin and costs associated with the production process, strong demand for certain cuts will only create an equal supply of other cuts from the carcass.

In terms of markets, McIntosh Donald serves a wide portfolio of customers. The following table shows the importance of the multiple retailers and food manufacturers to the business. Following the outbreak

of BSE in 1996 and the resulting ban on all meat exports the business had to focus entirely on the domestic UK market.

Customer Segment	% Share of output
Multiple retailers	67
Food manufacturers	14
Wholesale	6
By-products	7
Export	6
	100%

Forecasting future sales is complex, and involves a range of factors e.g. the weather, time of year, marketing campaigns, household disposable incomes and special promotions. There are a variety of tools and techniques used, all of which largely use historic information. The skills and ability to accurately forecast future demand makes an important contribution to the overall success of the plant. Chill capacity is important for two principle reasons: beef is matured normally for 21-28 days and also to provide buffer stocks to deal with daily orders.

Although export markets have reopened, their importance to McIntosh Donald is currently small but expanding. A combination of the strength of sterling (£) and the inherent higher risks associated with exports means the focus is firmly on the domestic market.

Development History

The business was originally founded in 1966 by William Donald, a well-known local businessman and farmer. The business formation was supported by Sainsbury's who wanted to provide Scotch beef to the London market. In 1984 James McIntosh acquired the business creating the name 'McIntosh Donald' which has been a consistent brand ever since. Ten years later in 1994, the Grampian Country Food Group acquired the business, subsequently carrying out major investment to expand and upgrade the facilities. An important milestone was the creation of a separate distribution centre on an adjoining site in 2001. The plant was later purchased by the Dutch farmers' co-op Vion, who then withdrew from the UK with the business being sold to the current owners 2 Sisters Food Group in 2013. Being part of the red meat division of 2 Sisters Food Group means the business enjoys the benefits of being part of a large dynamic food company which brings resources, expertise and market access.

Producer Groups

McIntosh Donald was one of the first Scottish meat plants to establish farmer producer groups to help improve the understanding of market requirements, getting farmers to think of themselves as food producers. The Producer Group normally have 3-4 meetings and produce two newsletters over the year. Getting small groups of producers into the plant to see their livestock hung on the hook is always a key activity and great opportunity to discuss a range of topics from breeding and feeding, to animal health and production systems. In total, the plant has 1,000 holdings supplying cattle and 500 holdings supplying it with lamb. However, 250 livestock producers would supply 80% of the cattle required by the plant.

The challenges

- As in all businesses, the need to be efficient and to reduce costs is ongoing

- Must work hard to insure the demand for ‘Scotch’ meet continues to grow
- There is a constant challenge to expand the customer portfolio to ensure optimum carcass balance
- Must secure sufficient livestock supplies which is efficiently produced on farm with due care to welfare and the environment. This is a major concern as livestock farmers appear to be very subsidy reliant and livestock farming seems less attractive to many younger farmers.

The Future

The task of achieving customer service levels, ensuring supply chain efficiencies, driving costs out, coping with an increasingly complex compliance burden, all whilst retaining a healthy profit margin, is not an easy one. Beef has shown to be very resilient, recovering from a number of major food crises and scares from BSE, two foot and mouth disease outbreaks and the horse meat scandal. Meat eating is a staple of western diets with beef seen as the premium meat. The ‘Scotch’ brand ensures a niche premium market, without which, all Scottish meat processing plants would be uncompetitive.

Operating a modern meat processing plant is not easy; success is built on experienced management, well-trained staff, investment in facilities and a deep understanding of the food supply chain.

Case Study 7.

INPUT SUPPLY AND COUNTRY RETAIL

NORVITE

Current Business

From humble beginnings based at Wardhouse near Insch, Norvite has grown for over 40 years to be one of Scotland's most successful animal feed nutrition companies. A large part of that success has been is due to the company's philosophy of never standing still, constantly striving to innovate and evolve the business. Today the company employs over 60 staff, has a £14m turnover with three manufacturing sites – a mineral plant at Insch (it is one of only two mineral manufacturers in Scotland) and two feed blending plants, one just outside Oldmeldrum and the other at Ochiltree in Ayrshire.

High tech mobile "mill and mix" lorries

Norvite has always prided itself as being innovative, indeed being one of the first companies in 2002 to introduce precision mobile mill and mix feed lorries for farmers who preferred home-mixed rations. Using the latest technology from Germany, these mobile feed lorries (costing £250k each) are able to accurately deliver specific complete diets using electronic weighing cells. This has revolutionised the introduction of complete diets on many farms whilst also saving the farmers the capital cost of installing their own mill and mix plant. They are commonly used by poultry and pig producers and are capable of mixing 250t per week.

Expansion into 'Farm & Country' stores.

In the face of declining livestock numbers, the business diversified into new markets in the search for new income streams. Three 'Farm & Country' stores have now been established at Insch, Oldmeldrum and Deeside. These stores cater for all animals, from livestock, poultry and horses to pets and wild birds as well as stocking the largest selection of feeds and supplements in the north-east and a range of other quality country products including clothing and footwear. Although supply of animal feeds is the core business, the country stores make an important contribution to the business.

Newly installed oilseed rape crushing plant

The latest development (summer 2015) undertaken by the business is the £600,000 investment into a new oilseed rape crushing plant at South Blackbog, Oldmeldrum. Using a cold press (KEK) from Germany, the Norvite Expeller Oil Seeds (NEOS) plant crushes locally sourced oilseed rape to produce a high quality animal feed protein (rape meal with 10% oil) and rapeseed oil which can replace imported soya oil as an energy source principally for monogastric diets (poultry and pigs). Initially the plant will crush 4,000t of oilseed rape but there is scope to treble this amount in the future. As well as benefits to livestock producers in the region, the new plant also provides a good local market for OSR growers and potentially could take up to 30% of the crop grown in the north-east.

Technical Services

Norvite provides a wide range of specialist services to support farmers and customers including: ration formulation; livestock feeds (providing over 40 blends); raw materials; minerals (providing over 1,000 different mineral formulations); silage analysis; purchasing advice and NIR analysis. The product markets served include: ruminant; pigs, poultry & game, organic, mobile milling, equine, pets and small animals.

Development History

Norvite's history since it was formed in 1973 is fairly typically of how companies change over time through various restructuring and ownership phases but with good sound management is able to adapt and prosper. Notable events over the last 42 years include:

Timeline

1973	Formed by Alistair Pirie, Roy Matheson and Gilbert Reid who left Spencers Feeds when acquired by Unilever. Built a substantial business supplying mineral supplements and protein concentrates direct to farms
1989	Acquired South Blackbog site, Oldmeldrum
1995	Due to succession issues the business was initially sold to SCA Nutrition, then subsequently to multinational company Provimi Group (now part of Cargill)
1998	Opened blending plant at Whiterashes (subsequently moved to Blackbog)
1999	Opened blending plant in Ayrshire
2002	Introduced two high-tech mobile mill and mix lorries
2005	Returned to private ownership with management buy-out (Ed Smith MD) and opened 1st Farm & Country store
2009	Opened 2nd Farm & Country Store at Blackbog depot
2012	Invested £750k in new mineral plant at Insch Opened 3rd Farm & Country Store at Deeside Activity Park
2015	Invested £600k in new OSR crushing plant at Blackbog depot

Current issues /challenges

A range of issues and challenges were identified, these include:

- The market for animal feeds is declining due to falling livestock numbers and lack of farm profitability. As a result of low livestock commodity prices and reducing subsidy support (CAP Reform) many livestock farms are cutting back on costs. Margins are being squeezed in core markets.
- Farmers are increasingly looking for extended credit terms to help farm cash flow.
- In response to the decline in its core market, the business will look to develop new income streams, part of this is to search for new retail sites. Norvite has benefited from the wealth generated by the oil and gas sector in the region. With the downturn in oil prices and subsequent job losses, however, it is unclear how it will impact on the Farm & Country Store retail business.
- Skills shortages and staff succession - finding good skilled staff is a challenge whenever a vacancy is created.

Future opportunities

- Focus on growing the rape meal and OSR oil market – have the ability to expand production up to three times.
- Already captured a share of the pig feed business in Northern Ireland - looking to continue to build on this success
- Expand the retail business - actively looking for sites outwith the region.
- Exporting novel animal feed products into Europe, particularly to Scandinavian countries.

Lessons from Case Study

1. All businesses built through entrepreneurial owners face the challenge of how do founder owners get an exit route for their capital? Unless there is an opportunity for family succession this is real dilemma for many SMEs. Many founder-owners create and build a successful business then sell it to a bigger rival to retire and enjoy the fruits of their labour. This brings both benefits and threats to the original business, its staff and wider stakeholders.
2. The Norvite example shows that to succeed and grow, a business has to constantly strive to be innovative in order to deliver value and service to their customers. To successfully follow this type of strategy requires exceptional management.

Case Study 9

THE FUTURE FOR THE MIXED UPLAND ESTATE

KINORDIE ESTATE, ANGUS

Current Business

Kinnordy is a large rural estate extending in total to approximately 3,962 hectares (9,841 acres). It is split into two sections; the 'low ground' extends to about 2,124 hectares (5,248 acres), lying around the northern edge of Kirriemuir, Angus whilst the 'hill ground' of around 1,859 hectares (4,594 acres) known as Balintore is situated about 5 miles to the north west, in the southern Grampians.

The Estate represents a traditional residential, agricultural and sporting estate. At the heart of the property is Kinnordy House and grounds, which are surrounded by a mosaic of in-hand farms (operated on a contractual basis) and woodlands, with 13 let farms of varying sizes. The Balintore land has vacant possession, and is farmed under a contract arrangement.

The Estate comprises separate interests, including Kinnordy Estate, Kinnordy Farm Partnership, and assets owned by The Rt Hon Lord Lyell, Patrick Gifford and Antony Gifford.

The Estate employs a Factor, Deirdre Stewart, through a contract with CKD Galbraith. They contract a 4 days per week dedicated factoring service which has been in place since January 2013 following the retirement of Jamie Stormonth-Darling. CKD Galbraith provide a dedicated partner, Chris Anderson Scott who works with the Factor with the support of the Estate Office Secretary (employed directly by Kinnordy Farm Partnership). The Estate see the benefits of this arrangement being that the Factor can supplement her local knowledge and understanding of the Estate with the 'back room' support from a bigger firm. The Estate has access to the wide range of expertise that CKD Galbraith can provide.

Kinnordy Farm Partnership comprises of a number of different operations. The Farm has an arable operation which accounts for half of its annual turnover. It also lets grazing and other in-hand farming on both a temporary and permanent basis. The hill ground farming is operated via a contract arrangement with the shepherd, who lives in one of the houses at Balintore, supporting on average 1600 breeding ewes and 70 breeding cattle. Woodlands comprise a total of 425 hectares of the business with 246 hectares considered commercial woodland which are managed through a Long Term Forest Plan.

Outwith the direct agricultural side of the business Kinnordy has sporting rights which are let to Kinnordy Shoot Syndicate. In addition there are a total of thirty one let properties including domestic cottages and farmhouses. This side of the business employs five full time staff: one Estate Office

secretary, two Handymen (one responsible for repair and maintenance of let properties), one forester and one gamekeeper. Kinnordy Farm Partnership had a turnover of £2.1m in 2012/2013.

Kinnordy Estate forms the second part of the business. The largest part of its turnover (61%) comes from let properties, including thirteen let farms and eight domestic cottages. Kinnordy Estate owns and leases the land on which Kirriemuir Golf Course sits, although it does not own the club house. It also owns the land at Loch of Kinnordy Nature Reserve and leases it to the RSPB. This area forms a significant part of the Core Path Network and provides formal access for the local community. They also own and lease the Garlowbank Smithy Workshop to a local joinery firm. Fishing rights are held on a stretch of the River South Esk and Lord Lyell and his family live in Inch of Kinnordy, employing one house keeper. Antony Gifford took ownership of Kinnordy House, Observatory and Walled Garden, and Policies of the House in late 2013 and employs one housekeeper. These assets were previously held by Kinnordy Estate.

2. Development History

The big changes that the Factor has seen over the last 10 years have come from renewables (particularly wind farms and hydro schemes) but she does not see these as being driven by the SRDP, more coming from the businesses themselves who have seen opportunities for private development.

Other major changes have been the shift to contracted factoring services, the gradual movement toward contract farming agreements rather than lets (though lets are still important and will continue to be) and the diversification of the estate activities to better utilize all the assets.

3. Current weaknesses/ challenges/ threats

There are a number of challenges affecting the Estate at present which are causing a high degree of uncertainty, particularly as they combine together and influence each other.

The key challenges highlighted were the proposed changes to legislation affecting Tenants Right to Buy, Land Reform, Reform of the CAP and the delay in opening the 2014-2020 SRDP funding schemes.

The uncertainty surrounding the **reforms to Agricultural Holdings legislation**, tenants' right to buy and land reform are having a big impact on the Estate's view on renting land to tenants.

Some of the proposed changes to the tenant's right to buy legislation may have very serious implications for Kinnordy Estate, particularly if tenants are given the absolute right to buy properties as the Estate depends on income from letting properties to maintain its assets, particularly Kinnordy House.

A key issue for Kinnordy Estate is that many of the let farms on the Estate are very small in area and do not provide enough income on their own to be financially viable businesses in the current economy. Many of Kinnordy's tenants therefore rent land elsewhere in addition to their Kinnordy farms, in order to get to a viable scale. This reduces the attractiveness for tenants to buy their land at Kinnordy, in the Estate's opinion, and the Estate is not keen to have its land sold off. The income generated by letting land is necessary to maintain the required turnover and profit levels to continue to run the estate.

This has led to a situation where the Estate had two long term tenants who have given up their leases as they had no successors who wanted to take on the farms. Instead of looking for new tenants the Estate took the farms back in-hand to avoid the right to buy risks.

There are also concerns that the changes to legislation will polarise tenants and landlords. For example the Estate knows that it will have land coming back in hand in 2018 due to the end of a lease. The tenant will be 56 at that time and wants a further 10 year lease to see him to retirement. The Estate are happy with the tenant and the way he has farmed the land, but they lack confidence in what will happen to tenancy law and therefore are not prepared to make a decision on whether or not to rent the land again. This is an unsatisfactory situation for both the landlord and the tenant. They are waiting on the outcome of the changes to Land Reform legislation, particularly in relation to assignation.

The concerns around assignation are that the changes may allow a tenant to assign the lease to 'anyone'. Kinnordy Estate are supportive of tenant farmers assigning leases to direct relatives (i.e. farmers sons') but the uncertainty over who the lease may end up with is causing a reluctance to lease land at all. In some cases the Estate may pre-empt the situation by buying back the tenants' rights.

In the longer term the Estate will bring more land back in hand if the right to buy and assignation worries remain. They want to ensure the integrity of the estate and want to help to underpin this by increasing the acreage, not losing chunks.

The **uncertainty over CAP reform** is also seen as a major challenge at present. The lack of clarity over the greening rules and the need for a proportion of land to be set aside as Environmental Focus Areas is a challenge. Due to the cropping rotation they had to make the decision to plant crops before the new rules were announced, so there is great uncertainty over where the EFA could be legally located. Rule clarification has been piece meal and last minute so there is a concern over completion of the complex estate IACS form in May. The size of the new area based payments is still unclear, especially as the regime is phased in over the years to 2019. In the absence of detailed guidance on the new CAP, the Estate have tried to base their decision making on good husbandry techniques and growing crops that are economically viable.

Lord Lyell is keen to ensure that the Estate benefits from the **new SRDP** as much as possible and is keen to apply to the new schemes at the earliest opportunity. This has not been possible to date as a number of the new schemes are not fully open. This causes a dilemma for the Estate as they have to make decisions on planting and land management issues that may not correspond with new schemes' rules.

The **shortage of rural skills** is another challenge; especially encouraging young people to learn the type of skills that will be needed on the Estate in years to come. They have 3 employees all getting on in years. The Estate wanted to take on a younger person to train with existing staff to ensure continuity; ideally they wanted someone with a trade (e.g. joinery, plumbing). On advertising they did not receive any applications from such candidates. There are courses on farming and surveying, but what the Estate was looking for was 'Estate Maintenance' staff. There are broad opportunities within these maintenance posts as the staff are responsible for the on-going maintenance and improvement of the let properties as well as maintenance issues on roads and land throughout the estate. The Estate would be happy to pilot an apprenticeship in this type of role if they could access candidates and the appropriate training.

4. Opportunities you see looking forward, strengths you can exploit?

Strengths / Opportunities

Kinnordy is an integrated Estate right next to a centre of population which makes finding employees and renting their properties more straight forward than if they were are the top of a glen. There is good local footfall which they see as a real advantage. They already have a Core Paths Network and promote access to the public in the Nature reserve, woods and surrounding land. There are opportunities for the future to exploit some of the foot fall, for example opening a café at the RSPB Bird reserve and they could put in cycle paths to encourage a greater range of activities and visitors.

