

# AGRICULTURAL EDUCATORS AWARD REPORT

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## Agriculture Vocational Education – What can we learn from Europe?

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**Date:** July 2025

**Authored by:** John Fegan

**Name of University/College:** College of  
Agriculture food and Rural enterprise]

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**Charitable Trust**

## AGRICULTURAL EDUCATOR AWARD REPORT



<b>TITLE</b>	AGRICULTURE VOCATIONAL EDUCATION – WHAT CAN WE LEARN FROM EUROPE? <hr/>
<b>Scholar</b>	John Fegan
<b>Objectives</b>	<ul style="list-style-type: none"><li>• Investigate different delivery models for agriculture vocational learning and to experience different methods of their agricultural apprenticeships and vocational study. It will review the experience of educators, to establish best practice for staff-related processes, such as recruitment, training and development, and day to day management, in the agricultural sector.</li><li>• Examine how different colleges have developed training programs to meet the demands of the different agricultural sectors and to provide farms with specialised workforce.</li></ul>
<b>Countries Visited</b>	France, Denmark, Ireland, England, Spain, Sweeden
<b>Key Messages</b>	<ul style="list-style-type: none"><li>• Importance of practical training for learners.</li><li>• The increasing issues of the agricultural sector attracting young labour.</li><li>• The importance of colleges working in collaboration with industry when designing courses to ensure the training is fit for purpose.</li></ul>

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**The Farmers Club Charitable Trust was founded in 1981 and is dedicated to supporting the agricultural community in the UK through education, leadership and innovation. Our mission is to enhance the agricultural sector by providing financial assistance to advance education and training within the food farming, and associated industries.**

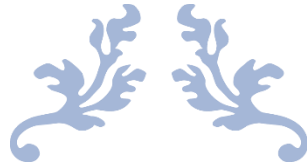
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***(The views in this report are those of the author only)***



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## Agriculture Vocational Education – What can we learn from Europe?

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MAY 12, 2025

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## Study Tour Aim:

*To compare delivery methods of Agricultural Vocational Educational training / Apprenticeships in Europe with that in Northern Ireland to enhance the delivery of CAFRE's work-based programmes.*

## Summary

*Apprenticeship / work based education has traditionally focused on those entering the agricultural industry as school leavers. However, there is also a need to continue training the existing agricultural workforce as well as those entering the industry.*

*For this study tour, I visited eight different agricultural colleges located in six different European countries. During these visits, I was provided with tours of teaching facilities and farms.*

*I interviewed various lecturers to grasp their opinions on their respective vocational courses.*

*Through my analysis of these interviews, I was able to identify several common trends:*

- *Importance of practical training for learners.*
- *The increasing issues of the agricultural sector attracting young labour.*
- *The importance of colleges working in collaboration with industry when designing courses to ensure the training is fit for purpose.*

## Introduction

Vocational training for Northern Ireland's agricultural industry has been in place since 1912 when Greenmount College was established.

The need for highly skilled people to enter the industry is of paramount importance. However, the 2010 Lantra Skills Assessment found that within farming, 62% of working owners and 40% of employees held no formal qualifications compared to just 16% of workforce across all other sectors. The percentage of working owners/employees with no formal qualifications reduces when one considers the younger segments of the farming population, but even among 16 to 18-year-olds, 15% have no qualifications as compared to 7% across the general population. This need for trained staff within the agricultural sector, particularly at Level 3 and above has also been more recently cited within the Ulster University's skills barometer.

Traditionally, apprenticeships and work-based education focused on those entering the agriculture industry. However, the Department of Education and Learning, 2012 in their publication '*The Transforming Futures Employer Engagement Plan*' highlighted the importance of training the existing workforce to transform their skills in addition to focusing solely on those who will enter the workforce in coming years.

Lantra found that the level of qualification held by small agricultural business owners is lower than the industry average and suggest that they may find it difficult to commit the time to formal training courses. The vast percentage of Northern Ireland farms are categorised as very small or small (88%, 2018). In the preceding five years, almost half of all businesses had never provided or supported training for staff. Common reasons cited for not providing training were cost and lack of time.

Through my experience of teaching students on Apprenticeship and work-based programmes I am aware that there can be difficulty, balancing attendance at formal classes with competing work priorities.

In countries such as Sweden, Denmark, France and Spain, Vocational Educational Training (VET) reform has allowed learners to address their individual competence needs by offering opportunities to acquire qualifications flexibly, attending programmes in educational institutions.

The objective of this study is to investigate different delivery models for agriculture vocational learning and to experience different methods of their agricultural apprenticeships and vocational study. It will review the experience of educators, to establish best practice for staff-related processes, such as recruitment, training and development, and day to day management, in the agricultural sector. Those from non-agricultural backgrounds may explore opportunities in both



agriculture and agri-food when establishing their career; a broader focus will allow wider learning, understanding and sharing of best practise.

I will also look to examine how different colleges have developed training programmes to meet the demands of the different agricultural sectors and to provide farms with specialised workforce. This study aims to compare delivery of agricultural vocational training in these countries with our own delivery at CAFRE. I will appraise the various methods and programmes in discussion with staff in colleges in these countries to determine the strengths and weaknesses of their systems and help develop an appropriate delivery model for Northern Ireland.

## Overview

### What are apprenticeships?

Fuller & Unwin, (2013); define the term ‘apprenticeship’ as a training regime set up by, or with the approval of governments through a combination of off and on the job training. This form of training / education enables an occupation to be practised independently under the supervision of a skilled employer, allowing a trainee / student to develop skills required as part of a profession.

