



Today's Farm

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

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COMMENT



Mark Moore
Editor,
Today's Farm

Consider dairy farming...no offence intended

In this edition, we meet several farmers who have entered, or are transitioning into, dairying. The obstacles are many. You need a good amount of land, in a single block, and access to capital to get you going and keep you going during the challenging early years.

You'll need to be willing to put up with huge amounts of change, have the patience to learn lots of new things, and the energy to "make it happen". You don't need to be young. It will help if you like cows. To those who would like to make the move but can't for reasons beyond their control, apologies.

But for those who can do it, switching to dairying is the best opportunity available to a farmer.

I gcead duit... Smaoinigh ar an bhfeirmeoireacht déiríochta

San eagrán seo cuireann muid aithne ar roinnt feirmeoirí atá tar éis athrú, nó atá ag athrú, chuig an bhfeirmeoireacht déiríochta. Is iomaí constaic a bhíonn le sárú. Caithfidh tú roinnt mhaith talún a bheith agat in aon bhloc amháin, chomh maith le fáil ar chaipiteal le tú a chur ar do bhealach agus le tú a choinneáil ag dul i rith na mblianta dúshlánacha.

Caithfidh tú a bheith sásta cur suas le hathruithe móra millteacha agus ní mór duit an foighne agus an fuinneamh a bheith agat le neart rudaí nua a fhoghlaim agus leis an bplean a thabhairt chun críche. Ní gá duit a bheith óg. Beidh sé ina chúnamh má tá cion agat ar bha. Ár leithscéal dóibh siúd atá ag iarraidh an t-athrú a dhéanamh ach nach féidir leo ar chúiseanna nach bhfuil neart acu orthu.

Dóibh siúd ar féidir leo, is é an t-athrú chuig an bhfeirmeoireacht déiríochta an deis is fearr dá bhfuil ann d'fheirmeoirí.

FARM SUCCESSION
Putting a plan together
>> 30-32



Tom and
Jim Power,
Waterford.

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Cover | Paula O'Shea is a new entrant to dairying. Read about what motivated her to make the move in our cover story starting on page 8. \ Photo: Mark Moore



Visit www.teagasc.ie/virtualbeefweek

Catch up on all things Virtual Beef Week

Virtual Beef Week took place from 6 to 10 July. It was a week jam-packed with information from the beef talk every morning to Live@Grange every evening and all the social media posts in-between. If you missed any of the week, all of the

information is available online at www.Teagasc.ie/virtualbeefweek

We would like to thank everybody involved in putting the week together (there are too many to mention) and we would like to thank the sponsor FBD.



People management course for your farm

Teagasc is working with some of the major dairy processors: Aurivo, Carbery, Glanbia, Kerry and Lakeland to offer courses this autumn on the subject of people management for farmers.

So if you want to:

- Become an employer of choice.
- Bring the best out of your staff.
- Manage and prevent conflict.



Dr Nollaig Heffernan will be among the speakers.

- Hire the right person for your farm.

Contact your local Teagasc dairy advisor for more details.

This course will help you to create a workplace that allows you work with staff in a low-stress environment.

Speakers will include Dr Nollaig Heffernan, the Workplace Relations Commission (WRC) and Teagasc specialists.

Farm video series 'as Gaeilge'

Teagasc is delighted to collaborate with Conradh na Gaeilge, Údarás na Gaeltachta and Gaeilge Mhaigh Cuilinn to develop a series of videos through Irish with farmers from Moycullen, Co Galway. Staff based at Teagasc Athenry and Mountbellew Agricultural College meet local farmers Tomás Mac Lochlainn, Colie Gavin and brothers Martin and Diarmuid Mulkerrins to discuss Connemara ponies, beef schemes, water quality and grass measuring, respectively.

The first video of the series focusing on Connemara Ponies aired on Wednesday 19 August. All videos can be viewed on the Teagasc Facebook and Twitter accounts as well as on YouTube.

NATIONAL CROPS FORUM 10 SEPTEMBER 2020

- Event time: 6.30pm
- Venue: online.

The National Crops Forum will focus on varieties and agronomy.

The annual National Crops Forum provides an ideal opportunity for farmers to assess the season just gone and also look forward to options for next season.

This year, due to COVID-19 restrictions, the National Crops Forum will be held over two evenings as a virtual event on Zoom, from 6.30pm to 7.30pm each evening.

The dates and topics are as follows:

- 10 September – Varieties and agronomy
- 17 September – Green Deal and Farm to Fork – implications for tillage farmers.



The National Crops Forum provides an opportunity for farmers to look at options for next season.

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Teagasc Fodder Survey July 2020 –

National picture secure but 10% of farms have significant deficits

Joe Patton

Dairy specialist, Teagasc Animal and Grassland Research and Innovation Programme.



Over the last number of weeks, Teagasc advisors have completed almost 700 winter fodder budgets for dry-stock and dairy clients nationwide. This was carried out as part of a new initiative to promote better feed security planning on livestock farms.

Budgets were completed using the fodder budget function on Pasture-Base Ireland (www.pbi.ie) and were collated by region:

- **Midlands/north-east:** Cavan, Dublin, Kildare, Laois, Longford, Louth, Meath, Monaghan, Offaly, Westmeath.
- **South-east:** Carlow, Kilkenny, Tipperary, Waterford, Wexford, Wicklow.
- **South-west:** Clare, Cork, Kerry, Limerick.
- **North-west:** Donegal, Galway, Leitrim, Mayo, Roscommon, Sligo.

The national picture shows dry-stock farms reporting a moderate total surplus of 17% (total feed stocks minus total requirements for the sample farms), while dairy farms are similarly well placed at 12% total surplus.

As always however, there is huge

variation within enterprises and regions.

Feed budget data by region

Table 1 presents the data by region and enterprise. Here it is shown that dairy farms in the Midland North-east region have a small deficit of 3.8% overall, equivalent to six days feeding in winter. This is consistent with emergence of a short-term drought earlier in the summer – many dairy farms in this region had to graze first-cut crops and reported light yields at cutting.

Nonetheless, drystock farms have remained in surplus. All other regions report that farms in both enterprise categories have surplus feed on average.

Farms with significant feed deficits

Previous experience of fodder shortage has shown that farms with deficits of greater than 20% at onset of winter face significant practical and financial difficulties feeding their stock. Despite the overall positive position reported in this year's survey, 9% of dairy farms had a deficit greater than 20% of winter requirements.

The average deficit of this group was 85t DM, or approximately 350t fresh silage at standard dry matter.



Similarly, 12% of drystock farms had a deficit greater than 20% of winter requirements. The average deficit for this group was 33t DM, or approximately 140t fresh silage at standard dry matter.

There was no clear pattern of scale, location or enterprise to characterize farms with >20% feed deficits. This indicates that individual farm management decisions, not weather or land type issues, are the primary factor determining feed budget balances.

Targeting better feed security on livestock farms

Teagasc recommends carrying a rolling winter feed surplus of 25-30% to insulate against weather shocks. Results of the survey show that many farms are approaching this level, which is welcome. There is still, however, a cohort of farms struggling to balance the books for winter feed in a good year.

It is unlikely that these farms will face significant fodder availability problems this year, given the national situation.

However, there is a significant risk to feed security in years of adverse weather conditions. It is very important that farms in this situation develop plans to improve fodder balances.

The key steps are likely to include:

Table 1: Winter feed balance by region and enterprise July 2020

Enterprise	Region	Winter fodder balance %	Approx. days short
Dairy	Midlands north-east	96.22	6
Dairy	North-west	106.4	-
Dairy	South-east	118.1	-
Dairy	South-west	120.6	-
Drystock	Midlands North-east	113.6	-
Drystock	North-west	121.1	-
Drystock	South-east	123.5	-
Drystock	South-west	127.9	-

Case Study – Gene O'Rourke, Co Cavan



- Improving soil fertility (P, K and lime) status.
- Reseeding unproductive swards.
- Planning for an earlier first-cut of silage to boost annual forage yield and quality.
- Adjusting whole farm stocking rate to match grass growth capacity.
- Securing longer-term lease or feed contract arrangements.

Feed budgets

The fodder budgeting function in PastureBase Ireland has proven to be a most useful application to help farmers complete their fodder budgets.

It handles the calculations for feed supply and herd demand based on stock numbers and feed stock measurements provided by the client. Budget information is stored and can be revisited over time.

Michael O'Leary, PBI development co-ordinator, says the fodder budgeting application is growing in usage.

"Silage makes up about a quarter to one-third of total annual feed on most livestock farms, so it is vital to plan ahead.

"The fodder budget tool is worth a look, even if you are not currently measuring grass.

"There is plenty of help available from your advisor or the PastureBase helpline, so the advice is to gather your information and let the system do the sums for you," he said.



James Dunne, Teagasc dairy advisor, Ballyhaise, discusses fodder supplies with Gene.

Gene O'Rourke's yard in Laragh is packed full of this year's bales. Now in his third year milking, the young Cavan man has made good provision for feeding through the winter and out into next spring.

"We are heavily stocked at 3.8 cows per ha here at home," he explains, "So we must keep enough of the right quality feed on hand. It will all be needed."

When he converted from suckling and finishing cattle a few years back, Gene felt it necessary to push the grazing stocking rate to capacity and secure extra feed from external land, a common practice in the region.

"From the start, I needed to build enough scale to make this a viable unit," he says. 'I wanted to get as much grazed grass into cows as possible, but also make sure I wasn't going to be caught for feed in winter. So even though grazing stocking rate is high, my target was to bring whole farm rate to about 2.3 overall'.

An opportunity was taken to lease a block of good-quality land about 4km away from the yard, and this has made the numbers work in terms of feed security and overall stocking rate.

There is a good plan in place for this block. Grass cover is built on silage area in late summer and then grazed tight by young stock into early winter to clean off the swards.

Slurry (3,000g/ac) is applied with an umbilical system in February to establish a good base of potassium and phosphorus for the first-cut silage crop. This is topped up with urea as a Nitrogen source in March.

Soil is tested every second year and areas that have declined in soil index will get extra autumn slurry, or 0.7:30, to meet targets.

Gene makes all his own silage as bales. He employs a split first-cut, with early crop silage taken around May 15 and the remainder in late May. The early bales are used to feed the fresh cows in spring – these are generally baled dry at 75+ DMD.

The later first-cut bales are usually a bit lower DMD (70-72) and are fed in autumn when cows are stale. The split first-cut also has the advantage of having after-grass available for grazing young stock in stages.

"We try to make good first-cut silage to fill the gaps for the milking cows," he says. "I used to rely on surplus bales from paddocks, but the amount of surplus taken was too small. Anyway, most of these surplus bales don't tend to be great quality."

A bulky, lower DMD second-cut is taken in July to feed dry cows. Some area may be taken for third-cut, depending on the year – currently about 15% of the area is taken out for reseeding with an Abergain/Aberchoice plus clover sward mix.

Good management of the outside block has helped Gene to be more feed secure – based on his current feed budget, he is running a 12% silage surplus for the year. His long-term plan is to build silage pits to facilitate better long-term feed storage and reduce labour.

"Making all your own bales gives flexibility, but it's time-consuming in summer," he notes.

"The goal would be to pit the main first and second-cuts and use bales for the early stuff and surpluses. But it has been a case of crawl before you walk until now and getting the farm growing grass – no point in building big pits and having nothing to put into them."

Could dairying be the

Dairy output has increased from 6.4bn litres in 2015 to 8bn litres in 2019. We look at the opportunity dairying can offer as an enterprise

John Moriarty
Teagasc Animal and Grassland Research & Innovation Programme and Nefertiti Project*



1 Dairy farm incomes: dairy farming generates greater gross margin per hectare than the other main farming enterprises. In 2019, the average gross margin achieved on dairy farms was €2,500 per hectare. The 2019 National Farm Survey data has shown that dairy farms have an average family farm income of €66,570 compared to an average family farm income of €23,934.

2 Career prospects: there has been a gradual growth in herd size since quotas were lifted. Where traditionally one labour unit was adequate this may no longer be the case. This has presented opportunities for trained people to fill the void as relief milkers, stock people or farm managers.

Collaboration

Collaborative farming arrangements such as share farming and long-term land leasing enable those with the interest and enthusiasm, but no land, to build a business. There are numerous examples of young graduates progressing from relief milking to farm management. They can subsequently enter into a collaborative arrangement that gives them the opportunity to build equity in their own business.

3 Lifestyle: dairy farming has the potential to provide a family farm income capable of sustaining a family without the need for off-farm income.

Part time farmers

Existing farmers have switched to dairy farming from other enterprises so they can farm full-time. Where previously the day consisted of a daily commute, eight hours at work and

farming activities in the evening, the farmer is now full-time on the farm and closer to the family home. This has given them greater control over their time and allows more leisure time to spend with family.

Farmers with multiple enterprises

Milk quotas prevented some farmers from fully utilising their land blocks for dairy farming and additional enterprises were added such as beef, sheep and tillage. Farmers are now looking at consolidating and concentrating on one enterprise to reduce the labour requirements of the farm.

Consolidating can reduce workload peaks, e.g. dairy and sheep farmers who are calving and lambing at the same time. It can also reduce the number of 'busy periods', e.g. a dairy and tillage farmer will have calving, sowing, breeding and harvest running constantly from February to August/September.

New entrants to agriculture

For new entrants with an interest in animal husbandry, business management and working outdoors, dairy farming can be an attractive option. Many new entrants with no farming background have made the decision to enter dairying, working hard to overcome the initial barriers faced while reaping the rewards of a work-life balance, working outdoors and a comfortable income.

4 The Irish dairy industry: the continued growth in the world's population which is expected to pass nine billion by 2050 will generate increased demand for dairy products.

Ireland's temperate climate allows us to grow large quantities of grass per hectare.

As grass is the cheapest feed available we have a competitive advantage over dairy farmers who rely more heavily on expensive concentrate feeds. There is potential on Irish farms to increase the amount of grass grown and utilised per hectare. In 2019, the top 20% of dairy farmers grew 16,271kg DM/ha compared to 13,600kg DM/ha on the average farm.