The estate has a diverse range of enterprises and income streams which is a strength in an increasingly volatile economic climate.

The Estate also has a number of listed buildings which could be converted at some stage in the future for diversification purposes, although this it thought to be a costly option.

Public assess is not seen as an issue by Kinnordy Estate - they are open to their woods and land being available for multiple uses such as dog walkers, cyclists and ramblers as long as it is done responsibly. They reiterate that there is no absolute right to roam and access has to be done responsibly.

5. What is your plan for the future?

Kinnordy Estate is unlikely to make major changes in the business in the next 10 years. The Estate has core income streams which are not likely to change. They key will be to improve existing enterprises. They have a really solid block of ground which they are determined to retain; they have only ever sold 2 house sites and are determined to retain the Estate's integrity. They do not see any justification in for example carving up the estate as it needs all its income streams to look after and maintain Kinnordy House, the ongoing maintenance of roads and infrastructure. They have a business model that works well for the Estate and are able to cover all their costs.

Consideration has been given to diversification. In the past they have applied for a wind farm development, but it was overshadowed by the one in Glenisla. They have also investigated other renewable options including solar, but renewable energy options are not as attractive as they once were due to the reduction in the feed in tariff. Consideration has also been given to diversifying into the holiday cottage market; however the Factor doesn't think Kinnordy has anything unique or very special to offer to the holiday market where location is such a big issue. A move into the holiday cottage market would require a large capital investment and they do not see it as a financially viable option. The Estate thinks they are better to refurbish their cottages to a high standard and keep their long term tenants as they think it is important to provide rental housing stock in a rural location. Having a large portfolio of let properties also helps them to be flexible for the needs of their existing tenants (for example one member of a tenant family moving into another property on the estate).

Looking forward CAP reform bureaucracy looms large and they are happy to stay a traditional shooting, fishing, agricultural Estate.

The estate works with a wide range of other organisations and businesses e.g. RSPB, contract farmers. Developing these relationships to mutual benefit will remain an important part of the strategy.

5 STAGE 2 – WHAT DOES IT MEAN IN THE MEDIUM TERM?

5.1 IMPACT OF THE CAP REFORM

5.1.1 Direct Support to Agriculture in the North East – SFPS, SBCS, LFASS

During the study period there were two Pillar 1 schemes making direct payments to agricultural businesses; the Single Farm Payment Scheme (SFPS) and the Scottish Beef Calf Scheme (SBCS). Under Pillar 2 of the CAP (the Rural Development Programme) the Less Favoured Area Support Scheme (LFASS) could be regarded as a direct payment to qualifying businesses within the LFA. The level of 2014 support for the North East under these schemes is presented in table 113.

Note that the "payment per holding" is an artificial figure. These schemes are not paid per holding, but on claimants. However, the figure may give some indication of the importance of each scheme in each area. Payment per claimant is shown below.

Table 113. SFPS and LFASS average payment £ per claimant Aberdeenshire, Angus and Moray, 2014.

	SFPS Total	No of SFPS claimants	Average payment per claim	LFASS Total	No of LFASS claimants	Average payment per claim
Aberdeen City	1,755,248	57	30,793	108,075	19	5,688
Aberdeenshire	67,382,858	2,530	26,633	3,562,894	869	4,100
Angus	16,806,879	590	28,486	1,019,051	115	8,861
Moray	13,747,228	578	23,743	2,651,130	302	8,778
Total NE	**99,692,215**	**3,755**	**26,549**	**7,341,151**	**1,305**	**5,625**

Table 114. Farm subsidies paid NE and Scotland, 2014

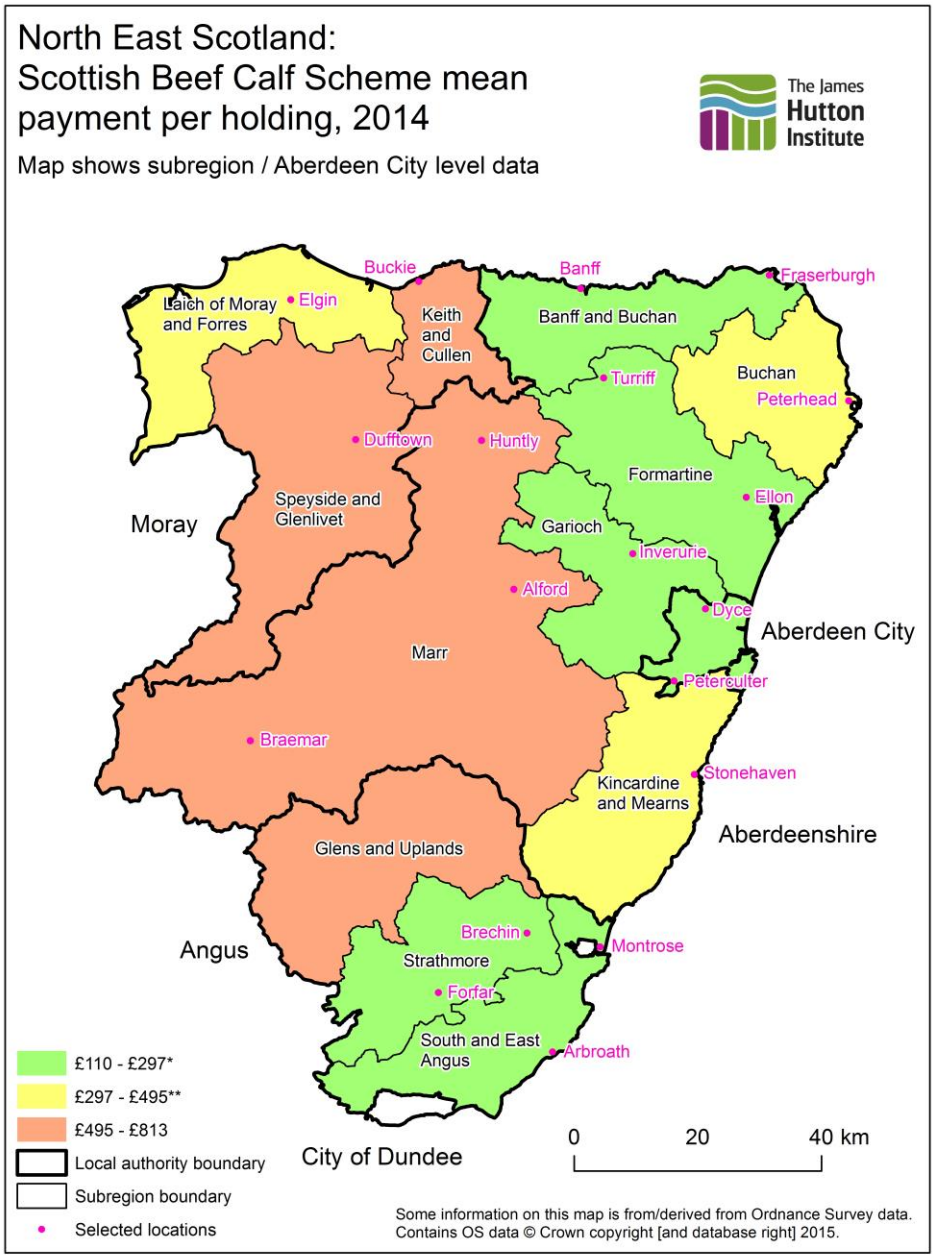
Data source: Subsidy figures shown are from/derived from subsidy data provided by Scottish Government Rural Payments and Inspections Directorate, except for Scotland figures which are based on information in Scottish Government Economic Report on Scottish Agriculture 2015 data tables, available at http://www.gov.scot/Resource/0048/00484557.xlsx. © Crown Copyright. Contains public sector information licensed under the Open Government Licence v3.0. Total holdings figures are derived from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
LFASS = Less Favoured Area Support Scheme. SFPS = Single Farm Payment. SBCS = Scottish Beef Calf Scheme. * - Scottish Beef Scheme figure.

Data values: As shown. Total paid: LFASS local authority totals (and the NE Scotland total) are figures quoted for local authorities. All sub-regional figures for LFASS and all SFPS and SBCS figures are based on sums of parish-level data. Some figures shown may therefore not include disclosive data. Total paid per holding based on all holdings in region irrespective of subsidy receipt in each parish.

		Total paid (£)			Total paid per holding (£)			Number of claims		
Region	**Total holdings**	**LFASS**	**SFPS**	**SBCS**	**LFASS**	**SFPS**	**SBCS**	**LFASS**	**SFPS**	**SBCS**
Scotland	**52,249**	**65,500,000**	**382,400,000**	**20,690,000***	**1,253.61**	**7,318.80**	**395.99**			
NE Scotland	**10,156**	**7,341,150.70**	**99,692,215.07**	**3,772,154.57**	**722.84**	**9,816.09**	**371.42**	**1,305**	**3,755**	
Aberdeenshire	7,245	3,562,894.88	67,382,858.81	2,629,673.20	491.77	9,300.60	362.96	869	2,530	
Banff and Buchan	1,138	440,246.16	8,834,475.55	309,799.57	386.86	7,763.16	272.23			
Buchan	1,096	172,918.21	10,825,107.97	326,199.86	157.77	9,876.92	297.63			
Formartine	1,565	188,862.20	14,370,292.16	435,961.84	120.68	9,182.30	278.57			
Garioch	1,148	316,917.21	7,774,888.57	323,721.22	276.06	6,772.55	281.99			
Kincardine and Mearns	831	315,075.77	9,458,125.11	336,344.47	379.15	11,381.62	404.75			
Marr	1,467	1,934,056.05	16,119,969.45	897,646.24	1,318.37	10,988.39	611.89			
Aberdeen City	258	108,075.24	1,755,248.93	29,383.72	418.90	6,803.29	113.89	19	57	
Angus	1,301	1,019,050.74	16,806,879.10	254,433.06	783.28	12,918.43	195.57	115	590	
Glens and Uplands	114	352,641.48	1,486,412.51	71,297.34	3,093.35	13,038.71	625.42			
South and East Angus	660	0.00	7,586,515.15	72,343.11	0.00	11,494.72	109.61			
Strathmore	527	193,491.77	7,733,951.44	110,792.61	367.16	14,675.43	210.23			
Moray	1,352	2,651,129.84	13,747,228.23	858,664.59	1,960.89	10,168.07	635.11	302	578	
Keith and Cullen	442	599,611.91	3,875,683.59	308,525.14	1,356.59	8768.51	698.02			
Laich of Moray and Forres	455	240,466.63	4,882,959.71	180,406.49	528.50	10,731.78	396.50			

Speyside and Glenlivet	455	1,615,451.40	4,988,584.93	369,732.96	3,550.44	10,963.92	812.60

The Scottish Beef Calf Scheme data simply shows that most payments are received in the main suckler cow areas.



* 75% of Scotland mean. ** 125% of Scotland mean. No data shown from City of Dundee.
Subsidies data: SGRPID, Scotland data: Scottish Government Economic Report on Scottish Agriculture 2015 data tables. Holding counts derived from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Local authority and subregion boundaries are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). Selected locations derived from OS 1:250 000 Scale Colour Raster.

Figure 19. SBCS payment distribution by holding.

5.1.2 The Shift to Regionalised Area Payments

In 2005, Scotland opted for the 'historic' system of decoupled Pillar 1 payments (which were known as Single Farm Payments), based on farm-level receipts in 2000-2002, with 10% (the maximum allowed) of the national envelope used for the headage-based Scottish Beef Calf Scheme. In order to increase convergence of direct payment rates both between and within member states (European Commission, 2013), the 2014 CAP reforms required Scotland to move to a regional system of direct payments ("Basic" and other). This involved a degree of flattening, i.e. reductions in differences in per-hectare payment rates across the country towards a more uniform Basic Payment level, based on "payment regions".

The process of reallocating funding is referred to as "regionalisation". Scotland has adopted a three payment region scheme based on categories of Land Capability Assessment (LCA), Less Favoured Area (LFA) or "historic land type" (e.g. arable, grazing) (http://www.gov.scot/Topics/farmingrural/Agriculture/CAP/CAP2015/BasicPaymentsScheme). The changes in payment rates will be phased in over the period 2015 to 2019. In brief the three regions are as follows.

Table 115. CAP Basic Payment Scheme Regions

"Region" + approx. area	**What's included?**	**Guesstimate of payment rate 2019. Euros/ha.**
Region 1 1.8M ha	Better land (cropped land, temporary grass, permanent grass)	220
Region 2 1M ha	Rough Grazing (LFA categories B, C, D and non LFA rough grazing)	35
Region 3 2M ha	Rough Grazing (LFA category A – the toughest category)	10

These are not geographic regions. Every farm could have some of each region. The categories on each farm are defined by what the farmer put down for the classification of each field in the IACS form. It could be argued that this is almost a two region model – better land and rough. It should be noted that other aspects of the new CAP regime (Greening requirements including a 5% Ecological Focus Area for some farmer, Beef Voluntary Couple Support totalling 100 euros per mainland beef calf, Sheep Voluntary Coupled Support totalling 100 euros per ewe hogg for farms dominated by region 3) will have a significant moderating effect on the shift to regional area payments.

While overall, the changes have left the total Scottish Pillar 1 budget roughly unchanged, the regionalisation process has resulted in some farmers gaining, others losing.

Prior analysis by researchers based at the James Hutton Institute on payment schemes similar to that eventually adopted suggested that North East Scotland as a whole would be a net loser from the regionalisation process. In particular, based on a two region payment scenario North-East Scotland had a strong concentration of farm businesses losing more than €250 per hectare relative to pre-reform

payment levels with expected losses of some €29.7M for about 1,680 holdings in North East Scotland and gains of €12.3M to 1,495 holdings, i.e. a regional loss of €17.4M (Matthews, 2013a). In comparison, the same analysis found net gains in Tayside and many other regions of Scotland (see Table 116 below). The pattern of expected changes at regional level reflects a number of factors but, most importantly, the level of support received by farmers in the (old) base period (2000-2002) relative to the size of their land holding and land type.

Table 116: Expected distribution of losses and gains for all regions in Scotland from two region payment scenario

Region	Total Decreases	Total Increases	Count Decreases	Count Increases	Net Change
North East Scotland	-29,739,736	12,325,060	1,680	1,495	-17,414,676
Dumfries & Galloway	-24,600,010	10,019,205	927	794	-14,580,806
Scottish Borders	-9,777,400	6,707,628	487	547	-3,069,772
Fife	-4,399,271	1,856,568	250	238	-2,542,703
Lothian	-3,441,463	2,562,421	229	249	-879,042
Orkney	-2,536,619	2,453,052	238	443	-83,567
East Central	-3,590,685	4,281,596	180	348	690,911
Ayrshire	-6,046,617	6,820,504	427	625	773,887
Clyde Valley	-5,442,448	6,843,731	355	609	1,401,283
Shetland	-344,736	4,819,934	147	813	4,475,198
Tayside	-9,647,819	14,527,919	638	885	4,880,100
Eileanan an Iar	-147,758	6,739,765	137	1,549	6,592,007
Argyll & Bute	-4,007,996	10,968,912	257	605	6,960,917
Highland	-22,725,202	35,520,814	1,105	2,533	12,795,612
Scotland	-126,447,761	126,447,110	7,057	11,733	-651

The regionalisation incorporates significant (and complex) within-sector and within-"region" effects. These need to be considered alongside parallel or impending changes in the SBCS, LFA payments (e.g. when altered to a scheme based on High Nature Value), and various rural development payments. Again based on the same two-region payment scenario, Figures 20 and 22 below show the changes (gains and losses) in payments by farm type (all Scotland) and spatially within North East Scotland. The results highlight a shift from higher-intensity to more extensively managed land. Depending on the adaptive response of farmers, this may have major implications for the wider economy and in particular agri-food businesses in the region.

