

PLANNING AND PRIORITISING FUTURE SKILLS, TRAINING AND BUSINESS SUPPORT NEEDS FOR RURAL BUSINESSES ACROSS THE SELEP REGION

Talent is evenly spread – opportunity is not. Creating more opportunities relies on the ambitions and skills of all ages. Success requires close collaboration.

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A2 Agriculture – livestock and arable

Introduction

Agriculture is a vital contributor to the national economy and food supply. Most recent data show that total income from farming between 2018 and 2019 rose by £398 million (8%) to £5,278 million. Agriculture contributed £10,408 million or 0.53% to the national economy (Gross Value Added), an increase of £633 million (6%) on the year. The main driver for the increase was the high levels of crop production, particularly for cereals¹.

In 2017, Total Income from Farming (TIFF) was shown to have increased to a 20-year maximum due to a combination of a weaker pound, strong commodity prices and high levels of production (Figure 1). However, in 2018, poor weather conditions discouraged yields and pushed up the price of key inputs. Despite strong commodity prices these poor production factors led to an 18% fall in income¹.

¹ See Defra: Total Income from Farming in the United Kingdom, first estimate for 2019 (07.05.20)
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/884101/agricaccounts-tiffstatsnotice-07may20i.pdf

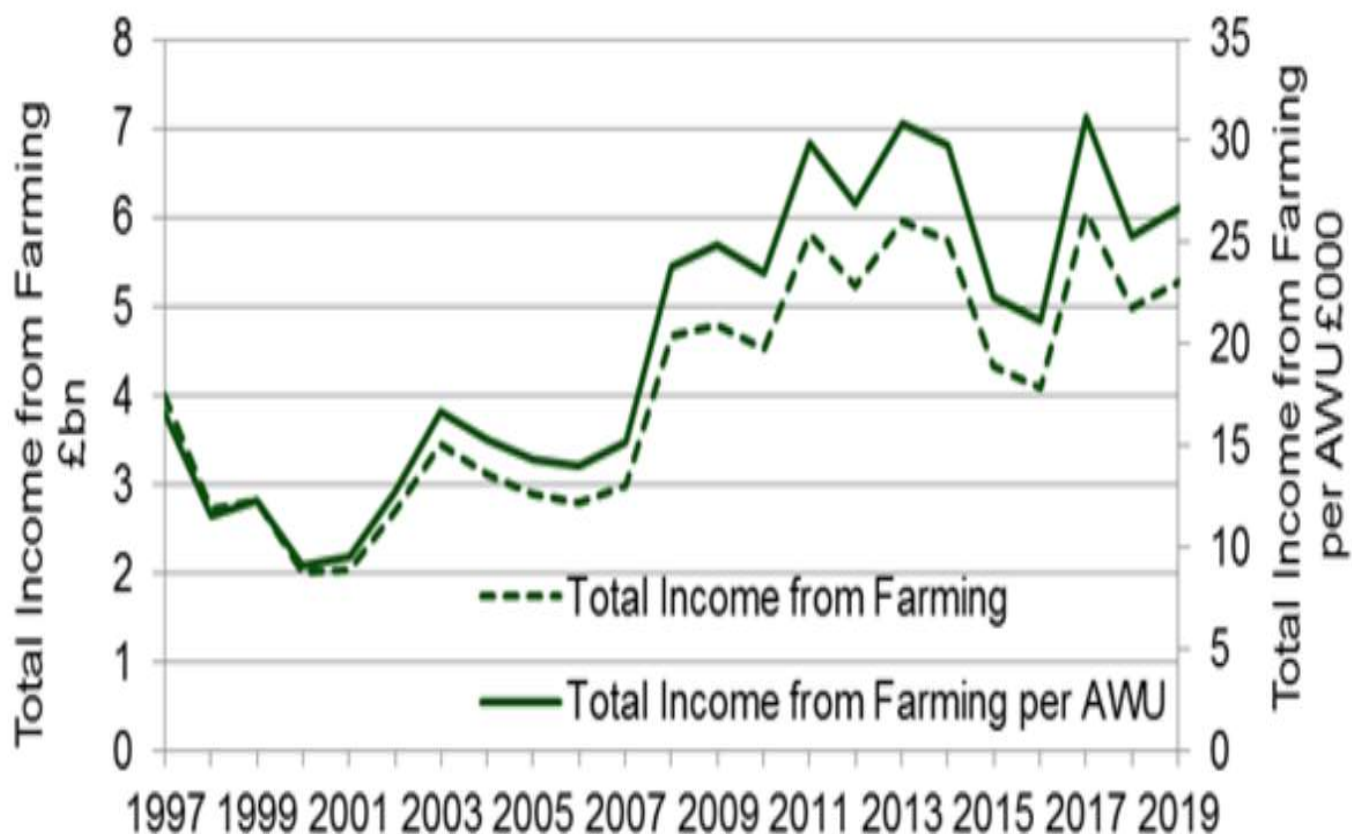


Figure 1 Agriculture industry income trends in the United Kingdom (in real terms at 2019 prices) Source:¹

