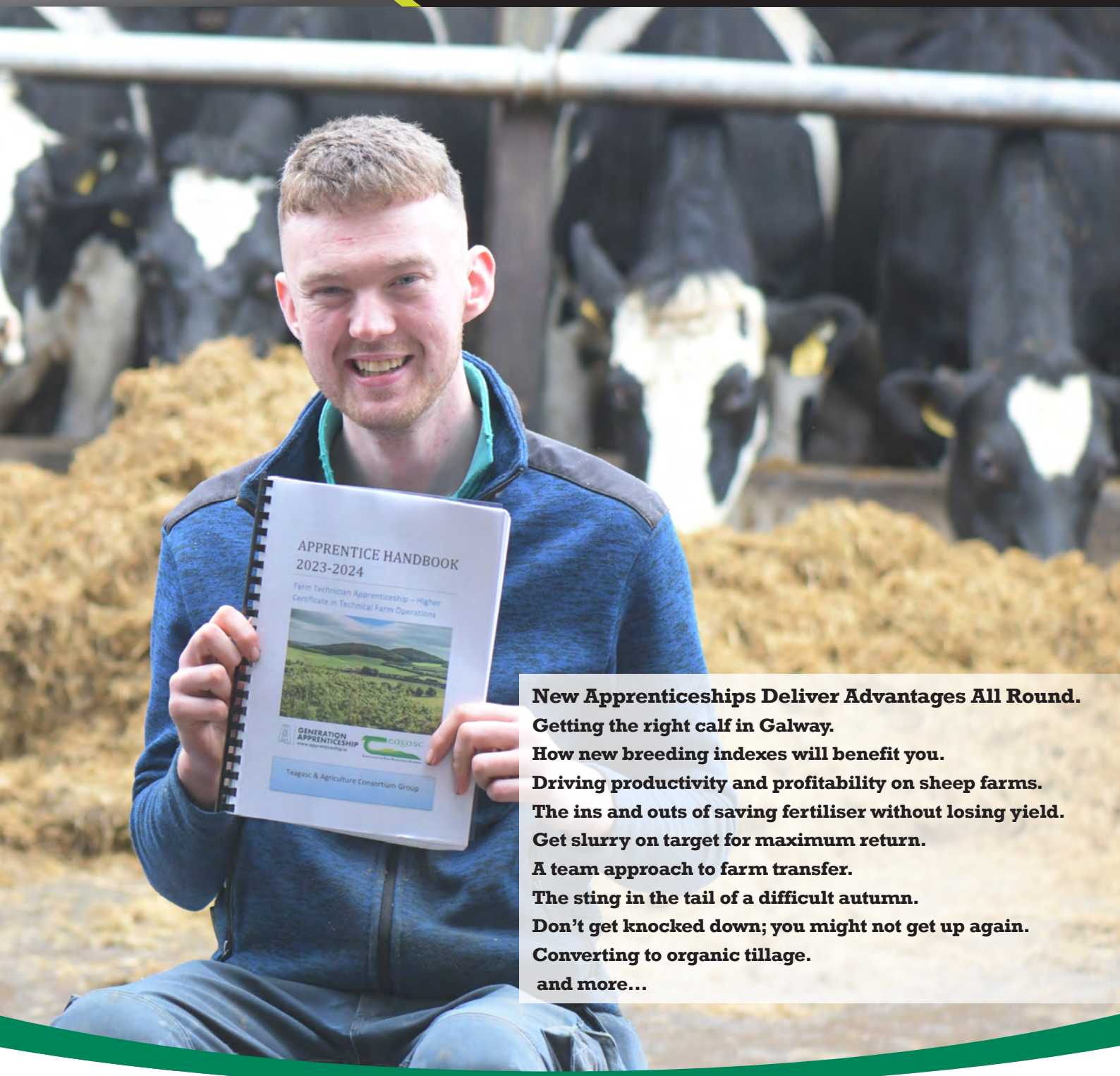
TEAGASC

Jan-Feb 2024 | Volume 35 | Number 1

Today's Farm

Business, production, environment and countryside issues www.teagasc.ie



New Apprenticeships Deliver Advantages All Round.
Getting the right calf in Galway.
How new breeding indexes will benefit you.
Driving productivity and profitability on sheep farms.
The ins and outs of saving fertiliser without losing yield.
Get slurry on target for maximum return.
A team approach to farm transfer.
The sting in the tail of a difficult autumn.
Don't get knocked down; you might not get up again.
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IFI
Palmerstown, Kilkenny

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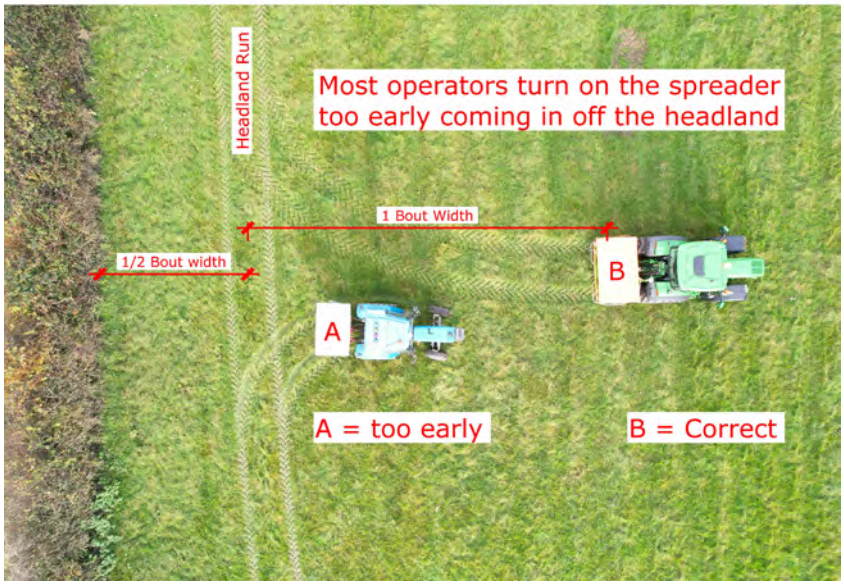

Francis Quigley, Teagasc Machinery Specialist, on saving fertiliser without losing yield – P21

Today's farm is a bi-monthly publication produced in a joint venture between Teagasc and the Agricultural Trust, publishers of the *Irish Farmers Journal* and *The Irish Field*.

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Cover design: Design at DBA
Imaging: Philip Doyle and Jerome Dunne
Printing: Boylan Print Group, Drogheda, Co Louth

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Cover: James Ryan has embarked on a Farm Technician apprenticeship in Co Cork. New Teagasc land-based apprenticeships offer opportunities to a whole new range of people and also to farmers who can become their employers. \ Mark Moore

COMMENT

Mark Moore
Editor,
Today's Farm

Apprenticeship available to all

New Teagasc apprenticeships in land-based industries are an opportunity for anyone from 16 years and upwards. Both starters and those well established in employment can take the opportunity to 'upskill' and gain new knowledge. They also offer people the option to change direction in their careers as we report in our cover story. Employers, including farmers, once registered with SOLAS now have access to a new pool of highly motivated staff.

Printíseachtaí do chách

Deis iad na printíseachtaí nua i dtionscail thalamhbhunaithe atá á reáchtáil ag Teagasc do dhuine ar bith a bhfuil 16 bliana d'aois slánaithe aige nó aici. Níl aon uasteorainn aoise i gceist agus is féidir le tosaitheoirí agus iad siúd atá ag obair san earnáil leis na blianta an deis a thapú le dul faoi 'uasoiliúint'. Tugann siad an rogha do dhaoine dul ar mhalairt slí ina ngairm chomh maith, rud is ábhar do phríomhscéal an eagráin seo. Tar éis dóibh clárú le SOLAS, tá fáil anois ag fostóirí, feirmeoirí ina measc, ar bhuíon nua d'oibrithe ardspreagtha.

- Total prize fund = €30k
- Open to all farmers in the main enterprises – dairy beef sheep and tillage
- Apply at www.teagasc.ie/environmentalawards
- Closing date 29th February

VISTAMILK INDUSTRY DAY 2024

Monday, 22 January 2024
VistaMilk Industry Day
Venue The Midlands Park Hotel
Portlaoise, Event Time 9am - 4pm

The VistaMilk team are showcasing some of their exciting developments in agrifood-tech across the whole dairy supply chain. There will be a particular focus on the future plans in the areas of soil, pasture, animal and food.

Highlighted on the day will be emerging technologies and the role of advanced analytics in advancing the agri-food sector. This event is open to companies that are in the agrifood-tech industry who would like to get an insight into the VistaMilk research.

BEEF CALFCARE EVENT - MEATH

Beef CalfCare Event Tuesday, 23 January 2024 Beef CalfCare Event Teagasc Grange, Dunsany, Co Meath. Eircode: C15 PW93
Event Time 11am

NATIONAL LOWLAND SHEEP CONFERENCE - ATHLONE

National Lowland Sheep Conference 23 January 2024
Event Time 7pm
Venue Athlone Springs Hotel, Athlone.

NATIONAL LOWLAND SHEEP CONFERENCE - LETTERKENNY

National Lowland Sheep Conference Thursday, 25 January 2024
Venue Clanree Hotel, Letterkenny, Co Donegal
Event Time 7pm

NATIONAL TILLAGE CONFERENCE 2024

National Tillage Conference Wednesday, 31 January 2024
Lyrath Conference Centre, Paulstown Road, Kilkenny.
Eircode: R95 F685
Event Time 9am - 4pm

As the NTC2024 is a physical meeting only, pre-registration is required by all attendees. Please visit the Teagasc website.

Continued on p5

Teagasc National Tillage Conference at the Lyrath Hotel, Co Kilkenny 2024

A crop of winter wheat in early December at Teagasc Oak Park.

2024 National Tillage Conference

Lyrath Conference Centre, Wednesday January 31st	
9.00 – 9.45	Registration check (pre-registration essential)
9.45 – 9.55	**Welcome and conference opening**
9.55 – 10.50	**Session I - Planning for the 2024 Results from the Teagasc** winter sowing survey with possible scenarios for 2024 planting and consequential impact on rotation. Followed by panel discussions with research, sectoral and farmer input to Q&A from audience
10.50 – 11.10	**Session II – Research Snapshots I**
11.10 – 11.30	Tea/Coffee
11.30 – 11.50	**Session III – Research Snapshots II**
11.50 – 12.40	**Session III – What added value opportunities exist for the tillage sector** Plant processing and valorization options gaining ground in the food and drinks industry. This session will highlight recent developments and advancements made both at a research and industry level. Followed by panel discussions with research, sectoral and farmer input to Q&A from audience
12:45 – 2:00	Lunch
2.00 – 4.15	**Session IV Interactive Workshops –** Workshop I - Are there synergies for the tillage and dairy sector ? Workshop II – What do the 2030 Food Vision Tillage Group recommendations mean for the sector? Workshop III – Getting to grips with grassweeds Workshop IV – Disease control decisions for 2024 Workshop V – Getting the most out of your bean crop
4.15	Conference close with Tea/Coffee

Spring Tillage seminars 2024 – 10:30am - 1pm

Wexford	Riverside Park Hotel, Enniscorthy	January 22	19.30
Cork	Munster Arms Hotel, Bandon	January 23	19.30
Carlow	Seven Oaks, Carlow	January 24	19.30
Tipperary	Teagasc office, Nenagh	January 25	11.00
Galway	Teagasc office, Athenry	January 25	19.30
Wicklow	Arklow Bay Hotel, Arklow	January 26	11.00
Kerry	Ballyroe Heights Hotel, Tralee	January 29	19.30
Waterford	Park Hotel, Dungarvan	January 30	11.00
NTC	Lyrath, Kilkenny	January 31	10.00
Meath	Teagasc office, Navan	February 1	19.30
Wexford	Horse & Hound, Ballinaboola, New Ross	February 1	19.30
Laois	Teagasc Education centre Portlaoise	February 6	19.30
Louth	Teagasc office, Dundalk	February 7	19.30
Kilkenny	Teagasc office, Kilkenny	February 7	19.30
Offlay	Tullamore Court Hotel, Tullamore	February 15	19.00
Donegal	An Grianan Hotel, Burt, Co. Donegal	February 29	20.00
Dublin	Rolestown Inn, Swords	TBA	19.30

MALTING BARLEY CONFERENCE

Malting Barley Conference Tuesday, 20 February 2024
Venue Riverside Park Hotel, Enniscorthy, Co. Wexford. Eircode: Y21 T2F4
Event Time 10:30am - 1pm

Earning while learning

Four new land-based apprenticeship programmes delivered by Teagasc, are enabling a wide range of people to develop new skills and careers. And employers and industry are gaining access to a new pool of knowledgeable, skilled, and highly motivated staff, writes **Mark Moore**

Marcella Phelan, left, with the first Farm Management Apprenticeship class as well as Tim Ashmore Principle Teagasc Kildalton College, fourth from right, and course co-ordinator EmmaLouise Coffey, right, see also P10. \ Picture Eamon Kealy, other pictures Mark Moore

I was nervous. I thought that on day one I'd be surrounded by teenagers and stand out like a sore thumb," says Cormac Strain (38) who, with a successful career in retail behind him, chose to start a horticulture apprenticeship in 2023.

"It turned out that we have a wide range of ages on the course. Another misconception I had was that apprentices must survive on a modest 'stipend'. We all receive a proper wage and one of the group drives an electric vehicle!"