The functions of apprenticeships include (but are not limited to) the following:

- A passage to adulthood for young people,
- A means of industry and national skill formation,
- Developing occupational identity in a trade (Smith, 2010).

### Apprenticeship programmes in the UK and Northern Ireland

The UK government apprenticeship taskforce devotes funds towards vocational education as a means of boosting economic productivity and breaching skills gaps. Schofield, K. (2000) writes that this form of education can improve future career prospects for learners by providing them with vocational and social experience that improve overall employability *‘apprenticeships can allow more entry points into industries and provide opportunities to bring in talent from all backgrounds’*.

As apprenticeships in the UK can be developed into higher education, the old system *‘frameworks’* have been replaced by *‘trailblazer groups’* which are approved by the Institute of Apprenticeships and Technical Education (IFATE). These standards include an occupation description and detail the main skills and knowledge the apprentice is expected to develop. These skills are developed through an end point assessment such as a portfolio of evidence, interview by an assessor, observation, or a presentation (Wright, 2020).

### Co-operative apprenticeships

Co-operative apprenticeships are organised and managed between employers and educational institutions. These apprenticeships are always associated with a curriculum designed for students to put theory into practice. To create an experience framework within the context of a company-based apprenticeship, various prerequisites must be fulfilled. As young people spend a significant part of the training period in the workplace, the activities performed there provide a vital learning experience. It is important that the apprentice gains experience of skilled work and receive appropriate professional guidance in order to acquire new competencies (OECD.,2018). While at this level, and for the duration of the time spent in the workplace, the role of mentors is essential, as

these mentors have the necessary pedagogical skills and motivation to supervise the apprentices (Schuster *et al.*, 2018).

Apprenticeships provide young people with vocational skills as well as occupational identities and occupational self-confidence (Bliem *et al.*, 2018). These young people develop occupational identity, through the company-based learning environment. Consequently, apprenticeships (dual vocational training) enables a direct experience of the interaction of interests and occupational requirements at a critically important stage in young people's personality development, which, according to the trait-and-factor theory, represents the actual matching of consistency between occupational requirements and personality traits (Holland., *et al.*, 1997). A high-perceived fit between the individual and the occupation contributes significantly to occupational satisfaction and to attachment to the occupation (Woolbers *et al* 2007).

In 2017 the introduction of the apprenticeship levy saw dramatic changes in the UK apprenticeship system. Changes included an increase in the availability of higher-level apprenticeships (level 4 or above). Many authors described apprenticeships as vital mechanisms for training workers and the future management of various sectors of the economy. Agriculture/ Agri food sector is one such sector that has traditionally used apprenticeships to ensure a constant supply of fully trained employees to work in the industry. However, in recent years the number of applicants for apprenticeships in this area has fallen greatly.

### The Structure of Vocational Agricultural Education in Northern Ireland

In Northern Ireland and England there are elements of agriculture that appear in the national curriculum for school age pupils, including geography and Agricultural science at GCSEs with the option to undertake BTEC Diplomas in land-based subjects. Post 16 BTEC and City and Guild Diplomas delivered (mainly by the College of Agriculture food and Rural enterprise).

The Level 3 Advanced Technical Extended Diploma (1080 award) is a three-year course, designed to provide the knowledge and skills essential for a career in the land-based sector. The course combines practical skills on the college farms, classroom theory and one year of industry work experience. Currently there is high demand for this course, with over 240 students enrolled across the three years. Students are assessed on coursework, exam and practical skills. Those that acquire high enough grades can progress on to an agriculture degree.

These qualifications are modular and include functional skills qualifications in maths and English if not already achieved at GCSE Grade C or above. The qualifications are divided by level, Level 2 being GCSE standard and Level 3 equivalent to A levels. Demand for vocational agricultural education

courses is strong, with applications numbers increasing by 50% (for both full time and apprenticeship) since 2018.

CAFRE also deliver several agricultural apprenticeships. As of 2025 the level 2 apprenticeship in Agriculture has 40 students in each year (80 students in total), with the level 3 qualification recording similar numbers. These qualifications are delivered on a day release basis, with apprentices attending class one day per week and the remainder of the week spent on placement.

A typical college day consists of time divided between classroom theory teaching and practical learning on farm. The curriculum is set by City and Guilds and is assessed mainly through a portfolio of evidence.

As can be seen from the overview, apprenticeships are seen as an important method of training operatives / managers in all industries, not just agriculture.

Chapter 2 will analyse the demand for trained labour.

### 2.1: Status of the agricultural labour force in Northern Ireland and the UK

The early 2020s saw labour challenges in various sectors, creating increased demand for labour, with unemployment sitting at its lowest point since records began (NISRA, 2024). This high demand for labour has exacerbated a long running trend of understaffed farms, with one survey finding that the dairy farmer works 66 hours per week, with only 26% of work completed by employees (UFU, 2023).

Such labour pressures are not confined to Northern Ireland. In the UK the entire agrifood sector is experiencing similar issues, which were exacerbated by BREXIT and COVID. The tightening of UK work visas witnessed a marked decline in seasonal workers from Eastern Europe, who are vital during harvest and other periods of high demand. In the UK, there is a recognised need to expand the pool of individuals with the desire, drive and ambition to enter the sector, and work is underway through projects such as the Defra New Entrant Support Scheme pilot (Defra, 2022) and Opening the Gate workshops from the Princes Countryside Fund and Aldi (PCF, 2022). Building on this, establishing resilient agricultural and agri-food employment practices for the future will be key considerations to ensure future food security, a concern recognised by the ALP (2022) who highlighted *‘once these workers are recruited, they must be retained’*. In 2016, Defra reported that there were *‘...176 thousand people working on agricultural holdings in England, in addition to holders and/or managers. Of these, 55% were family members. In the UK, 60% of the workforce were family members’*. Family involvement in agricultural businesses is common and often crucial to business success and longevity. However, this is a finite pool of resource, which may be a factor in the sector’s identified labour deficit (NFU, 2018). Jack *et al* (2019) indicates new farming entrants

perceiving finance, the lack of profitability in existing farming enterprises and the availability of land as key barriers.