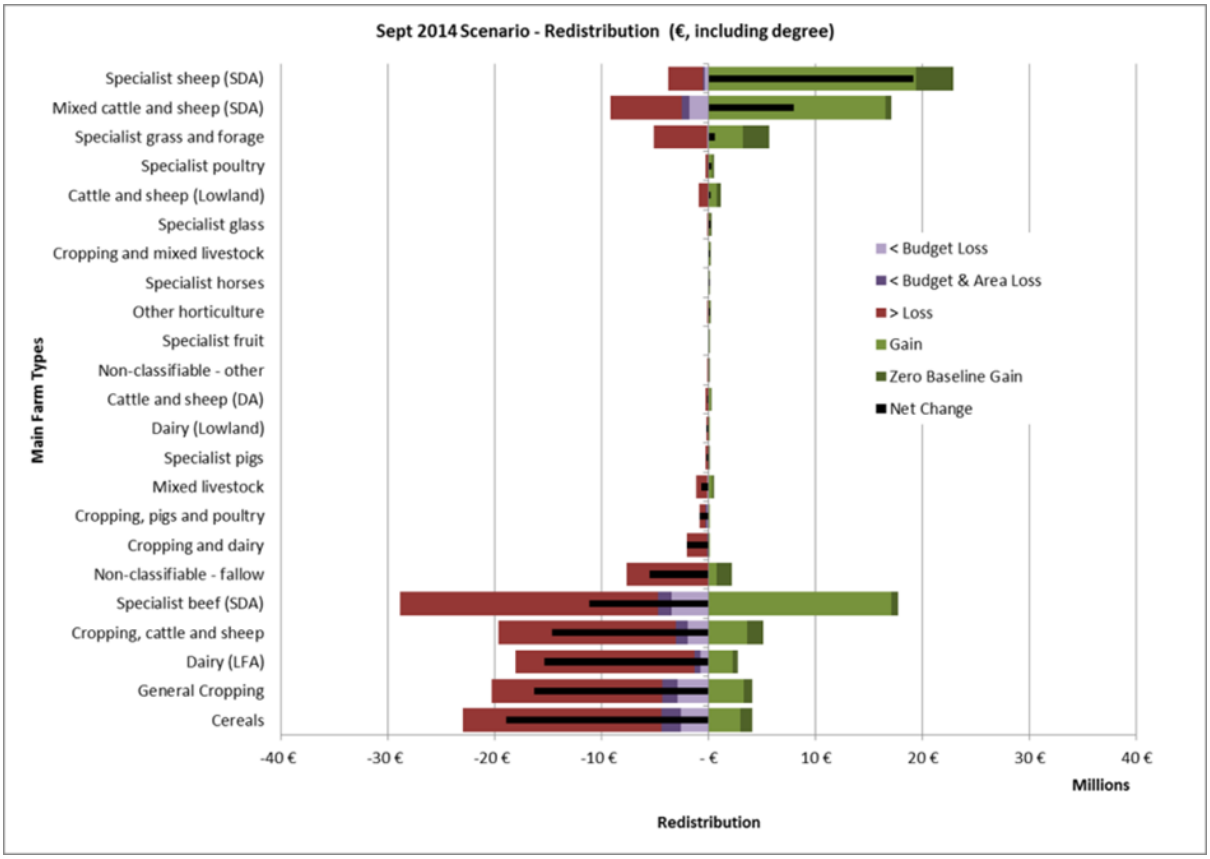


Figure 20 Impact of redistribution of direct payments by Farm type (all Scotland)

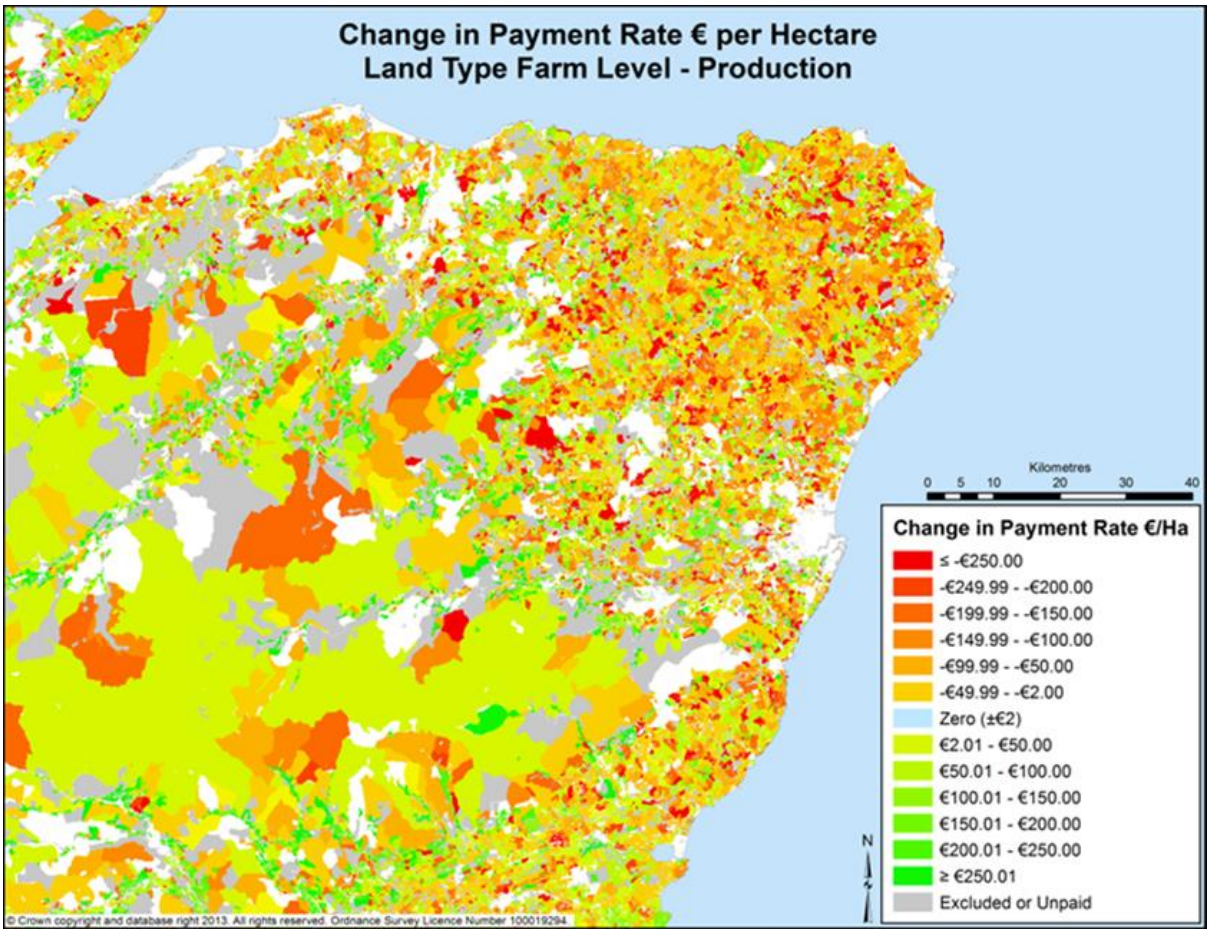


Figure 21. Spatial distribution of changes in direct payments, North East Scotland

It is very difficult to assess the financial impact on our study area of the new CAP regime until the actual hectares claimed is known and the impacts of the VCS (beef) and Greening requirements have worked through. However, we can draw the following tentative conclusions.

1. The NE will be a significant net loser in terms of total receipts of Pillar 1 payments (£17M suggested above, but before factoring in gains such as the increased calf payment, which for the NE study area may be worth around an extra £3M over and above the old calf payment, but also before assessing the negative effects of Greening - this can be compared to total agricultural output for Aberdeenshire of almost £400M). The general feeling is that the £17M reduction based on this modelling is an underestimate of the likely scale of reduction. Some individual parishes may see a reduction of over £1M. Farmers will adjust, which must mean knock-on effects for the sectors which serve agriculture. Farmers will spend less.
2. Intensive beef producers received the highest subsidy payments in the old regime due to high headage payments on cows and finishing cattle. This is where most of the cut will fall. Extensive suckler herds may have some area gain effect and will have the enhanced calf payment, but beef finishers will be the most exposed.

3. There are huge differences between farms in the same area – the spatial distribution map above shows this. Those who concentrated on crops, sheep and heifers received lower historic support than those who majored on beef cows and steer finishing. Those with large areas of poor permanent grass in relation to cattle numbers will be less hard hit than units with lots of cattle on small areas of good land. New entrants and those who expanded since 2002 may gain. There are almost as many gainers as losers, though we expect the losers in the North East to lose much more than the gainers will benefit.
4. Geographically, within the NE study area we expect lowland/good upland Aberdeenshire to be worst hit along with the upland/lowland margins of Moray and Angus. The Angus Glens, upland/hill Aberdeenshire and Speyside may overall gain. The impact on arable areas like lowland Angus may be fairly neutral.

Matthews, K., Miller, D. and Wardell-Johnson, D. (2013a) *CAP Reform Post 2013: Modelling of scenarios for the regionalisation of the Basic Payment Scheme in Scotland: Implications for the North East*. Presentation to North East Scotland Agricultural Advisory Group (NESAAG), 13 November 2013. Last accessed on 24 February 2014 at https://www.aberdeenshire.gov.uk/support/agriculture/james_hutton_institute.pdf.

5.1.3 CAP Greening

One of the objectives of the CAP reform process was to better promote the sustainable management of natural resources. This is in response to a growing awareness that agricultural intensification can lead to a loss of farmland biodiversity through, for example, increased monoculture, increased use of agrochemicals, hedgerow removal and the drainage of wetlands.

To reflect this, in addition to the switch to regional payments, the 2014 reforms have introduced greening as a mandatory component of the CAP to encourage farming practices that are beneficial to the environment. In particular, farmers will be eligible for greening payments (which are effectively part of the old SFP, not extra money, and comprise 30% of the total direct payment) subject to satisfying three obligations:

- Maintaining existing permanent grassland
- Crop diversification
- Having an Ecological Focus Area on larger arable farms. In particular, businesses not exempt from this measure must put 5% of their Arable land into an EFA.

Failure to meet these obligations will result in a proportionate reduction in payments received.

While the aims of the scheme are clear, critics have suggested that it will lead to very little change in agricultural practices or indeed environmental benefits as the conditions linked to each activity are such that many farmers will be exempt and/or will not have to adjust from existing farming practices. At EU

level the EFA requirements are such that they are expected to impact less than 1% of the arable area and only 5% of the farm population will be negatively affected (JRC, 2015).

Analysis of the impact of greening on farms within our study area is not yet available. Even the impact of the introduction of the EFAs is unclear since different land uses are preferentially weighted. For example, a 100 hectare arable farm has a 5 ha EFA requirement which can be made up of 5 ha of fallow, or 3.33 Ha of buffer strips, or 16.66 Ha of catch crops etc. The weighting factors are as follows:

i. Fallow land = weighting factor of 1
ii. Field margins = weighting factor of 1.5
iii. Buffer strips = weighting factor of 1.5
iv. Nitrogen-fixing crops = weighting factor of 0.7
v. Catch crops / green cover = weighting factor of 0.3

While it is likely that there will be some farmers in the study areas who will have to adjust their land use and/or farming practices, it is expected the majority will not. The most potentially damaging aspects for farmers are the requirement to introduce another crop (crop diversification) and the requirement for larger arable farms to have 5% of arable area in EFA. Upland farms dominated by grass will qualify for exemptions based on the proportion of grass, small units may be exempt, organic farms are exempt, typical mixed farms with say spring barley, grass and a forage crop will meet the 3 crop requirement but may need EFA, intensive arable units like those in Angus may at least avoid the crop diversification requirement because they have a full arable rotation. The main losers are perhaps bigger units with only rotational grass and spring barley, typical of Moray and parts of Aberdeenshire – they will need EFA and a new crop. Many of these farms have purposely simplified their systems over the last 10 years and will resent enforced complication. Scottish pea viners are especially disturbed that English vining pea growers can use their pea area alone as N fixing crop to meet the EFA requirement where in Scotland from 2016 two N fixing crops must be grown.

However, it is important to factor in the benefits which may result from the greening rules, especially as farmers think about how fallow or an extra crop could be used to advantage. EFA fallow can now be grass which is cut after the end of the required fallow period, catch crops can be established after the end of the fallow period so all production is not lost, and some all-arable units have grown a forage crop to be grazed by a livestock farmer to meet the diversification rules which may improve fertility and take in an income.

Overall the long term, environmental and agricultural impacts of CAP greening in Aberdeenshire, Angus and Moray are expected to be small. More significant perhaps is the fact that the introduction of (arguably weak) greening measures within Pillar 1 has come at the expense of more targeted agri-environmental measures in Pillar 2 of the CAP. As a result, farmers are less able to see clearly that they contribute to valuable environmental public goods and that their actions are critical in relation to the climate change agenda. From our workshops we gleaned that farmers were very resentful of how these surprising rules suddenly appeared and were imposed at the last minute, after years of consultation on the new CAP regime which they often felt had been a complete waste of time. There were also very negative comparisons with how greening had been implemented in England, where the rules seemed much more sympathetic.

Reference:

Joint Research Centre (JRC) (2015) An EU-Wide Individual Farm Model for Common Agricultural Policy Analysis (IFM-CAP) http://publications.jrc.ec.europa.eu/repository/handle/JRC92574

5.1.4 The New SRDP

The old SRDP (2007–13) was unusual in that it applied a significant amount of funding to " Restructuring Agricultural Businesses" - basically grants for agricultural improvements, typically sheds and slurry stores. These had not received significant grant support since the 1980's. In addition there was significant funding for all types of farm diversification.

It is very difficult to determine how much SRDP support went to our study areas as the projects were approved through Regional Project Assessment Committees (RPACs) whose areas did not fit our local authority boundaries. The two most important for us are the Grampian RPAC which would have included Moray and Aberdeenshire, and the Tayside RPAC which would have included Angus along with Perth and Kinross. As at 30 April 2014 the total funding for finalised contracts for each RPAC were as follows.

Table 117. SRDP 2007-13 funding by RPAC region as at 30 April 2014.

RPAC Region	Total Funding £
Argyll	45,431,829
Ayrshire	40,007,338
Borders	55,777,030
Clyde Valley	26,992,447
Dumfries and Galloway	81,521,564
Forth	49,670,780
Grampian	104,554,536
Highland	138,402,182
Northern Isles	33,091,414
Outer Hebrides	13,988,362
Tayside	55,526,371
Total	644,963,885

Data for the type of projects and level of spend on different measures by each RPAC is not available.

Environmental measures were by far the biggest expenditure items (over £230M for Scotland as a whole), followed by woodland options (around £200M) and farm investments (over £140M). Diversification support totalled around £35M.

Grampian attracted around 40% of total applications in the early years of the SRDP 2007-13, but by the end of the programme its share (16% of approved funds) pretty well matches its share of Scottish farm holdings. Upland areas attracted higher shares of the environmental and forestry funding while areas like Grampian and Tayside had higher proportions of farm restructuring and food sector investment. Anecdotally our study area had a level of investment in new agricultural buildings which has not been seen since the days of the FHDS (Farm and Horticultural Development Scheme) of the 1970's/80's. Toward the end of the programme pig units received priority for slurry storage grants. A few very large investments in, for example, new egg laying units and dairies, proved controversial given the quantity of funds they absorbed. Diversification also received substantial support once again with some very large individual investments, for example in equine centres and visitor attractions.

The new SRDP 2014-20 is more modest in its structure though still delivers £1.3Bn over the period. It has been topped up by a 9.5% levy on pillar 1 direct payments. LFASS, Forestry and Agri-Environment totally dominate the programme, having been allocated around 80% of the funds. Farm investment grants have effectively gone, except for a small fund for small farms and new entrants/ young farmers. Notable introductions include more new entrant funding and a Beef Package worth £45M which recognizes the threat hanging over the sector from the shift to regional flat rate direct payments. It is expected that beef producers will be able to receive a small payment per beef animal if they adopt a beef improvement programme. Farm diversification support has also been reduced and will now be accessed through LEADER, requiring a greater rural development and community emphasis. There are some innovative introductions to the new SRDP including support for agro-forestry (see the Farm Woodlands section of this report). Support for investment in food and drink processing in the agricultural sector has been maintained – this has been important for the NE (see the Food section of this report).

5.1.5 Pending LFASS Reform

Current Distribution of the LFASS within the NE

Table 114 earlier showed that LFASS payments are much less important than the SFP to farming in NE Scotland, equaling only 7% of the SFPS figure. The projected likely reduction in the Single Farm Payment for the NE, exceeds the total LFASS income. Also two thirds of farmers in the NE do not receive LFASS payments. The proportion of IACS businesses who also receive LFASS in each area is as follows.

Table 118. LFASS recipients as a % of IACS businesses

	% of SFPS recipients also receiving LFASS
Aberdeen City	33
Aberdeenshire	34
Angus	19
Moray	52
NE	35

In Scotland as a whole approximately 11,300 farmers and crofters receive a total of around £65.5M per annum through the LFASS, while in the North East 1,305 businesses receive around £7.3M.