According to Marcella Phelan, National Apprenticeships Programme Specialist, Teagasc completed the lengthy process of designing and accrediting four land-based apprenticeship programmes in 2023. These are the first of their type in the country:

- Sportsturf Technician (Higher Certificate Level 6)
- Horticulture (Higher Certificate Level 6);
- Farm Technician (Higher Certificate Level 6);
- Farm Manager (Ordinary Degree Level 7);

Apprentices engage in on-the-job training with a SOLAS Approved Employer during the two-year ap-

Skills training is a key when apprentices meet up at Teagasc education centres. Paddy Smyth (foreground, left) and horticulture apprentices at a machinery session.

prenticeship programmes. (SOLAS is a government agency which manages a range of Further Education and Training programmes including Apprenticeships)

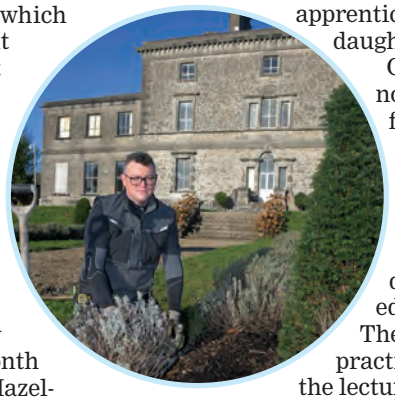
"For these higher education apprenticeship programmes there are Consortium Groups who have oversight of the occupational profile (which sets out attributes of the apprentice for the relevant apprenticeship) and the criteria for the employer/business and workplace mentor to train the apprentice," adds Marcella.

"An apprenticeship is a full-time job with additional learning relevant to the occupation that the person wants to work in. The apprentice is paid for the duration of the programme (both on-the-job training and off-the-job periods). The apprenticeship gives the person hands-on experience, a salary, and the opportunity to gain qualifications while they work."

While the apprenticeships only began in late 2023, those participating are already delivering feedback. We gathered feedback from one apprentice from each course.

HORTICULTURE APPRENTICESHIP: CORMAC STRAIN

A native of Dublin, Cormac Strain completed a degree in retail and service management following by a career in retail which included at one point running 'the busiest bicycle shop in Ireland' where he was in charge of a team assembling over 100 bikes each day.



Just before Covid, Cormac and his wife moved to Sligo where he sought work and eventually was offered a six-month work placement at Hazelwood House near the city, as an assistant to Mick Horkan the head gardener. The estate is home to a major distillery and extensive grounds.

"After the initial six month period I was glad to be offered a job. Though they were new to me I enjoyed the variety of tasks be it weeding, cutting grass, pest and disease control and other gardening jobs. I was learning a huge amount from Mick who is a charismatic individual and a highly skilled gardener.

"I was delighted when he suggested I should consider the Horticulture (Higher Certificate Level 6) apprenticeship. I was concerned that I might be too old to be an apprentice but discovered there was a wide age range among the ten apprentices on the course: One is aged 17 and another apprentice has a 17 year-old daughter!"

Cormac says he has nothing but praise for the facilities at Teagasc Ashtown and the Teagasc College at the National Botanic Gardens. "The course goes into greater depth than I anticipated and is very enjoyable. There is a lot of very practical skills learning and the lectures are extremely well put together.

The lecturers are clearly passionate about what they do.

"For me the huge benefit is that I am getting paid while doing the course. I couldn't do it otherwise and I am convinced that the knowledge and skills I am accumulating as well as the networking will generate new opportunities for me in the future."

Cormac Strain

Dan Murphy with Pat Lyne at Portarlington golf club.

TURF MANAGEMENT APPRENTICESHIP

DAN MURPHY

A talented golfer Dan Murphy (31) played full time from 18-20 winning national competitions and representing Ireland. Subsequent to his golfing days Dan took a job at his club Portarlington, initially in the golf shop and ultimately as a groundskeeper.

"I always loved garden maintenance and working in the outdoors," says Dan who has completed a range of courses related to the job over the years. "The head greenkeeper here is Paul Sheeran. He got the course registered with SOLAS so that they could act as a host employer on the apprenticeship programme. Dan was the very first Teagasc apprentice and started in November 2023.

"I love the work and feel the qualification will broaden my career prospects. Eventually I hope to be a head greenkeeper. It's great to be able to keep your job while doing the qualification.

"A good few of the 23 lads on the course are older…some in their 50s… and it's great to bounce ideas off each other. We look at football courses, race tracks etc as well as golf courses. I go to Teagasc Kildalton for blocks of two-weeks of training, there are three blocks in the year plus there is online training every Wednesday.

"The course is very interesting and goes into great detail. We each do an apprenticeship project which is based around an idea to help our place of work. Portarlington is a 120 year golf course and the bunkers have never been substantially renovated or re-worked. I will propose this idea to the course committee and hope they will run with it.

"Eamon Kealy who leads the course is very helpful and this is the first time such a course has been available in Ireland. There is something similar available in Scotland but you would not be earning while doing that course."

> A good few of the lads on the course are older…some are in their 50s…and it's great to bounce ideas off each other.

FARM TECHNICIAN APPRENTICESHIP:

JAMES RYAN

Employer Paidi Kelly (left) says he finds the process of mentoring apprentices like James Ryan to be very enjoyable.

James completed his Leaving Cert in 2020 and, after some time in the building industry, decided he preferred farm work: "I began working with Paidi Kelly who is leasing and farming a number of dairy farms around Charleville in Cork with his wife Aimee in partnership with James Murphy and his partner Sarah Meaney."

Once James had proven himself, Paidi Kelly suggested he might be interested in joining the Level 6 Farm Technician Apprenticeship.

"The benefit to us is that James will be with us for at least two years," says Paidi Kelly. "Though he could leave during that time." The partners have been vetted by Teagasc and hence are SOLAS qualified.

"I spend 80% of the time on-farm and 20% in class," says James. "Three days each month are at Teagasc Clonakilty plus one Friday per month doing classes on-line (Zoom). There are assignments with continuous assessment and two written exams per year." Employers receive a grant from SOLAS which helps cover the absences.

On James' course are five others from dairy farms, four from pig farms and one from a tillage unit. He will submit a project plan for the farm he is working on."The apprenticeship gives me more access to learn first hand from the employers than if I was a farm worker," says James. "That's really valuable."

"Sitting down together with the apprentice requires commitment, but this is a very enjoyable process," says Paidi Kelly.

"Even if someone is going back home after an apprenticeship, they will have had two full years working on another farm, which will stand them in good stead."

"By January 2026 I will have finished this Level 6 apprenticeship and I will be qualified to start a second two-year apprenticeship as a farm manager," says James. "I'd like to do that, though I may take a break to do overseas travel in between!"

Continued on p10

If you want to become an apprentice or join the scheme as an employer please go to: www.teagasc.ie/education/apprenticeships or contact Marcella Phelan at email Marcella.phelan@teagasc.ie

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FARM MANAGER APPRENTICESHIP:

LISA CLARK

"I found out about the course online. I was searching for Agri courses that would be close to home, learning farming through hands on, practical experience, and also financially feasible," says Lisa. "The Farm Management Apprenticeship covered all three as I could choose the farm myself; it is 80% working on the farm and 20% class based; and I get paid while learning new skills.

"I was looking for work on a dairy farm where there was an opportunity to grow my skillset and further educate myself rather than just be a relief milker. My employers Peter and Jenny Young have an excellent track record of working with and training Ag students and providing young people with the chance to grow their skillset. It felt like a good fit.

"When considering the position on this farm, Peter advised me that there was the opportunity to complete the apprenticeship through his farm. Prior to committing to the apprenticeship programme, I worked on the farm to get used to working with the farmer, the farm team and the farm system.

"I had previously completed a three year degree in vet nursing. The course consisted of a lot of theory and a summer placement. While it was an excellent course, I felt I could not properly put the theory that I had learned from Sept through to May into practice until placement during the summer.

"What I love with the apprenticeship is that you are your learning on the job all year round, while spending a few days in education each month in Teagasc Kildalton College and Teagasc Moorepark and where I am learning from leading researchers, specialists and industry experts as well as my class mates.

"I feel the farm manager apprenticeship teaches you how to work on a farm and raise livestock to the best of your ability but also to step out of your comfort zone by taking on more responsibility. It also teaches you to build a viable farm business by taking on board the legal, financial and economical commitments needed to run a successful dairy farm.

"For me it's a huge advantage that many of the other apprentices are from farming backgrounds and extremely knowledgeable in dairying. At first I was nervous about this as I felt I was on the back foot but after settling in to the induction and classes I found everyone to be friendly and approachable. Both I and my fellow apprentices find that the tips and tricks we pick up from each other's farms are very valuable."

In conclusion:

The success of the new Teagasc Apprenticeship Programmes is clearly enhanced by the possibility to earn while learning. The quality of the facilities and the educators in Teagasc are also key. The third vital component is the relationship between the apprentice and the employer.

So it is interesting that within these new programmes the apprentice chooses the employer (as well as vice versa) rather than being assigned to one. Careful vetting of potential employers by Teagasc/SOLAS means apprentices should have a rich learning experience over their two-year apprenticeship.

Lisa Clarke with her employer, Peter Young

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TULIVIN

Olivia Lowry pictured on the family farm near Tuam, Co Galway. \ Ray Ryan

How to source the right calf

Starting well is half the battle when buying and rearing calves for beef

Tommy Cox
Teagasc DairyBeef500

Farming 37ha of dry, sandy, land outside Tuam in north Galway, Olivia and Keith Lowry joined the Dairybeef 500 programme in the summer of 2022. "Our aim is to improve the efficiency of our calf to beef enterprise," says Olivia.

Over the coming years, they will follow a plan in line with the Dairy-Beef 500 Campaign to improve animal performance, increase farm output, and reduce costs per kilogram of beef sold. This strategy will enhance the profitability of the business.

"One area that we will pay particular attention to is our calf sourcing policy," adds Olivia. "Buying a healthy animal with genetic potential to perform well from birth right through to slaughter is fundamental to the success of any dairy calf to beef enterprise."

The Lowrys first ventured into calf rearing back in 2015 when a small number of calves were purchased and reared alongside the suckler and sheep enterprises that were in place on the farm at that time.

In recent years a full transition has been made to calf to beef. This year saw 65 calves: 55 spring and 10 autumn born reared on the farm. The aim is to increase this number to over 80 with approximately 55-60 reared in the spring and the remainder in the autumn.

Rearing calves at the back end of the year reduces some of the workload in the spring as both Olivia and Keith work off farm. "It also provides a split in the slaughter dates which is excellent from a cash flow point of view," says Olivia. It also optimises use of available housing

Genetics

The calves that are purchased are predominately of early maturing genetics with over 90% of the calves on the farm from Angus and Hereford sires with the remainder being made up of Continental and Holstein Friesian genetics.

Traditionally, the majority of animals were sold in marts as stores but now the plan is to take them all right through to finishing maximising output. The plan is to slaughter the heaviest of them at 20-21 months of age following the second grazing season with the rest going on to be killed at 24 months of age out of the shed.

"During the transition phase we had a number of teething problems," says Olivia. Calf genetics, calf quality and the number of sources from which calves were purchased created some issues on the farm but in recent year we have taken steps to help overcome these challenges."

Sourcing locally

All calves are now bought locally, direct from farmers with whom the Lowrys have established a relationship since they set up their dairy calf to beef system. Keith and Olivia believe that sourcing the calves locally minimises stress for the young animals, reducing the potential for disease outbreaks.

"Before we buy animals we ask for information on the herd's health, vaccination programme, any current or previous disease issues and feed management to ensure calves received adequate levels of colostrum," says Olivia. "Ideally calves should be at least three weeks old by which stage a calf's immunity has increased and they are less vulnerable to diseases and scour."

Desirable calf traits

Prior to purchase all calves are thoroughly examined to ensure they are healthy. "When I enter a shed I like to see calves that are alert with a clean, damp nose and bright eyes," adds Olivia. "We avoid any calves with visible signs of disease such as diar-

rhoea, discharge (mouth/eyes/nose), deformity, or anything that looks like it might cause an issue."

Given their suckler farming background, a good quality animal is what Keith and Olivia want. A good square calf with good length is what is preferable but they are well aware that appearance alone, particularly at that young age, can be a poor predictor of beef potential.

"This spring we will use the commercial beef value (CBV) when selecting calves," says Keith. "Our goal is to bring the average CBV of animals sourced to a minimum of four stars which will put them into the top 80% of the breed category."

While quality is important for the Lowrys, so too is price. They mention the old saying: 'you can buy gold too dear'. Keith and Olivia say they feel that paying over the odds on day one will result in a lot of ground having to be made given the high costs associated with calf rearing and uncertainty in markets.

Maintaining performance

On arrival to the farm at approximately three weeks of age calves are fed on single teat feeders until they reach their targeted weaning weight of 85-90kg generally by 55-60 days.

When questioned about the extra labour involved with the single teat feeder Olivia says she feels it is justified as she has the assurance that each calf will have received its required volume of milk replacer.

On arrival calves are offered a highly palatable calf nut as well as straw to assist in rumen development. Generally at weaning calves should be consuming over 2kg of concentrates per day to prevent any growth check as they transition from milk to solid feed and move from the pre-ruminant to ruminant phase.

Generally they are kept on this level until turnout. When calves are let out to grass first they are put out to stronger covers in a paddock close to the farmyard, just to have an extra bit of fibre which helps avoid summer scour syndrome.

> Our goal is to bring the average CBV of animals sourced to a minimum of four stars which will put them into the top 80% of the breed category

Keeping calves healthy

The farm's scour policy ensures the best possible chance of securing a healthy calf, but in a bid to ensure the calf health is maintained a herd health plan is followed.

The plan includes a two-shot bovipast programme. The first is administered a few days after arrival with a follow up been administered after four weeks. An intranasal vaccine to protect against IBR is also administered as well as an oral drench against coccidiosis.

"Sourcing quality calves, keeping them healthy and feeding them well sounds straightforward," concludes Olivia. "Doing it consistently is the challenge."

