

Agriculture, Agritech and aquaculture – skills overview

Dorset LSIP overview – March 2023

Introduction:

This short paper is intended to form part of the evidence that informs the development of the Dorset Local Skills Improvement Plan. It is not intended to be a comprehensive analysis of the skills landscape relating to the relevant agriculture, agritech and aquaculture sector. Rather, it is intended to be an overview of some of the main broad trends that have been highlighted in relevant research. It is intended to sit alongside the other work that has been developed to inform the Dorset LSIP – notably the direct business consultations, and analysis of other secondary data such as skills demand in job postings.

Agriculture and agritech:

One of the difficulties with understanding the skills needs is that it is a difficult sector to define, particularly in the instance of Agritech. [Agritech can be defined as any technology that crosses the threshold of the farm, for us in agriculture, horticulture, or aquaculture which increases productivity and sustainability.](#) It encapsulates vertical technologies such as automation, drone technology, management platforms, precision farming, remote sensing, vertical farming and agri sciences. Some definitions of these technologies are described below:

- Automation – businesses producing machinery and/or technology that enable the automation of agricultural processes
- Drone technology – businesses producing drone technology, or services reliant on drone technology to the agricultural industry
- Management platforms – businesses producing software and/or platforms that enable agricultural data management and analytics
- Precision farming – set of products and/or services that enable real-time and off-field monitoring and control of agricultural processes
- Remote sensing – businesses producing products that make possible agricultural monitoring off-field
- Vertical farming – businesses producing the technology and related services and infrastructure that enable vertical farming
- Agri sciences – businesses focusing on agricultural innovation by providing specialised products or service

The UK is in its second year of the Agricultural Transition Plan. Between 2021 and 2027, the UK government will gradually reduce and then stop untargeted Direct Payments. [It is thought that there will be a significant need for the sector to improve environmental management skills in the context of Brexit and the agricultural transition.](#)

[Numbers of farm workers have levelled out over the last ten years, and while automation/mechanisation can assist with labour requirements, large numbers of workers will still be required across all sectors at least in the short term.](#)

One of the key driving factors behind the increased adoption of technology is connected to labour shortages, with many parts of the agrifood sector affected by significant staff shortages, particularly at peak times such as harvesting. These recruitment difficulties have been accentuated by the pandemic and Brexit. It is also now being affected by competition for staff, which is increasing the cost of labour through higher wages being demanded by employees.

According to a [recent survey](#) around two-thirds of respondents to a national survey stated that they had found certain vacancies hard to fill over the last 12 months, with c40% reporting that one or more of these vacancies had remained unfilled for over a month from the vacancy opening. The skills believed to be most lacking among current staff are those related to health and safety, environmental management and regulations knowledge, basic IT skills and biosecurity (38%). Many of these same skills were considered to be important to future requirements. In terms of more technical skills, over 50% of those surveyed stated that their current staff are not sufficiently skilled in advanced digital skills (e.g. other IT, social media, programming, and use of software such as GPS or mapping tools).

Its focus can be on wide issues such as increasing productivity, improving animal welfare and/or crop quality/yields etc. Increasingly it is also focuses on environmental management such as carbon sequestration, land management etc.

Farm productivity has failed to keep up with the wider economy and agriculture faces significant pressure on the sustainable of the current model. [Labour productivity is lower for agriculture than for many other sectors of the UK economy.](#) Factors such as degradation of soils, loss of habitats, pressure on water resource and need for resilience to climate change. [Overall, it is thought that climate change is reducing productivity in agriculture.](#)

[The focus of a farm business is not just on boosting yields, but also on reducing risk and minimising inputs.](#) Although technology is set to drive growth in the agri-food sector, there is widespread recognition that technological growth could be at risk due to a significant lack of skills.

The shortage of labour and the need for greater responsiveness to the environment and consumer demands that is driving the adoption of digital technologies. This is increasing the range of skills needed in farming and diversifying the location of these people and their expertise. No longer will the industry need to rely on low skilled manual labour living on the farm. [The skills challenge facing the industry is well known. Skilled technical staff are becoming more important.](#)

Agri-tech recruitment can often be highly competitive world. Recruiting skilled candidates for Agri-tech roles can require engaging with unfamiliar sectors such as banking and finance, energy etc. These other sectors can cover specialist roles including software engineering, AI and robotics and engineering disciplines. STEM skills are sought after, including entry-level candidates.