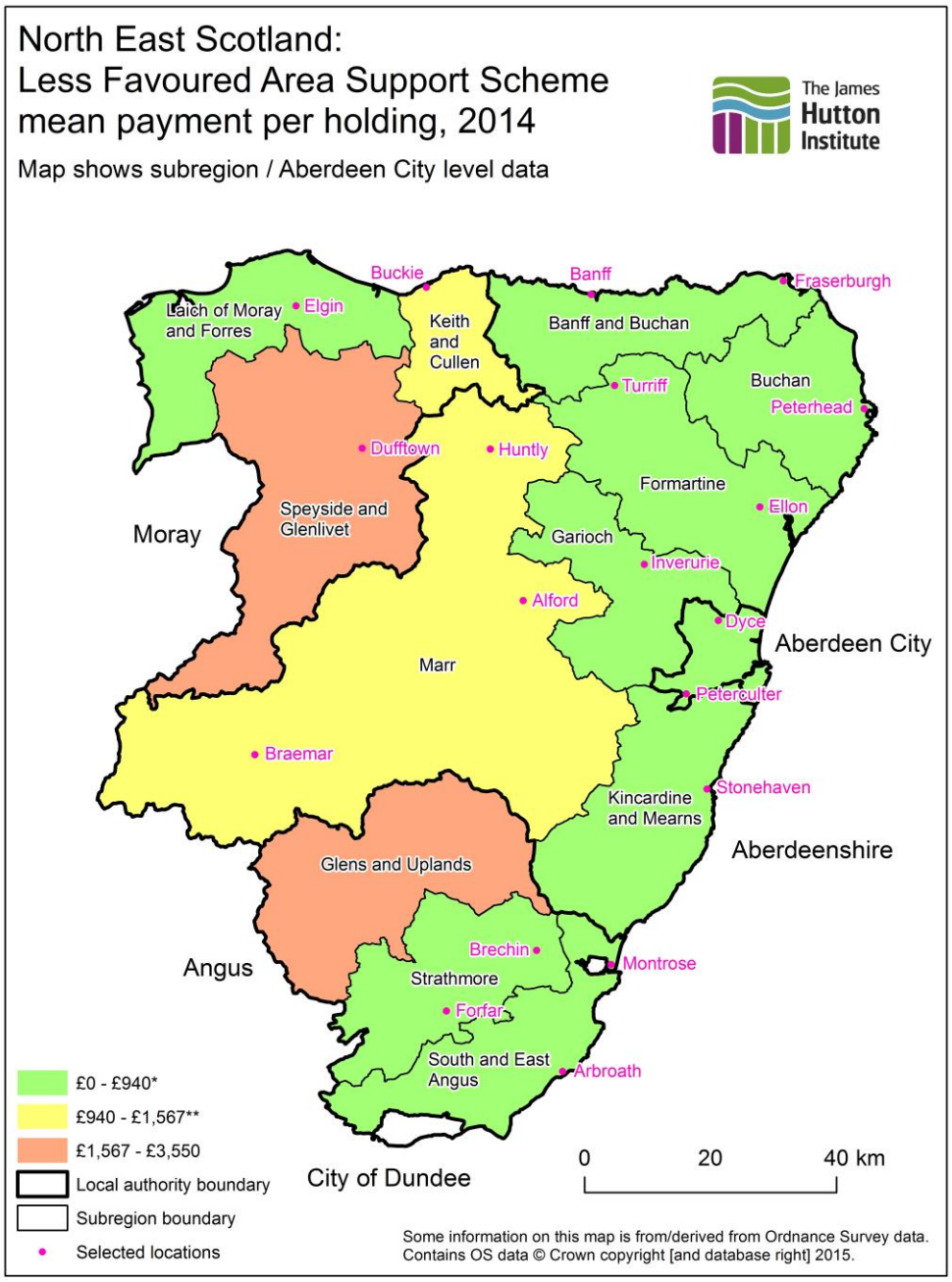
Compared to the NE average, LFASS payments are important to a higher proportion of businesses in Moray and less important in Angus. Those qualifying for LFASS in Angus receive a high average payment however.

The sub-regions receiving the highest total LFASS payments are as follows.

Table 119. Top 5 LFASS NE Sub-Regions

	% of total NE LFASS receipts
Marr	26
Speyside/ Glenlivet	22
Keith/ Cullen	8
Banff and Buchan	6
Angus Glens	5
Total for Top 5	67%

As with individual recipients the pattern of LFASS receipts is, unsurprisingly, highly skewed to a few areas. In upland areas the average size of LFASS payments is higher. Previous studies suggested that in an area like Marr the average LFASS payment per claimant was over £3,000. The following map show the geographical concentration of LFASS payments.



* 75% of Scotland mean. ** 125% of Scotland mean. No data shown from City of Dundee.
Subsidies data: SGRPID, Scotland data: Scottish Government Economic Report on Scottish Agriculture 2015 data tables. Holding counts derived from June Agricultural Census data. Data tables courtesy of Agricultural Census Analysis Team, RESAS, Scottish Government.
Local authority and subregion boundaries are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). Selected locations derived from OS 1:250 000 Scale Colour Raster.

Figure 22. LFASS Concentration across the North East

The proposed "Areas of Natural Constraint" Scheme

The European Commission Rural Development Regulation requires member states to implement a new "Areas of Natural Constraint" (ANC) scheme, including a revised LFA land designation, to replace the current LFASS by 2018. The total level of funding is expected to be similar, but the distribution could be very different.

Less Favoured Areas are defined across the European Union in relation to physical disadvantages imposed on agricultural production by, for example, relatively poorer climatic, topographical or soil conditions. Introduced in the mid-1970s, they have evolved over time both in terms of how they are defined and how payments intended to compensate farmers for having to cope with disadvantages are calculated. In particular, the switch in 1999/2000 from headage payments for LFA livestock to area payments for LFA land was a radical change, and one that offered a preview of the issues to be raised by subsequent wider decoupling of other support payments. Following prolonged criticism of inconsistency and incoherence of LFA policies across the EU, LFAs are to be replaced by the new ANC designation.

The current Less Favoured Area Support Scheme has perhaps endured far longer than could have been anticipated at the time of its creation. This reflects delays in the development of ANCs but also understandable domestic administrative preferences for some stability after the difficulties of devising an initial area-based payment scheme that was acceptable to a variety of stakeholders, including DG Agriculture and DG Environment.

LFASS is widely seen as a key part of the institutional support structure for Scottish agriculture. However, the advent of ANCs is now forcing many of the questions first raised by LFASS to be revisited. For example, where lines should fall on a map, how payment rates should reflect disadvantage, whether cattle merit a payment "uplift", how environmental impacts should be addressed and whether transport costs (peripherality) should be included. In turn, this prompts consideration of objectives and the consequences of any redistribution of support that inevitably accompanies policy changes: development of the original LFASS was shaped by political constraints on the pace and degree of redistribution between "winners and losers" and similar pressures are still apparent.

Although many of the issues encountered in previous LFA reforms may remain the same, the broader policy context has changed in that Pillar I is now not only (mostly) decoupled but is also shifting to an area-based (rather than historic link to headage) 'flattened' basis. Moreover, a reduced overall budget, a desire for simplification and the demise of distinct funding axes within Pillar II have all heightened awareness of the dominance of LFA funding within it and the need to foster linkages to broader agri-environmental and rural development objectives within the overarching Rural Development Regulation. EU auditors have questioned the value for money of some RDP schemes so there is a push for a more robust, defensible policy.

The ANC has the following broad guiding principle:

"The ANC scheme should be focusses on ensuring that an appropriate level of support goes to areas facing natural or other specific constraints which contribute, by encouraging continued use of agricultural land, to maintaining the countryside as well as to maintaining and promoting sustainable farming systems. The scheme will be based on a calculation of additional costs incurred and income foregone as a result of the natural or other specific constraints"

It certainly isn't clear what that means in terms of a scheme on the ground, though the additional costs/ income foregone calculation will be an important driver of the shape of the scheme and where the money goes.

Scottish Government is currently reviewing options for the new scheme and are looking at 5 bodies of evidence, which may give some clue to the important issues:

- Land abandonment
- The current distribution of LFASS payments by geography and farm type
- The distribution of the new Pillar 1 payments across the country and sectors
- How important LFASS support is for maintaining sustainable farming systems
- The extent to which the current LFASS has compensated farmers for income foregone/extra costs

At this stage can we draw any conclusions for the North East?

1. The original LFA scheme was a headage payment so farms and areas with higher stock numbers received more payment. Extensive areas understandably got less. This favoured places like upland Aberdeenshire and Moray.
2. Much of the North East LFA is not severe in its extent of disadvantage – we can imagine areas around Huntly compared to Lochaber. Under a strong shift to true income foregone/extra costs the LFA funds might be expected to shift west away from the NE (though it could depend on whether or not the calculation was based on disadvantage on the basis of the nature of the farm or disadvantage per animal kept, though this will be an area payment).
3. Harder hill areas within the NE – Cairngorms, Angus Glens, hill Speyside – could gain or at least be protected.
4. If there is a recognition of, and a move to compensate for, the scale of reduction of SFP on some upland cattle farms, this could moderate any LFASS decline.
5. The scheme is expected to designate land as LFA on a parish, not an individual farm, basis. If over a threshold % of the parish (could be 66%) hits the ANC constraints, then the whole parish gets designated. Some fairly good farms within a parish with a chunk of heavily constrained land could benefit.

6. There may be a minimum stocking density requirement, helping to skew payments toward active livestock farms.

7. There is the option to limit payments to very large units, which could hit a few NE hill farms. The scheme could be topped up by taking funds from Pillar 1 (up to 5%?) which would probably have a disproportionately negative effect on the North East.

5.2 OTHER POTENTIAL POLICY CHANGES

5.2.1 Land Reform

Land Reform Bill

In June 2015, a Land Reform (Scotland) Bill was introduced to the Scottish Parliament and, at time of writing, the Bill is out for consultation. There is much debate surrounding the significance (or otherwise) of the proposals within the Bill with some suggesting they represent a fundamental shift in human rights, others that they are too far from the "radical" reforms promised by the current administration. While the whole Bill is of relevance, after providing a brief introduction, this section provides a summary of those parts most relevant to the land based sectors in North East Scotland.

Background to the Bill

The land tenure system in any country at any point in time reflects a combination of historical, economic and political forces and comprises three distinct elements (Reid, 2015):

- Property laws (which govern how land is owned),
- Regulatory laws (which govern how land is used)
- Non statutory measures public sector measures (which determine how land is owned and used in the public interest).

The introduction of the 2015 Land Reform (Scotland) Bill can therefore be thought of as a re-assessment of the rules relating to land ownership, management and use in Scotland which will, in turn, give rise to a change in the balance of rights and responsibilities between landowners (both public and private) and wider society.

Since Scottish devolution in 1999, there have been a series of legislative and other measures introduced to deliver land reform. These have included the abolition of feudal tenure (Scotland) Act 2000; Land reform (Scotland) Act 2003; Agricultural Holdings (Scotland) Act 2003; Title Conditions (Scotland) Act 2004; Nature Conservation (Scotland) Act 2004; and Crofting Act, 2007. While several significant changes were introduced as a result of these measures - including most notably the introduction of a public right of responsible access to land, and a community right to buy - the impact of the changes remained questioned and a Land Reform Review Group was established to scrutinise whether there was

a case for yet further reforms. The Group reported in 2012 with no less than sixty-two recommendations.

The 2015 Land reform Bill takes forward some of the recommendations suggested by the Land Reform Group and indeed only some of the measures that were put out for public consultation prior to the Bill being drawn up.

While all parts of the Bill are relevant, the aspects of the Bill of most direct relevance to land owners and land managers are the amendments to Agricultural holdings Acts (1991 and 2003), the repeal of exemption of business rate relief for shootings and deer forests, and the introduction of a new community right to buy in circumstances where this would be in the interests of sustainable development. Each of these will be summarised briefly in turn.

Amendments to Agricultural Holdings Acts (1991 and 2003)

The decline in the number of tenanted holdings and area of land rented in North East Scotland is mirrored elsewhere in Scotland. The 2015 Land Reform Bill attempts to put into place changes aimed at reversing this trend. In particular, in an attempt to remove the barrier to new entrants and increase the attractiveness of tenancies, the Bill includes the following:

- The introduction of a new modern limited duration tenancy (minimum 10 year term with greater flexibility with an optional break for new entrants)
- Removal of the requirement for tenants to pre-register interest in purchasing holding under Right to Buy provisions
- The right for a tenant to apply to the Scottish Land Court to order sale of holding if their landlord persistently fails to meet obligations
- A simplification of the process for rent reviews
- A widening of the class of people who a tenant can pass their tenancy to
- An amnesty period for notice on tenant improvements
- A right for tenants to object to certain landlord improvements if they are deemed not necessary for the business
- The existing five year Short Limited Duration Tenancy would have been abolished under this proposal, but after consideration of these recommendations by the Cabinet Secretary it was reinstated

End of business rate exemption for shootings and deer forests

Shootings, deer forests and fishings have been exempt from business rates in the UK since 1994 with agricultural land and buildings exempt since the 1920s. A number of recent reports (including that of the Land Reform Review Group and the 2015 House of Commons Scottish Affairs committee report on Land Reform in Scotland) argued that the public interest case for such exemptions should be re-considered as it results in higher land prices than would otherwise be the case, undermines community land ownership and, more generally, that any such exemptions should be subject to the same scrutiny as other government spending

The Bill thus repeals 1994 provisions resulting in shootings and deer forests being included on the valuation roll and subject to business rates. The receipts from this would accrue in the first instance to Local Authorities but would be matched by a corresponding reduction in their general revenue grant.

At this stage the impact of this remains unclear however the Financial Memorandum accompanying the Bill estimates a gross liability for sporting estates of around £4m.

Engaging communities in decisions relating to land

The Land Reform Review group argued that there are instances in Scotland where the scale or pattern of land ownership, and the decisions of land owners is a barrier to sustainable development in an area. This runs counter to the current political agenda with, for example, the First Minister stating in her first Programme for Government speech that Scotland's land "must be an asset which benefits the many, not the few."

In response, the Bill includes the following measures:

- Ministers are to issue guidance for all landowners (including charities) and tenants on means of engaging with communities on land-based decisions, paying due regard for furthering sustainable development in a locality. The guidance will include information about:
    - The types of land and types of decision in relation to which community engagement is required
    - Circumstances under which community engagement should occur
    - Ways community engagement should be carried out
- A new Right to Buy mechanism will be introduced for eligible community bodies if the transfer of land:
    - will further the achievement of sustainable development
    - is in the public interest
    - will result in significant benefits to the community and is the only practical way of achieving that benefit
    - not granting consent is likely to result in significant harm to the community
    - meets various procedural conditions set out

In cases where these conditions are met, compensation to land owners will be based on the market value of land.

While the legal mechanisms relating to this part of the Bill and thus its potential impact remain unclear, the shift in emphasis towards the idea that landowners have responsibility to the communities that live and work in and around their land is arguably significant.

Inheritance Reform – legal rights

This is not a land reform measure per se, however it has significant potential implications for family farmers and other rural land and property owners. Under a provision known as "legal rights" inheritors of an estate on death in Scotland can over-rule a will on the basis that a spouse is entitled to claim one third of the moveable estate (not land and property, only cash, shares, personal effects, etc) and the

children are entitled to claim another third between them. Where there is no surviving spouse the children can claim half of the moveable assets between them.

The Scottish Government proposal is to extend these rights to include the Heritable estate i.e. the value of land and buildings.

This has major implications for farming. Owned farms are worth a lot of money, but generate small profits in relation to their value. Farmers often leave a will which provides for one child taking over the family farm while other children receive provision but not an equal share of the total value of the estate. This may seem unfair, but if equal shares of the estate value were paid out the farm would require to be sold – there is no way that a farm could be viable if two thirds of its value were paid to say two non-farming children and the resulting debt had to be carried by the farm. The "legal rights" provisions are not this severe (children perhaps only due half the farm value), but even at that level the farm would likely not be viable.

What are the implications?

One of our few family farming competitive advantages is scale, due to our inheritance/amalgamation history. The implication of the proposal might be the fracturing of units into smaller blocks which would not provide a viable living for the inheritor so would most likely be rented out or contracted out to bigger farming businesses and companies. More farms may be sold on death returning in amalgamations into cash rich businesses with the capital to buy them.

An immediate response would be far more emphasis on handing on the farm during lifetime, which avoids the legal rights issue. However, it creates tax problems which might have the same effect. It certainly would put an emphasis on succession planning.

Discussion

There is a strong ideological drive behind all the land reform measures. There is a belief that the landlord:tenant system needs skewed in favour of sitting tenants and at the extreme some would like all land removed from landowners. Concentrated ownership is seen as bad, though that view seems to vary depending on the nature of the concentrated owner.

The absolute right to buy has been rejected by every review, but has been resurrected in the community proposals, so there is a general feeling that it will rear its head again. The proposed right of a tenant to assign their tenancy to anyone without the owners approval is a new and major barrier to letting.