Increased efficiency has seen the milk solids output per cow increase from 391kg/cow in 2015 to 433kg/cow in 2019. The industry has been proactive in dealing with the challenge of climate change and has adopted measures to mitigate its environmental footprint, including low-emissions slurry spreading, the use of protected urea and increased herd EBI.



Key messages

- A career in dairying has the potential to give a good family farm income and can be an attractive option for students and farmers in other enterprises.
- Access to suitable land, the biggest and often insurmountable barrier to becoming a farmer, has been made easier through the development and promotion of collaborative farming arrangements.
- Increased labour requirements have opened up thousands of employment opportunities on dairy farms.
- Farming when accompanied with a good income can be a healthy and fulfilling way of life offering a good work-life balance.

*The NEFERTITI project is an EU wide network with the aim of enhancing knowledge exchange through on farm demonstrations.

right choice for you?



FARMER PROFILE

Paula O'Shea is a dairy farmer at, Prumplestown, Co Carlow. Her husband is Brendan, an arable farmer. It was in spring 2019 when Paula first put a cluster on one of her own cows.

"I went into dairying for the lifestyle rather than the money," says Paula. "You do have very busy times of the year but for most of the time you have fairly predictable hours. I think that once you are up and running and organised dairying can be quite compatible with family life."

Paula and Brendan agreed to devote 130 acres of the land they farm to dairying and Paula aims to have about 110 cows milking next spring. The land is very light in places and 2020 was an extremely dry year in the Carlow area.

"We need to make plenty of silage," says Paula. "The cows get buffer feeding in the form of silage in summer even in a good year."

Paula is pictured with daughters Niamh, Orlaith, and Sarah. Husband Brendan and son David were combining!

"I did a lot of reading and visiting farms and consulting with anyone who could advise me before making the move into dairying," says Paula, who has a degree in agricultural science.

"George Ramsbottom and Ned O'Loughlin of Teagasc, friends and neighbours, have been extremely helpful."

"Paula says she doesn't mind admitting she was 44 when she started the dairy enterprise from scratch."

"Starting a dairy unit is not easy and there are times in the first years when you will wonder why you are doing it," she says. "But if you like cows and have a stubborn streak, you'll get there."

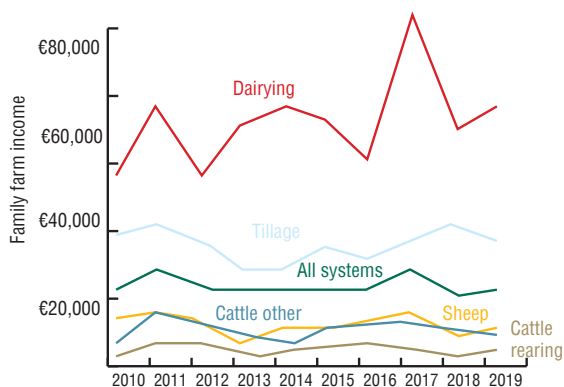
She says Brendan, who is passionate about machinery, is starting to see the herd in a favourable light. "In a year like this one, which has been difficult for tillage farmers, it's useful to have a second major enterprise on the farm."

Paula's latest purchase is rubber matting in the parlour for cow comfort. "If the cows are happy, I'm happy," she concludes.

Figure 1

National Farm Survey, Family Farm Income 2010 to 2019

Average family farm income for 2019: €23,934



INDUSTRY STATISTICS

- 16,100 dairy farmers.
 - 1.42m dairy cows.
 - 81 cows = average herd size.
 - 7.99bn litres produced per annum.
 - 90% of dairy products exported with a value of €4bn.
- Source: Teagasc NFS Enterprise fact sheet 2019

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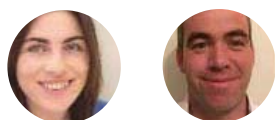
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dairying

Start-up course a must when

Wherever you are on your 'journey' of transition to dairying, Teagasc can advise you. For those who have made the decision, this hands-on dairy start-up course is ideal



Martina Gormley and Pat Gowing
Dairy specialists, Teagasc Animal and Grassland Research & Innovation Programme

A piece of metal equipment sits surrounded by nettles in Eanna and Willie Galvin's farmyard near Raheenakeeran, Co Offaly. In fact, it's a redundant cauliflower harvester. As well as horticulture the family have operated tillage, pedigree sheep and a number of beef systems on their 200 acres. Now they are converting to dairying.

"We worked really hard to make our suckler cows and pedigree Lleyen sheep pay," says Willie. "We invested a lot in reseeded, roadways, etc. and while we were fairly profitable we simply weren't making enough money for the amount of time and work required."

Their road-to-Damascus moment came two years ago when they reviewed the profitability of each enterprise and confirmed what they already knew: that drystock compared very poorly with dairying in terms of profitability.

A number of the Galvins' neighbours had already converted to dairying and the family initially approached their Teagasc drystock advisor Mark Coyne to investigate the feasibility of switching.

"We discovered there was a lot of advice available to help us make the right choices during the transition," says Eanna.

"We considered buying robots but Teagasc dairy expansion advisor Patrick Gowing pointed out that our herd



Willie and Eanna Galvin.

at about 100 cows is too big for one and too small for two, so we are building a 20-unit herringbone parlour.

"We are currently part of the dairy start-up course which is led by Teagasc dairy advisor Jim Moyles," says Eanna.

"We are in regular contact with Jim and the other people on the course. It's hugely helpful when making decisions."

The Galvins are also participants on a Teagasc Grass10 Grazing Management Course led by James Mimmagh and John Douglas.

"If you are thinking of switching to dairying I would really recommend approaching Teagasc and doing the dairy start-up course, you'll learn a huge amount and make fewer mistakes," concludes Willie.

Strong demand

To meet strong demand, Teagasc will be offering the dairy start-up course

again this autumn. This is the third year that the course has been run and over 100 farmers have participated so far.

The first part of the course includes four training days which take place from late September to the end of November 2020. The first day of the course is on a dairy farm and covers animal breeding with particular emphasis on buying in the right stock.

Day two is also delivered on farm and concentrates on farmyard and grazing infrastructure with the main focus being to get the farmyard layout right from day one.

The farms hosting day one and two are chosen for their high performance in animal breeding, grassland management and animal health. These farms will also show excellent cashflow and farm profitability.

The third day is an indoor meeting which involves crunching the numbers and each participant gets to

getting into dairying

create their own three-year budget.

Speakers for the first three days will be a mix of local Teagasc dairy advisors and Teagasc dairy specialists.

On day four participants will get to meet Teagasc Moorepark researchers be it face to face or through a webinar depending on COVID-19 developments. Researchers will present the latest research on grass varieties, drainage, calf facilities, key profit indicators and workload management.

The second part of the course includes 10 discussion group meetings which will be held on a profitable farm that is practising excellent grassland, breeding and animal health practices. At these group meetings, participants will get to see the farm and cows at all the different stages throughout the year.

In-between these group meetings there will be one optional training day for anyone interested in robotic milking. This meeting will be held outdoors on a robotic farm located centrally to all courses.

There will also be a one-day training workshop on milking machines, routines and milk quality. This workshop will be held, where possible, in the nearest agricultural college to the course locations.

The training day will be scheduled to a time that is suitable to the majority of the group.



Teagasc advisor James Mimmagh and Eanna Galvin review construction work for the Galvins' new dairy facilities.

Who should attend this course?

This course is tailored to individuals who are seriously interested in converting to dairy farming and have already discussed in detail, with their advisor, the financial implications and rewards from converting.

Key requirements before going into dairy farming or attending this course:

- You enjoy farming.
- You have a positive can-do attitude.
- You plan to follow research-based knowledge, not perceptions.
- You have a scale that will generate a reward that you are happy with.
- You use accurate assumptions to calculate profit potential.

How to book a place on this course

From 1 August to 10 September, you can add your contact details on www.teagasc.ie/dairystart-up

Here you will find more details including a course outline for each day. You can also contact your local Teagasc office and leave your contact details.

A member of staff can add your details online for you.

After the deadline of 10 September specific course locations will be decided and provided your details have been entered online by yourself or Teagasc you will be contacted to discuss course content, locations and registration.



Dairy Start-Up Course 2020



“Converting to dairy involves a major commitment and sizeable capital outlay...”

You need to be sure you are making the right decisions! ”



Request a Callback
www.teagasc.ie/dairystartup



Continued
on p12

FARMER PROFILE

Dara and Charles Kileen from Eyrecourt, Co Galway, started dairy farming in 2019 with 95 in-calf heifers and have increased to 153 cows milking this year. Prior to this, Dara and his father were farming 500 ewes and 120 beef cattle.



Dara Kileen.

Why consider dairy farming?

The decision to convert to dairying was based on improving work-life balance and also to increase farm profitability so that the farm would support a second farm income. These were the main drivers for this conversion.

Challenges converting to dairying

- Understanding the business plan and getting comfortable with the figures.
- Managing existing drystock with dairy stock and the new build.
- Learning a new skillset.

To overcome these challenges, Dara found joining the Aurivo focus farm programme, attending discussion group meetings, using the Teagasc farm expansion programme and having other dairy farmers to contact, was essential to the success of the conversion.

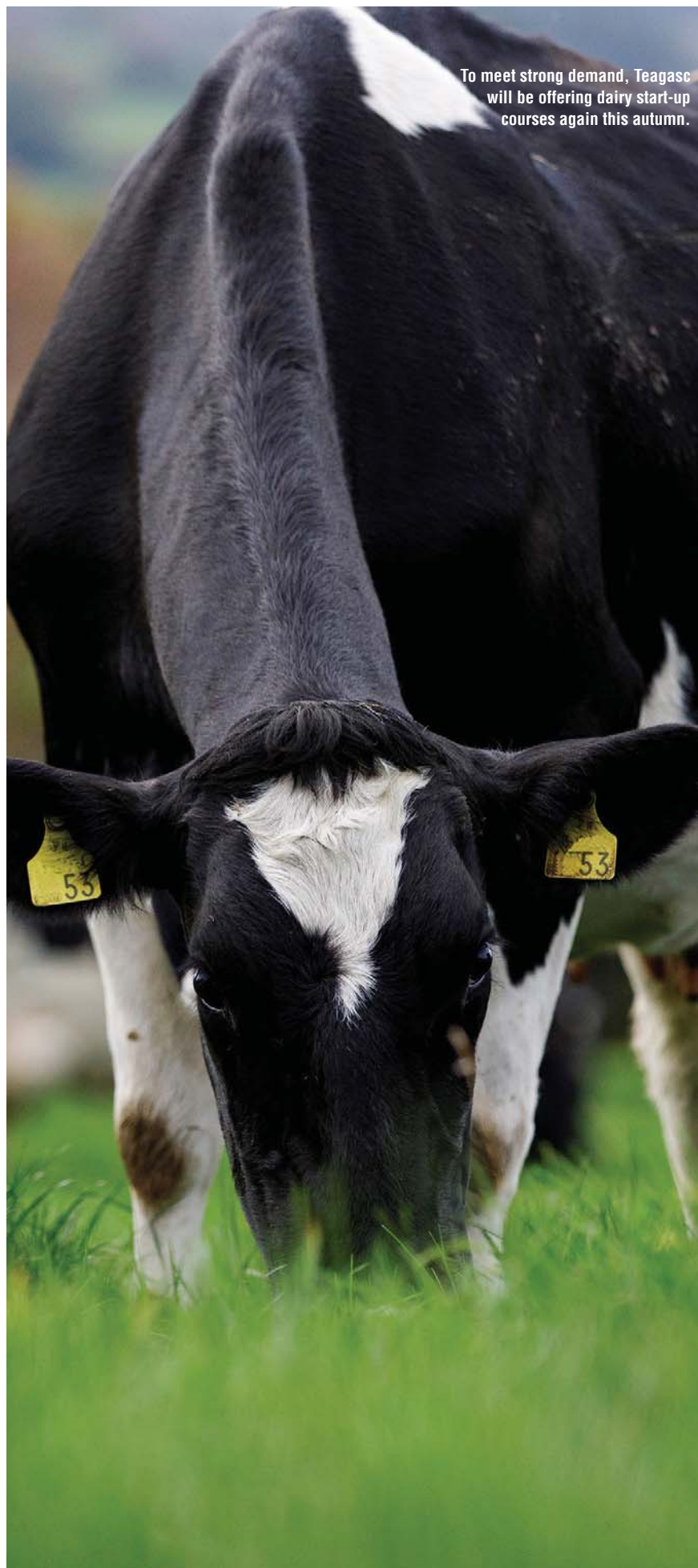
"I used all help and advice that I could get and I suppose I implemented what I needed from each," says Dara.

"I joined a dairy discussion group prior to starting dairying and this group came to the farm and they were a great help in the farmyard planning."

Advice to anyone starting dairying

- Take your time.
- Don't compromise on stock quality over price.
- Have an accountant that you trust to discuss business structures and reliefs.
- Have a strong business plan that you understand.
- Have a good working relationship with your bank, where you feel comfortable to call or email with questions.

"For us, the improvement in work-life balance is a massive benefit from converting to dairying. When we were drystock farming we were very busy in the spring lambing down 500 ewes.



To meet strong demand, Teagasc will be offering dairy start-up courses again this autumn.

The difference now is that we can afford to pay for help in the busy times.

"This year, we have one part-time person who works 20 hours per week and we also have a college student who works with us at weekends and when on leave from college. My father also helps out on the farm, so all in all including myself there are two full-time people working on the farm. This means I am not tied to the farm and can take time off from the farm."

“ Converting your farm to dairying takes time and a lot of planning. Developing a good capital budget for the project is essential

Are there any negatives to dairy farming?

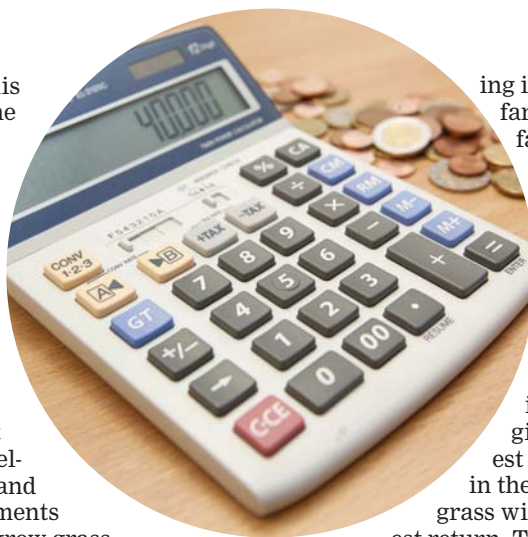
"To be honest so far, I can't think of any negatives. The plan that was initially put in place is coming together nicely. One downside in comparison to drystock could be the level of borrowings.