It is likely that the sector will require skills covering a range of specialisms, sciences and innovation over the coming years and the sector is set to join many others in the race to recruit digital specialists. [There is a risk that some parts of the 'sector' – horticulture being cited as an example - may not be attractive enough to ensure skills are local, abundant and available on demand.](#)

This presents an additional challenge for the rural and food sector that still struggles with a poor perception of the industry but is now looking to compete for talent with other 'attractive' sectors. Often unsociable hours, low pay, lack of affordable accommodation in the local area, competition from other farm businesses, and the fact that farming has a poor image generally, are often cited by businesses in the sector as barriers to recruitment. [There have been efforts to boost the image/perception of the industry.](#)

Business engagement in schools can help to promote the sector. In rural areas business engagement in schools is often sporadic and limited due to location. [Agriculture typically has an ageing workforce. Over a third of all farm holders in the UK are over the age of 65 years. Just 3% of farm holders were aged less than 35 years.](#)

The food and drink manufacturing sector, along with the agricultural sector, has developed a number of industry specific apprenticeship standards up to and including degree level apprenticeships. However, take-up can be sporadic amongst agri businesses.

In summary, the top issues for skills development in the sector appear to be grouped:

Labour substitution through automation:

- skills for engineering, soft robotics, AI and data are growing in importance and more supply will be needed to meet industry needs
- An agile workforce with higher levels of technical skills
- Applied research and skills in new disciplines

Meeting existing skills shortages in industry:

- The industry has had a historical reliance on inward migration. There remains a continued challenge for employers in meeting basic skills. Employers report problems with a lack of 'practical' focus in new recruits and would like to see short technical courses for the existing workforce in the winter

Meeting the demand for research and development staff:

- Shortages in these areas and the ability to attract talent been accentuated post-Brexit

Young people and progression:

- Recognised challenges in equipping young people for entry level jobs in the industry, given the problems created by the rapid increase in 'tickets' needed. Industry struggling with developing appropriate models into industry, particularly within HE. Employers feel industry needs to work with training providers to link into schools, develop internships and other innovative models to develop experience

Attracting talent to the industry:

- The image of the industry remains an issue in terms of attracting new staff, either as young people or career changers later in life. Employers also recognise industry needs to address working conditions and improve rewards

Meeting the demand for trainers

- Important to ensure that the industry can ensure that it has a supply of committed and highly qualified trainers. Recruitment into 'teaching roles' is challenging

Aquaculture:

[In terms of aquaculture, some of the key challenges that the industry needs to face include biological factors, and the current and potential future impacts of climate change on the aquatic environment. Sea lice, algal gill disease and other pathogens are posing increasing challenges to the industry. Fish welfare and environmental stewardship are key priorities for the industry.](#) Given the increasingly technological and innovative methods required to increase the productivity and scale of the sector, and combat the environmental and biological challenges facing aquaculture, there is a need to ensure the necessary and appropriate skills to address these challenges are available to the

industry. If the sector is to realise its growth ambitions, sufficient numbers of people need to be coming through the aquaculture skills pipeline.

There has been a move towards more automation of processes and the application of technology to enhance production and productivity. This changes business models and staffing structures, is expected to shift more jobs into the supply chain proportionate to on-farm jobs.

While producers have sought to meet demand, there is also an imperative to grow the aquaculture sustainably and minimise the impact on the marine environment. R&D and innovation in the sector has also been in response to increasing automation as businesses seek to improve their productivity and competitiveness. Processes such as feeding are now much more mechanised. Monitoring of fish stocks also makes greater use of digital technology, e.g. cameras and remote sensing of environmental conditions such as oxygen levels.

[Whilst there is a Modern Apprenticeship \(MA\) Aquaculture Framework available in Scotland, there does not appear to be the same provision in England.](#)

Labour demand – Dorset LSIP:

There were c8,000 jobs (2021) across the Dorset LSIP area in occupations associated with land-based courses (SSA2) (noting this is a much wider definition than simply Agritech) – which include agriculture, horticulture and forestry, animal care and veterinary science and environmental conservation.

Associated Occupations

We have associated the following occupations with the chosen course areas.