Government policy is currently being produced to aid such labour pressures and is focusing on

1. Educating careers advisors schools/job centres so potential students understand the modern farm practice.
2. Working with industry on a coordinated marketing campaign targeted at potential recruits.
3. Setting out clearer pathways into farming via apprenticeships and for these to be properly resourced, providing on-farm training, involved in the industry.

In 2022, City and Guilds found that 24% of employees in food production, agriculture and animal care were planning to leave their job within the next year. The ALP noted that worker retention must be a food production sector priority, to avoid the sector shrinking.

Agriculture has an ageing workforce profile, Defra's Farm Structure Survey (2016) showed Farm Holders and Farm Managers in England to be predominantly over retirement age. The average age of a Scottish farmer has risen to 58 (Agriculture and Rural Economy Directorate, 2022b), DAERA (2018) found the average age of a farmer in Northern Ireland to be 59. Reasons for this increasing age profile are various, with one study finding that 60% of young people did not see farming as a viable career choice. (Ashworth, 2022).

### Status of the agricultural labour force in Europe

Similarly to the UK, mainland Europe is also experiencing severe labour issues. The European labour force survey (2016), the highest proportions of agricultural labour force were reported as being aged 65 and above accounted for over 25 % of farm workers in six Member States, with the highest levels reported in Portugal (41.6 %) and Ireland (21.7 %).

In 2019, the education levels (as classified by the International standard classification of education (ISCED) of those working in agriculture differed markedly from those of the total working population. Whilst 18% of the total working population in the EU-28 had at most completed a low level of education, the proportion was 40 % for people working in agriculture.

In 20 Member States, half or more of farm managers reported having only practical experience with around three-quarters of the farm labour force coming from family (holders and family members).

When converted into annual working units, the equivalent of 9.5 million people worked full time on farms in the EU-28 in 2013. Family labour represented two thirds of this.

Through analysing the literature, it is clear the agricultural sector is struggling to attract young talent and is reliant on family labour. Apprenticeships are not only an important mechanism of training farm workers with the required skills to work but higher-level apprenticeships are proving alternative to higher education to be an effective way of providing higher level education and providing high calibre graduates with the skills required to manage and lead.

For this report, various colleges were visited in six different countries throughout Europe. Each college provided a tour of its facilities. I interviewed staff working directly with agriculture apprentices. Although many of the colleges had a heavy focus on ruminant-based agriculture (especially dairy), I tried to source colleges that provided training in other land based and agri-food sectors, to ensure a holistic view of vocational agricultural education.

Due to my own teaching commitments, I was only able to make visits when I had a break in teaching, usually during the summer, Halloween or Christmas holidays. As most of the college staff that I was visiting also took leave around this time, it was difficult to organise visits. For this reason, the visits were carried on a staggered basis over a three-year period.

Date	Country visited	Colleges visited
June 2022	France	Enilv/Poisy
September 2023	Denmark	Green Academy
September 2023	Ireland	Teagasc: Kildalton
November 2023	England	<ul style="list-style-type: none"> <li>Hartpury Agricultural College.</li> <li>Harper Adams Agricultural University</li> </ul>
December 2023	Spain	Catelonía
September 2024	Sweden	Munkagårdsgymnasiet

### 3: Colleges Visited:

### 3.1: France: Enilv and “Centre de élevage”



*Figure 1: Dairy cows grazing in the Alps, above the newly constructed college farm and cheese making plant.*

Whilst in France I visited two colleges, Enilv, a food science school based in the small town of La Roche sur Forron, and Poisy agricultural school managed by the farmers dairy Co-op for that region.

Enilv delivers various full time food production courses, with graduates gaining management / supervisory / technical roles in the various food companies which operate in the French market.

A recent trend has emerged from the large national, multi-national cooperations that have created opportunities for unskilled labour to gain employment and experience whilst gaining a qualification. Apprenticeships in the French food industry are proving popular from a commercial perspective. It is proving a reliable source of producing trained labour, in a very competitive labour market.

Interviewees stated that the apprenticeship was supplying the sector with workers who are trained to the specifications required by these companies. The companies employ Enilv to train the applicants in technical food science.

In order to provide a holistic food education, the college provides learners with experiences of the entire supply chain, from farm to fork. In 2018, the college made a large investment to a dairy parlour and cheese making facility (950 metres above sea level) close to the Mount Blanc, near the Italian border. This facility demonstrates traditional farm production methods using environmentally sustainable methods. Learners are required to spend a number of weeks at a time in this facility, learning clean milking techniques and cheese production. This facility allows food students to experience the entire food supply chain, from milking the cows to manufacturing the cheese. Such systems are common in this region of France.



### **“Centre de élevage”**

The Co-op managed “Centre de élevage” provides practical training alongside theoretical learning to a range of ages, groups and abilities. The college farm consists of 100 hectares, 100 dairy cows, young stock and a dairy goat rearing enterprise. There are currently 104 students enrolled in agriculture courses, mainly in the form of apprenticeships.