"I did find this daunting in the initial stages of conversion but I am not overly concerned now. This is because I have bought the right stock and invested money into a farmyard that allows for excellent cow flow and land improvements and that will grow grass which is by far our cheapest feed."

Pat Gowing, Teagasc farm expansion specialist, has been working with new entrants to develop their farm business plan since quotas were abolished.

"Converting your farm to dairying takes time and a lot of planning. Developing a good capital budget for the project is essential. An underfunded business plan can struggle with cash-flow as extra cash will be required to finish the development of your farm.

"Every farm is unique and will have different requirements to convert. Some units will have very good graz-



ing infrastructure on farm while other farms could require up to €800/ac of investment to bring the grazing platform up to scratch.

"Build your budget by starting with the items that will give you the highest return. Investing in the right stock and grass will yield the highest return. Too often, a large proportion of the budget is sucked up in the parlour or housing which leaves a smaller budget for stock and grass. This will negatively impact on your plan as you have not invested your money where you will get the largest returns.

"Converting your farm is a long-term investment. Spread the new borrowings over the maximum time you are allowed, to help protect cash flow in the start-up years. In the early years, output will be building gradually because your herd will be young and growing. During this time, protecting your cashflow is key."

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Act now to defeat viruses this winter

COVID-19 has focused the world's attention on viruses and vaccines. As farmers, it should prompt us to review how we manage viruses

Martina Harrington
Beef specialist, Teagasc
Animal and Grassland
Research & Innovation
Programme



In the coming months suckler calves will be weaned, castrated and housed. Many farmers will buy and move cattle to stock empty sheds. These are all stressors which will weaken animals' immune systems. Viruses, already present, are just waiting for an opportunity. The main viruses we worry about when stressing or housing cattle are respiratory – IBR, RSV and PI3

Like with the coronavirus, the impact is unpredictable. There's the horror story outbreak of pneumonia where cattle are a bit off their feed which leads to snotty noses, ears down, high temperatures and fast breathing. This requires a call to the vet and a lot of stress and hardship on human and beast, getting cattle in and injecting them, etc.

Or you could have the less visible situation where the virus is moving through your stock but the symptoms are scarcely noticeable. Both are reducing the performance of the herd which is a cost to the system; not something an enterprise with an already tight margin can take. Teagasc and AHI estimate that 75% of Irish cattle farms have some level of IBR.

So what are viruses?

Viruses are microscopic parasites so minimal (you might say efficient) that they do not even have the ability to reproduce themselves. They must invade the cells of a target host and direct its cells to reproduce virus copies, causing disease in the process.

As we see with COVID-19, viruses spread from animal to animal in bodily fluid, via breathing, coughing or by contact with infected clothes or equipment.

Treatment: the only cure is prevention

There are no cures or quick fixes with viruses. You cannot go in with antibiotics or a dose to solve the problem. Think of it like the flu – you can only manage the symptoms. The best defence is prevention in the form of a suitable vaccination programme, and the proper environment in the shed. This is where good management comes in.

What are vaccines?

Vaccines contain the same germ or part of the germ that causes disease, but they have been either killed or weakened to the point that they can't make you sick.

How do they work?

Once given, a vaccine stimulates your immune system to produce antibodies. So when you come in contact with the actual virus these antibodies know what it is and act fast to attack it and stop you from getting sick – making you immune.

It takes time for immunity to build. Different vaccines have different requirements, so it is critical to put a plan in place to ensure each animal has adequate immunity before castration/weaning/housing.

Vaccination programmes – your insurance policy

There are a number of different vaccines available for IBR, RSV and PI3.

Some are live, while others are dead. They can be given intranasally (usually giving quicker on-set of immunity), intramuscular or subcutaneously and then there are different programmes.

Any vaccination programme will depend on what viruses are present, how prevalent they are and the products being used. Each farm is unique.

For a vaccine to work properly, you must follow the vaccination programme for the product being used, to

the letter, and allow the time required for the onset of immunity.

Example

- Vaccinating weanlings for IBR, RSV and PI3, that were not vaccinated as calves using injectables: they should start their vaccination programme a month before weaning (the stress period) and two months before housing.
- RSV and PI3: give the first shot on 1 September and give the booster shot four weeks later at weaning (29 September). The full onset of immunity will be two to three weeks later and last approximately six months. Give the IBR vaccine at weaning. Now these animals will have immunity built up before housing and the immunity will last through out the housing period.

If these weanlings were vaccinated as calves, they should be given their booster shot a month before weaning/castration.

IBR vaccination

Shot one	1 September
Shot two	29 September
IBR vaccination	29 September (opposite side of the neck)
Housing	21 October



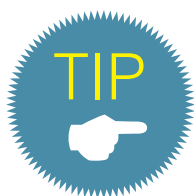


This is only one of the many combinations of vaccination programmes. There are many more, always consult with your vet before embarking on a vaccination programme.

Handling vaccines

Vaccines are very delicate and need to be handled with care. They should be:

- Purchased just before use.
- Brought straight home from the vet's office and refrigerated. They shouldn't be left in the car or jeep for the day as the heat and light will deactivate them.
- Stored in the fridge door. The fridge should be between 2°C and 8°C. Don't store in the back of the fridge, where the vaccine may freeze and be deactivated.
- Used as per the manufacturer's instructions, i.e. if they have to be mixed they should be mixed just before use, etc.
- Used as advised via the proper route of administration – intramuscular (IM), intranasal (IN) or subcutaneously (SC).
- Only used on healthy animals.
- Used-up quickly. Gather enough animals to use all the vaccine in the vial at the same time. The shelf life once opened is very short, e.g. 10 hours.
- Administered using a clean needle.



With so many products available and different combinations of vaccines, a vaccination calendar is extremely useful and can be drawn up with your vet.

If these protocols are not followed, then the vaccine may not work.

So, should you vaccinate on your farm? To take a human analogy, it's like considering the flu vaccine; you have to assess the disease risk. If you are 22, healthy and mixing with other 22-year-olds, you should be fine.

If you are 83, with a heart condition and not in the best of health, it's better to get the vaccine.

Putting that in the farming context, if you have a closed herd, are not highly stocked, have good nutrition and housing and very little stress in your animals then you will "probably" be OK.

However, you still need to be very vigilant for any signs of respiratory disease. If you buy in cattle, have a high stocking rate with lots of cattle in sheds even with good nutrition and ventilation, you need to consider it. The vaccine is like an insurance policy.

Cost

For the example above, a two-shot vaccine for RSV and PI3, and a one shot IBR vaccine costs ~€14 per animal (depending on pack size, etc.) For 40 animals that's €560. If those same animals were infected and forfeited even 0.1kg per head per day over a 150-day winter that is $40 \times 0.1 \times 150 = 600\text{kg}$ @ say €1.80 per kg = €1,080. That is not to mention if you have an outbreak and lose animals, after all the hardship and stress of treating them.

Word of caution

Vaccination is not a silver bullet. You must also minimise stress, have a good dosing regime for fluke and worms, have good nutrition and excellent conditions in your sheds. A good shed for cattle is one that is:

- Well-ventilated.
- Draft-free.
- Has enough lying area for each animal housed.
- Has enough feed space for the type of feeding.
- Has access to plenty fresh clean drinking water.
- Has a dry lie.

• Check out www.teagasc.ie and www.animalhealthireland.ie

Is your wormer working?

Anthelmintic resistance is a major challenge for sheep producers

Michael Gottstein
Sheep specialist, Teagasc
Animal and Grassland
Research & Innovation
Programme



James Doran
Business and Technology advisor,
Enniscorthy

Anthelmintic (wormer) resistance is one of the biggest challenges facing the sheep industry worldwide. Ireland was far from the first country to experience it but as far back as the early 2000s researchers here could find evidence of resistance to all three anthelmintic classes. In particular, there has been a substantial increase in the level of resistance to the Macrocytic Lactone group which contains Ivermectin, Abamectin, Moxidectin and Doramectin-based products.

Why does this matter? Research carried out in Scotland has shown that once resistance to a particular anthelmintic group develops on a farm, it is permanent and not reversed even if that group of anthelmintics is not used again for many years.

It is particularly concerning that there is an increasing number of farms where two, or all three, of the commonly available anthelmintic classes are no longer effectively doing their job of killing worms in sheep.

Teagasc, as part of a research project looking at anthelmintic resistance in commercial sheep farms, has carried out a number of faecal egg count reduction tests. Samples are collected from individual lambs before, and after, treatment. The pre- and post-treatment sample for each lamb is analysed and generally 15 lambs per anthelmintic class are tested (totalling 30 tests).

Wexford farmer John Kelly took part. John had become concerned when he tested faecal samples from a group of lambs two weeks after dosing and got a positive egg count.

The Kelly farm is a sheep and tillage which runs a flock of approximately 250 mid-season lambing ewes in Ballinabarna, Enniscorthy. Lambing typically begins on 20 February



John Kelly and James Doran.

and continues for five weeks. Sixty ewe lambs are retained each year as replacements with all remaining lambs slaughtered from a grass-based system without any concentrate supplementation.

“Over the last number of years, I was disappointed with our lambs’ performance at grass and became suspicious that our wormer was not as effective as it should be,” says John. Lambs were being managed to a high level in a paddock grazing system, typically being moved to a fresh paddock of high-quality ryegrass/white clover mix every three days.

Drench tests

“We performed a couple of drench tests whereby a faecal sample was sent to the lab to establish the level of worm burden and we submitted a faecal sample again seven or 14 days later depending on the product used to establish how well that product had worked.”

These tests were completed on specific wormers, and indicated that the wormer tested was not achieving anywhere near the required 95% kill of worms present to be considered effective.

This prompted John to join the trial on anthelmintic resistance on sheep farms carried out in 2019 by Orla Keane of Teagasc, Grange.

The results of a full faecal egg count reduction test on John’s farm showed that:

- Benzimidazoles (group one (BZ) or white drenches) were 100% ineffective.

In fact, the egg count continued to rise in the lambs that were being treated with the product.

- Levamisole (group two (LV) or yellow drenches) were still very effective (96% kill rate) and will form the backbone of his treatment plan.

- Macrocytic Lactones (group three (ML) or clear drenches) were no longer fully effective. On this farm two ML products were tested. The Ivermectin had a 68% kill rate. To be deemed effective the drug should kill at least 95% of the worms. Moxidectin had a 93% kill rate – again, not fully effective, but still a useful product on this farm which is deemed to have resistance to two of the anthelmintic groups.

So what causes resistance to develop? Over the 60 years since sheep farmers started using anthelmintics to control internal parasites, much of the advice targeted at maximising animal performance.

On intensive sheep farms, farmers were told to dose lambs every three to four weeks. After dosing, the sheep were moved to clean pasture to prevent or delay reinfection. Dosing ewes before lambing, to reduce the amount of worm eggs that they would subsequently put out on the pasture, was also recommended.

All good advice if you didn’t have to worry about the anthelmintic resistance developing. People didn’t consider anthelmintic resistance until much later on. So was this advice wrong? Well, with the benefit of hindsight, yes it was.

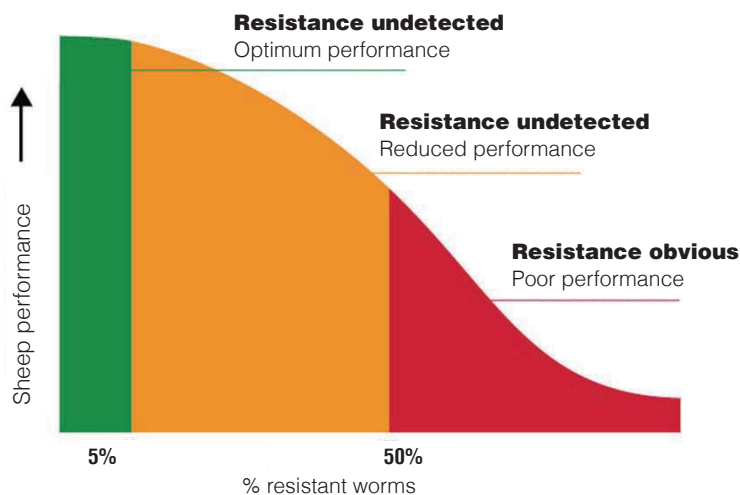
Anthelmintic resistance is the ability of the parasite to survive a treatment that would normally kill it. In every population of stomach worms there will be a small number of worms that are resistant to anthelmintics (even newly developed products). The speed at which that genetic resistance grows is determined by:

1. How often the product is used – every time we use the product the resistant worms have a competitive advantage. Resistant worms survive and pass their eggs out onto the pasture. Over time more and more of the eggs on the pasture are from resistant worms.

2. If we misuse the product by under-dosing or by using incorrectly calibrated equipment that is not delivering the quantity we think it is – we encourage the development of resistance.

3. If we continue to use products that are no longer fully effective.

In general, farmers will only start to see poor animal performance post-treatment when products are less than 80% effective. At that stage, it can be too late to try to implement strategies to maintain the efficacy of these anthelmintic categories. Continuing to



use products which are no longer effectively killing the parasites results in sub-optimal animal performance.

In order to help sheep farmers to establish the anthelmintic resistance status of their farms and to take steps to combat the speed at which anthelmintic resistance develops, Teagasc – in consultation with other industry stakeholders – has developed a four-step action plan as a starting point for everyone in the industry.

See <https://www.teagasc.ie/media/website/publications/2020/Control-of-Stomach-Worms-Flyer.pdf>



Read the Four Actions PDF online: <http://bit.ly/wormers>



Continued on p18

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From p17

So, back to John Kelly – what is his plan?