Overall output of crops value rose by £562 million or 6.0% to £10,000 million (Table 1). A key contributor to this increase was wheat, rising by £332 million (+16%) to £2,442 million. Total planted area increased by 3.9% above that in 2018 and the encouraging growing conditions led to better yields and a good quality harvest, up 20% in volume from 2018. However, the relatively large harvest contributed towards lower prices, down 3.7%.¹

Overall, total livestock output was valued as almost unchanged (-0.3%) at £14,700 million. In terms of national food supply, the UK farming sector contributed 55% in 2019, with most of the remainder being imported from the EU (Figure 2)².

² See Gov.UK National Statistics. Food Statistics in your pocket: Global and UK supply. Updated 13 August 2020. <https://www.gov.uk/government/publications/food-statistics-pocketbook/food-statistics-in-your-pocket-global-and-uk-supply> Chart 3.1

	Average 2012 to 2016	2017	2018	2019
Total crop output	9,673	9,774	9,609	10,000
Total livestock output	14,805	15,006	15,010	14,700
10 Other agricultural activities	1,176	1,190	1,262	1,262
11 Inseparable non-agricultural activities	1,262	1,274	1,309	1,311
12 Output (at market prices)	26,917	27,244	27,190	27,273
13 Total subsidies (less taxes) on product	31	48	47	47
14 Gross output at basic prices (12+13)	26,948	27,292	27,237	27,320
25 Total intermediate consumption	17,108	16,454	17,284	16,912
26 Gross value added at market prices (12-25)	9,809	10,791	9,906	10,361
27 Gross value added at basic prices (14-25)	9,840	10,839	9,953	10,408
28 Total consumption of Fixed Capital	4,399	4,290	4,430	4,528
29 Net value added at market prices (26-28)	5,410	6,500	5,476	5,832
30 Net value added at basic prices (27-28)	5,441	6,548	5,523	5,879
31 Other taxes on production	-115	-100	-100	-98
32 Other subsidies on production	3,404	3,386	3,341	3,296
33 Net value added at factor cost (30+31+32)	8,729	9,835	8,764	9,077
34 Compensation of employees	2,668	2,733	2,751	2,775
35 Rent	591	594	572	556
36 Interest	410	455	472	468
37 Total Income from Farming (33-34-35-36)	5,032	6,052	4,968	5,278
Annual Work Unit agricultural labour input (thousand head)	194	194	196	198
Total Income from Farming per annual work unit (£)	25,922	31,130	25,285	26,703

Table 1: Aggregate Agricultural Accounts: Summary of production and income accounts for the United Kingdom in real terms (at 2019 prices). Units: £ million
Source:¹