The net effect is that the industry is steadily avoiding tenancies and tenancy law. The area of formally tenanted land declines every year, the area of land recorded in the census as one year lets steadily increases and the area operated through contracts between landowner and farmer has increased enormously – contract law is seen as safer than tenancy law. The area actively farmed by the owner rather than being let out has also increased. Many factors drive this – the tax benefits of being classed as a farmer, rates of return, new mechanisms for operating land and sharing risk, legal simplicity, the subsidy regime which ties subsidy to hectares farmed. But the uncertainty of tenancy law is an important factor.

The reviews always speak about reversing the decline in the area of tenanted land, but have unfortunately resulted in the opposite. Retiring/ restructuring farmers, not estates, are likely to be the main source of land for new entrants and expanding businesses. Unlike estates they only have one asset – the farm – and are likely to be much more sensitive to tenancy law. Under the current policy climate the last thing any farmer we have questioned would do is to let their land out on a formal tenancy. This is a terrific shame at a time when the industry needs every option possible to be flexible. In our workshops the most vociferous opponents of the current direction of tenancy law were tenants who had built businesses on the back of the system, but could see that the same could not be done now.

5.2.2 Constitutional Change

These are huge issues which cannot be given justice in this report in terms of depth of analysis. However, they clearly have an important potential impact on the land based sectors of the North East of Scotland and they have been raised in discussions with industry experts and in our future scenario workshops.

UK in/out and the Smith Commission changes.

These are not hypothetical concerns as the Smith Commission changes will transfer much more control over Scotland's taxation and spending decisions to the Scottish Parliament, rather than simply relying on the Barnett Formula which transfers a share of UK Government funding for those spending matters devolved to Holyrood on the basis of population and social need.

Scottish Independence from the rest of the UK would of course have much wider ramifications for policy, currency, trade and all matters of state.

Perhaps the key issues for the future of rural industries in the NE of Scotland are as follows.

1. Currency. Independence might result in Scotland adopting a separate currency to the rest of the UK. Any renegotiation of EU membership for Scotland would most likely require adoption of the Euro at some point in the future if not immediately. All recent Accession states have had to sign up to the Euro as a condition of membership. Countries like Spain who have fragmentation fears (especially in Catalonia) are likely to demand a new state like Scotland go through the full accession process. The impact of a separate currency from the rest of the UK, which is our major food and tourism market, could be profound. Currency movements make trade riskier, which can be hedged, but which add costs and which tend to exclude small businesses from export trade. Meat companies with small margins would find this burdensome. The volatility of the lamb trade into France is an example of the cost of trading in another currency zone with a commodity, small margin product. Commentators would say there is a good reason why Irish beef which is no further from premium London markets than Scotch beef trades at a significant discount. Irish meat companies have become bigger and more dominating of the Irish beef price to give them margin to cover the risk of being traders in foreign currency zones.
2. Non Tarriff Trade Barriers. No solid barrier would appear on the Scotland/England border in the case of Independence. However, if each country has slightly different transport rules, different

health rules, very different immigration laws, varying labelling rules, then the costs of trade will increase greatly. Immigration differences may mean Scottish lorries searched on the border. These non tariff trade barriers have a greater impact on trade than is generally assumed and would most likely have some depressing impact on Scottish farm prices.

3. Among these non tariff barriers the separate animal health jurisdiction is a major issue for Scottish livestock farming. We have separate Food Standard Agencies – what happens if they disagree? Will the border effectively close? Being regarded as separate from our markets in England clearly is a concern and could lead to being shut out of the rest of the UK during health scares.

4. EU support. Westminster leads in all agricultural and fisheries negotiations in Brussels. A Scotland with a seat at the negotiating table might have more influence. Would it result in more CAP/ RDP funding? Scotland has the lowest subsidy support per hectare in the EU. However, it does not have low support on a per business or per head of population basis. EU transfers per ha are low because we have the most extensive agriculture in the EU with huge areas managed at low intensity. Would Scotland be able to negotiate more money out of Europe in the face of competition from lots of other small countries who feel deprived and in the face of an EU which is financially severely stretched in saving the Euro and the Greek economy? Even if it could be got, is more subsidy a sensible goal?

5. The Scottish budget deficit. When oil prices were high it was estimated that Scotland had a deficit between tax receipts and public spending equal to that of the UK as a whole. With low oil prices the budget deficit is now double that of the UK. The implications of this will start to be felt as the Smith Commission changes are implemented. The result is that public spending cuts or higher tax rates will be required, especially as the Scottish Government has limited borrowing powers. This will inevitably knock on to spending in the land based sectors – for example public funds used in the SRDP, agric research and education, the operation of the CAP schemes, local infrastructure spending. It will also knock on to consumers through Scotland's high level of employment in the public sector.

6. Interest rates. Part of the stability of the rural industries in recent years is down to low and stable interest rates. It could be argued that an independent Scotland with no track record and a big budget deficit would have to pay higher rates to borrow the money to fund its deficit spending with a knock-on to commercial bank rates. This of course would have a major impact on the processing sector and consumers who carry high levels of personal debt.

7. Business tax rates. What rates of tax would farmers, foresters, primary processors and food companies pay in an independent Scotland? Some parties have promised low corporate tax rates, but this would have to be accompanied by high personal tax rates to fund the deficit. Would entrepreneurial activity and inward investment be affected?

8. Inward investment. Uncertainty over future constitutional arrangements is probably the biggest threat to inward investment. Official figures show higher investment rates in recent years in England and Wales than in Scotland.

9. Uncertainty (the “neverendum”). As discussed above uncertainty is a major danger, resulting in delayed investment decisions and the loss of entrepreneurs to other areas. There are plenty examples of the negative impacts of constitutional uncertainty, for example in Quebec where reportedly 20% of the non-French speaking population and many businesses left during the peak of uncertainty over whether or not it would remain part of Canada when there were repeated referenda.

Farmers and others talked openly about constitutional change in one to one discussions, but not so freely in our workshops. It is a controversial and divisive topic. When it was discussed it was in relation to retaining the fragile processing sector (would higher trading costs with England drive them out of Scotland?), land reform impact on the competitiveness and flexibility of the industry especially in comparison to English producers, and the level of subsidy support.

EU in/out

Many of the same issues are raised in relation to the possibility of a Brexit, but with a bigger emphasis on what would succeed the generous CAP and RDP regimes in a non-EU UK. The major issue for Scottish producers who have England as their main export market is whether or not the UK would be a richer or poorer place outside the EU.

5.3 PULLING THE STRANDS TOGETHER – A SWOT FOR THE LAND BASED SECTOR OF NE SCOTLAND

STRENGTHS

The NE rural economy

- The rural population is increasing everywhere in our study area. This supports the rural infrastructure, creates local markets and provides a labour and skills base.
- Aberdeen city and shire have been an economic powerhouse over the study period with very positive figures for average incomes, business start-ups and economic growth. This has a wide range of positive impacts on the land based sectors – well paid part-time job opportunities, high property values strengthening balance sheets, development money allowing farm businesses to invest in new ventures, improvements to regional infrastructure, wealthy consumers supporting farmers markets and small food businesses, positive business role models and outlook.

Farm Level Strengths

- Strong balance sheets = stability and ability to invest. Created by the increasing owner occupation rate and high land and property values.
- The level of investment in farm infrastructure over the last 7 years, partly driven by the availability of SRDP grants. Even in volatile sectors like pigs and dairy the committed producers have made large investments.
- Expansion of the intensive crop sector in Angus and Kincardine. 25% of UK strawberries produced in the area. Reversed normal trends of employment decline and consolidation. A fantastic model for the industry = innovation/ new technology/ leadership. Unsubsidised production, but use of PO status to drive innovation. Direct link with research sector - JHI Dundee – to develop varieties.
- Restructuring of the traditional sectors is happening at a "controlled" pace. The reshaping of businesses and reallocation of labour and capital resources is essential if the NE land based sectors are to provide what the region most needs – profitable businesses in rural areas. Given that subsidy decoupling gave farmers complete freedom to slash livestock enterprises without affecting their subsidy receipts, and the widely reported negative margins from cattle, the scale of change, especially in cattle numbers, has to date been modest. A bigger reliance on family labour in some sub-regions and a doubling in the use of contract labour are also signs of restructuring in the way businesses are operated. There is a general belief in finding a way forward rather than ceasing production.
- Specialisation at the sub-region level can be seen as a strength. South and East Angus dominates intensive crop production playing to its strengths in soils, micro-climate, proximity to

markets, research facilities and skills. Buchan/Banff and Buchan/Formartine are retaining their position as mixed cattle farming areas. The Garioch is increasingly a part-time farming area with farmers exploiting their position close to the oil related sectors in Aberdeen, Inverurie and Oldmeldrum.

- The emergence of a large number of small scale units – hobby farms, horsiculture, amenity units – provides some strengths for the region. They maintain the rural population and anchor people to the area, they may have environmental benefits, they provide income to commercial farmers selling horse hay and machinery services, they may be entirely farmed by neighbouring commercial farmers, they provide start-up opportunities and they definitely support the supply trade who have set up "rural stores" servicing small holders and the equine market as well as farmers.

- While having only 16% of Scotland's agricultural area, the NE has retained large shares of its farm production; 43% of Scotland's arable area (crops and improved grass), 51% of Scotland's potato area and 22% of the UK ware tonnage, 39% of the intensive crop area (but much more of the value given that this includes tunnels, e.g. approaching 25% of UK strawberry production), approaching 50% of the oilseed rape area, 44% of the cereal area, a third of the feeding cattle.

- The sheer mix of enterprises and predominance of mixed farming within the NE, especially in Aberdeenshire and Moray, was outlined in the previous 2003 to 2007 report and remains a major strength. It allows synergy between enterprises (straw to cattle and carrot mulch, dung and slurry for crop land, poorer quality grains to pigs, poultry and cattle, higher cereal yields after break crops, spreading the costs of machinery and staff). There are also huge benefits of rotation for organic matter, disease control and hence yield. The mix of enterprises reduces overall business risk for an area which is on the northern edge of crop production.

- Hill areas close to lowground arable areas

Processing, Marketing, Input Supply and Infrastructure

- The North East has a strong and vibrant cooperative sector assisting marketing, production and input supply. Ringlink has a major impact on how farms organize labour, machinery, training and input supply. The grain and pig coops and the fruit producer organization have been making major investments. One of the grain coops was successfully established recently with a new port side facility in Montrose.

- The NE has a large share of Scotland's meat processing capacity; 33% of cattle, 42% of sheep, 72% of pigs. All these shares have grown since 2008. Processed value is estimated at £303M. With this comes a lot of expertise and the anchoring of a lot of production within the area. The new Brechin pig abbatoir and the planned Scotbeef Inverurie plant at Thainstone are major votes of confidence in the future. The Scotch brand and the enduring premium for Scottish cattle is essential in maintaining the scale of the meat sector this far from markets.

- The combinable crop sector in the area has some major strengths including its proximity to what has been a rapidly expanding whisky sector, being home to half the Scottish malting capacity, the extensive port infrastructure which increases marketing opportunities and reduces haulage

costs and the large cattle, pig and poultry sectors which consume feed grains, arable by-products and distilling/malting by-products.

- The expansion of intensive crop businesses is a real strength both in the high value it brings back to producers and in the example it provides to the whole industry in innovation, short marketing chains, niche markets and quality production. The seed potato area is expanding in line with the growth in Scottish seed exports. The soft fruit sector is expanding into new fruit crops. Specialist carrot, broccoli, cauliflower and shopping swede businesses have expanded. The area has some of the highest potato yields and best quality in the UK and produces 22% of the GB crop.
- While the broiler industry has collapsed, the egg production sector has expanded substantially, led by Farmlay at Strichen. They have a range of contract growers and have exploited the demand for barn, free range and organic eggs.
- Farm Woodland expansion
- The successive SRDP Processing and Marketing grant schemes have been a major strength.
- There are a good number of successful farm based food and drink businesses in the NE and there are more consumers who want interesting, local products with provenance. These are great entrepreneurial role models for young people in the industry.
- As stated in previous reports the strength of farmer networks and support services has been a very important aspect of the NE. There are two Farm Management Associations, the Royal Northern Agricultural Society, the Grampian Food Forum, a large number of discussion groups, a Grassland Society, a vibrant agricultural show circuit, the James Hutton Institute at Dundee and Aberdeen, SRUC at Craibstone, Angus, Aberdeen and Moray Colleges, 5 SAC consultancy offices, an unusually large number of independent crop and business consultants, a crop advice coop. Aberdeen and Dundee Universities are now getting back into agriculture and rural issues, especially reacting to the carbon and food security agendas.
- The uptake of farm improvement programmes such as Planning for Profit, Monitor Farms and Grazing Groups is good. Farmers are enthusiastic and in general positive. Industry meetings at Thainstone get huge turnouts.

WEAKNESSES

The wider economy

- Dundee and some parts of rural Angus have high levels of economically inactive people, low incomes and low scores on wellbeing indicators. These areas also have a severe demographic outlook with large proportions of the population retired in coming decades. These issues might mean fewer wealthy consumers for local produce and diversifications, less investment capital, a shrinking labour pool and a generally less entrepreneurial outlook. The Angus Glens look especially disadvantaged, though they hold only a small number of farm and rural businesses.

- Moray lacks the beneficial impacts of a city focal point and shares low average incomes and wellbeing indicators with Dundee and parts of Angus.
- Infrastructure has been a problem. Internet sales are given a low ranking by small food businesses in the area, partly due to slow broadband. Getting past Aberdeen has been a major cost for businesses transporting produce south, but this problem will hopefully be eliminated by the AWPR.

Farm Level Weaknesses

- While the decline could be described as modest, livestock numbers of almost all types have declined. While some farms are increasing stock numbers, the industry in general has not as yet found routes to profitably expand cattle and sheep numbers.
- Some areas show much greater change than others. The Angus Glens show sharp livestock decline, lack of mixed farming and poor economic indicators, though of all the sub-regions this is the one most dominated by hill and rough grazing. Why is this area not adjusting well and why is it not better supported by the nearby intensive farming areas?
- Outwith the pig and poultry sectors there is little sign of any improvement in technical efficiency/ productivity. Total labour is falling roughly in line with the drop in stock numbers, though occupiers a bit faster. Stocking rates and lambing percentages are roughly static. Cereal yields have plateaued, rape yields may be falling. Nationally fertilizer usage has fallen, so usage per kg of output may be less. The shift to more temporary grass may reflect a coming improvement in grassland productivity, though not yet reflected in stocking rates. Abattoir feedback is that lots of cattle are surprisingly old when slaughtered and have often been through a couple of farm units over their life. Cattle supplies are skewed to spring/early summer reflecting the shift to spring calving, but also an inability to finish cattle at grass.
- Specialisation is a rational adjustment process, but some arable areas – South and East Angus, Laigh of Moray – may suffer negative impacts from the intensive cropping and loss of livestock e.g. some farms are worried about the loss of soil organic matter, tight potato rotations, disease build up and lack of spread of risk.
- Is more output from fewer farms a weakness? The hollowing out of farm size (lots of tiny units, increasing numbers of very big units) reduces the pool of skilled, experienced family farm labour. It may reduce resilience and increase volatility as family farms survived by being able to cut incomes and squeeze spending in tough times. The professionalism and business outlook of bigger units are not well spread across the industry.
- The large number of small holdings may create risks and weaknesses, for example for biosecurity. It also shifts land into low output uses (undermining processors) and may not always have environmental benefits.
- A greater reliance on part time, casual and seasonal staff, especially in some sectors, may be a weakness. There could be a lack of continuity, commitment, local farm knowledge. With plenty

other job opportunities and fewer small family farms it may be increasingly difficult to find this type of part time support.

- The steady increase in owner occupation rates clearly provides strengths, but it also reduces the pool of land for tenancies for new entrants. There is a complete lack of share or contract farming mechanisms in the livestock sector which would allow the progressive movement of new entrants into the capital intensive stock sectors.
- There are a lack of linkages and cooperation between specialized cropping farms and livestock businesses. These could benefit both types e.g. lower wintering costs for upland cattle farms, higher organic matter for intensively cropped soils. The cooperation/management skills (and physical infrastructure) are missing.
- After the difficult 2012 season many bigger farms felt they had a lack of resilience – they had adopted lean low labour systems and big areas of cereals, but were caught out by a bad year. This may explain some of the poor technical efficiency as farms build in some excess capacity to cope with shocks.
- Specialisation may also be leading to a permanent loss of livestock infrastructure and stock skills in some areas, resulting in a loss of future flexibility.
- Angus is saturated for potato production. Rents are high and a greater shift to seed will be very difficult given the difficulty of finding PCN free land in the area.
- Fewer occupiers/farmers means more management pressure per individual. This must be a driver of livestock reduction. Management skills, organization and on-farm infrastructure need to improve. There has been a lot of investment in handling facilities so this change is happening.
- Subsidy reliance, especially on what were intensive cattle farms, is a major weakness.