The results of the tests showed that on his farm:

- White drenches (Class 1 BZ) are 0% effective.
- Yellow drenches (Class 2 LV) are 96% effective.
- Clear drenches (Class 3 ML) the Ivermectin-based products are 68% effective.
- The Moxidectin-based product was 93% effective.
- Levamisole is achieving a parasite kill that is greater than the required 95%.

The following is John's strategy to maintain the efficacy of the current anthelmintic class and reduce his dependence on the two new categories of POM wormers (Zolvix and Startect). These are very expensive products – five to 20 times more expensive than the over-the-counter products in the case of Zolvix:

- Only use a Benzimidazole (white drench) for nematodirus. Despite these products being ineffective against the main stomach worms, they are still effective against nematodirus which is the first parasite that young lambs encounter in spring.
- Do not treat adult sheep (over one year old) with an anthelmintic unless there is a need based on laboratory evidence and veterinary advice. Do not use anthelmintics to treat for



John Kelly says dung samples must be very fresh and handled and stored carefully to ensure an accurate faecal egg-count result.



Key messages

Every sheep farmer must recognise the threat that anthelmintic resistance poses to his/her flock. It is here now and is costing farmers lots of money in terms of lost animal performance from using products that are not working effectively. As outlined in the action plan:

- Only use a white drench (BZ class one) for the treatment of nematodirus in the spring time (usually April and May)
- Never dose adult ewes for stomach worms – unless there is a demonstrated need based on veterinary advice
- Carry out a drench test on your farm to find out what products are still working.
- Always treat bought in stock or stock coming from another holding with a quarantine drench to prevent bringing resistant parasites on to your farm.

sheep scab (use dipping) and do not use combined flukicide/wormers (use a flukicide alone if required).

If adult sheep need routine dosing consult your vet or agricultural advisor as there may be an underlying problem that is making them more susceptible to worms.

- After weaning, ensure that ewes and lambs graze over the same pasture. Use a leader-follower system where the lambs graze ahead of the ewes.
- From mid-May onwards, only treat lambs for worms based on need demonstrated by a faecal egg count.
- Quarantine-drench all bought-in sheep with Zolvix plus either Levamisole or ivermectin or Startect plus Levamisole and house them for 48 hours to allow any resistant eggs already laid to pass out. Avoid spreading this dung on sheep ground. When turning out these sheep turn them out on to pasture that has had sheep grazing on it recently
- Never dose and move to clean pasture (a reseed or aftergrass/forage crop). Dose (minimum of five days) before moving or else wait (minimum of five days) after moving before dosing. Only treat (minimum of five days) after the movement occurs if using a Moxidectin-based product

due to the persistent activity of this product.

- Test the efficacy of Levamisole every two years using a drench test.



We are now constantly monitoring lamb worm burdens through faecal sampling

- Limit the use of Moxidectin due to its persistent activity and the fact that it is already not achieving a 95% kill.
- Use a break dose (Zolvix or Startect) once per year in late summer and when the egg count is sufficiently high (>500 epg)

"We are now constantly monitoring lamb worm burdens through faecal sampling," concludes John Kelly.

"I do it every two weeks during the grazing season once treatment for nematodirus ceases. The level of worm burden in the faecal sample dictates whether a dose is required and has now replaced routine dosing based on dates."

Organic ambition: one field in four

The EU wants more land in organic farming and has set out a big target

Dan Clavin
Teagasc Organic Specialist,
Athenry



Elaine Leavy
Teagasc Organic Specialist,
Grange



Marianne Mulhall
Drystock Advisor,
Teagasc, Oakpark, Carlow



The EU Commission has set a target of 25% of farm land area to be under organic management by 2030. The target comes within the new Farm to Fork Strategy Plan. The Commission says that it wants to focus on the sustainable economic development of the organic sector and on promoting more demand for organic food.

Currently, the average organic land area in the EU is just 7.5%. Organic land area in Ireland remains proportionally small at just over 2%, but there has been a 50% increase since 2014.

Why organic?

There are several reasons why organic farming is supported:

- **The law:** The organic farming system is enshrined in the 'Farm to fork' legislation and has the trust of the consumer. All EU operators farm to a strict set of EU standards and are inspected regularly.
- **Sustainable low-input farming:** Research indicates that, in general, organic farming has a more benign effect on the environment than conventional farming.
- There is no artificial Nitrogen or artificial agro-chemicals permitted and we need to reduce levels of both, according to the EU. Organic production leads to increased biodiversity due to plant species diversity, crop rotations and low nitrogen use.
- **Animal Welfare Considerations:** Animal welfare and health has be-

come more relevant in farming and it is considered of paramount importance in organic farming.

- On organic farms, animals are given more space if housed and are allowed to express their normal range of behaviours.

- **Increasing demand for organic food:** The global demand for organic food is worth €100bn and this is forecast to rise. The EU market has doubled over the last 10 years and is now almost €40bn.

- According to Bord Bia, Irish organic retail sales add up to €250m, which is about 1% of total food sales. The EU wants to invest in growing the demand for organic food further.

- **Farmer lifestyle choice:** Young farmers especially are looking at their farms with new eyes, free from the perspective that their parents may have had. Some see it as a way of cutting back on inputs and labour, while still generating a good income.

- **Increasing rural viability:** Organic can be a profitable option, with the potential to boost investment in the local economy and create jobs. This can be the case for all types of organic enterprises, but in particular for small horticulture enterprises, many of which employ local rural people

Organic Farming in Ireland

Number of organic farmers: 1,823 (July 2020) including the top six counties: Cork (227), Roscommon (183),

Galway (128), Tipperary (119), Limerick (114) and Leitrim (111).

Enterprises (approximate latest figures up to 2019)

- **Cattle:** ~1,400 farmers, ~18,500 suckler cows.
- **Sheep:** ~600 farmers, ~65,000 ewes.
- **Tillage:** ~160 farmers farming ~2,500ha (mainly oats).
- **Horticulture:** ~300 farmers produce vegetables on ~520 ha.
- **Dairy:** 62 farmers milking 5,000 cows.

Source: DAFM

What are the market opportunities?

Strong demand exists for the majority of organic products, in particular tillage, horticulture and dairy products, much of which are currently imported.

Large companies including Glenisk (organic milk), Flahavans (organic porridge oats), Good Herdsmen, Slaney Meats (organic beef) and ICM (organic lamb) are involved in the organic business and buy product from farmers.

It is important that prospective organic farmers make contact with processors to ensure that a buyer is in place. Contracts may also be available from some processors.

Many organic producers like to sell directly at farmers markets, box schemes and farm shops. Local research is required when considering these options.

organic farming

Farmer Profile: Darren and Gerard Grennan, Clara, Co Offaly - Organic Dairying

Darren and his father Gerard farm 110ha near Clara, Co Offaly. They have been farming organically since 2010 and supply organic milk to a local organic processor (Glenisk) for yogurt and milk production.

According to Darren, the conversion to organic was largely a financial decision.

"Prior to going organic in early 2010, we milked 60 spring-calving cows, but the volatility in the milk price and the price of inputs, including conventional fertiliser, made us consider other options.

"In order to support two families, the options available were to either milk 100-120 cows as organic or milk 200 cows as conventional. After visiting other organic farms and exploring the market opportunities, we made up our mind to go organic." The Grennans now milk 140 cows and produce milk all year around.

The main changes to the farm involved getting up to speed with organic methods of farming and coping without artificial fertilisers.

Darren says: "There were no local organic dairy producers in the locality, so it was a challenge to get information at the time. We visited



Gerard and Darren Grennan.

other mainly organic beef and cereal operators and got ideas from them. We also attended a local organic farming course. In organics, you are learning all the time."

The Grennans knew that going without artificial fertiliser would be a challenge, but they have coped by using good nutrient management planning and reseeded regularly with high-clover content swards.

"I use mainly slurry and farmyard manure, and on occasion potassium sulphate when soil potassium levels

get low. I find that by spreading the slurry watery and often, that I get best use out of it," says Darren.

On average, Darren aims to reseed around 15-20ha of the farm every second year.

"All my fields are full of clover at the moment," he says. While some farmers worry about bloat, Darren has found no such problems: "I have never had a case of bloat because the cows have become so accustomed to the clover."

Farmer Profile: Fergal Byrne, Calverstown Little, Dunlavin, Co Kildare - Organic, beef, cereal and sheep

For a number of years, Fergal had an interest in organic farming: "In 2014, I felt I had to start looking at other options for the farm." At the time, he was taking a lot of conacre and growing cereals on it. "Every time I went into the field I was spending money on fertilisers and sprays."

In late 2014, Fergal completed a 25 hour Introduction to Organic Farming course. A farm plan was drawn up and the farm entered conversion to organic in 2015.

"Firstly, I gave up the conacre and concentrated on farming the home farm." Oats are now grown on contract for Flahavans. A combicrop is also grown – a mixture of barley, oats and a combinable pea has been sown this year. This will be used on-farm for winter feeding.

Last year, Fergal established a sward of red clover: "The reason that I sowed the red clover was because of its protein, winter feed value and its ability to 'fix' nitrogen from the air."



Philip and Fergal Byrne.

Prior to going organic, weanlings were sold in the autumn.

"For the last two years, all the cattle have been finished and sold in two batches in late January and March." They are sold to Good Herdsmen at two years old.

Ewes are lambed in two batches, starting in mid-February, with the second batch in mid-March. The first of the finished lambs are sold from the first week of June and through the summer.

"I have two organic markets for my finished lambs. We supply lambs to Irish Country Meats and to Coolanowle Organic Meats."

Since last year, the wool from shearing the sheep has been sold to a specialist organic wool miller, Yarns and Vibes, to be made into knitting wool.

"Farming organically, I believe that I am producing superior produce in a farming system that is good for biodiversity and the environment around us, with no great reduction to the farm output."

Farm Profile: Coolanowle Organic Farm



Coolanowle Farm was converted to organic production in 2001 by Jimmy Mulhall. Jimmy's vision was to create his own market, rather than depend on volatile commodity markets which leave little profit for the farmer. He also aspired to farm in a more sustainable and environmentally-friendly way.

Jimmy began to sell his own organic beef and sheepmeat directly at farmers markets locally in Carlow, Kilkenny and Dublin. Over time, as this business expanded into increasing online and market sales, Jimmy, along with his son Eddie, have been growing the Organic Meat business and Jimmys' son-in-law, Bill George has taken over the running of the farm.

Bill is leasing the land from Jimmy and is now farming 145ha. The main enterprise on the farm is dairying,

with 140 cows being milked. The beef stock are sold to Eddie (who is farming 65ha) and he brings them to slaughter for the business. Eddie also provides lambs to the meat business, along with organic chickens coming from another family member, Pat Mulhall.

The milk is supplied to The Village Dairy, Killeslin, Co Laois, and to the Little Milk Company. The feed bill is the biggest challenge on organic dairy farms, therefore Bill George grows as much of his winter feed as possible. This includes harvesting red clover silage – up to four cuts/year and also sowing a combi-crop of barley and peas, which is combine-harvested.

The high protein content in the red clover silage and the combi-crop helps reduce the need to buy in high protein organic feed. Straight barley

and wheat are also bought from other local organic farmers for winter feeding.

The latest business venture for the family has been the opening of Coolanowle Foodhall in Carlow. This comprises an organic butchery, a deli and a restaurant, while also stocking a wide selection of local artisan produce and home baking.

Anyone interested in attending a 25 hour QQI Level 5 'Organic Farming Principles' course can register on a waiting list and when courses are organised, they will be contacted. Here is a link to the organic section of the Teagasc public website with details and email address: <https://www.teagasc.ie/rural-economy/organics/training/>.

For more information, go to www.teagasc.ie/organics.

The secret life of

Catherine Keena
Environment specialist,
Teagasc Crops, Environment
& Land Use Programme



Extending to an estimated 689,000km, which is 90% of the distance to the moon and back, hedges define Ireland's lowland agricultural landscapes. These landscapes have been shaped by human hand with nature providing the raw material; a creative tension between ecology and agriculture.

Hedges and fields are complementary – one defines the other. These features give character to a particular landscape and identity to a townland or county. The way we view hedges is enriched by an understanding of history, ecology, rural society or farming practices, all of which stimulate interest and deepen our aesthetic appreciation.

Hedges are ecosystems where native flora and fauna co-exist in harmony as they have done for centuries. They mark the seasons of the year with bud burst heralding the breaking of dormancy. Shrubs flower in line with nature's unerring sequence – catkins, blackthorn, primrose, whitethorn, elder, woodbine and ivy.

The timing of flowering and fruiting in perfect harmony with the life cycle of associated native Irish fauna.

Birds

Of 110 bird species regularly recorded during the breeding season in the Countryside Bird Survey in Ireland, 55 use hedgerows. Of these, 35 species nest in hedgerows which provide cover from overhead and ground predators.

Hedges provide nesting and feeding opportunities for many farmland birds, some of which are becoming increasingly threatened in otherwise intensively-managed farmland.

For example the yellowhammer is "Red" listed on the Birds of Conservation Concern in Ireland (BoCCI), which is an assessment of the conservation status of all regularly occurring birds on the island of Ireland. Yellowhammer are now mainly found in the eastern half of Ireland. They prefer cereal fields and nest on or near the ground under hedgerows.

While the robin is a common and widespread species they are "Amber" listed due to short-term population



Hedges define Ireland's lowland agricultural landscape and provide a larder of food in autumn.

declines associated with two recent cold winters, but populations appear to be recovering.

The singing of the blackbird and the song thrush (both "Green" listed) is recognised in folklore and praised in song and poetry. The song thrush is known for its habit of smashing snail shells on a favourite stone.

Mammals

Hedges are important for many mammals as movement corridors, as well as feeding and nesting sites. Hedge invertebrates are feed for insectivores such as hedgehogs.

Hedgehogs build day nests, which are flimsy structures, in hedgerows. Their hibernation sites, also located in hedgerows, are more robust structures with a short tunnel leading to a chamber composed of compacted leaves. This is where they undergo true hibernation from October until March.

While some hedgehogs may remain dormant for the entire hibernation period, others may arouse a number of times and move to a new "hibernaculum".