*Figure 2: Students participating in work practical on the college farm.*

Courses are delivered on a block release basis, with learner groups attending the college for a full week every two months. There are two different levels of apprenticeship, with the foundation level learning basic skills, including animal handling, disease identification, feeding, machinery operating etc. 70% of the learners time is spent on the farm developing skills and then being assessed on these in the latter stages of the course. Successful learners can progress to level four, which aims to provide farm management experience and skills to the apprentice. For this standard of apprenticeship, 60% of the college week is spent developing administrative and theoretical knowledge, whilst the learners are required to manage individual farm enterprises under supervision of lecturers/ instructors.

For successful completion, learners have to demonstrate competency in the strategic management of the internship farm and demonstrate an understanding of important scientific and business concepts necessary for the successful management of a farm business.

The college operate routine production workshops to train learners in proficient technical operational management of. Apprentices are evaluated by continuous practical assessment on the farm, by lecturers and on occasion an external verifier.

### **Assessments**



For assessment, students are required to build a portfolio demonstrating knowledge and experience of animal production systems and deliver a presentation on development of the agricultural business in which they work. This presentation is judged and assessed by a body of external verifiers.

On successful completion of the farm technician qualification, learners can progress onto an agribusiness management qualification. The objectives of the level 4 are to train future operating managers and advisors in dairy farming, and to provide the sector with a highly trained specialists to provide technical advice to farmers. In 2023, 60% of the level 4 graduates attained technical agricultural jobs. According to FFQ (2021) a french level 4 diploma is equivalent to a UK level 5.

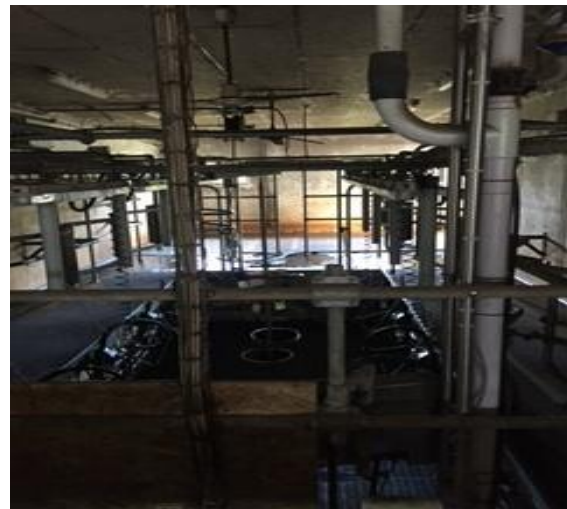
Many of the graduates (60%) are employed on farms when graduating. 13% pursue higher education, and over a quarter of graduates work for agricultural contracting and installation companies.

The diploma is granted through obtaining all the units set in the curriculum (see appendix 1). For every learning week, learners will be assessed, and performance will be monitored. Learners are required to take actions to continuously improve performance and continue professional development.

For access to level 4, secondary education needs to be completed. The modules are similar to the level 3. However, they are taught and assessed in much greater detail. Livestock production classes have genetics incorporated, learners are taught to weld and of the agriculture sector is taught. At this level, vets teach advanced husbandry skills such as nutritional diseases, foot pairing, and treatments by injection.

### 3.2: Green Academy (Denmark): September 2023

Based on the peninsula of Jutland in Northern Denmark “Jordbrugets” or Green academy offers full time and apprentice programmes in farming as well as qualifications in other land based sectors including horticulture, farm machinery engineering and forestry. The college farm consists of 50 hectares, a dairy herd of 30 cows and a small beef and arable enterprises. On another site there is small birth to bacon pig enterprise used for demonstration and practical skills required by the pork industry.



*Figure 3: Sow farrowing crates and dairy parlour on the Green academy college farm*

This was the only college I visited which provided individual courses for the pig sector. The lecturer stated that this is not the case for every college in Denmark, however the Billund region has high levels of specialist pig or dairy farms. The fact that these systems are so different (ruminant/ non ruminant) means that specialist courses for technicians are required. Apprentices on pig and poultry courses attend class for a set number of days each year for theoretical teaching. For bio-security reasons there are no units on site. Skills are assessed by assessors coming on to the applicant’s work placement and observing the completion of tasks outlined in the curriculum.

Traditionally this specialised route was encouraged by the pig industry, as it required a different skill set to that of other livestock systems practised in the region. With the structure of pig farms in the sector, developing away from family farm enterprises into large multi site businesses apprentices has been identified by the sector as a solution to chronic worker shortages.

Learners on these specialised routes develop the required skills in the workplace and attend the college one day per week to increase their theoretical understanding of the subject. Those over the

age of 25 can gain their qualification in a shorter period by proving relevant professional experience via a prior competency assessment. Once this assessment is complete an individual “EUV” programme will be developed to ensure the learner meets the criteria set by the awarding body. This programme considers previous relevant experience as an unskilled worker on farm, completed accredited courses, previous vocational education or training and upper secondary education.

The interviewee Karolina Sikala (Lecturer and international coordinator) stated the apprenticeship programmes are designed to provide “schematic courses” using the colleges practical facilities. *“The pupils participate in the daily care and handling of the school’s animal husbandry, field operation and machinery”*. Furthermore, daily tasks are being carried out in connection with the operation and maintenance of stables and machines. In the teaching there will be focus on the practical goals as well as the inclusion of relevant theory.