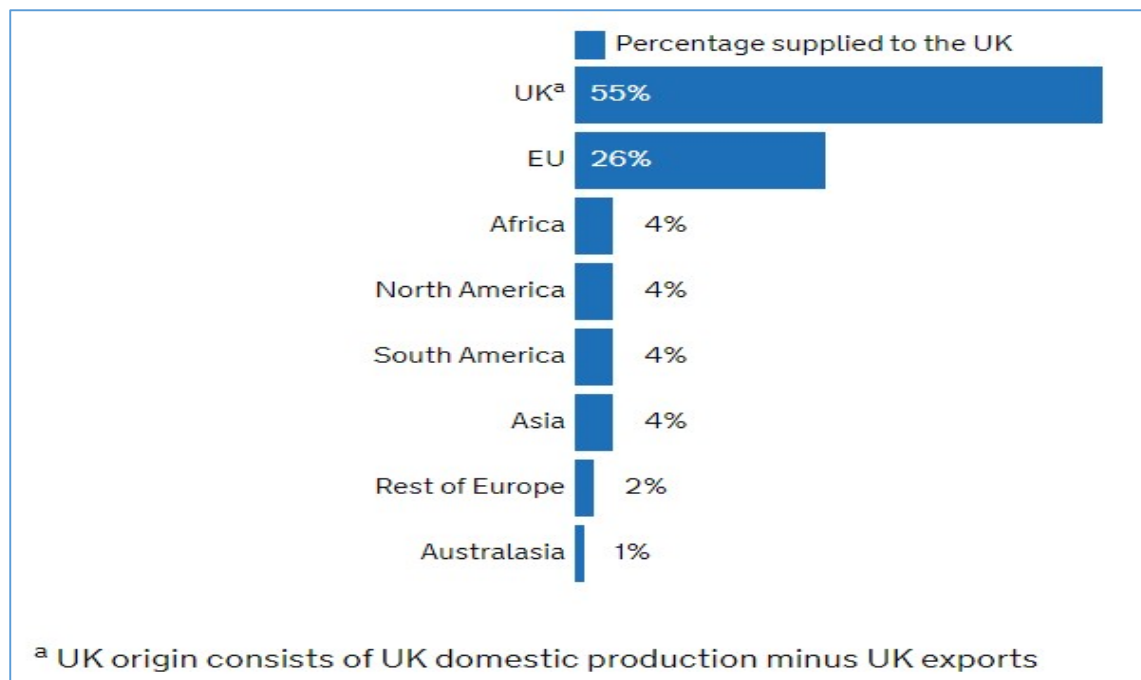


Figure 2. Origins of food consumed in the UK 2019 - Source:²

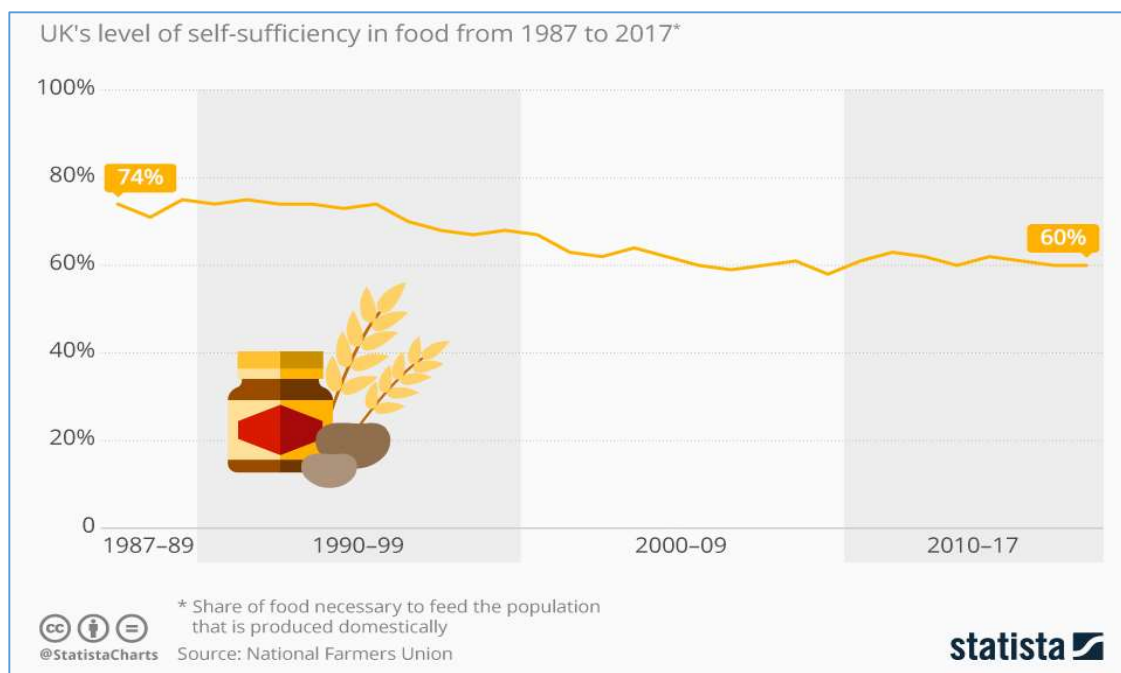


Figure 3. Self sufficiency of food consumed in the UK 2019

This level of self-sufficiency was also highlighted recently by the National Farmers Union. On 21.08.20 they stated that the UK's self-sufficiency currently sits at 64% and has remained stagnant for at least 15 years (Figure 3)³