Unlike the grey squirrel which was introduced to Castleforbes, Co Longford, in 1911 and is considered an invasive alien species, the red squirrel has been here since prehistoric times. Red squirrels are still widespread, but scattered, and are absent from areas of the midlands where the greys have been longest established.

Bats

Being capable of flight, many may not think of the bat as a mammal but it is, and suckles its young. There are nine resident species of bats in Ireland all feeding exclusively on insects.

The common pipistrelle, weighing only 4g to 8g, will eat up to 3,000 insects every night, to build up fat in its body to survive the winter deep in hibernation.

Bees

Hedges provide food and nest sites for bees. In Ireland, there are 77 solitary bees, 21 bumble bees and one honey bee species. Solitary bees are often very efficient pollinators. Research has shown that one female red mason

hedges

“ Work is under way to quantify soil carbon and biomass accumulation associated with hedgerows

solitary bee does the pollination work of between 120 and 160 honeybees.

Eighty per cent of solitary bees are mining bees who nest in bare ground or south/east facing banks where there is bare earth. Solitary bees can travel up to 1km but commonly forage within 100m to 200m of their nest. An increase in distance between nesting sites and food plants can reduce the number of viable offspring.

Bumblebees can travel up to 5km, but commonly forage between 1km and 2km of their nest. A queen may have to visit 6,000 flowers each day to get enough nectar.

Moths and butterflies

There are over 1,400 species of moths in Ireland. The scalloped oak moth feeds on a number of deciduous trees and shrubs and is commonly found in hedges. The swallow-tailed moth is a highly distinctive moth with its swallow like tails. It usually feeds on ivy.

The 35 Irish butterfly species belong to the same grouping as moths. Butterflies are generally colourful and fly during the day, while most moths are duller and prefer to fly at night.

Speckled wood butterflies perch on sunlit places within hedges and eggs are laid on grasses including cock's foot and Yorkshire fog.

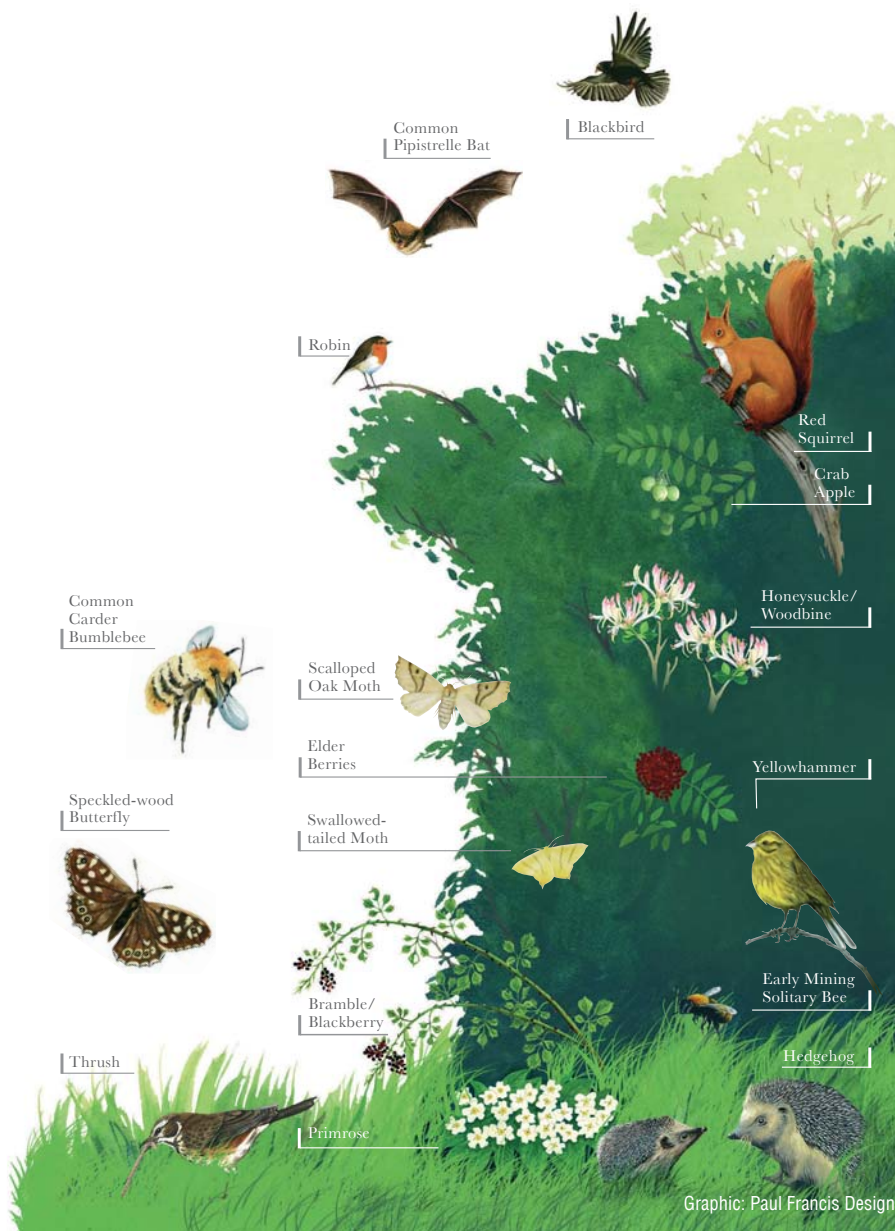
Carbon

Work is under way to quantify soil carbon and biomass accumulation associated with hedgerows including the impact of management on biomass accumulation.

The aim is to develop a hedgerow carbon accumulation model to quantify carbon removal and a modified soil model to account for soil organic carbon under hedgerows systems.

Considering the secret life of hedges, with all these values – new native Irish hedges should be planted by this generation of farmers.

• In December, Teagasc Hedge Week 2020 will focus on planting new hedges.



Graphic: Paul Francis Design

Food for free

There is a growing interest in foraging for wild plants, berries, nuts and fungi to enhance our diet deliciously. In Ireland, there are lots of edible wild foods to forage and enjoy, both on land and along the seashore.

These plants were really important to our ancestors and are potentially donors of resistant genes to modern cultivars. Of all Irish flora species, 119 have historically been used for food. Many are found in hedges.

Crab apples are used widely for making jellies, cider and wines. These trees are descended from the true wild species, while the cultivated apple tree comes from Asia. Blackberries are used in jams, jellies, pies and wines. There are over 80 species of blackberry or bramble in Ireland.

The flowers and fruit of the elder are widely used for food and drinks. Elder has historically been used to treat coughs and colds.

Doing your duty under derogation

It's vital that farmers meet their derogation obligations, to ensure we have continued access to it. This Kilkenny farmer shows how it's done

John P. Kilboyle
Dairy Advisor, Waterford/
Kilkenny Advisory Region



Just outside Piltown, south Kilkenny, Shane Kinsella operates a herd of 90 spring-calving dairy cows. The farm consists of 39ha and is operating at the upper end of the nitrates derogation at a stocking rate of 2.92Lu/Ha.

Over the years, increasing stocking has been closely aligned with growing, managing and utilising larger quantities of high-quality grass. The farm grew 16t of DM/Ha in 2019.

"Each year, I draw up a nutrient management plan with my Teagasc advisor to plan nutrient usage for the coming year on my farm," says Shane.

"My key focus in the plan is a targeted liming programme. We apply lime on paddocks with low soil pH < 6.3 and on paddocks selected for reseeded.

"Once lime requirements have been met, I focus on maximising the use of cattle slurry in my fertiliser programme. This is then balanced up with chemical fertiliser, namely Protected Urea and Sulphur," says Shane.

"The grassland performance has been achieved by having a continued focus on improving soil fertility, enhancing grassland management through grass measuring, and adopting a routine reseeding programme. Many of these aspects driving performance on my farm are included in the recent derogation changes that were introduced in 2020."

Compulsory liming programme

The most recent soil samples on the Kinsella farm were taken in December 2017 and showed a lime requirement of 125t. All will have been applied by the end of this year.

"I feel I get a great return from investing in lime. It not only boosts growth on paddocks where it is required, but it also maximises the return I get from chemical fertiliser/ fertiliser and releases P and K from the soil," says Shane.

"I plan to soil sample the whole farm again in December 2020. I'll take 24 soil samples across 39ha. This will give me an accurate profile of the current soil fertility status right across the farm and identify areas to focus on over the next two to three years, in terms of lime and P and K applications."

Low Emission Slurry Spreading (LESS)

All slurry has been applied using LESS in 2020.

"LESS technology has had a huge impact in terms of how we apply our slurry. I feel we are getting much more value out of the nutrients in it now, especially since more slurry can be targeted on the milking platform."

This has resulted in reduced chemical fertiliser purchases.

"We've applied 40kg/ha (32units/ac) less chemical nitrogen so far in 2020 compared to this time last year.

"I am very happy about this, especially with fact that grass grown/ha has increased by half a tonne of dry matter per ha to-date in 2020,



Shane Kinsella.

compared to 2019. I also see a much faster turnaround time – from slurry application to paddocks being grazed – versus the splash plate we used in the past."

Reduction in crude protein

"In 2020, the crude protein in meal fed on-farm has been reduced to 14% for the main grazing season. In previous years, we would have fed meal with 16% crude protein. This is the first year I have gone the full main grazing season on a lower crude protein meal, with no impact noticeable on herd performance.

"I am very happy with the results and will drop crude protein to 12% for the main grazing season in 2021."

Grassland management

"I walk the farm weekly to assess grass growth rate and supply for the coming week. I completed 38 grass covers in 2019. Grass covers are entered into Pasture Base Ireland software.

"I have been measuring grass since 2015. It has really given me the



confidence to make quicker decisions regarding managing grass surpluses and deficits on-farm. That means we can keep high-quality grass in front of the cows at all times.”

Inclusion of clover in grass seed mixtures

A reseeding programme is in place on Sean’s farm, with 85% of the farm reseeded in the last five years. A grass and clover mix (1.5kg/ha naked clover) is used for all reseeding.

“Once I got on top of soil fertility, I began to focus on incorporating a routine reseeding programme, which has transformed the farm in terms of its ability to grow large quantities of high-quality grass and clover.”

Improve farm biodiversity

Along with a keen focus on continued improvement in technical efficiency on-farm, Shane has also targeted maintaining and enhancing biodiversity on his farm.

“There are a significant number of hedgerows in place around the farm. I have been conscious to maintain these biodiversity areas over the years as we have expanded the herd.

“I chose the derogation option to leave at least one mature Whitethorn or Blackthorn tree in every 300m of hedgerow.

“In addition to this, I plan to add to hedgerows on-farm, with 200m of new hedgerow planned for sowing over the next three years.”

NEW Derogation Requirements for 2020

1 Compulsory liming programme <p>pH → 6.3</p>	2 Low emission slurry spreading (LESS)	3 Reduction in crude protein % of meals to dairy cows at grass <p>15% year 2021</p>	4 Compulsory environmental training course
5 Grassland management <p>PastureBase IRELAND</p>	6 Inclusion of clover in grass seed mixtures	7 Exclusion of commonage / rough grazing <p>MAX 170 kgs organic N per Hectare</p>	8 Improve farm biodiversity

Perils of early sowing

Ciaran Collins

Tillage specialist,
Teagasc Crops, Environment
and Land Use Programme



It's been a difficult 12 months for cereal growers. Scarce planting opportunities in autumn 2019 resulted in the winter cereal area dropping 40% on the year before. Spring cereals established on the available ground were clobbered by drought in April and May.

So what should cereal growers do this autumn? Traditionally, the ploughing match, a COVID-19 victim, was the cue to order seed and there is a strong temptation to plant early to avoid the misfortune that occurred last season. But caution is needed. Early planting can lead to increased pest and disease pressure and greater risk of grass weeds.

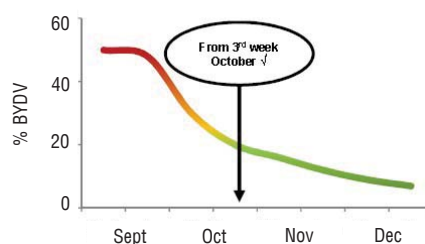
Planting winter wheat and barley early (mid to late September or later further south) generally guarantees good seedbeds and temperatures during germination leading to higher establishment rates. However, early planting increases the likelihood of:

- BYDV.
- Take-all.
- Grass weeds.
- Disease.
- Lodging.

BYDV

Early-sown crops are at the highest risk from BYDV and yield reductions of 3.7t/ha have been recorded in Teagasc winter barley experiments. Coastal areas are at particular risk and the danger is enhanced by a mild autumn/winter when the aphid migration period is longer and aphids are more likely to survive the winter.

Figure 1
BYDV risk increases with early sowing



Sowing date
– Tom Kennedy, Teagasc
national tillage conference 2014.

Early-sown crops emerge earlier and have a much longer period of exposure to migrating aphids carrying BYDV. Delaying sowing date may reduce or eliminate the need for an insecticide application but there is the risk of poorer establishment.

Insecticides cannot be relied on for full control of aphids. Knock Down Resistance (KDR) was first identified in Ireland in 2013. Aphids with the KDR gene are less susceptible to pyrethroid insecticides (Karate Zeon/Decis Protech, etc.) but to date, KDR has only been identified in *Sitobion avenae* (grain aphid) which is an important vector of Barley Yellow Dwarfing Virus (BYDV) in Ireland.

As we do not have neonicotinoid seed treatment (Redigo Deter) pyrethroids are the only insecticides available for BYDV control in winter and spring barley.

Integrated pest management (IPM) is increasingly important. While avoiding early sowing is a key IPM management tool, minimising the green bridge between crops and monitoring for control failures are other important IPM tools.

Variety selection is becoming another IPM tool as seed companies invest in breeding techniques to develop BYDV tolerant/resistant varieties.

A limited amount of seed of a BYDV-tolerant variety KWS Joyau will be available this season. It is important to differentiate between resistant and tolerant varieties. Currently, BYDV resistant varieties are not available in Ireland.

Take-all

Wheat is more susceptible than barley to the soil-borne fungus take-all. Continuous cereals are most susceptible, particularly second and third wheats after a take-all break crop. The disease is carried over on the roots of the previous crop so early sowing increases take-all risk.