'Farming is my GAA'

Mayo beef producer Cathal Irwin loves farming but he's determined that it pays its way and is manageable alongside his family and business priorities

Gabriel Trayers
Teagasc Future Beef Programme

Gabriel Trayers, Cathal Irwin and Shane O'Haire.

Cathal Irwin farms 45 acres (18ha) just outside Castlebar in Co. Mayo. He also works off- farm, running his business, Advanced Safety, which he founded in 2003. The company supplies Personal Protective Equipment and signage to manufacturing and construction companies all over Ireland and Europe.

Cathal participates in the Teagasc Future Beef Programme and I visit the farm regularly but on the last visit I took a small detour to view his business premises on the edge of town. I was intrigued by how Cathal had built the business to where it is now, employing a workforce of 23.

"After leaving school I completed a business degree and started working with a well-known brand," he says. "I had always wanted to set up my own business so I finished my job on a Friday and started selling safety equipment the very next day.

"In those early days I travelled from site to site selling items like boots, gloves, safety helmets and jackets directly to the end user – it was simple as that." From the very start, Cathal focused on customer service and surrounding himself with talented people; that is still his mantra.

"I was in the right place at the right time to maximise the opportunities of the building boom," he says. "It took off and I remember storing products in a shed close to the farmyard and I used a room in my parents' house as an office – I don't know how they put up with me!"

Eventually he moved into his own premises and like any good businessperson he started to diversify. He is now selling to manufacturing, pharmaceutical and construction companies.

When asked for his advice to farmers on what they should be using to protect themselves he says: "As a farmer myself I will only use anti-cut gloves. There are vermin around farmyards and I don't want to get a cut that would expose me to something undesirable. Masks are also very important, there is always dust from meal and straw. These products are not expensive and can make a big difference in protecting yourself."

Cathal and his wife Bridgin have two children, Síofra and Conor. He says spending time with the family is his top priority. The family live away from the yard and with Cathal calving 20 suckler cows on a fragmented farm one may wonder where he gets the time and energy!

"My father passed on the farm in 2015 and I am passionate about cattle breeding in particular. Farming is my GAA. My main objective for the farm is to be as efficient as possible, for what I have, I am not looking for more land or to expand."

> "I want the farm to stand on its own two feet which means better output. The target is 20 calves from the 20 cows, selling the males as u16 month bulls and breeding my own replacements. It's a simple system that suits the farm and me.

Work-life balance

Cathal's week typically follows this pattern.

- 7.00am -8.00 am: breakfast and help to get the children ready for school.
- 8.30am to 5pm: work at Advanced Safety.
- 5:30pm to 7pm: family time.
- 7.00pm to 8.30pm: farming.
- 8.30pm to 9.30pm: visits his parents
- Saturday: 7am to 2pm, farming (he says this stint sets him up for the week)
- Sunday: farming, one hour max

There will be more time needed at calving when Cathal is able to check cows in the morning and he says that, where necessary, he will run out home at lunchtime as well. "To be calving cows and working full-time off farm, you need flexibility with your job I am lucky enough to have that." Through working with

the Teagasc Future Beef Programme and with his local Teagasc advisor, Shane O'Haire, Cathal has put a plan in place that will make the farm more sustainablefor the future.

A sustainable farming strategy

The ambition is to have a more efficient and more profitable farm that will be environmentally sustainable while taking no more than 20 hours per week of Cathal's time. A tall order you might say, but his first step is building a new slatted shed.

Cathal's slatted shed was built in the 1980's and is not sufficient to house all of the cows. There are no dedicated calving facilities.

Under TAMS, Cathal has applied for a new three bay slatted single shed with creep area and calving pen plans. Subject to approval he plans to construct the shed this year. This will eliminate the need to move cows prior to and post calving.

Farming system

The overall farming system will be changed from calving in late October /November/December to calving in late January/February and March. There are a number of reasons for this change:

• The existing slatted shed is not fit for purpose to handle newborn calves

Cathal urges farmers to wear good gloves to avoid infection.

• Winter calving is more expensive with cows feeding a calf and having to go back in calf while indoors on silage and meal

• A spring calving herd will maximise the use of grass. Cathal is an excellent grassland manager.

• Less labour – cows will be calving when the days are getting longer and can be turned out to grass given good ground and weather conditions.

• Compact calving – Cathal will aim to calve all the herd in 6-8 weeks.

• The overall system will changed to finishing the male calves as u16 month bulls.

• A bull system suits a heavy type farm where the males are housed as weanlings and then finished indoors the following May and June. It also adds to the output of the farm without increasing cow numbers.

• Cathal has recently purchased a Simmental bull to breed high value replacements. The male progeny would not be suitable for the live trade – the option for these males is to be finished to slaughter.

Reflecting on this strategy, Cathal says: "My philosophy is always to be improving and it will take a couple of years to reach our goals. I want the farm to stand on its own two feet which means I need to get better output.

"The target is 20 calves from the 20 cows, selling the males as u16 month bulls, breeding my own replacements and selling any surplus weanling breeding heifers – it's a simple system that suits the farm and me."

Beefing up the breeding indexes

Updates to the Replacement Index (RI) will bring down the cost of suckler cows, and the new Terminal Index (TI) will reduce feed consumption and age-at-slaughter in finishing cattle, while also raising carcase value

Catherine Egan, Teagasc Beef Specialist

Paul Crosson, Teagasc Beef Enterprise Leader

Feed accounts for 75% of total costs on suckler farms.

How are the indexes calculated?

The Economic Values contained within the Replacement Index are based on a representative 'blueprint' or 'baseline' herd, which is spring-calving and has an average calving date of March 12th.

Replacements are sourced from heifer progeny bred within the herd with the remaining heifers slaughtered at 19 months at a carcase weight of 311kg; male progeny are finished as steers at 22 months, generating 390kg carcasees.

Why are the indexes being updated?

It is important that breeding indexes are regularly updated in light of market developments. There is now also a legal requirement for Ireland to reduce greenhouse gas emissions from all sectors of society.

The indexes were last updated eight years ago in 2015. In the period 2015 to 2020, input prices increased by only 2.2% as measured by the CSO Agricultural Input Price Index and therefore, the impact on Economic Values were unlikely to be significant.

However, between 2020 and 2022, prices increased by 47% and therefore updates were necessary.

The updates to the economic values for all traits in both the Terminal and Replacement indexes mean they better represent the expected profitability (considering both beef value and production costs) of beef cattle.

How much have prices increased?

There have been significant cost and price increases since 2015. Factors impacting the Economic Values included in the Replacement Index are: 13% higher beef prices; a 27% increase in the cost of concentrates; a 10% rise in the cost of each unit of nitrogen; and a 38% increase in land rental costs.

Therefore, forage costs have also risen between 2015 and 2023; grazed grass costs have increased by 11%, while silage costs are up 20%. These price increases have been included in the new Economic Values contained within the Replacement Index.

Why is this so important now?

Feed accounts for 75% of total costs on suckler farms, so we need to focus on them. Of course there are management aspects that have the greatest impact on costs on suckler farms, but genetics is also really important.

If we look at the National Farm Survey data, the cost per suckler cow unit was €1,094 in 2015. In 2022, the most recent year available, that figure had risen to about €1,546.

How many farmers will these changes affect?

Figures from the Department of Agriculture, Food and the Marine (DAFM) from December 31, 2022 show there are 46,700 suckler farmers in the country that keep only beef-breed or suckler cows. There are 13,490 farms who keep both dairy and suckler cows.

Of these herds there are 17,500 participating in the suckler cow carbon efficiency programme.

What traits are be added to the indexes?

Three new traits were included as part of the index updates: finishing age, TB resistance and carcase specifications.

Reducing finishing age of animals in the Irish cattle herd is included in the Irish Climate Action Plan and the Teagasc Marginal Abatement Cost Curve (MACC) as a cost-effective measure to reduce agricultural greenhouse gas emissions.

Including carcase weight in the breeding indexes along with age-at-slaughter ensures that the updated

The Replacement Index is comprised of the cow's own traits, and traits relevant to her calf.

indexes are selecting for improved live weight gain of beef cattle.

Good progress has been made in lowering finishing age on farms in recent years with reductions of almost one week per year achieved between the years 2011 and 2021.

Importantly, this has been achieved with almost no reduction in carcase weight (341 kg in 2011 vs. 338 kg in 2021).

Estimates suggest that by finishing cattle two months earlier, approximately 430,000t carbon dioxide equivalents are abated annually.

The incidence of bovine tuberculosis (bTB) in Irish herds has increased in recent years.

The data used in the TB genetic evaluation include only data from herd-management groups that have several confirmed TB reactors, thus the genetic merit does not solely indicate which bulls have been used in TB hotspots.

The TB trait definition can be interpreted as the expected prevalence of TB infection in an animal's progeny where they are exposed to the TB bacterium.

The meat industry has communicated its desired specifications for beef carcasees in respect of weight (between 280 and 380 kg), conformation (greater than O=) and fatness (between 2+ and 4+). Carcase price data has shown that beef prices are lower for carcasees outside these specifications.

As a result a new trait, carcase specification has been included in the revised indexes **(Table 2**). The specifications imposed relate to carcase weight, conformation and fat score. A new minimum (and maximum) carcase fat specification in the index replaces the previously used carcase fat trait.

Why is carbon being included in the indexes?

Carbon traits have been included within the Terminal and Replacement Index. The impact of a change in these traits on greenhouse gas emissions is quantified: for example, heifers that calve earlier produce less emissions up until their first calving.

Putting a monetary value on this helps promote the production of more carbon efficient animals.

In addition, GHG emissions are a loss in efficiency, i.e. a cost, on cattle farms. Carbon traits have already been introduced to the Economic Breeding Index (EBI) and Dairy Beef Index (DBI).

But bear in mind that, although it is important, only 13% of the Economic Values are due to carbon costs; in other words, the Economic Values are overwhelmingly based on market prices such as the cost of fertiliser, the cost of contractor, the cost of feed.

The inclusion of carbon moves us in the right direction, but it is certainly very much the minor player in terms of the current Economic Values.

What are the key changes to the Replacement Index?

The Replacement Index is comprised of the cow's own traits, and traits relevant to her calf. Each trait is given a weighting within the overall index to generate the Replacement Index euro value for each cow or replacement heifer.

These traits are: age at first calving; maternal calving difficulty; maternal weaning weight; calving interval; survival; heifer feed intake; cow feed intake; cow docility; cull cow weight; and TB, which is a new addition to the index.

In addition, due to the inclusion of new traits such as carbon, age of slaughter and TB, the relative emphasis of the Replacement Index is also set to change.

Cow traits represented 62% of the relative emphasis of the previous

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index; this has now been reduced slightly to 59%.

Meanwhile, in terms of the traits pertinent to the calf, these traits – such as beef merit and calving to name just two – will represent 41% of the updated Replacement Index – up slightly in the Replacement Index which was in play from 2015 to November 2023.

Figure 1 illustrates the relative emphasis of the Replacement Index

What impact will these changes have?

A key consideration for suckler farmers is the choice of sire and dam for breeding cattle for finishing or for breeding females as suckler cows. It is important to select sires that are ranked highly on either the Terminal or Replacement Index depending on the intended use of the resulting progeny.

Given that most farmers have a breed preference, it is important that there is a wide availability of sires across breeds that meet these criteria.

Figure 2 focuses on the Replacement Index, and indicates that, although there is some change in the percentage of sires for the main breeds achieving four- and five-star status, there is still a wide choice of sires for each breed.

Limousin and Aberdeen Angus remain the most numerous four-and five-star sire breeds, followed by Charolais, Hereford and Simmental.

Will the indexes change again?

Breeding indexes need to continually evolve – otherwise they become irrelevant. So, as market, policy and technology changes occur, indexes need to change too.

Including carbon in the breeding indexes has a relatively modest impact on the Economic Values and on the relative emphasis of traits; however, it creates an additional focus for the index

In future, it is likely that direct methane emissions will be included in the indexes once the data collected is sufficient to capture the full range of animal types (growing and finishing animals, suckler cows) and diets whether grass or TMR.

On balance the new indexes are taking into account crucial climate priorities while keeping profitability firmly in focus.

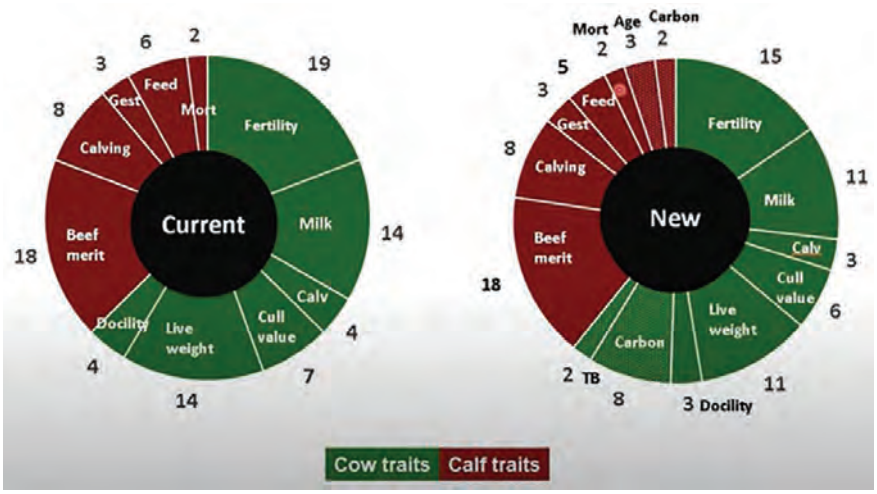


Figure 1: Relative emphasis of the Replacement Index

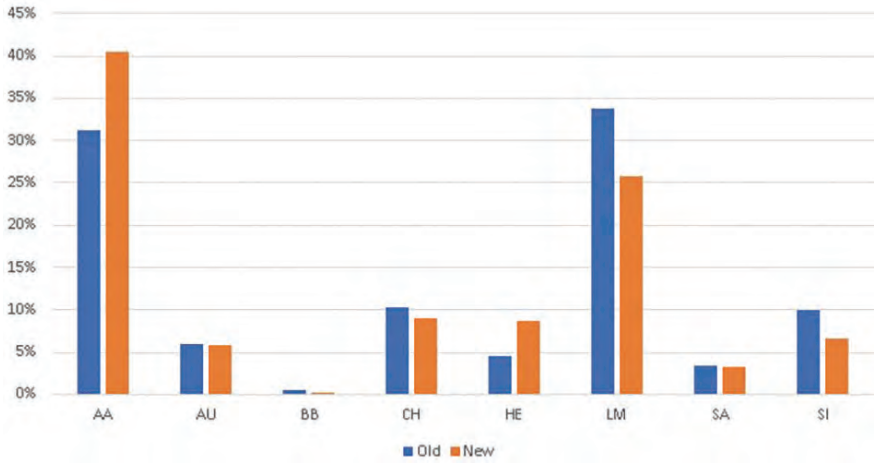


Figure 2. The percentage of male breeding animals by breed which are four- and five-star on the Replacement Index based on the current formulation ("Old") and after the updates presented in this paper ("New") are implemented.