³ <https://www.nfuonline.com/news/latest-news/nfu-calls-on-government-to-prioritise-food-security-and-address-uk-self-sufficiency/>

The NFU further stated that "...the nation is encouraged to be healthier and eat more fruit and veg, our domestic production of these products falls below our potential. The nation is only 18% self-sufficient in fruit, 55% in fresh vegetables and 71% in potatoes. For both veg and potatoes, this has fallen by 16% in the past 20 years."³

The NFU highlighted that "...a green recovery from COVID-19 is a 'golden opportunity' for British farming to become a global leader in delivering food security and set the benchmark for sustainable food production around the world."³

Summary for agriculture

Overall, it is proposed that there is now a 'perfect storm' of Brexit, trade and food security, the Covid pandemic, technological evolution, connectivity, demographic movements, climate change, sustainability challenges, and environmental decline. All these impact upon food, farming, and rural businesses, which are vital to the UK (food is by far our biggest manufacturing sector).

- Our national productivity in the agriculture and horticulture sectors has continued to decline and needs to be rejuvenated.
- Our workforce needs upskilling across the full range of employment – from pickers to senior managers.

We need to offer courses and skills development that reflect the huge risks and opportunities faced by the UK farming and rural business sectors. This will be vital for upskilling workers and enhancing their human capital⁴ (see Appendix 2). We will have to collaborate more with both key players and other institutions to provide the platforms for skills development and lifelong learning. For 2020, 309,039 people were reported as working on agricultural holdings in England⁵.

- There is a need to expand this workforce across a revitalised industry and we need to explore how such an enlarged workforce can be recruited and upskilled to face the challenges of the next decades.
- With Brexit, less certain food imports, and a greater national interest in local food post Covid, this is a good time to press for a policy of greater national food self-sufficiency and upskill the people to achieve it.

Brexit offers a huge incentive to make such changes. It is a similar situation to what business in rural areas of New Zealand faced in 1973 when they were shut out of the UK market after Britain joined the EEC. The New Zealand Government responded and created the environment that helped their farmers to raise productivity – they cut regulations and subsidies and their farmers became more global in their approach. Like the Netherlands, New Zealand's food producers have become highly efficient and utilise technology to follow market demands and raise productivity. New sectors have emerged as world leading over time such as wine production.

⁴ Human capital is a measure of individuals' skills, knowledge, abilities, social attributes, personality and health attributes.

⁵ See Defra Statistics: Agricultural Facts England Regional Profiles February 2020. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/866807/regionalstatistics_overview_20feb20.pdf

As business requirements develop, the delivery of skills training will need to be proportionate to the business densities which vary considerably across the SELEP region.