Processing sector and wider infrastructure weaknesses

- While the existence of a large meat processing sector in the NE is a strength, it has major weaknesses in it's very tight margins, underutilized capacity and low added value (producing mainly primals). The fragility of the sector was shown by the need for both Scotch Premier and Mathers Meat in Inverurie to effectively be saved by a merger with Scotbeef of Bridge of Allan. The outcome will be a new NE abattoir, but it could have been much worse. Similarly the closure of Vion at Broxburn could have wiped out most of the NE pig herd if the Brechin development had not been successful.
- The weakness of the red meat processing sector results in poor market signals. The need for sheer throughput means overweight and over fat carcasses are not sufficiently penalized.
- The lack of a local renderer means extra cost in transporting offal and SRM south. There is a high spec facility at Kintore which made a successful SRDP grant application, but it is not operational. It is more profitable for the owners to maximize throughput at their plant in the south.

- Milk processing is in a very fragile condition. There is a lack of milk processing capacity in Scotland meaning heavy discounts on excess milk production. Excess milk is transported to England at high cost. The only volume milk plant in the NE, operated by Muller Wiseman at Altens, is believed to be operating at 40% capacity. The last Aberdeenshire study reported that milk was being transported north to Aberdeen to meet demand from Wisemans local markets. The opposite is believed to now be the case. The company has lost contracts locally and is transporting excess milk (a third of their supply?) south to East Kilbride. There are only 51 dairy herds, declining fast while herds grow in the SW. The local industry may need to look at an "Orkney model" – an added value facility for an isolated group of dairies.
- Scotland lacks potato processing capacity (24,000t versus total production of 1.22Mt) and there is none in the NE. This makes the ware market very volatile.
- Broiler processing has disappeared from the NE and the nearest plant at Coupar Angus has reduced throughput by a third and takes no birds from north of Aberdeen. What was a large sector in Aberdeenshire and Moray has now largely disappeared.
- Pig sector scale – throughput of Brechin plant well below what Tulip would regard as viable. Only going because need Scottish product
- The small farm based food and drink businesses which have sprung up over the last 10 years provide tremendous promotion for the industry and great entrepreneurial role models, but they usually handle a small proportion of even their own farm produce. Most do not even get beyond the micro-business category into the SME scale. Making the step up to Scotland/UK wide sales and exports is very difficult.
- Producers (and students) complain about the poor quality of agricultural courses. Many feel students are not well equipped. Reviews say that courses are supply led rather than designed to meet industry needs. There are no university agricultural undergraduate degrees in Scotland.
- Despite large and increasing numbers of part time and casual jobs in the intensive sectors, local workers are few and far between. East Europeans do most of the seasonal fruit and veg work and staff meat plants. Farmers talk about local "unemployability".
- Exempting JHI at Dundee there seems to be very little industry link with R&D programmes and organisations within or outwith the area. Innovative programmes like the Aberdeenshire Grazing Group are serviced mainly by researchers from NZ. Soils specialists are pulled in from Wales. This is not sustainable. Messages are not widely promoted. Links into existing NE organisations like the Grassland Societies and Farm Management Associations are poor.
- There have been a good number of farm technical improvement programmes, mainly sponsored by QMS and HGCA, but is the KT effort coordinated?
- Diversification activity is fragmented e.g. no over-arching agri-tourism group sharing best practice (though there is a fledgling group in Angus).

THREATS

- The new CAP regime is a major threat. It is phased in to 2019, but there will be an overall net reduction in Pillar 1 payment to the NE. However, the biggest threat is the scale of reduction in payments to intensive beef units. How they react and the potential reduction in cattle numbers is the big concern for the meat processing sector. Decoupling (but with no reduction in subsidy receipts) led to a 7% reduction in suckler cows. What will a 30% to 50% reduction in subsidy receipts for intensive beef units do to breeding stock numbers? There is a strong risk of simplification and restructuring to lower stocking rates
- The SRDP is smaller and there are no farm capital grants (except for small units)
- "Greening" is a threat, especially the need for some to introduce another crop to meet the 2 crop or 3 crop rules and the need for larger units to take out 5% of arable land for Environmental Focus Areas. However, we feel this is a small threat as producers will adapt and mitigate part of the loss e.g. by simply using EFA for a late cut of silage or to establish a catch crop after 15 July, or by renting crop area from others to meet crop diversification rules. EFA however, will be an environmental gain.
- The movement of the LFASS scheme to one for Areas of Natural Constraint (ANCs) in the next few years must be a major concern for the NE where large areas designated LFA might not be seen as having major constraints.
- World Commodity Slump. China affected for the first time. For example there could be a longer term check in grain margins if the growth of the whisky sector is permanently checked by the downturn in China and SE Asia
- Food safety and animal health scares remain an important threat
- What now looks like a long term drop in oil prices will affect small farmers ability in Aberdeenshire to operate on a part time basis, it may start to hit property capital values, and reduce opportunities for all sorts of diversification including small scale food businesses which rely on wealthy consumers willing to pay premium prices. It will also hit input suppliers who have diversified into the horsiculture and smallholder markets.
- There are signs that East and Central European seasonal and migrant workers are moving up to better jobs. Can local workers be found?
- UK policy has moved toward restricting migrant labour and could get tighter
- Retention of the Agric Wages Board keeps teenagers wage rates too high to be competitive in the fruit and veg sectors and the new higher minimum wage will make this worse
- Threat of rationalization of agricultural education. As ever, questions are raised about the future of SRUC Craibstone once Craibstone is developed. There are strong indications from SRUC that it may move to Thainstone.
- A long term commodity price slump would be bad for the NE – we are a high cost producer

- If GM technology is introduced in England this could disadvantage Scotland in some products. For example it would allow the growth of seed potatoes in England.
- A continuing decline in soil organic matter in heavily cropped areas
- Climate change – for example could result in aphid problems in seed potatoes? More extreme weather events.
- The Carbon agenda – red meat is a target
- Declining consumption of some of some of our main products e.g. ware potatoes, lamb
- Skills shortages – not enough people coming into the industry with high skill and education levels. Not enough young people in general as the rural population ages very rapidly
- Supermarket wars and a permanent change in the retailing model from a huge range of brand and product choices to a smaller number of key brands and own label copy-cats. This cuts out smaller players including the small NE food businesses which are hoped to be the drivers of future growth
- Large portions of the NE processing sector are threatened by their small margins, the volatile and highly competitive business environment, and large international competitors. Given that much of NE production is handled by single processors this is a huge threat for farm production in the NE
- Currency movements, especially £ to Euro are a constant threat to margins
- Govt policy moving against more subsidy for wind, RHIs etc?
- Leaving the EU. Huge potential impacts on subsidy support, access to markets (especially if not in the linked trading area), support for research/development/KT, access to the EU labour pool, prosperity of UK consumers
- Leaving the UK. 50% of the revenue of NE food and drink businesses surveyed in the 2014 NE Food and Drink Sector Survey comes from England. If Scotland has a separate currency (most likely the euro) trading costs will increase and be reflected in producer prices. Other non tariff barriers to trade are a major concern, Scotland and the rest of the UK would have different food safety rules and views, immigration policy would very likely be different, transport rules may differ, labelling rules would vary. All of these increase the costs of trade and force the existence of a real border where for example lorries may need to be stopped and searched for immigrants. A major concern for all businesses in Scotland would be the Scottish budget deficit. With low oil prices (projected well into the future) Scotland has a gap between tax receipts and Govt spending of 10%, easily double that of the UK as a whole, perhaps resulting in extreme pressure on all areas of Government spending in the food and farming sectors, or requiring higher levels of income tax and corporation tax. In our study area Moray and Angus have high levels of public sector employment. Reliance on markets in the rest of the UK is reflected in current levels of inward investment which have fallen in Scotland while increasing in the rest of the UK. Business

registrations in Berwick upon Tweed, in England but just over the border, are reported to have increased sharply.

- Smith Commission changes devolving more tax raising and spending powers to the Scottish Government. 90% of current Scot Gov expenditure comes via the UK. The Smith Commission does not propose full fiscal autonomy, but even what is proposed would greatly reduce the funds available for public spending in Scotland. This has obvious knock-on effects.
- Separation of powers without a true federal structure to decide supremacy. For example if the Scottish and UK Food Standard Agencies disagree who has supremacy? If their scientific advisers disagree does the border close?
- Land reform. Little change in reality to tenancies. Huge Community Ownership targets – implications for all landowners, but especially estates. Proposal of statutory mechanism to remove land from owners if underutilized/abandoned. Assignation threat. Continued decline of the area made available for letting.
- Constitutional uncertainty. The biggest impact is perhaps on the processing sector. Scotland needs very significant investment in these sectors to anchor farm level production, but that seems less likely while there is a prospect of a break with the major English market and higher trading costs and tax rates.
- Inheritance changes – extension of "Legal Rights" to Fixed Assets. This is little reported but mean that all family members are entitled to a fixed share of all the family assets (not just the moveable assets as is the case at the moment) on the death of a parent. This over-rides any Will. Given current high land and property values this would mean payouts from farm businesses which would effectively require the break up or sale of the farm. This has implications for family farms which have not organized succession during the lifetime of the parents.

OPPORTUNITIES

- Premium product developments
    - More seed potato exports
    - Fruit expansion e.g. blueberries (better shelf life and flavour if Scottish grown)
    - Continued expansion of small scale food and drink businesses – cheeses, smoked meats, dry cured bacon, rare breed meats, micro distilleries and breweries
- Growth of small food businesses into medium scale and large businesses using large quantities of local farm produce
- End of UK/EU/World recession – more disposable income for niche and local products, plus resumption of growth in whisky industry

- Inward investment in processing/ homegrown perhaps co-op led investment in processing
- Increased business focus due to decline in CAP support – necessity is the driver of innovation
- Greater uptake of up and coming technologies and systems
    - Rotational grazing systems to double output from grass
    - Breeding genetics revolution
    - EID
- Better integration of hill and lowground resources for cattle and sheep. Hill resource generally poorly utilized. Lowground needs dung/ break crops.
- Good old fashioned professional business management – set targets, plan, do budgets, monitor.
- Farm woodland growth. Opportunities in biomass, timber, tourism, amenity. Long term resilience as the business grows another asset.
- Well planned tourism diversification; 13% growth in Scottish tourism revenue 2014 (?)
- Renewable energy
- Oil industry decline = more and cheaper labour, skilled tradesmen, experienced business people, cheaper fuel/fertiliser/transport.
- Labour and skills improvements
    - More people interested in agric education courses
    - Expansion of “work ready” and apprenticeship schemes
    - Reduction in East European labour could re-create links to local labour force and create progression routes from casual work to full time. Need more local commitment and engagement.
- Local community engagement – community renewables, community paths, mutual understanding
- New phased entry mechanisms for new entrants e.g. share farming
- Infrastructure improvements – ongoing AWPR and broadband improvements
- SRDP Beef Efficiency Scheme and other SRDP opportunities in agri-environment, farm woodlands, agro-forestry

6 STAGE 3 – SCENARIOS FOR THE FUTURE OF THE LAND BASED SECTORS TO 2030

6.1 SCENARIO PLANNING WORKSHOPS METHODOLOGY

Three Scenario Planning workshops were held, one in each Local Authority area;

Aberdeenshire Workshop, Thainstone, Inverurie Wednesday 28 October

Moray Workshop, Moray Council HQ, Elgin Thursday 29 October

Angus Workshop, Angus House, Forfar Thursday 5 November

All the workshops were in the evening from 6pm to 9pm. The attendee lists are appended to this report (see Appendix 4). Our aim was to have a maximum of 15 at each workshop representing the range of farm types in the area, processors, input suppliers, consultants, estates, banks and wider rural interests such as agritourism.

There were two aims for the workshops. Firstly to test our conclusions from the first stage of this study – the current strategic position of the industry - represented by the SWOT, and secondly to gather views on what might drive the future shape of the industry in each area and what this might mean for the land based sectors.

We varied the approach slightly in each area, but the structure of each workshop took the following pattern.

- Introduction to the NE study and the aims of the workshop, followed by participant introductions
- Short presentation of the key trends for the land based industries in the NE, with an emphasis on the location of the workshop
- Discussion of the trends to tease out possible reasons and any anomalies
- Presentation of a simplified one page SWOT for the land based sectors in NE Scotland (see Appendix 5), followed by discussion with three aims: to identify any missing strengths/weaknesses; to identify regional differences e.g. any particular Angus weaknesses; to rank the SWOT items e.g. which weakness is most important
- Brainstorm; “What will be the most important factors in shaping the future of the industry in Aberdeenshire/ Angus/ Moray?” Then ask which of the listed responses is most important.

- Refreshment break, during which the facilitators use two most important factors drawn from the brainstorm to create the two axes of a quadrant which then defines four different scenarios for the future of the land based sectors.
- The participants were then asked to name each of the 4 scenarios and were split into four groups to work on what each scenario would mean for the future of the rural sectors. The groups were encouraged to consider what would happen to farming (enterprises, scale, employment, technology, intensity), the processing/ food sector (markets, structure, scale, innovation, premium or mass market, new players, farm based processing), people (employment levels, FT/PT, skills, migrant labour, family), and the wider rural economy (tourism, off farm working, renewables, farm woodlands, property and land prices, incomes).
- Each group presented their scenario to the rest of the workshop with the opportunity for further comment.
- To finish the workshop we asked participants if they had any specific points for the Local Authorities and their role in the future of the industry.

6.2 SWOT FEEDBACK

The discussion on the SWOT was very wide ranging, but the following are some key points from each area.

Aberdeenshire

The sheer resilience of the farming industry is a key strength, which relates partly to its mixed farming structure, but mainly to the drive and determination of the people. The outsiders view was that farmers don't stick easily.

The degree of mechanization and the revolution in scale and output of machinery was seen as a major strength which we had missed – it is an added cost, but the industry is well tooled up.

The sympathetic nature and understanding of Aberdeenshire Council was seen as a strength, with a totally different outcome for renewables for example than has been seen in other regions.

The weakness of the processing sector was a major topic of discussion. Margins are small making the entire sector fragile, but an increasing threat was the trend toward abattoirs serving one outlet – Turriff serving Morrisons, McIntosh Donald serving Tesco. In the forestry sector Norboard at Dalcross underpins the entire sector in the far north given the sheer volume it consumes, but there is concern over its long term plans given higher timber prices and competition from biomass and sawmills. Timber is being hauled longer distances.

Being small in UK terms and peripheral was seen as a major weakness, especially for the retention of processors who underpin entire sectors.

Lack of flexibility was seen as a major worry. There was very strong criticism of the Scottish Governments continual undermining of the landlord:tenant system. It was felt that retiring farmers would avoid leases and that future arrangements will increasingly be contracts. However, even CFAs were being undermined by "business separateness" investigations under the Governments interpretation of the new CAP regime. The result would be short term arrangements detrimental to the industry and the land.

Government is always an easy target in these types of discussion, but there was a serious worry over false expectations. The industry is being continually consulted on any changes and being asked to be involved in the design of new policies, but is then surprised by the imposition of rules such as Greening which were never expected.

The group felt that education and mentoring were lacking.

The fall in the oil price was seen as an opportunity and a threat – a threat to farm collateral value in the NE, but an opportunity for retaining good staff – already being seen by Ringlink locally.

A major missing opportunity was collaboration between farmers either through a mechanism like the Ring or directly with neighbours or complementary business. Lots of scope for machinery coordination and sharing labour. Culture was a barrier.

Some felt that there were very simple opportunities to produce more output from the same land area – we have tried to restructure too much rather than looking at what we could produce from the same cost base.

There were opportunities for good vocational education courses – the Thurso gamekeeping course was cited as an example.

Perhaps the major threat was uncertainty, over prices, subsidies, processors. Banks felt that many farmers had shelved planned investments recently.

Currency exchange rates were seen as an important threat we had missed, and the possible impact of constitutional change on this. A different currency from the rest of the UK would impose major costs in trading with our most important market.

There was felt to be a policy problem in Scotland – a gap between ambition and what can actually be delivered.

The food price expectations of consumers was seen as a major threat – will they pay for a substantial Scottish premium.

Moray

In Moray there was also a focus on the loss/ potential loss of processors and markets, but more related to grain. The Invergordon distillers plant switching to maize from wheat had turned the crop from

premium price product to a discounted one. Alternative users are far away. The collapse of the intensive livestock sector in Moray (pigs and poultry) had also removed a big market for feed grains.

The slow down in malting and the lack of Scottish malting capacity were seen as big issues for Moray farming.

Greening was seen as a threat given its impact on wall to wall spring malting barley growers.

People issues got more emphasis in Moray – a lack of people and lack of skills.

Infrastructure to get product south was also seen as a major regional weakness.

As in Aberdeenshire the undermining of the landlord:tenant system was seen as a major threat. Medium term lets were not available and farmers would avoid letting their land.