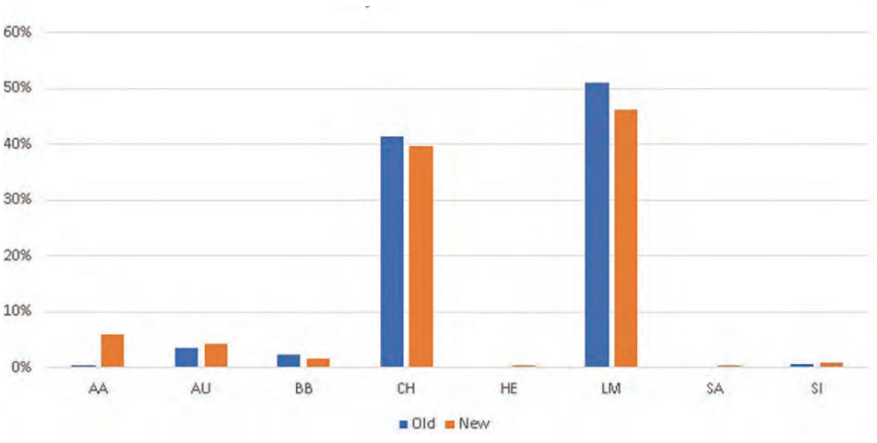


Figure 3. The percentage of male breeding animals which are four- and five-star across-breed on the Terminal Index based on the current formulation ("Old") and after the updates presented in this paper ("New") are implemented

Driving productivity and profitability on sheep farms

Michael Gottstein & Laura Whelan

The top three drivers of profitability are:

1. Litter size and the number of lambs reared per ewe joined to the ram.

2. The number of ewes per hectare of the farm allocated to the sheep enterprise.

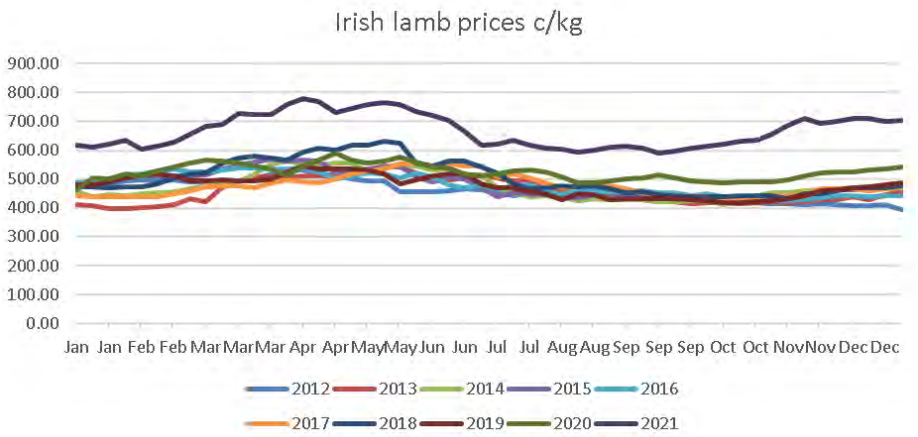
3. Cost control, in particular purchased feed, pasture and veterinary costs.

But what about factors such as lamb growth rate, factory price and concentrate feed price? These are indeed significant but they are definitely not as important as the items listed.

The percentage of lambs sold early is often seen as a good measure of the efficiency. This figure is useful but it does not indicate whether lamb performance was grass-based or the result of expensive concentrate supplementation.

For the last 10 years, the lamb price has been remarkably flat for midseason lamb producers.

Figure 1: Irish lamb prices 2012 – 2021



Source: Bord Bia

Case study: Thomas, Michael and Hannah Kate Finn, Curraghbowen, Mitchelstown, Co Cork

- 20ha land – 108 ewes to ram including ewe lambs.
- Breeds: crossbred ewes, a small number of pedigree Belclare ewes (rams sold as shearlings). Most lambs sold as butcher and factory lambs in Fermoy Mart.
- Previous litter size was two. Rearing 1.7 lambs per ewe to the ram.
- Grassland plan – 20ha of good land, suitable for drystock, dairy or tillage.

It takes approximately one tDM to feed one ewe and her lambs. Target is to grow 12tDM/ha, Target stocking rate of 10 ewes plus replacements per ha.

Target to allocate 50% of area to sheep – the balance for contract rearing heifers, beef or tillage.

Thomas has 2.07ha of wild bird cover along with his 20ha of grassland. The farm was soil sampled in January 2022 with P and K indexes ranging from two right up to four. The average farm pH was 6.4. Twenty tonnes of lime was applied in late 2023.

Thomas currently has no cattle on the farm so he has no slurry to spread. He spreads the farmyard manure he has from the sheep and some imported pig slurry using LESS. Manure helps keep the artificial fertiliser bill low.

The grass management goal is to establish five permanent divisions per grazing group with the option of further sub dividing with a three-strand temporary electric fence.

This rotational grazing system enables the farm to maximise grass growth and quality by protecting re-growths and facilitating the removal of surplus grass as high-quality silage.

Tom's autumn rotation plan used to close ground to ensure adequate grass in spring was:

- 20% of the grazing area closed by end October.
- Further 20% closed in two weekly intervals.
- Sheep housed when grass runs out in mid-December.

Lambing will start in early March.

The annual target for winter forage will be to harvest approximately 120kg dry matter of high-quality grass silage at 75% DMD (five- to six-week growing period) per ewe.

Breeding policy

The Finns are in the Sheep Improvement Scheme. They chose the genotyped

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Case study

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ram option for 2023. In August last year, Thomas purchased a Suffolk ram that will meet the requirements of the scheme. The ram is genotyped and has five stars for both replacement and terminal indexes.

"I find Suffolk cross ewes to be good mothers and easy to manage," says Thomas.

"The ram will be used to sire predominantly terminal lambs but I will keep the best ewe lambs as replacements. We also have Texel and Belclare rams.

"Our ewes are predominately Suffolk x Belclare cross and we have some Texel crosses too. We are Belclare pedigree breeders and a number of pedigree ewes in the flock will be mated with pedigree rams.

The aim is to produce high-quality Belclare rams that will be SIS-approved and sell them to other sheep farmers."

Thomas is already using Belclare genetics so litter size is around where it should be. His terminal sire breeds are selected based on €uro-star indices – five-star for Replacement for rams being used to breed flock replacements (plus emphasis on daughters' milk) and (for non-Belclare sheep) number of lambs born.

For terminal rams being used to breed lambs for slaughter the emphasis should be on the terminal index – five stars (plus emphasis on days to slaughter and lamb survival).

Flock health

On the Finn farm all sheep are vaccinated annually with Tribovax or Covexin to guard against clostridial diseases.

Teagasc advisor Laura Whelan and Thomas Finn.

Internal parasites

Faecal egg counts are regularly carried out often on the farm and they have never shown a positive egg count for liver fluke. Consequently, sheep are not treated for liver fluke.

Stomach worms are a particular challenge that sheep farmers face each year. The initial worm dose (and possibly the second one) targets nematodirus and for this Benzimidazole-based (white) wormers are used.

"I use faecal egg counts to establish if mid-season stomach worm control is needed," says Thomas.

"Once egg counts exceed 500epg treatment is generally warranted. We do a post-drench test to ensure that the wormer has achieved a reduction of at least 95%."

Both levamisole and Ivermectin-based wormers are effective on the Finn farm base on faecal egg count analysis.

External parasites

Primarily blowfly and biting lice are controlled using pour-ons. Clik is used on the farm to prevent flystrike on the farm treatment starts in April or early May weather dependant. It's key to apply the insect growth regulator before sheep are struck. For lambs the ideal time of the year to do this is in early May – low weight lambs need a lower dose rate and also ensures that the withdrawal date is not an issue. Ewes are treated after shearing.

Lameness

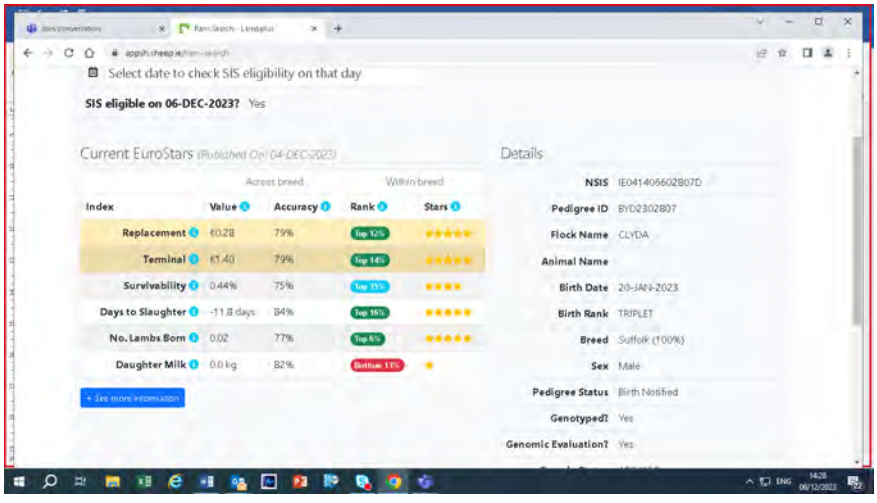
The predominant lameness issue on the farm is scald. Thomas treats this by running the sheep through a 10% copper sulphate solution. He has a mobile sheep handling facility and footbath. He plans to construct a batch footbath.

Future steps

"This year we plan to bring some cattle onto the farm to help with parasite control," says Thomas. "I hope to gain more knowledge and experience on grass measurement and management through the knowledge transfer programme discussion group I have joined.

"We think growing up around livestock is good for our children but the enterprise must also pay its way and we will continue to monitor our productivity and profitability by completing an E-Profit Monitor."

Figure 2: Genetic evaluation of the Suffolk ram purchased this year



Francis Quigley and Aidan Nugent, Teagasc Kildalton farm manager.

How to cut fertiliser costs without losing out on yields

Fitting a headland mechanism to the spreader and turning it at the right point can deliver big savings on fertiliser costs

Francis Quigley
Teagasc Farm Machinery Specialist

Machinery manufacturers make a lot of the accuracy and savings to be achieved when using a GPS-controlled fertiliser spreader. And it is true to say that using such technology can help to deliver fertiliser efficiencies.

One of the biggest savings results from switching the spreader on and off at the correct time when turning at the headland.

Headland control and getting the ins and outs right is particularly important for grassland farmers. They will have a much higher proportion of the field covered in the headland run as fields tend to be smaller, on average, compared to those on most tillage farms.

Savings associated with headland operations can yield substantial benefits on grassland farms.

If using a GPS spreader for the first time, many operators are surprised by the distance from the headland that they have to travel before being alerted to open the shutter. In fact many drivers will stop the tractor, thinking that the GPS control is not working before they get to this point.

Desirable saving

Machinery companies estimate the saving in fertiliser use from this control alone is around 10%. A very desirable saving. This is something that most farmers with a basic spreader (i.e. no GPS) can do for themselves.

By training yourself to turn the spreader on at the right point, it is possible to achieve similar savings in fertiliser without the cost of these more elaborate machines.

The issue arises because when driving away from the headland most operators don't take account of the distance that the fertiliser is being thrown back. The spreader on point when driving away from the headland is typically one bout width from the headland run.

So, if you are spreading at 15m bout widths then you need to be 15m from the wheel marks on the headland run. That is 22.5m (15m+7.5) from the headland itself. When coming towards the headland at the opposite end you need to leave the spreader on until you have crossed the wheel markings.

Use a few temporary fencing posts

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and stick them in the ground to mark this on point and train yourself to be able to estimate it. Over time, you will get used to judging the distance by eye.

Headland control

When spreading fertiliser, it is very important that we put the fertiliser out accurately and don't waste any. One of the challenges comes when doing the headland run on the field. Most fertiliser spreaders work on the overlap principle with a triangular shaped spread pattern. This means that the spread rate drops off the further out we get from the disc.

It is only when we make the next run in the field, which overlaps the previous run, that we get an even distribution of fertiliser. This means that fertiliser is being thrown much wider than the working width set for each bout.

The challenge is on the headland run. We can end up throwing fertiliser into the hedge and wasting it in the process unless we make some changes.

Fitting a headland mechanism to the spreader will eliminate this problem. There are different methods used by different manufacturers but the most common is a deflector system.

This unit is only used during the headland run. It gets lowered into the spread pattern on the hedge side of the machine and will deflect the fertiliser away from the hedge and back into the field.

This eliminates the waste and ensures the fertiliser only lands in the field. These can be retrofitted to most modern spreaders, and are a feature you should look for when buying a new spreader.