<p>9,716</p> <p>Jobs (2021)</p> <p>14% above National average</p>	<p>+1.0%</p> <p>% Change (2021-2022)</p> <p>Nation: +0.9%</p>	<p>£11.23/hr</p> <p>£22.5k/yr</p> <p>Median Wages</p> <p>Nation: £11.54/hr; £22.9k/yr</p>
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Occupation	2021 Jobs	Annual Openings	Median Wages	Growth (2021 - 2022)	Location Quotient (2021)
Farmers	2,302	82	£10.31/hr	+1.39%	1.01
Farm Workers	1,366	51	£9.57/hr	+0.73%	1.29
Gardeners and Landscape Gardeners	1,006	53	£10.72/hr	+0.40%	1.31
Animal Care Services Occupations n.e.c.	842	33	£9.59/hr	+0.83%	1.01
Groundsmen and Greenkeepers	514	20	£10.92/hr	+0.19%	1.45
Fishing and Other Elementary Agriculture Occupations n.e.c.	488	31	£9.52/hr	+1.23%	1.66
Managers and Proprietors in Agriculture and Horticulture	456	22	£14.11/hr	+1.10%	1.18
Mobile Machine Drivers and Operatives n.e.c.	352	12	£12.97/hr	+0.85%	0.77
Horticultural Trades	335	18	£9.17/hr	+1.79%	1.48
Environment Professionals	327	9	£18.43/hr	+0.92%	0.82
Agricultural and Fishing Trades n.e.c.	297	17	£11.52/hr	+2.02%	1.28
Veterinarians	226	9	£22.34/hr	0.00%	0.97
Veterinary Nurses	205	8	£12.66/hr	0.00%	1.03
Conservation Professionals	196	6	£17.67/hr	+1.02%	1.28
Managers and Proprietors in Forestry, Fishing and Related Services	173	9	£12.03/hr	+1.73%	1.71
Agricultural Machinery Drivers	164	9	£10.45/hr	+0.61%	1.30
Conservation and Environmental Associate Professionals	146	6	£10.52/hr	+0.68%	1.35
Florists	122	3	£9.04/hr	-2.46%	1.27
Smiths and Forge Workers	99	3	£8.67/hr	+8.08%	2.77
Forestry Workers	50	2	£12.15/hr	+4.00%	0.81

Job Postings Overview

<p>1,430</p> <p>Unique Postings</p> <p>2,640 Total Postings</p>	<p>2 : 1</p> <p>Posting Intensity</p>  <p>Regional Average: 3 : 1</p>	<p>34 days</p> <p>Median Posting Duration</p> <p>Regional Average: 34 days</p>
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There c1,500 job postings in 2021 relating to the associated occupations. Typically jobs are posted twice before being filled (posting intensity of 3:1).

Top Posted Job Titles				
Job Title	Total/Unique (Jan 2021 - Dec 2022)	Posting Intensity	Median Posting Duration	
Veterinary Surgeons	254 / 156	2 : 1	41 days	
Grounds Maintenance Operatives	194 / 104	2 : 1	39 days	
Gardeners	143 / 99	1 : 1	31 days	
Registered Veterinary Technicians	110 / 40	3 : 1	50 days	
Landscapers	105 / 37	3 : 1	43 days	
360 Operators	93 / 32	3 : 1	38 days	
Groundspeople	95 / 28	3 : 1	43 days	
Grounds Maintenance Workers	36 / 27	1 : 1	37 days	
Excavator Operators	36 / 26	1 : 1	39 days	
Veterinary Nurses	48 / 23	2 : 1	37 days	
Sprayers	55 / 22	3 : 1	34 days	
Lead Gardeners	29 / 21	1 : 1	42 days	
Dump Truck Operators	34 / 19	2 : 1	37 days	
Farm Workers	26 / 16	2 : 1	17 days	
Fettlers	40 / 16	3 : 1	32 days	
Grounds Technicians	29 / 16	2 : 1	38 days	
Pickers	26 / 16	2 : 1	42 days	
Tree Surgeons	37 / 16	2 : 1	30 days	
Environmental Officers	30 / 15	2 : 1	33 days	
Herdsmen	17 / 15	1 : 1	30 days	

Top Specialized Skills

Skill	Postings with Skill
Mowing	188
Landscaping	146
Weed Control	139
Machinery	134
Pruning	121
Small Animal Care	78
Surgery	77
Trimming	60
Medical Ultrasonography	57
Horticulture	52
Gardening	48
Endoscopy	34
Marketing	29
Nursing	29
Animal Husbandry	27
Ecology	26
Chainsaws	25
Hand Tools	24
Risk Analysis	24
Power Tool Operation	23

(Source: Lightcast, 2023)