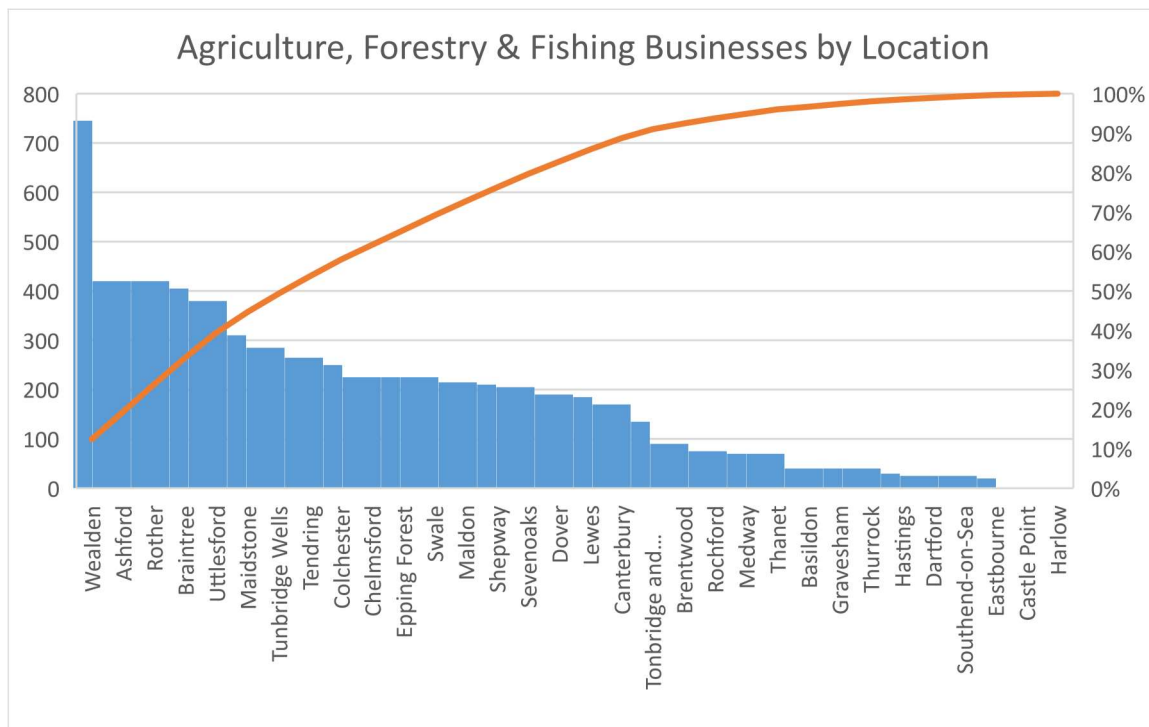
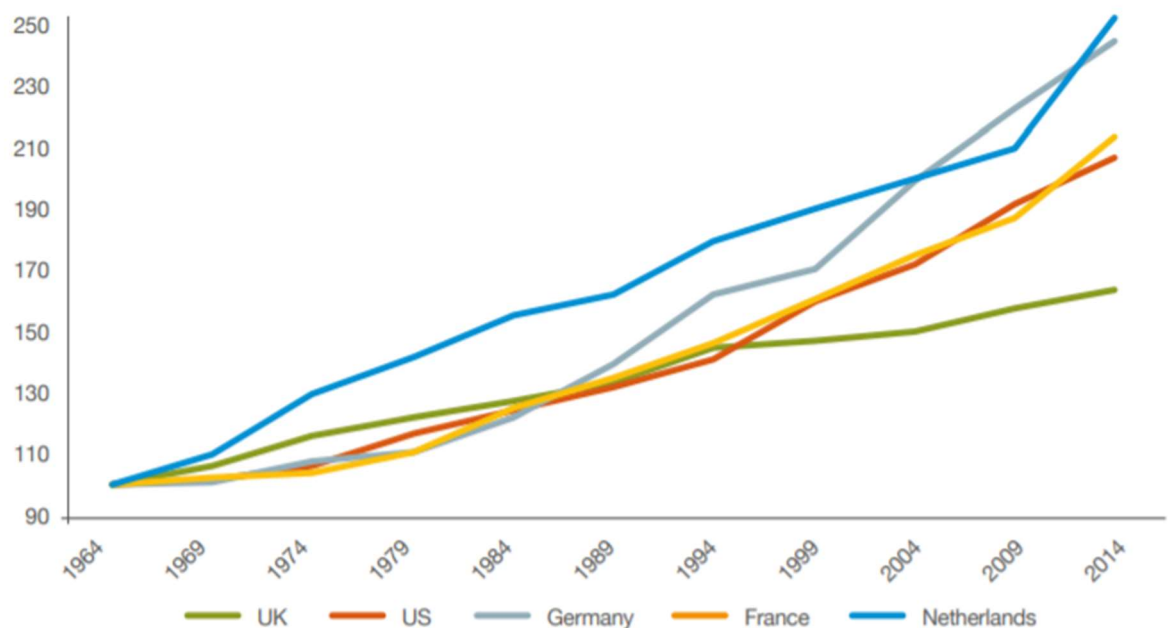


Figure 4 Distribution of Agricultural, Forestry and Fishing businesses by geographical area

UK productivity in agriculture and horticulture lags far behind our nearest neighbours and the United States.



Source: AHDB Horizon January 2018. Driving productivity growth together.

As AHDB (2018) state for the agricultural sector, “the rate of growth in total factor productivity (TFP)⁶ in the UK has fallen behind that of many of our major competitors, averaging 0.9 per cent per year as opposed to 3.5 per cent in the Netherlands, and 3.2 per cent in the USA” (Figure 1). Although these percentage difference might sound small, they become huge thanks to the impact of compounding over time. However, these gaps also provide us with excellent opportunities in making changes that allow us to catch up with the leaders. “Productivity isn’t everything, but in the long run it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.” Paul Krugman, *The Age of Diminishing Expectations* (1994).