Take-all inoculum declines after harvest but it is important that volunteers are eliminated as they too can act as a bridge carrying the infection from one season to the next. Therefore, delayed sowing reduces the disease in continuous cereals.

Weather conditions have a large impact on take-all. Take-all is active in the soil at higher soil temperatures so it is favoured by early sowing. A wet spring allows the buildup of the pathogen and take-all effects will be exacerbated in a dry summer.

High soil pH, poor soil structure, poor drainage and fluffy seedbeds all favour take-all. Seed treatments (Lattitude) were effective in reducing take-all in wheat in Teagasc trials but will be more effective when combined with delayed sowing.

Grass weeds

Grass weeds are becoming an increasing problem with brome species and blackgrass difficult to control. Avoiding the main germination period is a key IPM technique. The key germination period for sterile brome and blackgrass is September and tapers off as sowing moves into October. Winter barley should be avoided as there are no chemical control options.

Delayed sowing also allows the use of stale seed beds which are an effective IPM measure to reduce the weed seed bank. Ideally, the first flush of brome/blackgrass should have appeared in the field before sowing.

The Enable Conservation Tillage (ECT) project was set up by Teagasc under the European Innovation Partnership (EIP) initiative and has demonstrated on many of the focus farms the advantages of delayed sowing for grass weed control. Ideally, farms with problem weeds such as brome and blackgrass should wait until the spring but focus farmers in the project have demonstrated a reduction in grass weeds by delaying sowing until mid to late October.

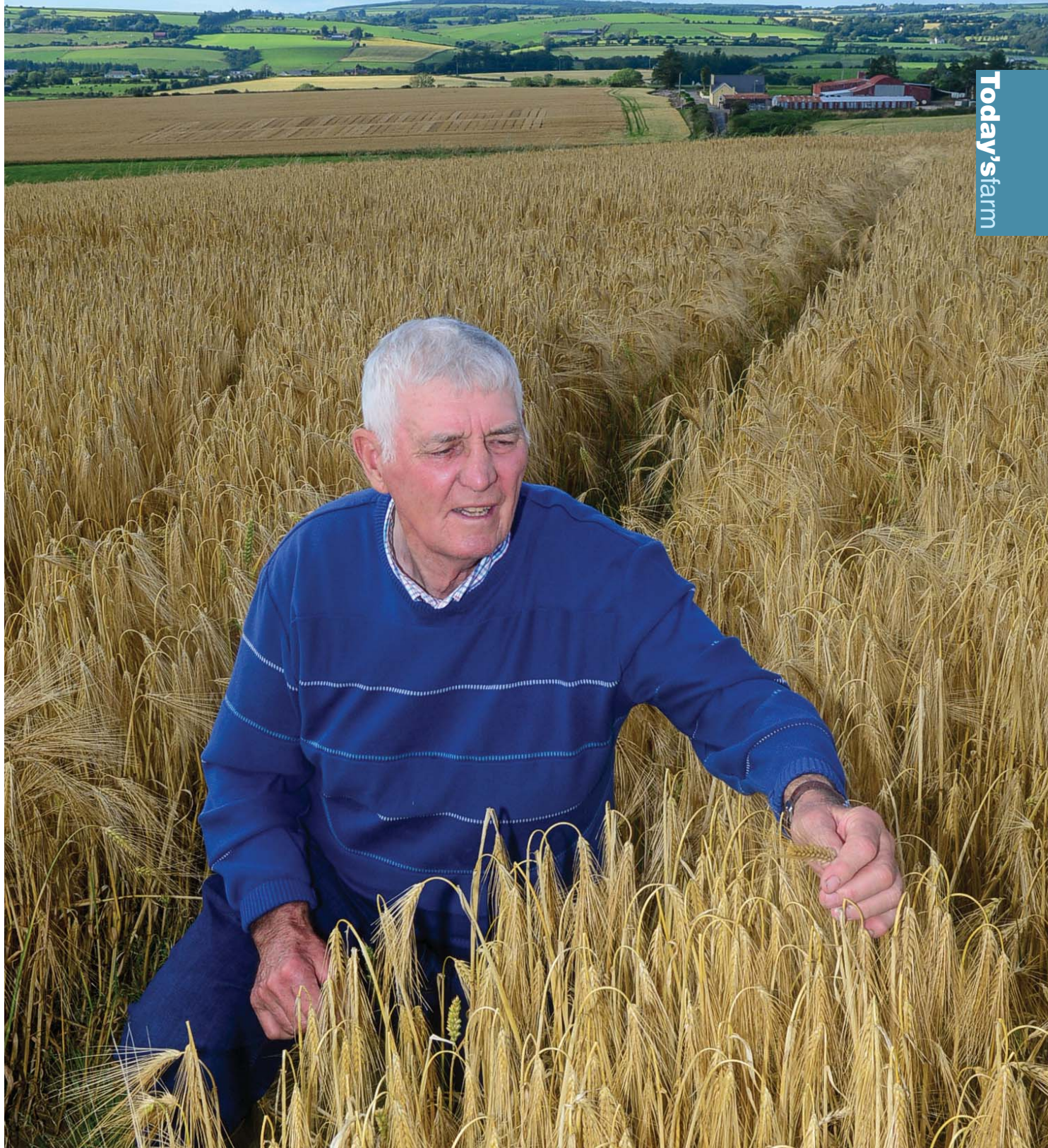
Disease

Early sowing results in a longer period of exposure to pathogens in weather that favours our key diseases such as septoria. Early disease infection inevitably leads to increased fungicide costs and reduced yields. Slow-developing varieties with excellent disease profiles should be sown first.

Lodging

Early planting increases lodging risk. Better establishment results in denser canopies leading to weaker stems and taller shoots. Bringing sowing date forward by two weeks can reduce the lodging resistance by one point.

Weather is the big unknown factor. Sowing this autumn is a balance between risk and reward. Sow heavier land with low grass weed pressure and lower BYDV and take-all sites first, leaving more vulnerable land till later but sowing the third week in September is risky.



Farmer profile: Paddy Harrington, Co Cork

Paddy Harrington who grows winter barley, winter wheat and spring oats at Ballingarry Middle near Kinsale in Co Cork has had some vivid experiences with BYDV. Just a few kilometres from the coast, his fields are at great risk because aphids love the prevailing mild conditions.

Farming since 1967, Paddy remembers 1983 as a very bad year for the disease. "It was as if you sprayed the crop with

Gramoxone," says Paddy. "More recently, 2017 was also difficult. You could lose 70% of yield in a bad year."

Trials

Paddy credits retired scientist Tom Kennedy (and other Teagasc colleagues) who conducted trials over many years on Paddy's land with helping farmers to develop effective strategies against aphids and BYDV, in particular. As seed

dressings and chemicals have systematically been removed from the market, Paddy says sowing date is more important than ever.

"There's sometimes a temptation to sow winter barley early but we find that can lead to mildew galore as well as the risk of BYDV. It is tempting to sow if September is fine, but in our experience it's almost always better to delay planting until the first week of October."

This virus won't stop us

Staff and learners at Teagasc colleges are working together to ensure education is neither undermined nor delayed

John Kelly
College Principal, Teagasc
Ballyhaise College



On Thursday 12 March, 2020 the learners participating in programmes in Teagasc colleges were forced to depart due to Government guidelines for dealing with the ongoing global COVID-19 pandemic. While learners left the premises, they did not leave our programmes.

Without hesitation, Teagasc set about transforming its traditional education delivery model to one based on remote learning. This ensured that all learners could complete their course as scheduled.

In education, we normally teach face-to-face in our classrooms and impart skills through demonstration in the field, animal handling facilities or workshops. All of our programmes include considerable practical learning periods with Teagasc host farmers, during which learners gain valuable work practice.

Fortunately, many of the practical skills had been delivered and assessed over the winter. Also, in Ballyhaise College, many of our students were on practical learning periods with our hosts in March and were only

due to return to campus later in the spring. This gave us the opportunity to plan our new approach.

Online platform

In Teagasc, we have been using Moodle, an online virtual learning platform for a number of years. This package is 'open source', which means that it is used by many education providers across the world and is the leading package for online learning environments.

Until March, we had been focusing our use of this package on part-time and distance education programmes. Before engaging with our full-time learners, we had to ensure that all were registered.

To register, every learner must have their own email address and not one that belongs to another family member. Every learner was contacted by phone and asked to confirm their personal email address. This allowed us to set them up with a Moodle account.

Two challenges for learners connecting remotely were access to a PC/laptop and a high speed broadband connection. With Moodle, there is also a smart phone app which allows learners to connect through their 3G mobile signal. In Teagasc Ballyhaise



College, we created a YouTube channel where we uploaded instructional videos on how to use Moodle.

Teaching online is a significant and ongoing challenge. In Teagasc, we quickly embraced a cloud-based online video conference package called Zoom.

The teacher sets up a Zoom class and emails an invite to the learners. They can then watch the class live on their laptop or phone. Participants can ask questions during the class through a 'chat' function. An advantage is that the class is recorded and can be watched back later.

With any remote class, you lose the immediacy of the classroom where a teacher can walk around, engage with learners face-to-face and carry out what they have been trained to do. We have enhanced interaction by using another online tool called 'Kahoot'. Teachers use Kahoot to set up quizzes, which monitor learner engagement and progress in real time.

Skills

Gaining and developing skills is major component of all Teagasc programmes. Whether it be welding, drying off a cow, braiding a horse, sharpening a chainsaw or grafting a new fruit tree, learners need to be shown at close quarters how to do this and subsequently have the opportunity to practice and become proficient.

In Teagasc, we have used instructional films since as far back as the

In the autumn, courses will be delivered as 'blended' learning with a combination of remote and carefully socially distanced face-to-face teaching to maximise protection against COVID-19. Classroom scenes like those depicted will be a thing of the past for the foreseeable future.





Student profile: Noel Duffy, Edgeworthstown, Co Longford

I completed the Level 5 Certificate in Agriculture this year. When Ballyhaise had to send students home in March, I was still on practical learning with Raymond Brady, a dairy farmer from Mullahoran, Co Cavan. We discussed the restrictions and agreed that I would complete my placement as planned. I had completed my work practice before the lockdown at the end of March.

I already had my own Gmail address before one of the college teachers phoned me during March and logging into Moodle worked for me from the start. I accessed all college work from my phone over the internet. If the college sent any emails I was able to see them on my phone instantly.

My brother, who is also on the course, uses the Moodle app. We have a laptop at home, which I used for some of the assignments, but this is shared with everyone in the house, so it was often easier to work from my phone. It was definitely easier to complete the assignments on a computer.

I found the exams online to be straightforward. The very first exam didn't work for me the first time I tried it, but the college contacted me with a new pin number and I completed it with no issue.

I will be continuing on with Level 6 this September. I would advise anyone starting to make sure they keep up with the work and deadlines as the year goes on, as you don't want to leave everything to the last minute.

1980s. The creation of videos, digital rather than on tape, took on a new significance with the pandemic restrictions. For the few skills that were not yet completed in college, staff created instructional videos and put these on our YouTube channel. Together with pre-existing videos there, learners had access to a comprehensive resource.

Assessment

To complete any educational programme, learners must undertake assessments. We transitioned our assessments online. For first year level 5 learners, we again used Moodle and re-focused exam questions to a multiple choice (MCQ) format. Exam times were scheduled and communicated with the class via email. Learners logged into Moodle and took the exam.

No two people got the same exam, as Moodle randomises the questions and the MCQ answers. For a few not-yet-completed skills assessments, staff developed video resources, which were built into Moodle exams. For example, to test learners' knowledge of the required cleanliness of an animal for the factory, animals in various states of cleanliness were filmed and the video presented in the exam. Again, no two students were presented with the same animals in this assessment.

For second year Level 6 learners, we used Moodle and an online pack-

age call 'Jot Form,' which facilitates learners to provide longer answers to exam questions.

For skill assessments, learners submitted videos of themselves carrying out the skill for example, slurry spreading. The teacher marked the learner based on the content of the submitted video.

Virtual Open Days

We were aware that there was uncertainty about courses starting in September 2020, so in June this year the Teagasc colleges held virtual open days. These were attended by hundreds of prospective students and continue to be watched back on the Teagasc YouTube channel.

As mentioned earlier, it is possible to engage with most of our remote learning from a smart phone. However, to get the most from remote learning, we are requesting all our learners starting back this September have a PC/Laptop. It is not practical to share a computer with others in a household who may also require the PC for their studies.

A PC is essential to complete assignments on Word or spreadsheet packages. Learners will also need access to broadband. Where this is not available, a strong 3G signal has worked for many learners.

Blended learning

Unlike with the strict lockdown this spring, we will take our learners back

into our colleges this September and our programmes will be delivered using blended learning.

This means we will teach our skills as we have always done in the large open spaces that we have around our farms, while many classes will be delivered remotely on Zoom. Where social distancing cannot be maintained, learners will be required to wear face coverings.

Teagasc will offer a fresh round of Open Days this October at all of our colleges. Should you have any further questions on completing one of our many programmes, we will be delighted to answer them and show you the many ways we have of delivering our programmes effectively and safely.

Farm succession – putting a plan together

‘Better three hours too soon than a minute too late’ – William Shakespeare

James McDonnell
Farm Management
Specialist Rural Economy
Development Programme



Farm retirement, transfer of property and the family conversations around this topic are difficult and tend to be put on the long finger; otherwise the average age of farmers would not be creeping up as quickly as it is. With the average age of the Irish farmer now close to 60, some farmers are well beyond 65.

Planning farm retirement is so much more than just a simple business transaction. There are a number of complex issues to be addressed, including the fact that the family home is normally inseparable from the business, and there are usually a number of family members to be catered for fairly. Farmers are self-employed so there is a huge amount to consider.

Over the course of this article I will look at some aspects of succession that are of concern for you, your family and successor:

- Income post retirement – pension and other income needed to sustain your desired lifestyle.
- The Fair Deal Scheme.
- Money for long-term care in retirement should you need it.
- Taxes due on completion of transfer:
 - Capital Gains Tax (transferor).
 - Capital Acquisitions Tax (transferee).
 - Stamp Duty (transferee).
- Complying with tax relief conditions.
- Costs associated with transfer.
- Is there a successor in position to farm?
- Treatment of the family home (to pass with farm and reserve right to reside).
- Business partnership with child (with assets to be transferred later).
- Treatment of siblings not getting the farm.
- Common Agriculture Policy and Government policy.
 - What schemes can help, and what will be in the next CAP?
 - Will the Young Farmer Scheme and National Reserve continue?