Spreader vanes

Spreader vanes are the most important part of the fertiliser spreader and often the most neglected. This 300mm piece of steel is what does all the work throwing the fertiliser out to where it needs to go.

These are wearing parts and need to be checked regularly and replaced when they show signs of wear.

Over time as the prills hit the metal the steel will become rippled and if left long enough will wear right through. A worn vane will not give an accurate spread pattern as the fertiliser will not run smoothly and gain the energy it needs to travel.

A typical set of spreader vanes for a farmer machine will cost in the region of €300 to replace.

John and Brendan Walsh.

Case study: 'The GPS has been a great help in improving accuracy'

John and Brendan Walsh could see the writing on a wall a few years back in terms of the requirement to reduce reliance on chemical N. To respond to this they have made many changes on the farm including incorporating clover into their grassland swards, better use of slurry and improving soil fertility.

"We also invested in some basic GPS equipment," says John.

"In the past, we could put out a bit extra but now with the cost of fertiliser and the need to reduce reliance on it and protect the environment, it's even more important to get the spreading as precise as possible."

Spreader vanes are the most important part of the fertiliser spreader and often the most neglected.

The Walshs did their homework, spoke to the contractor and soon realised the contractor's equipment was too high spec and expensive for what they needed. Brendan then looked at the options available to him online.

"We wanted something cheap and cheerful that would do the basics," says Brendan. "We invested in Black Box equipment, costing approximately €1,100. It was relatively easy to set up."

One of the main observations when they started using the GPS was the level of overlap they had when spreading. When coming to the end of a run, due to paddock, shape there can often be an overlap at the end of a paddock. The GPS helps to highlight where the overlap begins and so the spreader can be shut off.

"The GPS equipment has allowed us to cut this back," says Brendan. "Using the equipment has improved the accuracy with which we are spreading but also the accuracy of the amount we are spreading. We are using it for the chemical fertiliser and the slurry spreading.

"In the past, using a splash plate it was easy to see where you had spread, that's not so easy with the dribble bar," adds John.

"The GPS has been a great help. We have realised that we were slightly over-applying slurry at times due to travelling in too low a gear. I's a lot easier now to stick to the buffer zones along waterways. This is really important from a water quality perspective."

Get slurry on target for optimum benefit

At current fertiliser prices, the nutrients contained in 1,000 gallons of cattle slurry (at 6% DM) have a value of €35. Over an average winter, 100 dairy cows will produce slurry worth about €4,500

Mark Treacy, Teagasc Dairy Specialist.

Before spreading slurry ask yourself a question. Would you apply chemical NPK fertiliser in that location if the slurry wasn't available? If not, then why are you spreading slurry there and not somewhere it may be more badly needed?

As chemical fertiliser allowances continue to be reduced due to environmental regulation it becomes ever more important to optimise your use of slurry. There is now little scope to compensate for poor slurry utilisation by later applying additional chemical fertiliser.

In the future, poor slurry management on farm may result in a reduced capacity to produce grass, leading to a need to cut stocking rate or import additional feed.

Variability in your slurry is a challenge when trying to use it efficiently as a fertiliser on your farm. The nutrient content will be affected by factors such as animal type, diet, housing/storage system, and the addition of water.

Dry matter content is a useful indicator of the quality of slurry, and can be measured on farm by using a slurry hydrometer and comparing the results with associated tables. An advantage of this system is the ability to quickly carry out tests on farm throughout the spreading season. For even more accurate results, laboratory analysis can be carried out at a relatively low cost.

Utmost care is needed when taking a slurry sample. Often the simplest and safest method is to suck up a load of slurry with the vacuum tanker after agitation and then take the sample from the tanker filling point.

Regardless of the method used, it is essential that the sample is representative. So fully agitate the slurry tank before sampling.

Table 1 outlines the available nutrient content of cattle slurry applied by LESS in springtime based on dry matter content.

Once you have established the nutrient content

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of the slurry is established, you must assess where it will be of most benefit. 60% of the nutrient value of cattle slurry is from its potassium (K) content, while a further 22% is from phosphorus (P).

Therefore, slurry should be targeted at areas of the farm where phosphorus and potassium levels are low or deficient. Consult your soil sample results and nutrient management plans to pinpoint the areas of the farm with low P and K indices.

The level of nutrient offtake from different areas of the farm also needs to be considered as these offtakes must be replaced to maintain the nutrient status. There is a large difference in the nutrient offtake from areas which are grazed or cut for silage.

The production of one tonne of Grass DM requires 4 kg of phosphorus and 30 kg potassium. When consumed by a grazing cow 40% of this phosphorus and 10% of the potassium is retained by the animal. The remaining nutrients are returned to the soil in urine and faeces.

Therefore, the total offtake of nutrients due to the consumption of one tonne of Grass DM by the cow is 1.6 kg Phosphorus and 3 kg Potassium. For a farm utilising 12 tonne of Grass DM per hectare 20 kg P/ha (16 units/acre) and 36 kg K/ha (29 units/acre) will be required to offset what is retained by the grazing cow.

Returning large quantities of slurry to the grazing platform is likely to substantially over supply potassium to that area. In contrast, when grass is harvested as silage, all of the phosphorus (4 kg) and potassium (30 kg) is removed from the field.

Harvesting 12 tonnes of grass per hectare for silage will remove 48 kg P/ha (38 units/acre) and 360 kg K/ha (290 units/acre). For this reason it makes sense to return a large proportion of the slurry produced on farm to areas cut for silage.

An application of 3,000 gallons/acre of good quality cattle slurry will fulfil the P and K requirements for a 1st cut silage crop, requiring only nitrogen and sulphur as chemical fertiliser.

Red clover silage swards are also an excellent area to apply cattle slurry as they have a very low requirement for nitrogen, but substantial P and K requirement similar to grass-only silage swards.

Table 2 outlines the results of a recent on-farm study of slurry nutrient content carried out by William Burchill, UCC, in conjunction with Dairygold and Teagasc.

It is clear that the nutrient content of slurry from uncovered storage facilities is lower due to the volume of additional water collected. On many farms there are a number of different storage systems used. Where this is the case it is sensible to use the slurry from covered storage facilities on silage ground as this slurry has the highest nutrient density.

More dilute slurries and dairy washings can be applied to the grazing area as there is a much lower nutrient requirement on these areas, particularly for potassium.

Transporting and spreading slurry is costly. Where slurry must be transported substantial distances to out blocks and silage ground it makes sense to use the most nutrient-dense slurries available.

Spring slurry applications result in higher recovery rates of the nitrogen as ammonia losses will be lower in the cooler, damper conditions. The use of LESS equipment such as dribble bars and trailing shoes will also help to maximise N recovery.

However, take care to ensure the risk of nutrient runoff are minimised by avoiding applications to very wet soils and before heavy rainfall, and by observing required

Table 1. Available N, P & K values of Cattle at different Dry Matter (DM)% in springtime by LESS application techniques

Dry matter %	N kg/m³ (units/1,000 gals)	P kg/m³ (units/1,000 gals)	K kg/m³ (units/1,000 gals)
2	0.4 (4)	0.21 (2)	1.4 (13)
4	0.7 (6)	0.35 (3)	2.1 (21)
6	1.0 (9)	0.5 (5)	3.5 (32)
7	1.1 (10)	0.6 (6)	4.0 (36)

Note – On index 1 & 2 soils reduce slurry P availability by 50% & reduce K availability by 10%

> More dilute slurries and dairy washing can be applied to the grazing area as there is a much lower nutrient requirement on these areas, especially for potassium.

Table 2: Outline of the results of a recent on-farm study of slurry nutrient content carried out by William Burchill, UCC, in conjunction with Dairygold and Teagasc.

		LESS spring	Splash-plate Spring	Phospho-rus	Potas-sium	
	Slurry Dry Matter %	Units N/1000 gals	Units N/1000 gals	Units P/1000 gals	Units K/1000 gals	No. samples taken
Standard Teagasc values	6.3	9	6	5	32	
Teagasc/ Dairygold JP	6.7	11	8	5	27	128
Covered tanks	7.3	12	9	6	29	53
Open towers	6.5	9	7	5	25	9
Open tanks	5.5	8	6	4	23	15
Lagoons	4.3	7	5	3	17	4

Where slurry must be transported substantial distances to out blocks and silage ground it makes sense to use the most nutrient-dense slurries available.

buffer zones.

Nitrogen requirements are relatively low in early spring due to low grass growth rates and this should be considered when applying slurry. Even where phosphorus and potassium requirements are high, applications should be limited to 2,500 gallons per acre early in the season to avoid excessive N application and consequent risk of leaching.

Two light applications of slurry to an area during the year can effectively supply the same amount of phosphorus and potassium as one heavy application, but will likely result in a higher utilisation of the available nitrogen.

An area often overlooked for maximising the utilisation of nutrients contained in slurry is the availability of sufficient slurry storage capacity.

Adequate storage allows for slurry to be applied at times and to areas where it will be of most benefit.

Where storage capacity is insufficient, farmers are often forced to spread in less than ideal conditions, or to fields which do not really require the nutrients.

While the construction of slurry storage is a substantial financial cost, it is a long term investment.

The financial benefits of better nutrient management and accelerated capital allowances on storage facilities, coupled with the reduced stress of monitoring remaining storage capacity make slurry storage a very sensible investment.

Available Nutrient Content & Guide Value (€) of Organic Fertilisers 2023

Organic Fertiliser Type	N kg/m³ (units/1,000 gal)[6]	P kg/ m³ (units/1,000 gal)[5,6]	K kg/ m³ (units/1,000 gal)[6]	Value €/ m³ Or (€/ 1,000 gal)[3,4]
Liquid Manures				
Cattle (6% DM)	1.0 (9)	0.5 (5)	3.5 (32)	**7.7** (35)
Pig (4% DM)[2]	2.1 (19)	0.8 (7)	2.2 (20)	**8.5** (39)
Soiled Water	0.48 (4)	0.08 (0.7)	0.6 (5)	**1.7** (7.7)
Solid Manures	**N kg/t[1]** (units/t)	**P kg/t** (units/t)	**K kg/t** (units/t)	**Value €/ton**
Dungstead Manure	1.4 (3)	0.9 (2)	4.2 (8)	**10.5**
Farmyard Manure	1.35 (3)	1.2 (2)	6.0 (12)	**14**
Poultry[3]				
Broiler / deep litter	14 (28)	6.0 (12)	18.0 (36)	**64**
Layers (30% DM)	6.85 (14)	2.9 (6)	6.0 (12)	**27**
Layers (55% DM)	11.5(23)	5.5 (11)	12.0 (24)	**50**
Turkeys	14 (28)	13.8 (28)	12.0 (24)	**82**
Spent Mushroom Compost	1.6 (3)	1.5 (3)	8.0 (16)	**18**

[1] The value of N in Cattle slurry is 9 units/1,000 gallon (Based on total N of 2.4kgN/m³ @ 40% N availability by LESS application). Conversion - kg by 2 = units
Spring application of organic manures is required to maximize N recovery. Manures should be tested to determine manure nutrient content.
[2] Incorporation of high N manures within 2 to 6hrs after application assume 50% N availability
[3] Value of N = €1.38/kg, P = €3.40/kg, K = €1.32/kg for 2023 (Nutrient values based on price / volume of range of fertiliser products).
[4] Cost of spreading & transport not included. [5] Reduce P availability to 50% on P index 1 & 2 soils.
[6] Values under units/1,000gals or per ton have been rounded to closest unit. ***Updated 14th June, 2023 (Mark Plunkett, Teagasc)***

Water quality and Teagasc's agricultural catchments programme

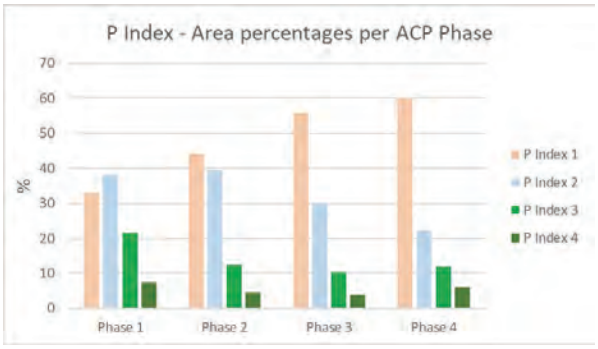

Figure 1: Soil Phosphorus Trends in Ballycanew Catchment Phase 1-4

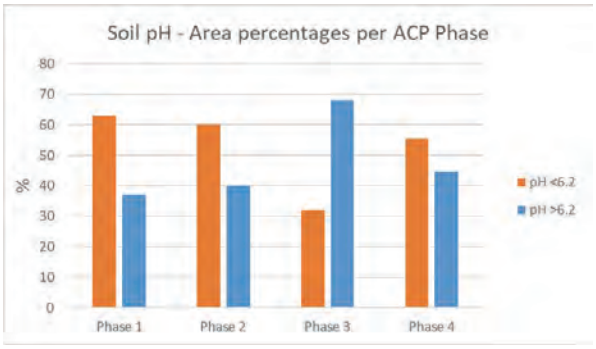

Figure 2: Soil pH Trends in Ballycanew Catchment Phase 1-4

Mark Boland,
Teagasc Agricultural Catchments Programme Advisor

Teagasc's agricultural catchments programme (ACP) has been monitoring water quality and assessing the changes to Irelands Nitrates Action Programme and the Derogation since 2008 in six river catchments across the country. Soil sampling fields within all catchments every four years has been an essential building block in forming strong working relationships between the 300 farmers, advisors and researchers.

The Ballycanew catchment in Co Wexford is predominantly grassland, with heavy soil formed from glacial marine deposition. Phosphorus (P) and sediment are most at risk of loss to water, where the soil is saturated over the winter and early spring. Over half of the 30-35 farmers within the catchment are dairy farmers with high stocking rates.