According to a recent report from the Food and Drink Sector Council⁷ (2020), low productivity in UK farming and growing appears to be the result of a combination of factors which can be overcome through:

- Harnessing the power of data and inspiring farming businesses to measure performance
- Bringing co-ordination to our innovation system and ensuring investment in innovation targets, key productivity and sustainability constraints
- Defragmenting the landscape of knowledge exchange and providing more opportunities for farmers and growers to learn from the best
- Facilitating investment in capital, skills, training and continuous professional development

Their recommendations are similar to those from a report from the Food and Drink Sector Council (2019)⁸ :

“To deliver technical and management skills, and to attract future talent through greater use of apprenticeships and offering T Level work placements across the sector:

1. Create a Food Sector pilot fund to optimise Apprenticeship Levy usage and ensure access for all, including SMEs
2. Industry pledge to deliver T Level work placements
3. Government to prioritise apprenticeships that drive productivity

To improve accessibility, sustainability and quality of training provision for food and drink businesses of all sizes and located in all regions of the UK:

4. Create a National Network of Providers leading on Food Engineering and technical skills

⁶ TFP in this case measures how effective our agriculture and horticulture sectors are at converting all inputs into outputs. It is a useful and important way of measuring our industry’s productivity over time and against key competitors.

⁷ Agricultural Productivity Working Group Report to the Food and Drink Sector Council. February 2020.

⁸ “Preparing for a changing workforce: A food and drink supply chain approach to skills.” 2019

To professionalise leadership and management skills across the sector, and to ensure managers are prepared for a changing workplace:

- Professionalisation of leadership and management skills through third-party validation
- Place skills at the heart of a National Food Strategy to ‘deliver well-paid jobs’ across the country
- Encourage passionate sector leaders to champion lifelong learning.”

With specific reference to students studying agriculture related course at university level across the UK and England the numbers are not large.

HESA data of the UK HE enrolments from 2016-19 is given in Table 1 below, with a consistent number of students studying this subject in England from 2016-19 . This equates to 0.75% of the total student enrolments in England 2018-19.

	2016/17				2017/18				2018/19			
	Female	Male	Other	Total	Female	Male	Other	Total	Female	Male	Other	Total
Agriculture & related subjects	11,830	6,835	5	18,670	11,985	6,720	10	18,715	12,915	6,415	15	19,345

Table 2: HE Enrolments for Agriculture and related subjects in England only from 2016-18

	2016/17				2017/18				2018/19			
Subject Area	Female	Male	Other	Total	Female	Male	Other	Total	Female	Male	Other	Total
(5) Agriculture & related subjects	9,345	5,270	0	14,620	9,465	5,105	10	14,580	10,255	4,910	10	15,175

Table 1: UK HE enrolments in Agriculture and related subjects from 2016-18

What is slightly surprising about these data is the dominance of females studying such courses. This is not reflected in the share of management positions across the related industries.

It is widely accepted that agriculture is going through a period of immense change with ambitious plans. In the UK, the future success of the food and farming industry and its central role to the economy and the nation’s health, will require sustainable solutions to strengthen food systems. The Agriculture Bill which received its second reading in Parliament in February this year (2020) is closely allied to the Environmental Bill and will lead to the formulation of a National Food Strategy. This, major review of the UK’s food systems was originally intended to be a year-long review, synchronised with the UK’s exit from the EU.

The resilience of food systems is currently being tested through the Covid-19 crisis, in ways that could not have been predicted. The designation of those working in these industries as key workers, signals to those beyond the agricultural sector and associated industries, the importance of this work. There is ongoing pressure

from landowners and growers to secure labour that will support the supply of domestic produce. In the time ahead, the need for ongoing training to those new to farming and roles in food supply chains, to embrace change, could not be made clearer.

The sectors focused on within this report have key ambitions in terms of providing consumers with high quality, affordable and nutritious foods, improving productivity efficiency, promoting land management practices and changing land use to secure carbon capture, the use of renewable energy, the use of bio-based materials and bioenergy and measures to track, monitor and reward farmers for public goods.