Weather was seen as a weakness, threat with more negative weather patterns and extreme weather events in what is usually seen as a very advantageous Moray Firth micro-climate.

General attitudes were seen as a weakness – too little flexibility, scared to be different, too subsidy reliant.

In the short term this group felt cashflow problems and many farmers inability to plan for it was going to be a major problem this winter. This could force change which could have bad long term affects.

Once again collaboration and less of an independent mindset were seen as opportunities. Moray has adjacent upland (late) and lowland (early) areas which allows crop machinery coordination. Cattle could move to dry land at the coast for the winter. Intensive crops were seen as an opportunity for Moray with its suitable soils and climate, but unlike Angus it was just a bit too far from markets and a bit too small. Soft fruit had disappeared and only carrots remain in the intensive cropping sector locally.

Agritourism was seen as a real opportunity for Moray with its local food and proximity to the Highlands.

Cooperation was discussed as an opportunity, but those involved in coops pointed out the need for clear strategies and a focus on cooperation in what individuals could not do themselves e.g. international marketing.

The cost of employing youngsters was seen as a big problem – there needed to be a more progressive wage scale to allow youths to be employed cheaply while they are trained and to get them on to the first rung of the employment ladder.

Angus

The Angus workshop had a very different flavor to those in Moray and Aberdeenshire. The strengths of good land, intensive crops and larger businesses were taken for granted. The supply and cost of seasonal labour was a big concern as it's such a big part of the cropping sector. The Agricultural Wages Board is seen as a big competitive disadvantage for Scotland given its high rates of pay for young workers. Also the introduction of the National Living Wage was likely to have a huge cost effect – one business quoted a £66,000 increase in its wages bill. Tourism would also be affected as 80% of employees earned less than the planned Living Wage. Future Government policy on immigration was seen as a big threat. The industry had benefited from waves of East European migrant workers, first

Poles, then from the Baltic, now Bulgarians. While parts of Dundee have 30% youth unemployment it was not seen as a source of labour. There was no interest in working in the fruit or veg sectors and work skills were terrible. It seems a very sad state of affairs – an industry with increasing levels of low skilled work and a city on its door step with a potential pool of low skill workers who cannot do the work. The differing attitudes and motivations of locals and East Europeans was a common comment.

For the intensive crop sectors the comparison is always with England. If they adopt more sympathetic policies which reduce their costs the Scottish industry cannot compete.

In coping with the peaks of harvest, the Ring is seen as a huge strength. On its peak day it had 500 workers out on farms and in the peak week of the potato harvest 100 contracted tractor drivers carting potatoes.

Once again there was a lot of anger directed at Scottish Government for the way it had introduced policies like Greening – English producers can grow vining peas as part of their EFA, Scottish producers need more than one protein crop. This disadvantages companies like East Coast Viners where margins are small. Why the difference in policy between England and Scotland?

The saturation level of potato growing in Angus was seen as a threat. PCN free land is difficult to find. Rents are very high. Soils are being hammered in wet years.

Returns on capital are seen as poor. And yet to stay in the game there is a need for investment in technology such as refrigeration, new sheds, bigger kit, more land.

Changing weather patterns were seen as a big threat to specialist cropping. There is a feeling that Angus is wetter than it once was and wet periods are prolonged.

The demise of the family farm was seen as a weakness/ threat. The concentration into fewer big businesses centred on the best land is more stark in Angus than the rest of the NE. The loss of medium size farms means a smaller pool of experienced labour and a more difficult progression route for smaller farms wanting to expand. Culturally it may also be negative.

Non farming money coming into the sector was seen as both a threat and an opportunity. Lots of people want a few acres for horses next to their home – it's a way to raise cash for investment.

The decline of farming in the Angus Glens was a particular concern of this group. Part of the reason may be the ownership of Glen farms by lowland businesses (which may have a census effect rather than a real effect on livestock numbers). The loss of livestock skills and the lack of a local abattoir may hasten decline. There are concerns that the LFASS review may shift LFA support away from the Glens to the West.

There was a feeling that the local farm based food sector was weak in Angus with, according to the group, only 4 large farm shops compared to 20 in Fife. The proximity of Perth, Stirling and Edinburgh should be an opportunity for food of local provenance and local agritourism. Almost £1Bn is being invested in the Dundee waterfront which should draw lots of people to the city and therefore to the hinterland (Dundee tourism is already valued at £150M per annum). The lack of a "homekill" abattoir which will process small numbers of livestock was seen as a weakness – Dunblane was the nearest. There had been talk of a Forfar abattoir starting at the time the St Andrews facility closed.

Developing a business mindset, looking on the farm as a set of resources to use in a number of ways was seen as a great opportunity for the future. Caroline Millar described how her Hideaway venture on their mixed farm turned over £200,000 with a margin near £80,000. If people do not have the skills and attitude to see the potential of their farm then they may take the easy route – cut back and go for a part time job or contracting.

The local authority was felt to have a clear role in the local abattoir issue and promotion of local food provenance. It is active in developing agritourism through Business Angus initiatives.

Practical threats in the short to medium term were seen as declining subsidy support, cashflow problems with delayed subs and low grain prices, continuing retailer wars (discounters were not seen as a benefit – they want local suppliers, but they want low prices) and problems in the middle east, especially Egypt, which is a major seed potato destination.

6.3 What Will Shape The Future Of The Land Based Sectors In Your Region Over The Next 15 Years?

The major drivers listed by the 3 groups, in no specific order, were as follows.

Exchange rates	National policy context – subsidies and regulation
Energy prices, and impact on all inputs	Local policy – planning rules
Whether the world is rich or poor	Land availability/ system flexibility/ land reform legislation impact
Disposable incomes	Retailer and consumer commitment to Scotch brand/ local food, at a premium price
Growth of "foodies" trend	What happens to local processors
Relationship with big importing countries like Russia/ access to world markets	Our marketing ability
Ability/ resilience/ mindset/ adaptability of people in the industry	Cooperation/ collaboration/ sharing
Innovative thinking	Public understanding of farming/food
New technologies	Climate change/ weather
Young people coming into the industry	Trade deals e.g. with USA
Sheer supply of labour/ immigration policy	Whether or not we maintain soil capability
Skills of the workforce	Whether or not we plant trees/ diversify outputs
Availability and cost of finance	

National infrastructure – roads, ports, broadband	

6.4 FUTURE SCENARIOS

The three groups produced different rankings of the factors they listed as important, so each group produced a different set of scenarios. Very briefly they are described below.

6.4.1 Aberdeenshire Group Scenarios

This group looked at a world defined mainly by the wealth of consumers and energy prices related to climate change.

World is Rich Consumers value Scotch brand **"SHANGRILA"** **Energy prices low** **Climate benevolent**	**"REALISTIC UNCERTAINTY"** **Energy prices high** **Climate problems**
"THE NEW DEPRESSION"	**"MAD MAX COMES TO**

BUCHAN”

World is Poor

Price is key

The groups produced pen pictures of each scenario.

SHANGRILA

Happy farmers with a healthy rural sector. These are boom times so there is a risk that inflation and interest rates are relatively high. There is plenty investment in intensification as land is expensive so it’s costly to increase acreage. Locally there are social issues as low paid rural workers are priced out of the housing market by second home owners and Aberdeen city workers. Premium, local and Scotch branded product sells well, people have the disposable income to pay for provenance and quality. Suckler cow number increase as a result. Processors feel secure. They can sell at premium prices so they don’t need to amalgamate to survive. The favourable climate and investment environment means the range of crops in Aberdeenshire expands. Intensive crops like soft fruit move north. People try new crops and intensive livestock enterprises as markets are strong but their farm size is constrained by capital values. There are more opportunities for young people to stay on farms because it’s profitable. Agriculture and forestry find it a bit easier to retain labour. Farm size increases, but at a fairly slow steady pace.

THE NEW DEPRESSION

This is a tough scenario with low economic growth and consumers with declining or stagnant disposable incomes. But energy is cheap, as it could be expected to be in a world with low economic growth. Businesses become lean and mean to survive. There is a move to much bigger, productive units. In relative terms it is not expensive to apply a lot of power to farming. Smaller units drift toward subsistence, investment doesn’t happen, systems are extensified. The public are interested in cheap food. Provenance, Scotch, organic are not important. But basics like potatoes might fall back into favour? And transporting them is not too expensive. However, it is also cheap for foreign producers to export to the UK. Farmers cooperate to squeeze out costs and form more marketing coops to get the best out of a tough market. Any subsidy support becomes very important and businesses adjust to maximize any environmental payments, forestry payments etc. Processors rationalize due to small margins. They gain more local power because they are fewer. Hence the move by farmers to cooperate. The full time farming and forestry labour forces decline, but part time and casual labour is plentiful due to the poor economic situation. Farms are very willing to diversify where there are consumers with higher incomes. Forestry soaks up the abandoned uplands.

MAD MAX COMES TO BUCHAN

This is the toughest situation – high energy prices, an unpredictable climate and poor consumers. It’s survival of the fittest. Regions and countries specialize only in what they are best at. Energy efficiency becomes very important, so machinery intensive systems are out. High Feed Conversion livestock are

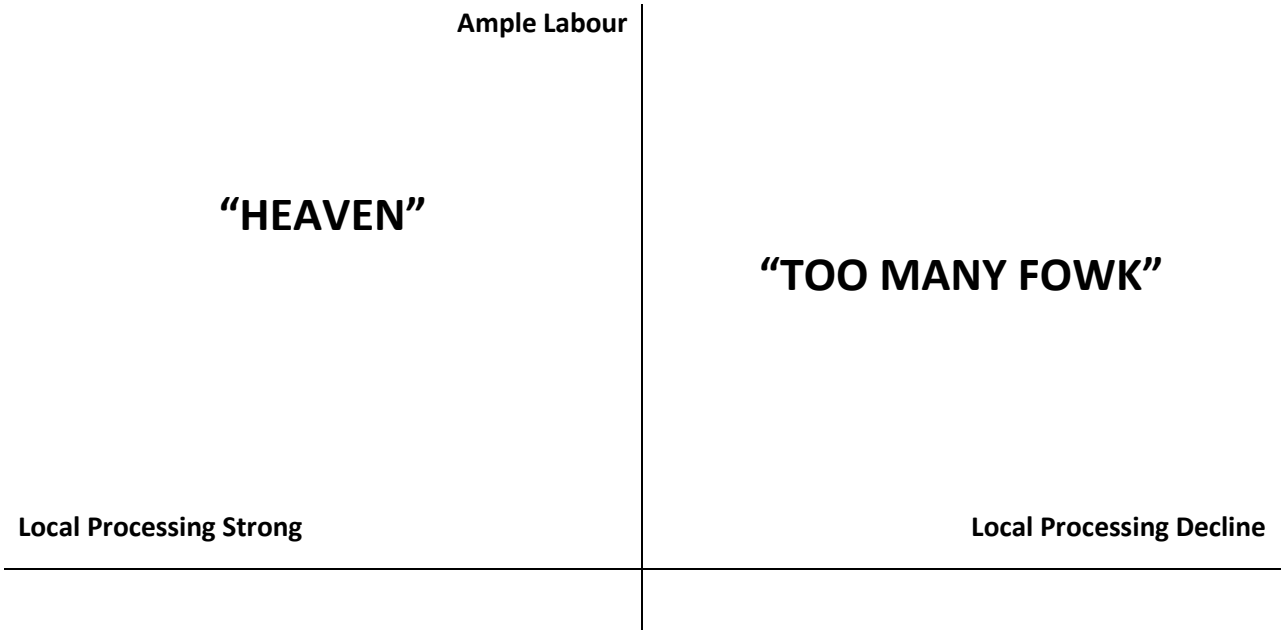
favoured – pigs and poultry. Cattle and sheep go extensive. Serving local markets becomes important as transport is expensive. Basic cheap foods are demanded. Diversification is difficult given low disposable incomes in the economy, but people try as farming margins are tight. Barter systems develop. Farms collaborate and cooperate in marketing to reduce transport and processing costs and in farming to share relatively expensive machines. Rotations are important to squeeze the most out of a system without bought-in inputs. Land is relatively cheap and fuel expensive so biomass and biofuels production become very important. Likewise local timber production. Crime levels are high. It's a scary world. Local communities become more important.

REALISTIC UNCERTAINTY

A rich world with high energy prices and changing climate. Is this where we were pre 2008? Farm size increases to get economies of scale in use of expensive machines and inputs. The number of farmers and rural workers goes down as people are attracted to the booming economy, especially in the NE as this is a time of high oil prices. Labour intensive livestock like dairying decline further, those remaining shift to robotics. There is demand for expensive premium products like Scotch beef and whisky. But a lack of labour and expensive inputs push farmers toward easier care breeds and premium breeds like Aberdeen Angus. Renewables are attractive – biomass production, straw burners etc, as fossil fuel is costly. More land goes into energy crops around the world which further pushes up grain prices. Processors have good local niche and premium markets so consolidation is slow, though energy and labour costs are a driver for this. Cheaper immigrant labour pours in.

6.4.2 Moray Group Scenarios

The Moray group highlighted labour supply/cost and the survival of local processing as the key drivers of the future shape of the land based sectors.



“RUN RAGGED”

“CAPUT TO TREES”

Labour Scarce

CAPUT TO TREES

This is the toughest scenario with a lack of affordable labour and a declining local/Scottish processing sector. The outcome is huge farms exploiting economies of scale and mechanization so that they can achieve a low cost of production to match the low net prices they receive for their product which must be transported long distances. There is a heavy use of technology like precision field mapping to ensure inputs are used efficiently and every £ of input generates a return. On the best land this means all arable systems. Cattle and sheep are ranched requiring a change in breeds. Intensive livestock like pigs and poultry might benefit from cheap grains, but skilled labour is expensive or not available, and transporting pigs or broilers long distances south destroys the margin. Egg production for local consumption and a few dairies which supply locally or do on-farm processing survive. Some areas are not economic to farm so go into trees or other biomass crops. Trees suit the situation because they can be harvested when there are good prices which justify transport to distant mills, now that in this scenario Norboard is shut. The input supply sector shrinks massively. There are other negative side effects – monocultures harm soil structure and some rural communities lose people as farming extensifies and processors consolidate and move away, though the scarcity of labour is driven by job demand in the rest of the economy so unemployment is not an issue. One benefits is a less intensive agriculture, favouring the environment in some cases and allowing more public access.

TOO MANY FOWK

Lots of labour, but the processing sector is in trouble. This group listed pluses and minuses. The pluses are the opportunity to diversify using the available and cheap workforce. Also there’s plenty people on farms and other rural businesses so jobs can be done well and there’s thinking and planning time. With plenty people around, but no large processors one obvious response is to “self – process” i.e. don’t sell milk, make cheese. With employed staff and more farms moving into processing there’s a need to apply active management and keep a keen eye on margins. High value crops like fruit might be favoured due to the supply of cheap seasonal labour. High value low volume will be more cost effective to transport. On the minuses side there’s less profit for businesses which stand still; product prices will be lower.

There's a risk of developing a higher cost base keeping family members at home due to the lack of alternative jobs. The reality of losing processing capacity is likely to be a big cut back in production with a knock-on to the input supply sector.

HEAVEN

Plenty local labour, and processors fighting over themselves to get your produce. This is a great opportunity for expansion and intensification to push up output. Profits should be good. There will be a range of farming systems as producers apply different types of technology to boost output. Beef cow number will start to rise. Intensive enterprises like pigs will build up again. It will be worth taking risks to move into high value niche products. On the down side input costs will rise, rents will be high as will land prices. There is a threat for the environment from over intensification, but land managers will have the money and time to apply to environmental schemes. Some producers in this scenario could become complacent. There is little need to look at diversifying the business and using non farming assets well.

RUN RAGGED

Plenty demand from local processors, but labour is scarce and expensive. This could be the scenario for the North East beef sector when there were four abattoirs and oil prices were high drawing young people increasingly toward jobs in the oil related sectors. It could be said that this is a very good scenario for a place like Moray – there are jobs everywhere and value is being added to local produce. There would be heavy use of technology and capital (in mechanization and buildings) to replace labour. There's a lot of interest in breeding easier care livestock. It's a potentially profitable scenario if your attempts to replace labour have not given you too high a fixed cost base. However there's a greater threat for the future of livestock production – the loss of skilled labour and lack of new people learning the trade. One response would be increased specialization to maximize returns from the labour you do have. In that case producing volume might be easier than quality. But processors are many and desperate for your output so they'll buy anything. Quality signals are lost – processors will not discount out of spec product. There's a market incentive to stay in mixed farming, but a labour imperative to have fewer enterprises. Framers are run ragged. One response is to collaborate with others and to use services like the machinery rings. Many farmers use contractors for chunks of work e.g. establishing crops. For budding new entrants there's an opportunity to provide labour services. East European labour is popular. The industry has a big drive to attract and train new people.