- Could there be a new installation aid and/or retirement scheme in the near future?
- Educational qualifications of the transferee.

First step – make a will

This becomes the backstop, if something unforeseen happens before the final plan is put in place. Many people put off this job as they probably do not want to think about their own death. In some cases, there is total denial, but it is important that a conversation is started about making the will. If there is no will the State will decide what happens to your estate using the Succession Act of 1965.

Common situation

I've come across a common situation, where the lack of early discussion results in no successor. For example the farming parents (mid 50's) with a child (early 20's) eager to start farming. But parents are not ready to hand over (as they have not reached pension age; other children to look after etc.) so no conversation takes place.

The potential successor goes away and gets a job in the city. The farming parents review the situation again in ten years (when they are close to retirement age) but the successor has settled away and has no intention of farming.

The family conversation

Planning the transfer of the family farm to the next generation can be a difficult task for any parent. There are good tax incentives to promote early farm transfer, but this is a personal decision for every land owner.

To complete this task, while looking after all of your dependants fairly and your own future income in the most tax efficient way, is not easy. Many people delay for as long as possible, but if the process is started promptly and combined with careful planning, pitfalls can be avoided.

Family involvement in planning for succession is essential. A key aim must be to have an open conversation with the people involved so that misunderstandings can be avoided.

Effective communication is the key ingredient to successful succession

planning. It allows for family members to share concerns, decide on options available and what actions to take. It also allows for effective planning and helps prevent disputes, misunderstandings and unnecessary anger.

Typically, when it comes to discussions around succession and inheritance, farmers are “passive” communicators. This means that there is a lot of assumptions around who is getting the farm and the plans for the future but these are not always explicitly communicated to the people involved.

Remember: once the farm is transferred, it cannot be taken back, so you must be happy with the transfer plan before executing it.

Fair and equal

Farmers are seen as wealthy individuals owning valuable assets. Unfortunately, due to the nature of farming, the annual cash returns are often low. Where there are a number of children to be “looked after”, there is sometimes an expectation that the farm should be divided equally in monetary terms, meaning if one child is getting the farm a cash payment must be made to other siblings.

This approach could put the farm out of business as the debt-carrying capacity of the business may be very low. So how then can a parent treat all the children fairly? Fair may not always mean equal. Providing one child with a decent education and another with a site and a third with the farm may be a fair result. The child getting the education may end up with a better salary than the farmer.

What is fair? Is a fair share an equal share? It all depends on the situation.

The only way to be truly fair and equal is to sell the assets and divide the proceeds between the successors. This is rarely an option for farming families.

Nursing home support scheme (Fair Deal)

The Fair Deal Scheme always comes up in conversation with farmers approaching retirement. If nursing home care is needed in the future, it is better to have the farm transfer



Owen Power of Teagasc, Dungarvan, and Tom Power work closely but are not related!

completed at least five years prior to making an application to join the Fair Deal Scheme. Nobody can see into the future, and time spent thinking about or ignoring the problem, is often time wasted.

Nobody knows if they need care, so it is best to think about care, should you need it and try to have some idea of how the cost will be funded, or if a child will take on the responsibility. The plan needs to be shared with all involved, so there are no disagreements.

Policy

Both the Irish government and the EU have land mobility/ farm family support structures built into policy. The Government of Ireland largely dictates the tax policy; part of this policy is to encourage early transfer of land to a younger generation.

Stamp duty exemptions are granted to those who start farming before the age of 35 and have a certain minimum agricultural education. Agricultural relief can be claimed against Capital Acquisitions Tax and the retiring parent can claim Retirement relief against Capital Gains Tax.

The recent review of the agricultural taxes and the retention of the working group were significant positive steps to enable farming families to plan succession in a staged process.

Although in recent years there has been no specific financial payment to help with the costs of transfer, a new incentive introduced as part of the new CAP commenced in 2015. A 25% top-up on the Basic Payment Entitlements will be paid to qualifying young farmers for up to five years. This could potentially provide a payment of up to €15,000 to a young farmer.

Further information

Teagasc has a booklet available to download called *A Guide to Transferring the Family Farm* – it is available at this web address <https://www.teagasc.ie/media/website/publications/2019/Transferring-the-Family-Farm-web-2019.pdf>

Teagasc also plans to hold an online event called “Transferring the Family Farm” on Tuesday 17 November. Keep an eye on the events page of the website for further details.

Final point

Don't delay: Benjamin Franklin once said “nothing in this world is certain except death and taxes”

Trying to avoiding taxes and family conversations only gets more difficult the longer you leave it.

Nobody knows the time or date when they will pass on and taxes can only be avoided if planned for correctly.



Continued
on p32



Tom and Jim Power.

Profile

The Power family, Waterford

"The most important thing is to communicate so that everyone knows where they stand," says Tom Power, a dairy farmer at Ballymullala, Cappagh, Co Waterford. "In that regard, my parents Jim and Brid got it exactly right."

By 1997, Tom had finished agricultural college at Rockwell and spent a year working on dairy farms in New Zealand. "We knew Tom was passionate about farming and interested in coming home," says Jim. "I think it's vital that young people can see their future in the family business as early as possible."

"The first thing they did was to offer me a weekly wage," says Tom. "This meant I was completely responsible for my personal outgoings. This was important after the experience of complete independence when abroad and I always felt my work at home was valued."

Not long after, Jim and Brid, still only in their fifties, sat down with Tom and laid out the long-term plan. They would transform the business into a partnership with Tom and they would transfer ownership of the business in two phases to him, the first almost im-

mediately with the second by the time he was 33.

"This wasn't just a conversation over the dinner," smiles Tom. "I could see they had it all thought out before we sat down."

"Our other four children were moving up in their careers and I felt Tom should have the opportunity to progress too," says Jim. "You may be transferring a lot of assets but really what you are handing over is just a way to make a living."

"The way my parents managed the succession was hugely motivating for me," says Tom. With Jim still fully involved in the business, the family have substantially grown their dairy business and Tom is now married to Moya and they have four children.

Jim offers some advice to farmers handing over the business. "You have to accept that there is a new boss and that while you are always ready to advice, you can't be in the background making decisions."

Tom concludes: "By deciding what they wanted to happen, and then communicating that to me at an early stage we all knew where we stood and could concentrate on building the business together."



You may be transferring a lot of assets but really what you are handing over is just a way to make a living

Getting farm safety culture right

Dr John McNamara
Teagasc Health and Safety Specialist.



From January to mid-August, 16 farm workplace deaths have taken place on Irish farms. This compares with an annual average of about 20 per year over the last decade. Farm workplace injuries are particularly associated with tractors and machinery, livestock, falls from heights and objects falling. Everyone in the sector must aim to prevent the dreadful toll of death, pain and suffering associated with farm injuries.

Safety research strongly indicates that farmer actions are crucial to preventing injuries. Behaviour has been identified as a frequent factor involved in over 90% of injuries.

Farmers in Ireland are predominantly self-employed and accordingly, behaviour and management practices drive farm safety culture.

A simple definition of culture is 'how things are done in practice around here'. Changing the culture related to farm safety is proposed internationally as one of the main solutions to preventing farm injuries.

Safety Culture and Risk Management

Currently, a four-year EU COST Action on Safety Culture and Risk Management in Agriculture (acronym: SACURIMA) is ongoing. Information on this project is available at www.sacurima.eu/.*

COST stands for 'Co-operation in Science and Technology'. It has a network of members from 36 countries. The main aim is to explore the reasons why agriculture is one of the most dangerous occupations in Europe and to propose solutions.

Farm safety survey in Ireland

As part of the work of the SACURIMA EU COST Action, a survey on Safety Culture and Behaviour is in progress with 14 countries taking part and about 1,000 surveys completed. In Ireland, 228 surveys were completed online (due to COVID-19 restrictions) and this farmer participation is gratefully acknowledged.

Key Irish survey findings.

Just 38% (Figure 1) agreed that farm-

Figure 1: Farmer safety opinions.

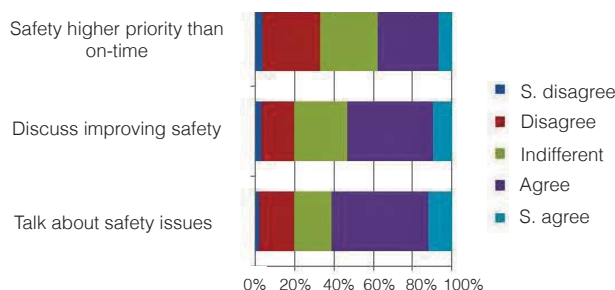
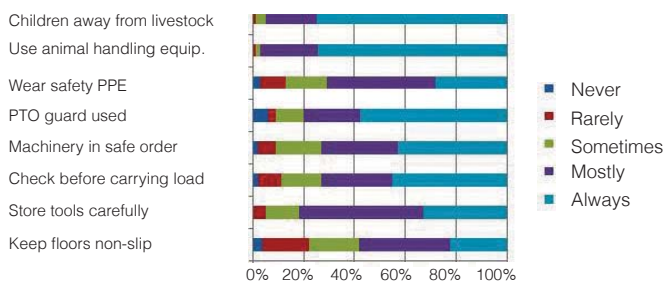


Figure 2: Farmer safety behaviours.



ers give safety higher priority than on-time completion of work. This is a worrying finding. But it indicates that work organisation has a considerable role to play in improving safety, by implementing labour-saving buildings and equipment and also practice adoption to cut workload and reduce 'hurry'.

Survey participants' views on the prominence of safety in their farming community are interesting. Just 61% agreed that farmers talk with fellow farmers about farm safety and only 54% discuss ways to improve safety. This shows that there is considerable potential to improve communication with, and between, farmers about practical safety adoption.

Regarding implementation of safety-related behaviours (Figure 2) this was estimated at 65% or higher for all tasks (as measured by responses of 'mostly or always'). High implementation was measured for 'use of animal handling equipment' (94%) and 'keeping children away from livestock' (95%).

In contrast, lower behaviour implementation levels were reported for 'keeping floors non-slip (65%)', 'using personal protective equipment (PPE) (71%)', 'keeping machinery in safe order (73%)', 'checking pathway

before carrying a heavy load (73%)', and 'using PTO guarding (80%)'.

Risk Assessment Document

The Farm Safety Risk Assessment Document provides a comprehensive list of behaviours and physical controls to consider for implementation of all hazardous tasks on farms. Complete or review your Risk Assessment document on a regular basis. It is a legal requirement to complete a Risk Assessment Document (three workers or fewer) or a Safety Statement (four or more employees).

TAMSII grant aid

The DAFM TAMSII grant scheme is due to close this year, with two tranches expected by December. A wide range of farm health and safety measures can be included in your application. These include electrical installations, slat replacement and livestock handling facilities. Once approval is granted, the completion time allowed depends on the work involved. Further information is available on the DAFM website or by consulting your advisor.

*The completed SACURIMA report on Safety Culture and Behaviours in Agriculture will be available later in 2020.

Benefits of embracing

Pigs, dairying and all farming enterprises can learn from this manufacturing philosophy

Michael McKeon

Pig advisor, Teagasc Animal and Grassland Research & Innovation Programme



In devastated, post-war Japan, a tiny manufacturer – Toyota – quickly realised that to compete with the US car giants it would have to work smarter, be more agile and embrace efficiency as a core value. It started to think in terms of lean manufacturing which is defined as “faster, cheaper, better; together”.

So how does lean manufacturing, which has evolved over decades with input from many other manufacturers, relate to agriculture? Well farming, like car manufacturing, utilises inputs through a production process to produce something that a customer wants. The same principles apply whether you are producing a people carrier, a pint of milk or a pig.

There is no Irish farm that can't gain by increasing its effectiveness (“doing the right things really well”) or by improving efficiency (starting a “war on waste”). No matter how good you are, there is another level you can reach. The key requirement is to approach things with an open mind and open eyes.

So where do you start? The first step is that any Lean action must be based on facts, not hunches, hearsay or guesstimates. Real facts come from real data. Benchmark yourself, either by reviewing your Teagasc Profit Monitors, discussion groups or international best practice. Are you

The following questions can help you to establish the facts

- What are you doing?
- How are you doing it?
- Why are you doing it?

Capture the facts

- Who is going to improve it?
- When?

Make things better

striving to reach the industry average or to be in the top 10%? Every journey has to start with a first step, so each ambition is equally valid, depending on the base you are starting from.

To help to understand what is happening, and how it could be improved, tools have been developed. The five fundamental Lean tools are:

- Process mapping – visually putting each stage on paper.
- Physical flow mapping – showing how one stage interacts with others.
- Check sheets – what is going wrong on a daily/weekly basis?
- Run charts – is the problem getting better or worse over a period of time?
- Teams – people working together to improve their business.

Experience has shown that when we document things visually/graphically we uncover connections and see new possibilities. This is especially important when problem-solving as a team as it helps to keep the conversation focused on a particular area and avoids diversions.

It may also highlight an activity we are currently doing which doesn't add value to the final product. If it doesn't add value then why are we doing it? This leads us to the second major area of improvement – the “war-on-waste”.

The war-on-waste isn't simply about reducing the volume going to landfill. It is eliminating anything that is not adding value. If it doesn't add value, it is wasting time, effort, or cost, etc.

A simple example in a farmyard setting is where top-links/“pins” are being shared across equipment. Every time you hitch-up a different machine you have to go and find the top-link and requisite pins, which is a waste of time and effort. Instead, each machine should have its own top-link and pins which always stay with that machine.