Soil fertility levels in the Ballycanew catchment are low and successive analyses every four years have shown an increase in the number of P index 1 fields (see Figure 1). Soil pH levels across the catchment are also less than optimum, with only 45% above 6.2. This is an increase from <40% in phase 1, however it represents a significant reduction from approximately 68% in phase 3 (see Figure 2).

Declan Roche farms on the edge of the Ballycanew catchment, milking 90 cows on 59 hectares in one block at a stocking rate of just over 170 kg N/ha. Soil sample results for the farm were initially in keeping with the overall catchment trend as shown in figure 3.

Declan improved his farm's soil fertility levels through simple yet effective management. Lime application targeted pH levels which had fallen with over 60% below 5.9, while most of the farm was index 1 for phosphorus.

"We note down every application, including rates, of organic and chemical fertiliser and lime to each field," says Declan. "Combining our soil sample results with these records allows us to make decisions around grazing and silage production and where and when to target nutrients."

Declan availed of the P build up allowance since 2019, giving additional P allowances on index 1 and 2 soils. Nutrients from slurry are targeted to silage ground in particular. Indeed he has taken the view that timing of slurry application on heavier soils must be effective, so much so that he constructed an extra slatted tank to act as a receptor tank during the winter. "The tank enables us to apply slurry at times when weather and ground conditions are favourable, rather than simply applying when the closed period has passed."

Linking application of both organic and chemical manures to soil sample results has allowed Declan to target the whole farm rather than relying on fields closest to the farmyard.

The most recent soil sample results on the farm highlight how Declan has reversed the falling soil fertility trends, vastly improved soil pH and P levels (figure 4).

This has led to a reduction in chemical nitrogen (N) applied, at just 155 kg/ha in 2022. Good growth and utilisation of quality grass on the farm has resulted in usage of only 500 kg of concentrates per dairy cow.

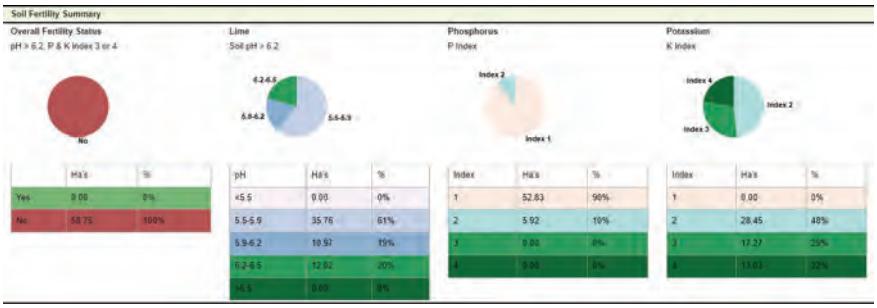

Figure 3: Farm Soil Fertility Summary 2016

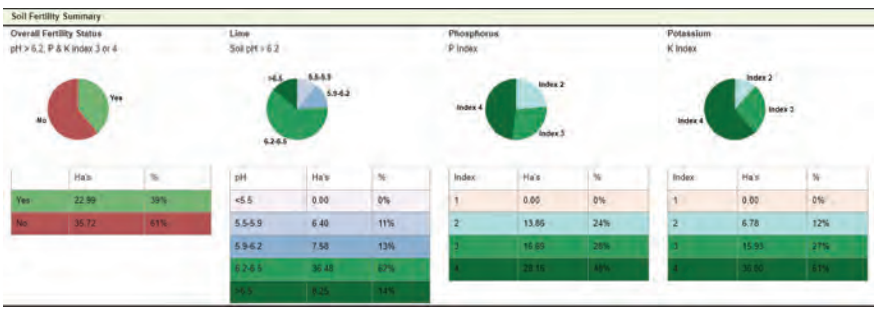

Figure 4: Farm Soil Fertility Summary 2023

Team approach is the way forward for farm succession

Succession planning requires the input of all family members as well as advice from experienced professionals to ensure a smooth hand-over and the best outcome for all parties

Bryan Twomey, Teagasc
Walsh Scholar

Kevin Connolly, Teagasc
Farm Management specialist

Early engagement with your Teagasc agricultural advisor will help tease out key questions around succession and farm transfer

Communication around the future of the family farm can be overshadowed by fears of saying the wrong thing resulting in friction and disagreement. The next generation are also often in the dark as to who will be the successor and, if they are chosen, when they might begin to farm in their own right.

Issues such as who will assume the responsibility to manage the farm after the transfer, and how the farm and non-farm assets will be apportioned among the next generation should be discussed and, hopefully agreed, by all family members before anything is decided.

Professional advisors

Early engagement with a Teagasc agricultural advisor will help tease out some of the key questions and what services you need from other professionals on tax, legal and other issues.

Tax is an area of particular concern and people are rightly cautious of triggering a tax bill for either themselves or their next of kin. Many of the tax issues can be resolved once proper tax planning is completed in collaboration with an accountant or tax expert in advance of any transfer.

Solicitors have a vital role in checking ownership titles as well as advising on changes to any proposed farm business ownership structure. A solicitor should be involved throughout the planning process to shed light on legal considerations and ensuring the transfer is done correctly. Ultimately, it is through your solicitor that a transfer is finalised and executed.

The 'succession team' concept

The considerations and implications of a succession plan are multifaceted and there are no individuals that have all the knowledge required. Most legal and tax professionals work independently and even though they may share a client there is rarely much engagement between them. A team approach works better for farm families.

The idea is to bring all your professional advisors together to meet you and your family at a dedicated team meeting. Together they can discuss the likely implications of the transfer and explore all possible options for achieving the family's desired outcome.

The agricultural advisor can assist in facilitating the process by firstly meeting with the family to discuss the family's circumstances, the possible options and what a successful transfer would look like for everyone.

Then, when meeting the other professionals at the team meeting,

FIG 1. AREAS THAT PROFESSIONALS WILL BE ABLE TO ADVISE ON

Agricultural advisor	Accountant/Tax advisor	Solicitor
Farm Partnerships	Farm Partnerships	Farm Partnerships
Companies	Companies	Companies
Land Leasing	Land leasing	Land leasing
Share Farming	Income Potential	Retirement Income
Herd numbers	Capital Gains Tax	Residency
Income potential	Capital Acquisitions Tax	Other Provisions
TAMS	Stamp Duty	Trusts
CIS-YF	Income Tax	Powers of Attorney
Entitlements	VAT	Making/Updating a Will
Farming systems	Tax Planning	
Compliance		

Continued on p28

Continued from p27

your advisor will ensure that the queries that you have highlighted are addressed.

The advisor's role is to facilitate the succession team meeting, but also to record the outcomes. These can be circulated to everyone afterwards and used as a roadmap.

A succession team meeting is an opportunity to explore your succession options while having your experts at hand. By having all your professionals present it is less likely that something will be missed or forgotten and ultimately it ensures that you and your professional advisors are all 'on the same page.'

A clear plan of action can be created with follow-on appointments set up with the solicitor, accountant and agricultural advisor in sequence over the following months to look at the specifics of the plan in greater detail.

The case study below outlines how this approach to the farm transfer process works.

Following a preliminary meeting with their agricultural advisor and a subsequent team meeting with all of their professional advisors, the farm family in question received a fully rounded assessment of their succession options – and they left the team meeting with clarity and a clear direction as to how best to go about transferring their farm.

Progress to date

Research looking into this approach to succession planning has been ongoing within Teagasc since September 2022 in conjunction with University College Dublin and supported by the Teagasc Walsh Fellowship Programme.

> Some 14% of farmers surveyed said they had experienced conflicting information from their professional advisors. And 60% of solicitors and accountants surveyed said they usually require more than three consultations with their farm succession clients.

Teagasc 'Transferring the Family Farm' events in 2022 identified that 75% of farmer attendees would welcome a team approach to succession planning.

Some 14% of farmers surveyed said that they had experienced conflicting information from their professional advisors.

Almost 60% of solicitors and accountants responded that they usually require more than three consultations with farm succession clients. Therefore, the issues you would associate with a fragmented service around succession planning were proven to be true.

With this strong response from the initial surveys the next step was going about developing and designing the approach.

Interviews were held with a number of experts in the legal, accountancy, and mediation fields as well as an expert in teamwork and networking among agricultural service providers.

This feedback and insight led to the design of the Succession & Transfer Team Planning format (Fig 2) which involves firstly, a preliminary meeting with your agricultural advisor, followed by a Memorandum docu-

Case Study – The Kelly family (the case is real but names have been changed)

Tom & Sheila farm under a joint herd number and are now of pension age and would like to take a step back from farming. Their children are Brendan 35, Julie 30 and Mark 28. The following are the ideas and concerns of all the family members at the start of the succession planning process:

Name	Ideas/Opinions	Concerns
Tom & Sheila	Identifying their eldest son Brendan as their farm successor.	Whether to transfer the land to Brendan now or down the line. To give a site to their daughter Julie. To be open and inclusive of their youngest son Mark in the planning conversation even though he is away. How to give their eldest son Brendan more responsibility but still remain involved and receive an income from the farm.
Brendan	To be more involved and improve the farm through TAMS and YFS income.	Parents might not agree with how the farm should be run and where Brendan would like to make improvements.
Julie	Would like to build a house near home and be near to her parents.	Brendan may want the site she has in mind
Mark	That parents have a good quality of life and can visit home freely.	Parents not having sufficient income and that the farmhouse might be transferred with the farmland.

Outcomes* of the Succession Team meeting

The accountant recommended to transfer the outside block to Brendan now before he is 35 and thus avoid Stamp Duty.

The Teagasc advisor suggested that Brendan apply for his own herd number on this land and enter a multi-herd Registered Farm Partnership with Tom & Shelia.

This would allow Brendan to have land of his own within the partnership.

The solicitor advised that the remaining farm assets be transferred in five years time before Tom & Sheila might need Nursing Home Care and to protect the farm from this.

The accountant explained that Julie's existing gift of a house will not have major tax implications if she were to receive a site from her parents.

Mark feels assured that his parents will have sufficient income in their retirement and values being involved in the discussion of the future of his childhood home.

** These outcomes should not be taken as true for all cases*

ment which your advisor completes and circulates to your solicitor and accountant, before then coming together for the succession team meeting.

Having spoken with these experts and agreed on a concept structure, these findings were introduced and presented to a focus group consisting of Teagasc advisory, education and research staff where the approach was critiqued from an advisory point of view.

The most significant outcome from this discussion was the need for a support tool for advisors facilitating the process.

Subsequently an advisor guidebook was created and adapted with the help of this working group.

A workbook to prepare farm families for the process was also created which encourages family engagement and discussion before embarking in the succession team process.

Next steps

Having carried out much of the groundwork over the first 15 months of the research the approach is now being piloted with Teagasc clients.

These pilots are being used as a test-run and our intention is that this approach will be rolled out as a service by Teagasc over the coming years. The feedback so far has been encouraging.

Fig 2. Succession & Transfer Team Planning format

Feedback on the Teagasc team approach to farm transfers

"It is a much better approach, I think it will lead to far fewer disputes. I think it will lead to a cleaner, more successful transition of ownership and that has to be better for all concerned. Nobody is ambushed, nobody has to deal with unintended consequences. Everything is out in the open. Everyone knows where they stand."
Expert from the Law Society of Ireland

"I think this makes sense because I have found that my accountant and solicitor have different ideas as to how we should go about our situation and I find myself over and back and still no wiser."
Kilkenny farmer

Colin Walsh and Eoin Lyons examine a crop stand on Colin's farm in Co Wicklow.

The tillage sting in the tail after a difficult autumn

Many winter cereal crops were drilled early and have suffered varying levels of damage. Others were planted late, reducing yield potential; some crops were not planted at all. Growers must try to salvage these crops while keeping an eye on costs

Shay Phelan
Teagasc Tillage Advisor

At the time of writing we are updating the 2024 Teagasc Costs and Returns booklet so the figures mentioned may differ slightly to those published later in January. Nonetheless they provide a good indication of likely costs that 2024 crops will need to cover. ***See Table 1***

The total input figures exclude machinery costs (€600-700/ha) and the breakeven figure also excludes land rental which can add substantial cost to many tillage farms.

In a normal year these breakeven yields would look easily achievable for most crops. This year, depending on the field location and the damage inflicted by the above average rainfall, they may be a challenge for some.

Crops should be assessed in the coming weeks to see what actions need to be taken to give the best financial result.

There are a number of scenarios facing growers:

- Leave crops alone and hope for the best
- Re-sow areas in the spring (if seed is available)
- Continue to drill winter cereals in the spring
- Don't sow any more winter varieties and concentrate on spring varieties

Leaving crops alone and putting up with the bare patches may seem like an obvious decision but it depends on the plant population throughout the field and the size of the bare areas. ***See Table 2.***

The decision whether to replant is reasonably straightforward in normal years. However, the 'altered agronomy' can often be difficult to manage as these crops don't have full yield potential. Reducing inputs is necessary.

Generally, the first area where savings can be made is in nitrogen application. Total nitrogen application will need to be altered based on the potential yield of the crop and its BER, i.e. the economic return on the nitrogen in terms of crop yield.

Some farmers will have reduced nitrogen application last year due to the cost of nitrogen relative to the price of the grain. This year, although the cost of fertiliser has fallen, the

yield response of some of the lower plant counts will not be as great as for normal crops. The return on nitrogen will be lower.

The second area where some savings could be made on thinner crops is in terms of disease control.

Thin crops, depending on the varietal susceptibility, tend to be under less pressure from fungal diseases. Reduced rates, fewer applications or cheaper products may all be options to cut costs.

One area where costs may actually increase is weed control. Many herbicides rely on assistance from crop competition. In the thinner crops, light may get down to the base of the crop for longer than normal; this could lead to a prolonged germination period.