6.4.3 Angus Group Scenarios

For this group Government policy and support and consumer's disposable income and attitudes to food were the key drivers.

Consumers rich and sophisticated

“NORWAY”	“CALIFORNIA”
Govt policy tight **but high subsidy support**	**Govt policy loose** **but low subsidy support**
“GREECE” **Consumers less rich and** **more price conscious**	**“LOCHEE”**

NORWAY

In many ways a great place to be. Rich sophisticated consumers interested in buying local produce and with lots of farm subsidy support. On the down side regulation is heavy – food safety, labour regulations, animal welfare, environment and pollution rules, workplace health and safety, minimum wage rates. In this scenario more small farms are viable, indeed it may be an intentional Government policy to support the smallest farms. Middle class foodies abound and niche, local products are sought out by consumers. The Angus Glens are restocked both due to demand for Angus lamb and to meet environmental and social goals supported by subsidy. Society wants to see those areas full of people and activity. For many farmers this scenario does not encourage diversification – farming and subs pay too well. However, for the smallest, encouraged to stay in the industry, diversification is a logical option especially as people are willing to pay for a farm produced cheese or leg of lamb. Fresh produce is in demand, farmers markets are popular and there are more farm shops. There isn’t much point in all that

effort put into unsubsidized tunnel fruit and field vegetables so these enterprises are less prominent. In return for all the taxpayer support, public access is demanded. Community initiatives, for example up the Angus Glens, might be more likely as there are more active people there to support them.

CALIFORNIA

Rich consumers and not a lot of Government interference – or support. There's a polarization of farm types. Large farms expand to get the economies of scale in crop and livestock production they require to survive without subsidies. They're free to do this. Large corporate commodity producers appear centred on the Central Valley (Golden Mile). They follow market trends and produce what is required. At the other extreme small farms become artisan producers to serve the rich urban centres. They look to the new middle classes of Dundee and Angus which have grown out of the waterfront investments and new life sciences industries, and to Edinburgh, Aberdeen and visiting tourists. They become agri-food-tourism enterprises rather than just farms. The middle is squeezed out – swallowed by the big commodity producers or city investors seeking an artisan producer's lifestyle. Some seek work in the rest of the economy and rent out or contract their farming. The upland areas of Angus become a mix of semi-abandoned playground/park (Yosemite), artisan production and afforestation.

GREECE

Tight Government regulation, lots of subsidies, but poor consumers. Actions are dominated by what Government says and where the subsidies are directed. Cattle and sheep return to some of the hills chasing subsidies which meet environmental and social goals. There isn't much technical improvement and little incentive to produce to a market specification. Land prices fall as there are few outside investors (the economy is weak), tax rates, including those on inheritance and possibly a land tax, are high to pay for the subsidies, and land reform legislation and community ownership threats create uncertainty and convince some landowners to leave and others to not invest. The hollowing out of farm size continues but perhaps at a slower rate. Big units on the best land get bigger to compete in a world of low commodity prices. Small units can be worked part-time and are retained to collect subsidies. Forestry becomes attractive given its planting grants, Government imposed carbon budgeting for each farm and poor farming returns. Diversification activity is limited by the lack of consumers disposable income. It's a depressing industry for young people, with little innovation.

LOCHEE

Poor consumers, little subsidy support, but relative freedom from regulation. Farms get big to reduce cost of production so they can survive with low prices. Labour is relatively cheap and is used seasonally and on a contract basis. This helps intensive crop sectors to survive and leads to an expansion of pigs and poultry – the cheap meats. Cattle must be on extensive systems, wintered outdoors, so breeds change to allow this and cow size falls. Megadairies and beeflots appear. By-product dairy beef finds a place in the market. Cheap potatoes recapture some market share from rice and pasta. A very small percentage of production is for niche markets, providing an opportunity for some part-time and small scale producers. Medium sized family farms survive by working long hours, providing services to big farms and sticking to rotations which minimize input purchases. The Angus Glens are lightly stocked and only in the summer. Stock move up from lowground units to graze the uplands in the summer and then return to the light lowground soils, better climate and arable by-products by the coast for the winter.

Forestry expands on the better upland areas, but even it is limited by the lack of planting grants. On the plus side, the costs of entry to the industry are low so new entrants with good performance and successful innovations get a chance to expand quickly.

6.5 Scenario Planning Conclusions

Was this just a bit of fun or are there serious lessons from these scenarios?

The scenarios serve a number of purposes;

- By forcing participants to look at extremes they help identify risks and opportunities which may not be currently apparent
- They identify worst case scenarios; it's good to know what might cause these and to think about strategies to mitigate the worst impacts
- They expose the participants attitudes to change, which tells us something about the industry
- They bring out examples of real places elsewhere in the world or points in history where some of these scenarios exist. That gives us examples to study and lessons to apply to our regions.
- While the groups were broad based and full of some of the most forward thinking industry representatives, the scenarios will show the limits of the industry's thinking e.g. what alternative uses of land may appear if farming is unprofitable.

We would like people to look at the scenarios developed by the groups and draw their own conclusions, but in our view some of the key points are as follows.

1. **Consumers**, their wealth and their attitudes to food, are central to most of the strategies. It is unsurprising that disposable income is seen as important, but the value consumers put on local provenance, quality and the Scotch/ Scottish brand is seen as equally important, perhaps more important. The groups are saying that without this there isn't a good future.
2. There are some scenarios which result in **land abandonment**, especially in the uplands. However, this maybe exposes limited thinking. There will be opportunities to do other things with that land if it is cheap – forestry, agro-forestry with extensive livestock, biomass willow, amenity and tourism, and perhaps all of this with carbon capture credits. There may be a gap in our thinking here.
3. The high **subsidy support** scenarios were not always painted as positive by the groups. They tended to link this with low innovation, poor technology uptake and fewer chances for new entrants and ambitious businesses. This tells us that we should expect gains from the current subsidy reductions and plan to help people exploit those gains so that the outcome is not all negative.

4. People draw on **real experiences of other places** when drawing up the scenarios. Perhaps one of the most interesting was the "California" scenario for Angus which might actually fit the reality of the region (on a much smaller scale and minus the Meditteranean climate and the vineyards unfortunately). Like California there is a central intensive cropping area dominated by big businesses and migrant labour which will exploit market trends and new crops and technology. However, alongside that in California is a totally different but very successful culture in the marginal and small farm areas of artisan production linked to agritourism and the burgeoning interest in local food and drink. This is where Farmers Markets started. Angus has the biggest perceived difference between big commercial businesses and smaller family farms and the diversified agritourism/ small scale food processing/ niche product route is a real opportunity for smaller and upland businesses.

5. We were surprised that **Government attitude** (rather than just Government financial support) came out so strongly as a driver of the future of the industry. Basically this was about the level of flexibility or rigidity national and local Government imposed on producers, encompassing planning permission, attitude to renewables, land reform impact on land availability, ease of employing workers, inheritance rules, constitutional changes. The impact on business confidence has a profound effect on the future of the industry.

6. In response to extreme scenarios many felt there would be much more **collaboration** between farmers and more formal cooperation. This is always a surprise because collaboration between farmers in production, while an obvious option to share machinery and labour, is in reality rare. There is a gap between what farmers feel would be a good idea and actually doing it. We need to look at the reasons for this gap.

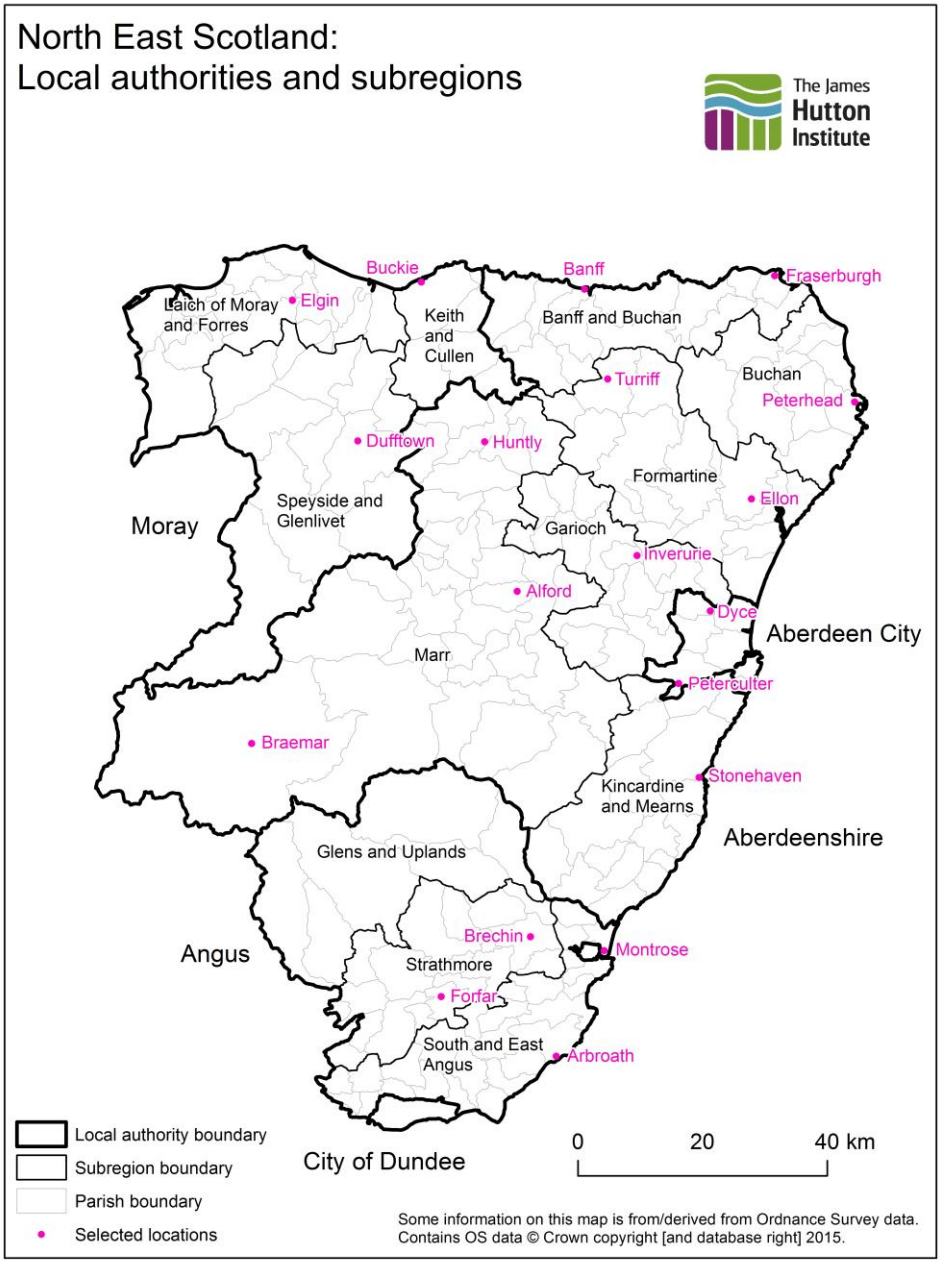
7. Many scenarios are built around the strength or weakness of the **"local" processing sector**. This emerges as a critical factor throughout this report. The land based industries in the North East can only prosper if there are primary processors and marketeers within cost-effective transport distance building up premium brands, fighting for a share of the best markets and finding a home for all the bits of local production.

8. It may seem surprising that **constitutional change** (EU in/out, UK in/out) was not listed as a driver of the future of the industry. People are reticent to get into that discussion due to its divisiveness. However, the real impact of constitutional change is on currency, market access, local processors investment decisions and all the other factors listed as drivers. Constitutional change is not in itself a driver, it's the impact it has on the drivers which is key.

9. Some of the scenarios involve enormous change, which raises the issue of how **well equipped people** in the industry are to handle change – how **resilient** are they? If they're not resilient (both in their business and personally) the reaction is likely to be more extreme with rapid movement to reduce risk, which probably means big cuts in production. We cannot avoid change, so a big lesson from the scenarios must be that we need to become better equipped to handle change. What does that mean? Better financial skills? Broader view on diversification? A business mindset (how best can I use my resources)? Willingness to look at alternative ways of managing crops and livestock? Willingness to share ideas and learn lessons from other farmers? Willingness to get advice/ get a third party view of your options?

7 APPENDICES

APPENDIX 1. MAP OF STUDY AREA AND SUB-REGIONS



Local authority and subregion boundaries are based on Agricultural Parish Boundaries (Scotland). (Copyright Scottish Government) Contains Ordnance Survey data © Crown copyright and database right (2015). Some parts of parish boundaries differ very marginally from Local Authority boundaries, but otherwise 'fit' the LA boundaries. All subregions except Glens and Uplands and Strathmore were derived from the electoral wards which parish centroids were located within. Aberdeenshire subregions are based on wards grouped to committee areas (see http://www.aberdeenshire.gov.uk/elections/areas_wards_settlements_map.pdf). Actual ward and LA boundaries are not shown. Ward spatial data and information: OS Boundary-Line(TM) data. Selected locations derived from OS 1:250 000 Scale Colour Raster.

APPENDIX 2. PARISH LIST

APPENDIX 3. THE SEP INDICATORS

Strategic Objective		Indicator	Source
Wealthier/ Fairer	1	Median net equivalent household income after housing costs per week (£), 2008-9.	SNS
	2	Per cent of families on low income (less than 70% median) and materially deprived, 2008-09	SNS
	3	Per cent of population dependent on benefits (SIMD Income deprivation rate) 2012	SIMD
	4	Unemployed as per cent of all people aged 16-74 2011	Census 2011
	5	Average drivetime to key services (GP, petrol station, post office, primary school, secondary school, retail centre) 2012	SNS/SIMD
	6	Average travel time by public transport to key services (GP, post office, retail centre) 2012	SNS/SIMD
Healthier	7	Per cent of all people with one or more long term health conditions 2011	Census 2011
	8	Per cent of all people assessing their general health as 'very good' or 'good' 2011	Census 2011
	9	Per cent of all people whose day-to-day activities are limited by a long-term health problem or disability 2011	Census 2011
	10	Comparative illness factor: standardised ratio 2011	SNS/SIMD
Safer/ Stronger	11	Population change, 2001-2011 (% change)	Census 2001, 2011
	12	Change in the economically active population, 2001-2011 (% change)	Census 2001, 2011
	13	Old Age Dependency Ratio (persons 65+ as per cent of persons 16-64) 2011	Census 2011
	14	Per cent change in the number of business sites 2008-13 (Intermediate geography)	SNS/IDBR
	15	SIMD Crimes per 10,000 total population, 2010-2011.	SIMD
	16	Rate of emergency stays in hospital 2007-10 (Scotland = 100)	SIMD
Smarter	17	All people aged 16 and over: No qualifications. Expressed as % of expected count	SNS/SIMD
	18	Percentage of 16-19 year olds not in education or training 2009-11	SNS
	19	Per cent of population 16-74 who have level 4 qualifications or higher 2011	Census 2011
	20	Per cent of population 16-74 who are in occupation groups 1-3 2011	Census 2011

APPENDIX 4. LIST OF SCENARIO PLANNING WORKSHOP ATTENDEES

APPENDIX 5. SIMPLIFIED SWOT FOR SCENARIO PLANNING WORKSHOPS

SIMPLIFIED NORTH EAST SWOT

STRENGTHS	**WEAKNESSES**
Balance Sheets/ interest rates	Livestock numbers declining, esp intensive
Controlled Restructuring	Poor return on hours worked and capital
Local economy been strong	"Thin" processing sector
Mix of Enterprises	Little real technical improvement/ loss of R&D/ agri education/ KT
Big share of Scottish production	Lack skilled labour
Red meat processing share	Lack flexibility – let land, huge capital, no share mechanisms, few new entrants
Some good markets (malting, scotch beef, seed)	Getting bigger, but too lean = not resilient
Intensive crop sector growth	Subsidy reliance – how do cattle with less subs?
New food and drink businesses	We're small and peripheral
Regional brand	

Enthusiasm/ farmer organisations Infrastructure/ supply sector	Lack leadership – some sectors
OPPORTUNITIES Growth of new food businesses Niche markets for rich consumers Playing to our strengths/ specialise End of recession New technology – EID, genetics, grazing Hill – Lowground integration Stable pigmeat outlet? Farm woodlands/ biomass Better alliances with processors Business focus/ new structures	**THREATS** Fall of NE oil economy Volatility – prices, climate, policy CAP/ LFASS decline World commodity price slump continues Retailer wars + processor losses Migrant labour supply dries up Constitutional uncertainty and currency Health scares Climate change and carbon agenda Extensification of the industry Restrictive legislation No more renewables

8 ACRONYMS AND GLOSSARY