Applicants are assessed continuously either on farm by their supervisor, or on campus by the skills instructor. This must be done through individual guidance and feedback in relation to the learning processes and products that are part of the teaching activities. In addition, activities are included that stimulate the individual and common reflection on the benefits of the teaching. The basis for the evaluation is the academic goal.

All students are required to complete a portfolio which should include various documented assessments, descriptions of activities carried out while on placement, evidence of completion of tasks, and self evaluations of work-related activities completed on the farm. This portfolio is completed online with digital media and tools being systematically involved.

Finally, the learner will be examined on an area chosen topic via an oral presentation using a practical scenario as a demonstration. In the methodology disciplines, the criterion for progressing is that the student can perform the tasks in a safety, ergonomic and work environmentally correct manner and has basic knowledge of the function and use of machines and tools, again with a special focus on working environment and safety. The assessment is holistic, and theory and practice are weighted equally.

### 3.3: Republic of Ireland: Kildalton College

In Ireland, Teagasc colleges are very popular but can only be accessed following the completion of high school at the age of 18, with the most common vocational qualification being the baseline level 5 certificate in agriculture. Once this is completed Irish students have a number of options. Those planning to return to the family home who want to access various incentives will proceed to the level 6 special purpose certificate in farm administration, generically known as a “green cert”. This for example, qualifies the holder to substantial stamp duty savings on the transfer of land. Around 50% of Teagasc students will choose this route. Forty per cent will opt to study a level 6 specialist certificate, with a view to working for someone else rather than on their own farm. The third option is to progress to higher education.



*Figure 4: Students on routine practical at Kildalton Farm.*

Kildalton is the largest land-based college in the Republic of Ireland providing education in Agriculture, Horticulture and Equine. Currently 1,400 students attend courses every year ranging from level 4 certificates to degree level, taught in conjunction with South Eastern Technological University. Facilities include a 100 dairy cow herd, 50 suckler cow to beef herd, a 200 ewe flock, all sharing 200 hectares of grass land. For demonstration purposes the college also grows 30 hectares of cereals.

The introduction of the Apprenticeship Levy has been associated with major changes in the types of apprenticeships offered by both companies and firms. This has been accompanied by the phasing-in of apprenticeship standards with a related increase in the availability of apprenticeships at higher for farm technicians and farm managers. To gain entry on the farm technician course all applicants must have employment on an approved farm and have obtained minimum pass grades in maths,

English and four other subjects. The programme is run on a block release basis. (See Appendix 3 for Modules covered)



*Figure 5: Practical teaching facilities on the Kildalton college farm.*

To gain entry onto the Farm manager apprenticeship programme, applicants must have either completed the farm technician qualification or provide evidence of having completed a higher-level qualification in another academic area. All apprentices must be employed by an approved employer. For these higher-level apprenticeships there are consortium groups that have oversight of the of the occupational profile. These set out attributes of the apprentice and the relevant apprenticeship. This programme began in late 2023



## 3.5: Hartpury College (England) October 2023



*Figure 6: Above, Aerial photo of the Hartpury college farm, Below, Dairy cow herd.*



Hartpury college is based on 380 hectares across five sites, including the commercial 'Home Farm' on the Hartpury campus which includes a 250-cow modern dairy parlour, 200 hectares of arable crops and beef and sheep enterprises. The college boasts modern facilities, with much investment being made into the Agri Tech Centre (built in conjunction with Hartpury University) enables learners to be trained in ultra modern techniques that will ensure apprentices will be familiar with such technology as it becomes more and more commonly used.



*Figure 6: Hartpury level 3 students on routine practical*

College lecturers believe it is necessary for students to be competent with such technology, such as GPS, variable rate fertiliser spreaders, farm accounting software etc, to ensure financial and environmental efficiencies, which are becoming increasingly important in farm management.

Similarly to most of the other colleges visited, the full time Further Education in Hartpury offers various full time further education courses under the name of T levels and BTECH Extended diplomas, in both livestock and crop production, land based engineering and countryside management. These qualifications are equivalent to A levels and many of the graduates continue onto Higher Education. The agricultural apprenticeships delivered in this college include Level 2 general farm worker apprenticeship with the Level 3 being a specialised crop technician course.

### 3.6: Harper Adams: Farm vet technician (Level 5)

In recent years Harper Adams University in Shropshire has implemented several different higher level apprenticeship routes. Land based subjects including Rural Estate Land management, Food and Large Animal Vet Technician to level 5. Currently no higher apprenticeship is available in agriculture.

Carol Rogers, a lecturer at Harper Adams university, stated that the university is aiming to meet the needs of companies in the land-based sector (both large and small) by using its current resources to provide apprentices with a high standard of formal education that compliments the knowledge gained in the work place.

Carol believes that employers having a significant input in formulating the standards and curriculum is a major advantage and provides lecturers with a clear direction on material that is being taught and assessed.

The modules are delivered on a block release basis with students staying on campus for intense weekly in class learning and completing '*practical's*' using the on-site facilities.

As these apprenticeships are to higher level, entry requirements are based on UCAS points, which change on an annual basis depending upon course demand etc. However it is common for mature students to gain entry on to the course with GCSEs (maths and English) if the applicant has a suitable work placement.

The livestock vet technician course has been designed to provide training so that non vets can carry out technical and common non-surgical husbandry tasks, such as foot trimming, disbudding, vaccinating, data collection, etc, to provide support for veterinary surgeons. The University is ideally placed to provide practical demonstrations and training as it has a large farm consisting of sheep, beef, pigs and a 300 cow dairy enterprise. The fact that the University also provides a veterinary

degree (Along side Keele ) ensure that trainees receive high specification training from a college with a reputation of creating high quality graduates.