The cost is minimal but the saving in time and frustration, especially during the busy season, is priceless. This simple example demonstrates how a war-on-waste can deliver real benefits. There are 7+1 categories of

Table 1: Characteristics of waste

Waste	Description	Solution
Transport	Walking 20% of pigs a long distance to loading ramp	Build a second loading ramp on the opposite side
Inventory	Purchasing three months of vaccine at a time, tying up valuable cashflow	Purchase monthly as required
Motion	Staff walking back and forth to workshop for equipment during the day	New equipment locker in the centre of pig unit
Waiting	Can't start washing pig pens until the staff arrive in the morning	Install a sprinkler system on timer to start early morning pre-wash
Over-processing	A percentage of pigs have excess backfat at slaughter	Reduce energy content by feeding a later stage diet
Over-production	Pigs are stocked above the optimum space allowance	Reduce numbers to the required space to maximise performance
Defects	10% pigs have pneumonia lesions which causes lower growth rate and lower sale wt.	Review vaccination program and the management of sick pigs

a 'Lean' philosophy

wastes identified in Lean.

The Lean wastes are described as "7+1" with the "+1" being people. People are the greatest potential asset to any business. Developing the person will add real value to the business whereas not developing you/them is a waste of very valuable potential.

Seven wastes

- Transport
- Inventory
- Motion
- Waiting
- Over-processing
- Over-production
- Defects

The Teagasc pig department in conjunction with the Department of Agriculture, Food and the Marine and Bord Bia have been running a pig lean programme on-farm for the last two years. This involves benchmarking (physical, financial, labour efficiency) individual farms against the other participants to highlight potential for improvement.

The individual farms then receive a concentrated, tailored, lean implementation programme over a six- to seven-month period with the resulting savings generated quantified in a final report. To date, the programme has run very successfully and we hope to begin a third phase soon with an added formal learning module from Trinity Business School.

One of the Lean programme farms recently won an EU innovation award (EUPig) for its Lean initiatives and one of the simpler ones is described in the case study.

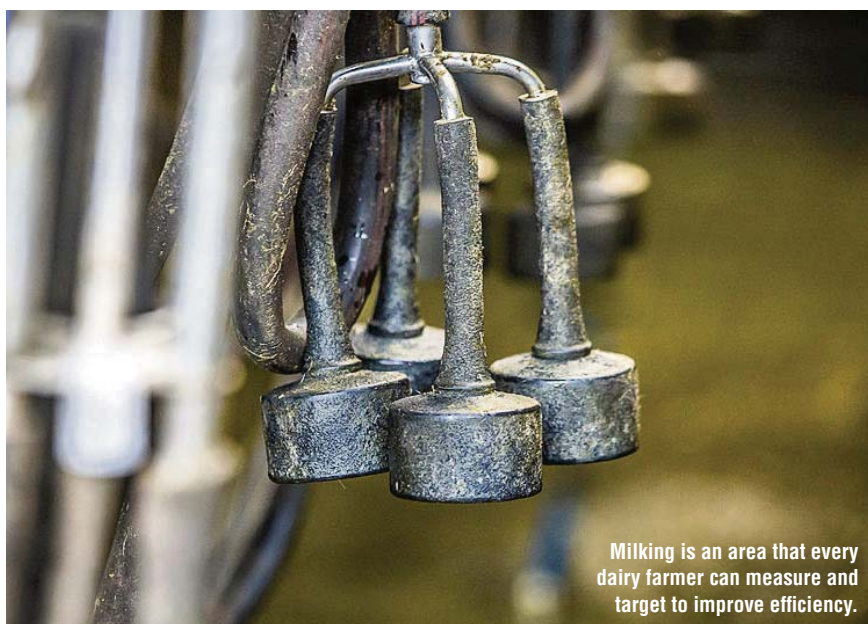
In conclusion, Lean in the initial stages is not a complicated system. It requires reviewing your business with a fresh set of eyes and ensuring that every action is improving efficiency and adding value to the end product. As Taiichiro Ohno, a lean advocate proclaimed: "Progress cannot be generated when we are satisfied with the existing solutions."

Michael McKeon is a specialised pig advisor and a Lean Black Belt practitioner. For more information on Lean, view the Teagasc pig department and Trinity Business School Lean webinar: <https://www.teagasc.ie/publications/2020/lets-talk-pigs-webinar---becoming-lean---a-guide-for-pig-farmers.php>

Case study farm: a mixed dairy and pig enterprise outside Mitchelstown, Co Cork

- Improvement area: as a home-miller they needed to retain samples of feed minerals but the samples were stored in an ad-hoc way making it difficult to locate samples quickly.
- Requirement: a simple system to enable someone to locate a particular sample quickly and easily.
- Solution: implement a 5S system

(sort, set-in-order, shine, standardise, sustain) by sorting all individual samples into boxes by month, for a six month period and place in a row. Then with each new month select the oldest month nearest the door, discard contents, re-label with new month and place the box at the back of the row.



Milking is an area that every dairy farmer can measure and target to improve efficiency.

Lean in dairying

On a recent episode of *The Dairy Edge* (week beginning 10 August), labour researcher Marion Beecher and head of continuous improvement at Dairygold Co-op John Murphy discussed the role of Lean practices on dairy farms.

John documented the process of integrating Lean across all sectors of Dairygold Co-op and the rollout to its suppliers and the resulting benefits including improved communication, work processes and safety while reducing waste and increasing efficiency.

Marion gave practical examples of Lean on farms including a case study that measured the efficiency of the milking process where savings of

20 minutes per milking were made, which accounts for in excess of 180 hours annually. Because milking accounts for the largest proportion of annual farm tasks, Marion suggests this is an area every farmer can measure and target to improve efficiency.

How you can listen?

Teagasc website: <https://www.teagasc.ie/animals/dairy/the-dairy-edge-podcast/>

iPhone: <https://itunes.apple.com/ie/podcast/the-dairy-edge/id1334107842?mt=2>

Android: <https://subscribeonandroid.com/www.blubrry.com/feeds/thedairy-edge.xml>

Spotify: <https://open.spotify.com/show/7nm9F3k4Sd00DzwyNdW02C>

Opening the gates to a multiple use forest

Visiting a forest yields health benefits for the public and potential opportunities for forest owners



Frances McHugh and Liam Kelly
Forestry advisors,
Teagasc Carlow and Mullingar

What is it about forests that draws people to them? Maybe it's their unique atmosphere; the opportunity to listen to bird song; the feeling of relaxation or the opportunity to educate our children about nature. The forest can be a welcome break from the sedentary activities of modern technology or simply an opportunity to 'slow down'.

Beyond the very basic 'walk in the woods', our woodlands have huge amenity potential. They are suitable for a range of activities like family picnics, mountain biking, paint balling, orienteering or camping. Never have the benefits of these open air recreational areas been more valuable than during COVID-19.

The development of forests for recreation is seen as an important aspect of sustainable forestry. With the ever increasing size of urban areas, there is a need for increased space for outdoor amenity. Today, recreation is perhaps the most important non-timber service provided by forests.

According to 2019 Forest Statistics published by the Department of Agriculture Food and the Marine,

there are over 30m visits to Irish forests each year, and the estimated value of forest recreation in Ireland is €179m per annum. The State's open forestry policy ensures Coillte and the National Parks and Wildlife Service welcome the general public to state-owned forests. But how can privately-owned forests benefit from this growing demand for recreation?

Recreation in private forests is limited at present, but there is a willingness among many owners, as their forests mature, to develop facilities that will provide income from the forest in addition to timber.

Creating an income from recreation in a privately-owned forest can be challenging. Fáilte Ireland tells us that walking 'tops the poll' as a preferred activity for both the domestic and overseas tourist market. So how can a private forest owner attract visitors to their forest and is it possible to create a business from it?

Walkers are rarely willing to pay to walk – however, they do require other services such as quality accommodation, wholesome food and other activities.

Fáilte Ireland estimates that tourists spend 30% of their budget on accommodation, 34% on food and 7% on activities (the rest is made up of shopping and travel), so if a forest recreation area is combined with another service, this may create a model for a successful enterprise.

Very often, existing forests are developed for recreation either as



an attraction in its own right or in conjunction with other features or services.

However, ideally if a new forest is planted with recreation in mind, there is great opportunity to design and plan the forest to facilitate its future use. One good example of planning a forest with visitors in mind is Rockview Walkways in Co Laois.

The Deevy family farm, a 20ha drystock farm near Ballyroan in Co Laois. In 2008, they planted an 8.1ha block of the farm under the Forestry Environmental Protection Scheme (FEPS). FEPS allowed the establishment of high nature-value woodland while also allowing extra area for



open space. The Deevy family not only wanted a forest, they wanted a recreational woodland.

As the land was moderately flat with some peaty soil leading up to gentle slopes with some mineral soils, the opportunity to plant a range of species was taken. The main species planted were Oak, Ash and Norway spruce, which were planted in blocks with timber production in mind (the ash has recently been thinned).

These individual blocks were supplemented by species such as hazel, rowan, holly, birch, crab apple, Scots pine and others, planted either in groups or individually along edges or in strategic locations to enhance the

beauty of the site.

The forest and the open space was planned and designed to facilitate access for recreational and amenity use. Together with John O'Connell, their consultant forester, they designed a 1.7km path that meandered throughout the woodland, connecting all the various tree species.

The family are closely connected with *Laois Friends*, a volunteer group set up to provide social and recreational opportunities for the people of the community and in particular those with special needs.

Through support from the HSE and other community groups and Leader funding from Laois Partnership, the

recreational areas of the site were enhanced.

In 2010, the path system was finished with a hard-core surface. Picnic tables and benches were installed, wooden bridges were erected, a small car park was developed and 'Rockview Walkways' was established. The site is fully wheelchair accessible.



Since then, a sensory garden has been developed on an additional 0.6ha plot and an old farm shed has been converted into a 'rambling house'.

This site is now open and accessible to the public. This example shows that with careful planning, a forest can be both managed for timber production and also facilitate recreational access.

If you want to learn more about forest recreational opportunities, contact your local Teagasc Forestry advisor. Subject to Government health guidelines, Teagasc plan to run a series of walks on forest recreation later in the year. Registration will be necessary prior to each event. Keep an eye on the events calendar at www.teagasc.ie/forestry and local press for details. Alternatively, sign up for our Teagasc forestry e-newsletter to be contacted directly about events and other forestry news.

» Experience from Japan

The term Shinrin-yoku was coined by the Japanese Ministry of Agriculture, Forestry, and Fisheries in 1982, and can be defined as 'making contact with and taking in the atmosphere of the forest'.

Researcher Yoshifumi Miyazaki wanted to establish if there were genuine health benefits from spending time in forests. He conducted experiments that measured blood pressure and cortisol levels in the blood and saliva of adults who had spent time walking in 24 Japanese forests.

Results indicated that walking in the woods is good for you, reducing blood pressure and other signs of stress.

Journal of Environmental health and preventive medicine, 2010, Vol 15

Garden staycation

One 'upside' of the restrictions resulting from COVID-19 is that we are spending more time at home with our families and venturing into our gardens

Paddy Smith
Lecturer, Teagasc College
at the National Botanic
Gardens



Landscapers have been overwhelmed with bookings to complete larger garden maintenance jobs and garden rebuilds, especially installing or upgrading paving areas. This may have been in the form of extending or replacing block paving driveways, which took over in Ireland in the 1980s from concrete driveways, to creating picturesque modern sleek seating oases.

At the top of many homeowners' wishlists are porcelain tiles and natural stone. But there are thousands of different types of paving materials, shapes, sizes and colours available due to improved manufacturing technology and domestic and imported natural materials.

I am going to introduce you to a small selection of popular paving materials currently available and some of the advantages and disadvantages to each.

Porcelain/ceramic

Porcelain is the "on-trend" paving material due to its modern look, extending the indoor/outdoor living area of our homes. It can be easily cleaned of algae, mould, moss, or spills from the barbecue; even red



Porcelain/ceramic (porcelain is a ceramic, but not all ceramics are porcelain).



There are thousands of different types of paving materials, shapes, sizes and colours available. When buying materials or employing someone, always look for several quotes.

wine won't stain it.

Porcelain has superb strength and is a hard-wearing, fade-resistant and scratch-resistant tile coming in a large range of colours, but is one of the most expensive paving material to purchase and install.

Natural stone flags

Flat slabs of natural stone are a popular paving with "real character" examples including sandstone, granite and limestone with many other types of local and imported stone also available for paving.

Some of the most visually attractive paving works can be created using some of our domestic limestone which can include amazing fossils, adding more interest to your tranquil paved area.

One of the downsides of sandstone is that it weathers quickly, resulting in colour fading and flaking. Some customers feel this creates to an attractive "antique" effect, but for others it is a constant battle with the power washer trying to resurrect its initial look.

These paving materials need sealing as some unfortunate spills can be absorbed quickly and will forever furnish evidence of your misadventures.



Flaking and fading on sandstone.



Fossils on limestone.

Concrete block paving

These paving blocks are a "hard-wearing" mass-produced concrete paver which comes in a range of shapes and colours. This allows for fantastic creativity if you want to pave difficult areas such as meandering paths, circles and elliptical shapes.

The latter is quite difficult and expensive to pave if trying to use a natural stone or porcelain.

The modern rectangular block 200 x 100mm is seen all over the country, usually laid in a herringbone or stretcher bond pattern and is very popular due to its low cost. Its cousin, the tumbled or antique block, can create a natural, sett-like block which can be very attractive around older properties.

It is perceived to be a high maintenance paving material due to weeds grabbing hold of the many sanded joints. But with a little bit of maintenance using a power-washer, it is quickly restored to its original glory.

Teagasc Podcasts



Teagasc produce a series of regular podcasts designed to enlighten and inform listeners on the latest information, insights and opinions to improve their farm performance.



Presented by Emma-Louise Coffey, **The Dairy Edge** weekly podcast covers the latest information to improve your dairy farm performance.



Presented by Michael Hennessy, **The Tillage Edge** podcast provides insights and opinion to improve your tillage farm performance.



Presented by Catherine Egan, **The Beef Edge** weekly podcast provides information and advice to improve your beef farm performance.



Presented by Amy Quinn, **The Pig Edge** podcast covers the latest research and advice to improve your pig farm.



Presented by Ciaran Lynch, **OviCast** weekly podcast brings you the latest advice, insights and technical updates for the sheep industry.



Presented by Sean Duke, science journalist, **The Research Field** podcasts will get out and about and talk to researchers in their various fields.



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