At higher level skills need, farm managers and agricultural businesses told us that the skills they needed included:

- **Investigative data focused skills and business data analytics** to encourage staff to be more inquisitive about business performance and potential financial improvements
- Awareness and abilities to adopt changes to business practice (**change management**) to more effectively bring about smooth developments in business operation and performance
- **Health and safety** were key priorities given the continuing poor performance of agricultural operations
- **Agri-food marketing** principals and practice, especially **supply chain management**
- **Business evaluation techniques** at enterprises and whole farm levels
- **Communication technology** for businesses
- **Quality management** and compliance with enterprise and whole farm assurance certification schemes
- **Integrated crop management systems**
- **Sustainable livestock production systems**
- **Leadership** and people management
- **Environmental**, landscape and nature conservation
- **Legislation relevant to agriculture**
- **Community engagement**
- **Business Diversification**
- **Virtual co-operatives** for creating economies of scale and penetrating large wholesale markets
- **Food processing and adding value**
- **Direct retail** to customer groups

At a more granular level of technical skills, farm managers and agricultural businesses told us that the skills they needed included

Agriculture-Livestock -Industry Knowledge, skills, behaviours qualifications and experience	Farming					
	Beef Stockman	Dairy Herdsman	Pig Herdsman	Poultry Worker	Shepherd	Farm Manager - Beef, lamb or dairy sector
Knowledge of						
HSE legislation & guidelines HACCPs	✓	✓	✓	✓	✓	✓
Environmental best practice	✓	✓	✓	✓	✓	✓
Hygiene and bio-security arrangements	✓	✓	✓	✓	✓	✓
Livestock welfare including Red Tractor & RSPCA accreditation	✓	✓	✓	✓	✓	✓
Maintaining animal health (Disease)	✓	✓	✓	✓	✓	✓
Feed and water to livestock (nutrition)	✓	✓	✓	✓	✓	✓
Establishing pregnancy and maintaining livestock during birth	✓	✓	✓	✓	✓	✓
Health & Welfare of livestock during birth	✓	✓	✓	✓	✓	✓
Caring for mother and infant livestock	✓	✓	✓	✓	✓	✓
Preparing for, carrying out and completing milking of livestock		✓				✓
Codes of Practice	✓	✓	✓	✓	✓	✓
Animal movement	✓	✓	✓	✓	✓	✓
Lactation	✓	✓	✓	✓	✓	✓
Reproduction	✓	✓	✓	✓	✓	✓
Production systems	✓	✓	✓	✓	✓	✓
Breeds	✓	✓	✓	✓	✓	✓
Marketing	✓	✓	✓	✓	✓	✓
Skills to						
DIY artificial insemination		✓	✓			✓
Administer antibiotics	✓	✓	✓	✓	✓	✓
Foot trim	✓	✓			✓	✓
Dehorn/disbud	✓	✓				✓
Worm animals	✓	✓	✓	✓	✓	✓
Stomach tube	✓	✓			✓	✓
Handle and haltering	✓	✓	✓		✓	✓
Temperature check	✓	✓	✓		✓	✓
Ear tag	✓	✓	✓	✓	✓	✓
Vaccinate	✓	✓	✓	✓	✓	✓
Apply risk assessment requirements		✓				✓
Conduct risk assessments	✓	✓	✓	✓	✓	✓
Manage the health and safety of oneself and others	✓	✓	✓	✓	✓	✓

Agriculture-Livestock -Industry Knowledge, skills, behaviours qualifications and experience	Farming					
	Beef Stockman	Dairy Herdsperson	Pig Herdsperson	Poultry Worker	Shepherd	Farm Manager - Beef, lamb or dairy sector
Drive tractors with trailers, including PTO	√	√				√
Inspect and maintain tools and machinery in good repair, order and condition	√	√	√	√	√	√
Liaise confidently with the public and schoolchildren	√	√	√	√	√	√
Maintain tractors and related machinery	√	√		√		√
Maintain safe working practices	√	√	√	√	√	√
Operate to avoid pollution		√	√	√		√
Communicate effectively with supervisor, colleagues, public and others	√	√	√	√	√	√
Maintain tools, machinery and equipment	√	√	√	√	√	√
Plan the control of pests, diseases	√	√	√	√	√	√
Repair open drainage systems	√	√				√
Maintain fencing and boundary features and infrastructure	√	√		√	√	√
Maintain plant / materials handling and storage	√	√	√	√	√	√
Present and report performance and data analyses		√				√
Behaviours underpinning						
Accurate and timely organisation	√	√	√	√	√	√
Attention to detail and accurate deployment of jobs	√	√	√	√	√	√
Prioritisation to meet deadlines	√	√	√	√	√	√
Effective team working	√	√	√	√	√	√
Self-management on own initiative	√	√	√	√	√	√
Logical and analytical approaches	√	√	√	√	√	√
Self-motivation	√	√	√	√	√	√
Proactively responding to unforeseen circumstances	√	√	√	√	√	√
Commercial acumen in management roles	√	√	√	√	√	√
Flexibility in working in procedures and practices	√	√	√	√	√	√
Prompt timekeeping	√	√	√	√	√	√
Pride in work	√	√	√	√	√	√
Positive disposition	√	√	√	√	√	√
Willingness to learn on the role	√	√	√	√	√	√
Strong work ethic	√	√	√	√	√	√
Continual professional development	√	√	√	√	√	√
Adaptability to change	√	√	√	√	√	√
Strict compliance with management procedures	√	√	√	√	√	√