### 3.7: Apprenticeship examination body, Verifier

Wyn Davies an external verifier for City and Guilds stated that in his experience apprenticeships can offer a thorough education enabling learners to gain a high skill set as well as developing their theoretical knowledge. In his view it is an underutilised pathway, that can deliver a labour force with a high skill set ready to '*hit the ground running*' on completion of their training.

For an apprenticeship to be successful

- It needs students interested in the subject, with a knowledge of what the sector entails.
- An employer that will provide the learner with an holistic experience of the entire farms system.
- An education provider with the resources to teach and assess the skills and knowledge in an effective manner.

However, Wyn does admit that the vocational training sector has significant challenges. One being that agriculture fails to attract new entrants, '*those that have no prior experience of agriculture.*' Most agricultural apprentices come from family farms with most '*having a realistic hope of inheriting the capital required to make a living from farming*'. With so many people coming from such similar backgrounds it potentially narrows thinking, creating a group think mentality. Wyn encourages those apprentices who come from family farms to undertake the apprenticeship with non-family members. This may broaden their thinking and ideas and may ensure that they develop a mentality of ideas to aid their family business in future years.



### 3.8: Catalonia (December 2002)

Unlike all other colleges visited as part of this report this, Agriculture is one vocational subject of many taught in High School, based in a suburb of Northern Barcelona. The High school (Spanish vocational college) has no access to a farm and can only provide students with limited practical training.



*Figure 8: A group of agricultural students in Catalonia*

All students join the courses after completing compulsory, High School certificate, however unlike many of the other regions visited, most learners do not traditionally come from farming backgrounds, meaning that it can be a struggle for learners to understand fundamentals of the material being taught. The apprenticeship route (Duals) is used by agricultural learners each year, and they are taught as basic level (similar to T levels and level 2) and managerial (similar to level 3).

In the Dual, applicants work for farmers 3 days per week, then spend 2 days in college where they develop technical knowledge on the subject in hand. Material taught to students includes soils, animal science, horticulture, animal production. These modules are taught to levels depending on the grade/ level of the group. As this region is predominantly a fruit and cereal growing region, more focus is put on these topics.



*Figure 9: Me, Delivering a class to Spanish students*

Similar to areas that traditionally have large volumes of livestock production; animal production, welfare, health, nutrition modules dominate the syllabus.

### 3.9: Munkagårdsgymnasiet (Sweden): September 2023.

This Land based college which also runs animal care, horticulture and forestry. On the full time Agriculture course (circa 35) students per year enrol on this 3-year full time course, which has an 15-week work placement, where students are required to work on a commercial farm. The apprenticeship programme facilitated by this college is based on students working on farm 4 days per week then being in class one day per week. This mode of education is less popular than the full-time option and currently has three students.

Most students undertaking either of these agriculture courses come either come from a family farm or have family connections to farming. However there has been a growing trend of applicants commencing the course with no family ties to agriculture or an agricultural business.

The curriculum consists of livestock husbandry, cereal production, farm business management, animal health, farm machinery and business maintenance.



In the 3<sup>rd</sup> year of the qualification students specialise in either livestock or arable production.

The college boasts impressive teaching and farm facilities which include a 200-hectare farm, an 80-cow dairy unit, a 100 head sow unit (progeny being sold after weaning) a

small beef and sheep enterprise. The college gains generous capital investment from the government and boasts enough farm machinery to complete its own cereal harvest and silage. These

events are used by college staff to instruct and assess on correct driving techniques, correct silage making skills etc.

## 4.0 Discussion

Key Themes illustrated through interviews:

The colleges all focus their education into key areas including entrepreneurship, environmentally sustainable farming and digital technology skillsets. It is believed these key areas provide future farmers with advanced skillsets to fully exploit opportunities their resources offer.

Examples of this can be observed in every college visited. In Ireland, Teagasc (the leading provider of agricultural education in Ireland) use science-based rationale to encourage learners to develop grass growing knowledge and skills so that this home grown forage is the main source of nutrition for milk cows. As much of the land in Ireland would not provide adequate yields of grain, systems have been developed and taught to reduce reliance on imported feed stocks and operating viable business.

Similar strategies are operated in Denmark, where (traditionally a grain growing region) developed an intensive pig sector that would utilise the vast surplus of grain harvested.

Enilv in France encouraged learners to understand and develop skills which not only include practical farming but also adding value by manufacturing and selling their own product directly to the consumer.

From all interviews, the strongest theme discussed was that the key strength was student/ learners *“learning by doing”* gaining vital experience which could not be gained in more theoretical courses. All colleges except that in Barcelona had access to farms on which students could practise skills or be assessed.

Jean (interviewed lecturer in Poisy) stated that in his opinion the practical experience offered something that could only be replicated by few/ certain institutions with the required facilities and specialised staff. For learners, the ability to practice skills in a safe environment is crucial for all inexperienced learners to develop confidence in that area. Jean also stated that the practical learning enhances learners understanding of the theory taught in the classroom. Katrina, the representative from Catalonia stated that having a lack of facilities has a detrimental effect on student learning, not only practically but theoretically, as learners struggled to visualise some of the procedures and techniques being taught.

A similar common trend identified in all the interviews was the importance of having experienced lecturers delivering an up to date syllabus to learners. Majella from Kildalton believes that lecturers with industry experience were able to confidently demonstrate skills and knowledge to learners in a manner which projected clarity and confidence to students. By employing teaching staff with industry experience, ensures links with companies/ farms and may result in employment. All regions

encourage continuous professional development to staff to ensure knowledge and skills are current and forward looking.