Spring options

The various options in the spring will also have to be considered over the coming weeks. Many growers will continue to drill winter wheat varieties until mid-February depending on soil suitability, access to seed, workload etc. Results from DAFM trials generally show that these crops will deliver yields similar to spring varieties. So again, inputs should be tailored to match yield potential.

Once the decisions have been reached on winter crops, decisions on the spring options can be made. For many, spring barley is the default option.

However heavy fields can perform poorly when drilled with spring barley so wheat, oats and beans should also be considered on these soil types. Conversely, beans perform poorly on light land. Barley will definitely be the better option there.

Schemes – e.g. protein aid, straw incorporation – can also help the profitability of the various crops and should be considered carefully over coming weeks. Target poor or thin crops for the straw incorporation scheme. Plan to bale the thicker crops as this will help the margin on the poorer crops while also helping to ensure that you have straw to sell to your customers.

Colin Walsh is based in Kilbride, Co. Wicklow. His farm is made up of various soil types with the majority being most suitable for winter crops. Typically, 75% of Colin's cropping is winter wheat, winter oilseed rape and winter barley, with the remainder bring drilled with spring crops.

"Autumn and early winter 2023 was very challenging," says Colin. "We only got half of the targeted cereal area drilled. For the crops that were drilled, plant counts are reasonable but there are parts of fields where the crop has failed entirely due to poor seedbeds and waterlogging.

"There are parts of fields where machinery overlapped or where field springs were high at sowing and the crop is poor in these areas.

"Management of these patches will be tricky in the spring however I do not think I will try to re-sow all of these areas It would be difficult to produce a viable spring crop and they are relatively small in proportion to the whole field.

"It will be even more important this spring to assess the potential of all my winter crops and tailor my agronomy programme to their potential."

> Leaving crops alone and putting up with the bare patches may seem like an obvious decision, but it depends on the plant population throughout the field and the size of the bare areas.

Table 1: Estimated cereal growing costs 2024

	Winter wheat	Winter barley	Winter oats	Spring Barley
Total input costs (fert., seed & spray) (€/ha)	1,022	881	723	693
Breakeven yield (own land) T/ha	8.1	7.8	7.0	6.4

Table 2: Plant counts in winter cereals crops and actions needed (based on relatively even plant distribution)

Winter Cereal Plant Count /m²				
*Agronomy	Wheat	Barley (2 row)	Barley (6 row)	Oats
Normal	200+	250+	170+	275+
Altered	90 – 200	150 – 250	100 – 150	150 - 275
Replant	< 90	< 150	< 90	< 90

Colin Walsh farms in Kilbridge, Co Wicklow.

Farm Vehicles – Don't get knocked

Serena Gibbons, Teagasc, with Minister of State with Responsibility for Farm Safety at DAFM Martin Heydon, and Aswathi Surendran.

There were 16 fatal farm accidents last year, up from 13 in 2022 and nine in 2021. We offer some pointers on preventing farm vehicle-related injuries

Dr Aswathi Surendran, PhD Researcher, University of Galway

Francis Bligh/ John McNamara, Teagasc Health and Safety Specialists

Driven by the need for productivity, farm vehicles have been getting dramatically larger and faster in recent years. Their greater capacity to get work done is matched, however, by increased potential to kill or seriously injure. Being crushed or struck by farm machinery causes 80% of vehicle-related farm deaths.

These farm vehicles must move and operate within the relatively small areas of Irish farmyards, roads and fields. Farmers require high levels of skill and experience to operate them safely. Family members and neighbours need to be aware of these work areas, avoid them when possible and understand the limits of farmers' visibility and control when operating these large machines.

To help reduce farm vehicle-related injuries, Dr Aswathi Surendran at the School of Psychology, University of Galway has carried out PhD research to develop a new vehicle safety intervention in association with Teagasc Athenry and Kildalton. The research was funded by the Department of Agriculture, Food and the Marine (DAFM) through the Teagasc Be Safe Research Project.

Farmers were recruited (our thanks go out to these volunteers) and they helped develop a pilot training course.

The training focuses on using farm vehicles safely, including identifying blind spots and recognising the influence of farm vehicle speed on accidents. After taking the course, the participants were given resources to deliver the course themselves to their families and workers.

What does H.S.A. data on vehicle-related incidents tell us?

The Health and Safety Authority (H.S.A) carried out a detailed analysis of vehicle related incidents as part of A Review of Work-Related Fatalities in Agriculture in Ireland from 2011-2020. The H.S.A found that the most common type of vehicle incident was striking of people on foot or, in one case, a cyclist.

These led to 39 work-related fatalities (42% of all vehicle fatalities in Agriculture). Of the 39 fatalities where a vehicle struck a person, 23 involved parked vehicles rolling out of control, either because the vehicle's handbrake was faulty or had not been engaged properly. Six fatalities involved people on foot being struck by reversing vehicles. A further nine fatalities resulted from people on

down; you might not get up again

foot being struck by vehicles and, as already mentioned, one cyclist was struck by a vehicle.

Blind spots

'Blind Spots' are areas around a tractor or farm vehicle where the driver's vision is impeded, so that people who are close to the vehicle cannot be seen by the driver. Short people and children in particular are at higher risk as they are difficult to see when in a blind spot. Blind spots are particularly hazardous to the front or rear of a vehicle. Blind spots are also hazardous at the side of a vehicle as they may conceal an approaching person.

Vehicle design and equipment

Cab frames, exhaust pipes, loader headstocks and in-cab devices such as display screen equipment can all impede the driver's view. Mirrors and cameras help to reduce blind spots, however their effectiveness depends on their design, positioning and cleanliness.

Poorly positioned vehicle work lights or low level sunlight can also result in very low visibility levels. Correctly adjusted work lights, clean windows and sun visors help reduce the risk of an incident or injury.

Managing vehicle movement

Pro-active management of vehicles on the farm is important. Develop safe routines and procedures. Ensure bystanders are always segregated from areas where farm vehicles are operating.

Vehicle noise as a signal of danger

A hearing impairment, a mobile phone or ear piece in use, multiple vehicles operating in close proximity at the same time; sheds that have high background noise levels during animal feeding or periods of wind or heavy rain; can all reduce awareness of vehicle noise.

Where there is the possibility of impaired visual or audio awareness of working machines, physical safety control measures must be in place to prevent accidents.

Slow down

Vehicle speed is a major factor in the risk of being struck by a farm vehicle.

A tractor travelling at just 10km/hr will cover 2.82m/second. This gives a person near the vehicle little or no time to get out of the way. The higher the speed the greater the risk of striking someone and causing injury.

Manage vehicle movement for visibility

This involves having dedicated vehicle movement routes with maximum driver visibility and bystanders segregated from vehicles.

Good farmyard design allows adequate space for turning circles that eliminate or reduce the need for reversing. This allows the operator to have a clear forward view to see persons or obstructions.

Farm work often takes place in early morning or late evening during dark periods of the year so adequate lighting must be in place. Good signage will also highlight and remind all on the farm of the risks that exist.

Farmer testimonials

John Fitzgerald, Dairy Famer Portlaw, Co Waterford: took part in a training course at Kildalton College as part of the research project.

"I found the course very interesting. The dangers associated with farm vehicles and the importance of identifying vehicle blind spots was highlighted. Following the training I demonstrated the hazards associated with farm vehicles, speed and blind spots to my own family members and workers.

"I feel it greatly increased safety on our farm. After doing the course I was conscious that on my industrial loader the beeper wasn't working so I got it replaced and that small improvement may save somebody's life down the road."

Thomas Moloney, Agricultural Contractor, Cohen, Co Tipperary.

"Farm vehicle movement is safest when the vehicle can be driven in a forward direction where there is a clear view and no obstructions. Designing a farmyard to have wide turning circles and clear views makes tractor operation less hazardous. Having to reverse tractors around tight corners is a lot more dangerous than driving forwards. Fitting cameras on the front or rear of vehicles can help reduce the danger associated with visibility issues."

The researcher's view

Aswathi Surendran

"Though farmers understand that blind spots exist and that tractors take time to stop, they often did not realise how much they couldn't see and how far a tractor can move after braking'.

"By sitting on the tractors themselves and experiencing the limitations of visibility and blind spots first hand, participants gained a deeper understanding of the safety risks associated with operating a tractor. This experiential learning process was a critical element that heightened safety awareness and equipped participants with the knowledge and skills needed to address these risks effectively in their everyday farming practices."

Further Information

A video related to the content of this article is available at: https://www.teagasc.ie/rural-economy/farm-management/farm-health-safety/videos/

Dr Aswathi Surendran and her colleagues will be publishing her research in high level open-access scientific journals which will be freely available on the web.

Converting to organic tillage

A farmer's experience, one year in

Martin Bourke
Teagasc organic tillage advisor

"It was a no brainer to switch," says Liam O'Toole who farms near Avoca, Co Wicklow. For the last 25 years, he had been conventionally farming winter and spring cereals, along with oilseed rape and spring beans as break crops. This all changed one year ago, when he took the decision to convert part of his farm to organic tillage. Martin Bourke, organic tillage specialist, paid him a visit to see how he fared during his first season.

Liam O'Toole examing the emergence of his late drilled wheat wit Martin Bourke.

Why did Liam go organic?

Liam said that the price of fertiliser and the crop protection costs of growing a conventional crop were 'gone too high'. He had examined the figures carefully, and it made perfect sense to switch.

"Also, my gut feeling was that too much chemistry is being used in tillage production," says Liam. "Unless the price of conventional grain is above €300/tonne, I see very little future in conventional tillage production."

The partial conversion option

"In my opinion, the biggest hurdle for any tillage farmer considering organic production is to be able to challenge the conventional mind-set and the fear of failure," says Liam. "You can't be concerned about what the neighbours might think."

Liam says that partial conversion, which means not having to put all of the farm into organic at once, gave him the confidence to give it a try.

Partial conversion does involve some restrictions. Liam is not allowed to grow the same species or variety of crop on the conventional part of his farm and the organic part of his farm in any given growing season. He must also ensure his seed drill and combine harvester are thoroughly cleaned before sowing, or harvesting, his organic crops.

One year on, does he have any regrets?

"I have absolutely no regrets," says Liam. "In fact, I want to put more of the land I farm into organic production." He says he definitely sees a future in it, adding that the workload is less than previously. This is especially important as he is a qualified mechanic and holds down a full-time job testing cars with NCT.

He was really happy with year one. "My first organic crop was 58 acres of a really nice crop of spring oats," says Liam. "The crop stood perfectly with very few weeds, any present remained down low in the crop. I grew it with 2,000 gallons per acre of imported cattle slurry and an application of poultry manure pellets."

It takes two years for land to become certified as fully organic, so Liam sold his oats conventionally to the local merchant.

Liam also bought six acres of land from his brother which had been converted to organic production a year earlier. He grew an intercrop of peas mixed with oats on this land and it was sold to another organic farmer as second year 'in-conversion' feed.

Plans to expand organic area

If Liam could secure longer-term leases on the rest of his rented land, he says he would put it all into organic production. Due to competition for rented land and losing rented land to building development, Liam is finding it harder to maintain his acres. At

A sample of flour milled from the wheat cultivar He Goldkorn

one stage he was farming almost 500 acres, but is now back at 220 acres.

Even though the rest of his land farmed wasn't converted to organic, Liam had decided to go down the low input route with his conventional crops. He is convinced that 2023 was a year that this approach offered better profitability than the more normal high-input approach adopted by most tillage farmers, as crops did not reach their normal yield potential.

Is organic tillage farming profitable?

Liam is convinced the figures stand up. "Your main cost is seed and paying a contractor to spread some cattle slurry or composted FYM," he says.

"After that you close the gate. Straight organic cereal for animal feed is currently trading for about €400 per tonne, and the combination crops (mixture of legume and grain) are selling for higher.

"You don't need to be a maths genius to work out that if what you're selling is double the price of conventional, and that your yields are half that of conventional, well then the higher profitability comes from the significantly reduced input costs. A 10-year-old could do that calculation!"

Was there any extra paperwork?

Liam says he is quite happy that the level of paperwork and record keeping isn't really much additional work compared to conventional farming.

He believes that traceability and thorough recordkeeping is very important to protecting the highly valued organic brand.

What crops are you growing organically and who is your market?

Based on a Department of Agriculture feed survey of all organic farmers in Ireland, the demand for organic cereals and combination crops is estimated to be about 40,000 tonnes. Currently there are just over 4,000ha of organic crops grown. So based on a yield of 4t/ha, the current organic tillage area is producing just 16,000 tonnes of cereals and combination crops – 40% of total demand.

Liam hopes to sell into this organic animal feed market. He says he would also like to secure a contract with Flahavan's to grow oats for their expanding organic oats market. His plan is to have a sustainable, stockless rotation, of oats, protein/cereal intercrops and organic milling wheat. He says that should fields start to get a little dirty with weeds, he may sow red clover for a few years to clean them up and build soil fertility.

Niche markets

Liam is also keen to grow organic crops for some niche markets. "I have just sown a new variety of winter wheat called HE Goldkorn selected under Irish conditions from a well-established biodynamic variety used in Germany and other parts of Europe," he says.

HE Goldkorn is a milling quality winter wheat selected and improved under Irish growing conditions over the last 15 years. Liam sourced the seed from Wilhelm Rost, a German businessman, who has been selecting and multiplying seed from this variety under extreme conditions in Gort, Co Galway.

Milling and baking have been successful with this variety in recent years, and there is currently strong demand for flour from this grain.

Future plans

Liam has received planning permission for a large grain store, and is hoping to avail of both the Organic Capital Investment Scheme under TAMS and the Organic Processing and Investment Scheme to fund the grain store and certain equipment that can add value to his organic produce. Both schemes offer funding to the tune of 60%.