Agriculture-Livestock -Industry Knowledge, skills, behaviours qualifications and experience	Farming					
	Beef Stockman	Dairy Herdsperson	Pig Herdsperson	Poultry Worker	Shepherd	Farm Manager - Beef, lamb or dairy sector
Qualifications						
Full driving licence	✓	✓	✓	✓	✓	✓
Rough terrain forklift	✓	✓	✓	✓	✓	✓
First Aid Certificate	✓	✓	✓	✓	✓	✓
Level 3 award in emergency first aid at work	✓	✓	✓	✓	✓	✓
Level 2 Principles of Safe Handling and Application of Pesticides						✓
Level 2 Award in the Safe Use of Pesticides						✓
Level 2 English	✓	✓	✓	✓	✓	✓
Level 2 maths	✓	✓	✓	✓	✓	✓

In addition to the above, Arable workers required the following skills

Agriculture - Crop production	Arable worker	Farm manager
Soil structure and function, including drainage	✓	✓
Soil management techniques	✓	✓
Rotational systems	✓	✓
Crop production practices	✓	✓
Machinery use, maintenance and monitoring	✓	✓
Basic workshop skills and welding	✓	✓
Crop nutrition and fertiliser use	✓	✓
Planning the use of animal manures as fertilisers		✓
Pesticide application theory	✓	✓
Pest, weed and disease identification	✓	✓
Planning agrochemical programmes for control of pests, weeds and diseases	✓	✓

Employers also told us they consider it important that education and the wider industry was as aligned as much as possible, for example

Work closely with the Agriculture and Horticulture Development Board (AHDB)

- Facilitate knowledge exchange between AHDB, colleges and the industry
- Support colleges to continually develop their staff to be always up to date
- To feed into AHDB emerging industry needs both research and training
- Develop more impactful new entrants to the industry
- Develop the existing workforce to better meet future challenges

To establish a broader knowledge base amongst developing new entrants and existing employees for

- a) Improved understanding of the financial implications of current practice and future potential developments
- b) Better innovation and greater entrepreneurship
- c) Developing minds for better resilience and management of change (to drive change rather than be driven by it)

‘...Thinking is more important than just doing...’

Develop greater use of project-based problem-solving activities – eg whole farm appraisals and evaluations to lead to better:

- Understanding business finances
- Enterprise and whole farm evaluation
- Confidence to make suggestions and proposals for change
- Entrepreneurial approaches to drive change
- Structured business management knowledge
- Creating a perspective which is longer-term to foster engagement in innovation and technology
- Building capacity to do many tasks very well, many of which are not the ‘physical farming’ but office related
- Developing a confidence to be more self-critical, working to their strengths but planning changes to improve on weaknesses
- Empowering individuals to gain technical skills more autonomously through user guides and technology enabled equipment
- Developing minds for better resilience and management of change (to drive change rather than be driven by it)

Farm managers were enthusiastic to see the greater introduction of learning through project-based themes which they believed would support the development of the above skills and attributes. These project-based theme programmes could include / be delivered through:

- **On line access** - self-access, open source outlines of topic content (menu of development courses)
- **External consultants** - work with outside consultants on the identification and successful solution(s) to a business problem
- **Preparation and presentation of business development plans** – review of scenarios for unit and whole business development proposals by industry experts
- **Individual research projects** – in depth analysis and evaluation of topics requiring research and development
- **Group research projects** – in depth analysis and evaluation of topics requiring research and development, includes team working
- **Work placements / experiences** – at range of levels to experience change management / innovations

- **Work shadowing** – for potential new managers to experience the culture of change management and introduction of new approaches / systems
- **Coaching** – in work development skills and techniques for staff management and motivation
- **Mentoring** – in work support and guidance to facilitate the leading of change management
- **Seminars** – discussion groups / forums for sharing ideas eg developing approaches to change management