In terms of developing curriculum, it is important that lecturers with industry experience collaborate with industry to ensure all modules are current and solution based, providing apprentices with the knowledge and skill sets to deal with any problems on the farm. In Hartpury Vocational panels (made up by farmers and other related businesses), eg mechanisation teams works with dealers, farmers etc) to demonstrate the skills, technology etc. which are required by industry.

As the Poisy college is managed by the local dairy board, board members gather every year to assess and amend the curriculum. In recent years significant changes have had to be made due to climate and drought conditions which are becoming an annual occurrence. Methods of dealing with such conditions to include growing drought tolerant crops, managing livestock in extreme heat conditions, demonstrating fire breaks to protect land from forest fires have now been added to the curriculum.

Vocational Educational training is practised under different guises in each of the regions visited. In Poisy and Catelonia the colleges provide most of their teaching / lecturing / demonstrations on a block release basis, with each group of students spending one or two weeks (depending on level and qualification) on the campus. The remainder of the learner's time is spent working with the placement provider. The Interviewee states that this form of delivery allows for lecturers / instructors to focus wholly on each group at a time, allowing the learner to practise on the college farm what they learned in the classroom.

The Swedish, Danish and English model of apprenticeship delivery is similar that practised in CAFRE, where students attend college one day per week during term time then spend the remaining week on placement farms.

The full-time equivalent is a three year course, with students working on farm placements in the second year.

#### Issue relating to low supply of labour

Representatives of the Spanish, Danish and French colleges spoke of challenges of attracting applicants. Both interviewees stated that they believe that the perception of very unsociable hours and un-attractive remuneration was the core reason. Similar findings were discussed by Eurostat (Euro stat, 2016) in which it is stated that farm remuneration could be as much as 46% lower when compared to the European average salaries. All respondents, including Irish and English colleges,

stated that most students come from a family farm background, with colleges relying on applicants from this tradition to ensure adequate student numbers. Rybkoan (2016), wrote that family labour represented 75% of European wide farm work, with this figure standing as high as 90% in countries including Ireland.

In Spain, lecturers state that the increasing lack of profitability and viability of the sector is resulting in the reduction of both national and local government support into agricultural education. This college differed to all other colleges visited in that a wide variation of courses are taught on campus not just land based courses. As a result practical facilities are basic and are not representative of commercial farms. This was the only region visited where agriculture was not taught in a specialised college. Spain has one of the lowest percentages of workforce working in agriculture.

In Denmark, lecturers discussed the ongoing trend of low levels of interest in agriculture courses due to competition of other sectors that offer better remuneration and perceived better work life balance. The 2016 European agriculture labour census stated that Denmark had the highest percentage of workforce working in Agriculture or an Agriculture related industry.

A strong theme from the visits to mainland Europe was the difficulties that respective colleges had in attracting “academically strong” applicants. All the interviewees stated that other sectors were more attractive due to higher earning potentials, more sociable working hours etc. Representatives from the Danish and Swedish college stated that it is common for graduates to work in different sectors after completion of their apprenticeship even though there is a strong demand for skilled workers. College lecturers in these countries believe that the reason for such a problem is poor pay and unsociable hours in comparison to what other sectors are able provide.

As a result Danish pig and poultry farmers, Catalonian pig farmers and fruit growers have invested considerable levels of capital into labour saving machinery. This has resulted in some farm businesses carrying high levels of debt, causing an increased in marginal cost of production.

The volatility in agricultural commodity prices mean that farmers are unable to pledge an increased remuneration for skilled farm workers. Defra (2022) found that 55% of those working on agricultural holdings were members of the family farm. City and Guilds (2022) found that almost a quarter of (10,000 UK, respondents in a job satisfaction survey) were considering leaving their job in the broad agri food and land based sectors. This volatility in agricultural commodity prices mean that farmers are unable to pledge an increased remuneration for skilled farm workers. (City & Guilds., 2022)

The labour shortage is also being observed in many of the colleges, as it is becoming more difficult to source teaching staff that have the appropriate levels of experience and qualifications. I asked the

interviewees if they thought technology enhanced learning could provide an option. Most stated that these technologies serve a purpose and can aid delivery of some classes. The Catalanian interviewees found TEL very useful and help to demonstrate some skills required in the sector especially as practical resources were a limiting factor. However, others were sceptical. In Poisy, staff believed that technology was a poor replacement for actual practical demonstrations which required students to work on the college farm and with livestock. This opinion was echoed by all the other lecturers interviewed, with teaching staff of Kildalton college stating that practical learning sessions were a vital part of the vocational education system especially to school leavers and those inexperienced in the sector.

For those colleges working with higher/ advanced apprenticeships, TEL was discussed as extremely important tools to aid learners in their education. In Harper Adams, CAFRE and Enliv software such as nearpod, moodle, absorb etc. is commonly used as additional mediums to provide learning support. Staff from Kildalton felt that mature learners and those that have a tertiary level qualification (studying an agricultural qualification for tax and tier two payment reasons) were able to use TEL to their advantage. This qualification (the green cert) is completed via distance with learners required to attend class (either online or in college). The lecturer believed that these students were able to utilise TEL and distance learning as many had a strong agricultural and technological skill set through working on their home farm and having a tertiary qualification. These students have the maturity and the interest to listen to learn without being supervised.