"I am interested in developing a field scale organic horticulture business," concludes Liam. "I am currently examining the possibility of growing potatoes and carrots organically."

The Native Tree Area Scheme

Padraic O'Leary
Teagasc Forestry Advisor

1 What is the Native Tree Area Scheme? The Native Tree Area Scheme (NTAS) is designed to promote afforestation in Ireland by supporting the creation of native forests. It offers incentives for establishing small native forests on farmed land. This scheme will not require an afforestation licence, subject to the terms and conditions of the NTA scheme.

NTA1 and NTA2 refer to two different options or 'interventions' available to applicants:

- NTA1 involves the creation of small native forests. It focuses on supporting the establishment of new native forests on farmed land.
- NTA2 involves the creation of native forests for water protection. It is aimed at creating new native forests, along with undisturbed water setbacks to protect and enhance water quality and aquatic ecosystems.

This intervention is particularly focused on addressing water-related environmental priorities.

2 Who is eligible to apply? Eligibility is to open farmers and non-farmers of lands used for farming purposes, including individuals aged 18 or over with a Personal Public Service Number (PPSN). Companies can also apply, providing their company registration details.

It's essential that the land is currently used for farming, (farming can be any land use such as grazing, cutting silage, tillage or horticulture) and ownership should be free of constraints like joint grazing rights or right of way.

3 What financial supports are available for NTAS? The Native Tree Area Scheme (NTAS) supports vary based on the intervention chosen (NTA1 or NTA2), the area planted, and subject to full adherence to scheme requirements. Here's a breakdown:

- Establishing a native forest under NTA1 can provide landowners with an establishment grant of €6,744 per hectare.

In addition, an annual premium of €2,206 per hectare for up to 10 years is available for approved applicants, resulting in a potential total premium of €22,060 per hectare.

- NTA2 – Under NTA2, approved landowners can receive a similar establishment and shelter grants of €6,744 per hectare.

The annual premium for NTA2 amounts to €2,284 per hectare, payable for up to 10 years, totalling a potential premium of €22,840 per hectare.

4 How do you apply? Applications must be carried out through a registered forester who will prepare and submit your application through the Department of Agriculture online application system. Applications must meet the mapping standards as outlined in the Forestry Standards Manual.

The NTA scheme is outside the general afforestation programme and does not require an afforestation licence, so the applications are being processed relatively quickly.

Sessile oak is considered acceptable for planting under the scheme.

5 Who does the work? The initial screening for land eligibility and consultation can be done with your local Teagasc forestry advisor. However, the on-site assessment and planning is handled by a registered forester, chosen by the applicant.

Execution of planting and fencing can be carried out by the landowner as long as scheme standards and requirements are reached. Alternatively, the registered forester can arrange to have this work carried out for you.

> "It's an incredible scheme, especially for smaller pockets of marginal farmland – it's a fantastic opportunity to transform these spaces into thriving ecosystems.
> **Jim Curtin, Co Cork**

The NTA scheme is outside the general afforestation programme and does not require an afforestation licence.

6 What tree species are planted?
The following tree species are considered acceptable for planting under the scheme:

- Alder (*Alnus glutinosa*).
- Strawberry tree (*Arbutus unedo*).
- Silver birch (*Betula pendula*).
- Downy birch (*Betula pubescens*).
- Hazel (*Corylus avellana*).
- Holly (*Ilex aquifolium*).
- Crab apple (*Malus sylvestris*).
- Scots pine (*Pinus sylvestris*).
- Black poplar (*Populus nigra*).
- Aspen (*Populus tremula*).
- Wild cherry (*Prunus avium*).
- Bird cherry (*Prunus padus*).
- Sessile oak (*Quercus petraea*).
- Pedunculate oak (*Quercus robur*).
- Goat willow (*Salix caprea*).
- Grey willow (*Salix cinerea*).
- Bay willow (*Salix pentandra*).
- English whitebeam (*Sorbus anglica*).
- Whitebeam (*Sorbus aria*).
- Rowan (*Sorbus aucuparia*).
- Irish whitebeam *(Sorbus Hibernica*).

Planting these native tree species contributes not only to the environmental objectives of the scheme but also helps enhance biodiversity, combat climate change, and supports the overall sustainability of Ireland's natural landscapes.

Continued on p38

Forestry Creation clinics 2024

County	Location	Eircode	Date	Contact for appointment
Carlow	Oak Park	R93 XE12	Tuesday 30 January	059-9183555
Cavan	Ballyhaise	H12 E392	Tuesday 23 January	049-4338300
Clare	Ennis	V95 R889	Tuesday 13 February	087-7102739
Clare	Scarriff	V94 NX58	Tuesday 30 January	087-7102739
Cork (East)	Mallow	P51 NF82	Wednesday 07 February	022-21936
Cork (West)	Macroom	P12 TX32	Wednesday 24 January	026-41604
Donegal	Ballybofey	F93 R853	Wednesday 24 January	074-9131189
Donegal	Ballybofey	F93 R853	Wednesday 31 January	074-9131189
Dublin	Kinsealy	D17 EF63	Tuesday 13 February	01-8459000
Dungaravan	Waterford	X35 PF60	Friday 2 February	058-41211
Galway	Ballinasloe	H53 HX21	Tuesday 30 January	090-9642456
Galway	Tuam	H54 VE86	Thursday 08 February	093-28123
Kerry	Killarney	V93 W935	Wednesday 31 January	064-6632344
Kerry	Listowel	V31 N971	Wednesday 07 February	087-7102739
Kildare	Naas	W91 HP38	Wednesday 24 January	045-879203
Kilkenny	Kilkenny	R95 RX30	Friday 26 January	056-7721153
Kilkenny	Mullinavat	X91 YW32	Thursday 25 January	051-998137
Laois	Portlaoise	R32 CF21	Monday 29 January	057-8621326
Leitrim	Mohill	N41 W580	Thursday 08 February	071-9631076
Limerick	Newcastle west	V42 DY03	Tuesday 06 February	087-7102739
Longford	Longford	R39 T180	Monday 05 February	043-3341021
Louth	Dundalk	A91 PVW4	Thursday 01 February	042-9332263
Mayo	Ballinrobe	F31 DP26	Thursday 25 January	094-9541125
Mayo	Westport	F28 W681	Tuesday 06 February	098-28333
Meath	Navan	C15 NR79	Thursday 25 January	046-9021792
Monaghan	Monaghan	H18 Y563	Tuesday 06 February	047-81188
Offaly	Tullamore	R35 TP60	Wednesday 31 January	057-9321405
Roscommon	Castlerea	F45 NW99	Thursday 01 February	094-9620160
Roscommon	Roscommon	F42 XC63	Tuesday 23 January	090-6626166
Sligo	Ballymote	F56 A585	Tuesday 30 January	071-9183369
Tipperary	Clonmel	E91 Y394	Wednesday 24 January	052-6121300
Tipperary	Nenagh	E45 H240	Monday 22 January	067-31821
Tipperary	Thurles	E41 AK40	Tuesday 23 January	0504-21777
Westmeath	Mullingar	N91 PK10	Monday 22 January	044-9340721
Wexford	Enniscorthy	Y21 ED27	Wednesday 31 January	053-9239210
Wicklow	Tinahely	Y14 AN20	Thursday 01 February	0402-38171

NTA2 involves the creation of native forests for water protection.

Participants are encouraged to consult with Teagasc and registered foresters to determine the most suitable species for their specific site conditions. A maximum of 25% Scots pine can be planted. The tree species mix and composition are determined by the requirements of the two NTA scenarios.

7 What are the NTA scenarios?

Scenario 1 – dry mineral soil (e.g. podzols, brown podzols and brown earths).

Planting mixture – oak (30%), birch (30%) Scots pine (25%) and other native species (15%. Oak to be planted in predominantly pure groups, with birch scattered intimately throughout. Scots pine planted in small, pure, groups, focusing on parts of the plot and away from any watercourses adjoining or crossing the plot. The remainder of the birch to be planted in pure groups.

Scenario 2 – wet mineral soil (e.g. gleys) Planting mixture – alder (50%), birch (30%), oak (15%) and other native species (5%). Alder and birch may be planted in pure groups (30 to 40 trees), with groups interspersed alternately. Oak may be planted in small pure groups, focusing on the dryer parts of the plot.

8 Is this a permanent land use change?

Yes, forests established under NTAs are protected by the Forestry Act 2014, making it a permanent land use change.

9 What are the restrictions on the planting layout?

A minimum tree planting spacing of 3m x 3m is required, giving a planting density of 1,100 trees per hectare. Where the installation of deer shelters is necessary a minimum tree spacing of 4m X 4m is required giving a planting density of 465 trees per hectare.

- NTA1: the tree planting area must not be less than 0.1 hectare and not greater than 1.0 hectare. The area may consist of multiple smaller blocks (such as the corners of fields) provided these smaller blocks are not less than 0.1 hectare. All parcels must be 20m or greater in width.
- NTA2: the overall forest width, which represents the payment area width must be not less than 20m and not greater than 24m in width. A 10m to 13m water setback must be created with tree planting not exceeding 20% of the area of the setback. No trees to be planted within 2m of the aquatic feature. NTA2 must be no greater than one hectare.

10 When does payment occur?

Payments, including grants and annual premiums, are made at different stages of the process. Grants will be paid in two instalments. The first instalment may be claimed immediately after successful planting.

The second instalment can be claimed at least four years after planting has been completed. Premiums are claimed annually over the 10 years of the scheme.

One-to-One Clinics on Forest Creation

teagasc
Agriculture and Food Development Authority

A consultation with your Teagasc forestry adviser will provide independent and objective advice, empowering you to make informed decisions on many relevant issues including:

- Options under the Forestry Programme 2023-2027
- Available grants and premiums
- Interaction with other farm schemes, e.g. BISS, ACRES, etc.
- How forestry can improve farm income and the environment

Monday, 22 January
Teagasc, Nenagh, Co. Tipperary
Call for Appointment: 067-31821

Monday, 22 January
Teagasc, Mullingar, Co. Westmeath.
Call for Appointment: 044-9340721

Tuesday, 23 January
Teagasc, Thurles, Co. Tipperary.
Call for Appointment: 0504-21777

Tuesday, 23 January
Teagasc, Roscommon, Co. Roscommon.
Call for Appointment: 090-6626166

Tuesday, 23 January
Teagasc, Ballyhaise, Co. Cavan.
Call for Appointment: 049-4338300

Wednesday, 24 January
Teagasc, Clonmel, Co. Tipperary.
Call for Appointment: 052-6121300

Wednesday, 24 January
Teagasc, Naas, Co. Kildare.
Call for Appointment: 045-879203

Wednesday, 24 January
Teagasc, Ballybofey, Co. Donegal.
Call for Appointment: 074-9131189

Wednesday, 24 January
Teagasc, Macroom, Co. Cork.
Call for Appointment: 026-41604

Thursday, 25 January
Teagasc, Navan, Co. Meath.
Call for Appointment: 046-9021792

Thursday, 25 January
Teagasc, Mullinavat, Co. Kilkenny.
Call for Appointment: 051-998137

Thursday, 25 January
Teagasc, Ballinrobe, Co. Mayo.
Call for Appointment: 094-9541125

Friday, 26 January
Teagasc, Kilkenny, Co. Kilkenny.
Call for Appointment: 056-7721153

Monday, 29 January
Teagasc, Portlaoise, Co. Laois.
Call for Appointment: 057-8621326

Tuesday, 30 January
Teagasc, Ballymote, Co. Sligo.
Call for Appointment: 071-9183369

Tuesday, 30 January
Teagasc, Ballinasloe, Co. Galway.
Call for Appointment: 090-9642456

Tuesday, 30 January
Teagasc, Scariff, Co. Clare.
Call for Appointment: 087-7102739

Tuesday, 30 January
Teagasc, Oak Park, Carlow.
Call for Appointment: 059-9183555

Wednesday, 31 January
Teagasc, Enniscorthy, Co. Wexford.
Call for Appointment: 053-9239210

Wednesday, 31 January
Teagasc, Tullamore, Co. Offaly.
Call for Appointment: 057-9321405

Wednesday, 31 January
Teagasc, Killarney, Co. Kerry.
Call for Appointment: 064-6632344

Wednesday, 31 January
Teagasc, Ballybofey, Co. Donegal.
Call for Appointment: 074-9131189

Thursday, 1 February
Teagasc, Tinahely, Co. Wicklow.
Call for Appointment: 0402-38171

Thursday, 1 February
Teagasc, Castlerea, Co. Roscommon.
Call for Appointment: 094-9620160

Thursday, 1 February
Teagasc, Dundalk, Co. Louth.
Call for Appointment: 042-9332263

Friday, 2 February
Teagasc, Dungarvan, Co. Waterford.
Call for Appointment: 058-41211

Monday, 5 February
Teagasc, Longford, Co. Longford.
Call for Appointment: 043-3341021

Tuesday, 6 February
Teagasc, Monaghan, Co. Monaghan.
Call for Appointment: 047-81188

Tuesday, 6 February
Teagasc Westport, Co. Mayo.
Call for Appointment: 098-28333

Tuesday, 6 February
Teagasc, Newcastlewest, Co. Limerick.
Call for Appointment: 087-7102739

Wednesday, 7 February
Teagasc, Listowel, Co. Kerry.
Call for Appointment: 087-7102739

Wednesday, 7 February
Teagasc, Mallow, Co. Cork.
Call for Appointment: 022-21936

Thursday, 8 February
Teagasc, Mohill, Co. Leitrim.
Call for Appointment: 071-9631076

Thursday, 8 February
Teagasc, Tuam, Co. Galway.
Call for Appointment: 093-28123

Tuesday, 13 February
Teagasc, Kinsealy, Co. Dublin.
Call for Appointment: 01-8459000

Tuesday, 13 February
Teagasc, Ennis, Co. Clare.
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