All those interviewed did discuss the need for training in farm software, AI, data analytics etc. As this area is forever developing, many interviewed believe it should be targeted by agriculture education in order to keep abreast of advancements.

### Higher level courses

Most of the colleges were targeting certain segments of agriculture where they and industry stakeholders believe there to be a highly skilled labour shortage.

The large animal vet technician course to (level 5) in Harper Adams has been designed in conjunction with Veterinary surgeons and farmers to ensure that the technicians have the required skill set to perform non invasive procedures to livestock to a high standard. The course manager explained that this is a relatively new qualification set up out of necessity from farmers and vets who can use their skills at specialised veterinary procedures and advisory services. These courses aid the veterinary profession as well as agriculture as it reduces the workload on vets, letting them focus on surgical and other technical roles.

French and Irish colleges have both identified the need for dairy farm managers and thus have responded by opening apprenticeships programme to meet these demands. These qualifications are the equivalent to a degree.

### Entry requirements

As discussed in previous sections, most of the colleges had a set entry requirement for the different ranges of vocational education. In all of the colleges there was a higher entry requirement for full time (equivalent to FE) than was for apprenticeship courses. All of the interviewees stated that at least a pass in high school certificates (equivalent to GCSEs). Such qualifications would be proof that the learner had at least a basic numeracy and literacy attainment. Similarly to the UK system, all courses contained mathematical and literacy components to ensure that learners developed these essential skills. Many of the interviewees (in continental Europe) discussed gradual reduction of entry requirements due to lower demand for places in agricultural courses. This trend has not been witnessed by colleges in the UK, as there has been an increasing demand for places, which has been sustained for up on a decade.

A common trend identified from each of the colleges was that there was a significant amount of learners with special educational needs. It is common for students with autism, dyslexia, ADHD etc to be undertaking apprenticeships in the land-based sector.



## Conclusion

In terms of delivery the main take home message is that there is no substitute for practical experience. All but one of the colleges visited had college farms and these were considered vital in the delivery of the courses. Recent developments in AI, data analytics, farm management software, GPS etc has increased the need for a tech literate labour force. Leaders in the agriculture education policy must focus on this and ensure that teaching staff are trained to delivering training in this.

Colleges working in cooperation with industry to ensure that the future work force have the specified skills was evident in all the colleges visited. Specialised pig husbandry courses in Denmark, farm vet technician courses in England and specialised dairy farm management courses in Ireland and France are all developed to provide the learners with the required skills to suit respective industry needs.

The most intriguing learning outcome of this project is the fact is that nearly all learners (in all countries) come from similar backgrounds. The struggle to attract students from non-farming background is obvious for the agricultural industry European wide, and is most probably due to perceived working conditions and low remuneration in comparison to other sectors. These are not issues that can be solved at college level. Many argue that lower wage rates is a direct effect of low food prices charged by retailers effecting the very viability of primary producers, restricting their ability to increase remuneration. This has been exasperated since covid through increased volatility of farm inputs.

From all the colleges visited, Enilv in France was the only course that demonstrated the entire food production line. This allows farmers to sell straight to the consumer. Although it would be difficult to replicate an integrated system in NI due to consumer buying habits and food legislation, yet, I do believe there is the potential for more farmers in Northern Ireland to enhance their business by adding value. As CAFRE possess both an agricultural and food college an integrated course could provide young farmers with the skills provided to operate such a business.

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#### Appendix 1 : Modules covered in French livestock Apprenticeship

- Animal Health
- Milking procedure
- Feeding Procedure
- Grazing Management
- Agronomy
- Grazing Management.
- Farm Business management and accounts.
- Machinery and building maintenance
- Practical workshops
- Herd/ flock surveillance.
- Genetics
- Farm infrastructure design
- Infrastructure maintenance ( estate skills including welding, plumbing, parlour construction and maintenance

#### Appendix 2: Modules studied in the advance agricultural apprenticeship Denmark.

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|---|
| <ul style="list-style-type: none"> <li>• Feeding materials and feeding methods.</li> <li>• Anatomy, physiology, characteristics and care requirements of different livestock species.</li> <li>• Signs of disease, welfare and behaviour as well as reproduction conditions in livestock.</li> <li>• Technical installations and machines used in animal husbandry.</li> <li>• Technical installations and machines used in cultivation of cultural crops.</li> <li>• Soil conditions and soil treatment methods.</li> <li>• The growth course of cultural crops, nature's cycles, nature care, growth conditions and ecology.</li> <li>• Fabric and substance structure, including the effects of nutrients on animals and plants. Business cultures in agriculture.</li> <li>• Common working functions in agriculture, including milking. Working environment in an agricultural business</li> </ul> |
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Table . **Introductory Apprenticeship modules: Kildalton College ROI**

- Introduction to Business & Technology of Farming
- Health and Safety on the Farm
- Environment and Science of Farming
- Quality Assurance, Regulation & Compliance
- Farm Operation Skills & Work Routines
- People Skills - Teamwork & Supervisory
  
- Farm Administration & Business Skills
- Lean Management & Standard Operating Procedures (SOP's)
- Sustainable Farm Production
- Operation Planning & Record Keeping
- Apprentice Project.

#### Higher Level Apprenticeship

- Farm Finance & Strategic Management
- Health & Safety Management
- Sustainable & Environmental Farm Management
- Farm Product Quality & Operations Management
- Manager Skills – Leadership; Delegation; Decision Making
- Economic Sustainability & Labour Management
- Farm Infrastructure & Regulations
- Climate Smart Farm Technologies
- Apprentice Project
- Enterprise Monitoring & Evaluation