TEAGASC

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Today's Farm

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

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contents

Charlotte Morgan, a PhD student, shows the resistant and sensitive populations of, Italian ryegrass.

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

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Cover: Teagasc Grange researcher Paul Smith, farmer Dara Walton and advisor Terry Carrol who met on Dara's Tipperary farm. \ Mark Moore

COMMENT

Mark Moore
Editor,
Today's Farm

It's good to talk

In anticipation of the Teagasc Grange open day on June 26th, we brought together researchers, farmers and advisors to discuss beef production. Researchers are constantly in touch with the industry when designing and communicating their research but they always enjoy meeting producers, on their own farms, to discuss practical challenges.

So, while everything at Teagasc Grange will be spick and span for BEEF 2024 you can be assured the researchers are constantly talking to farmers about everyday issues on cattle farms. They can't visit every producer but there's no reason why you can't visit them at the open day. Put BEEF2024 on your calendar.

Is maith an rud a bheith ag caint

San eagrán seo dírímid ar Lá Oscailte Teagasc sa Ghráinseach, a bheidh ar siúl ar an 26 Meitheamh. Deis is ea an lá oscailte do chuairteoirí an clár fairsing taighde atá againn ag Teagasc na Gráinsí a fheiceáil, agus bualadh leis na heolaithe atá i mbun oibre chomh maith. Lena léiriú cé chomh tairbheach is a d'fhéadfadh sé a bheith, thugamar taighdeoirí atá bunaithe sa Ghráinseach agus comhairleoirí áitiúla de chuid Teagasc le chéile le bualadh le feirmeoirí atá ag feidhmiú córas a bhaineann lena gcuid taighde. Tá sraith alt againn maidir leis na cruinnithe sin. B'fhéidir nach mbeidh taighdeoirí in ann cuairt a thabhairt ar d'fheirm, ach is féidir leatsa cuairt a thabhairt orthu ag an nGráinseach ar an 26 Meitheamh. Tá súil againn go bhfeicfimid ann thú.

Events

SPRING FOREST WALK - CORK

Thursday, 09 May, 2024
Walk the Talk: Exploring the Importance of Forest Management with Teagasc
Venue meeting point: Millstreet Country Park, Millstreet. Co Cork.
Event Time: 11am

Conifer mananagement and reforestation, afforestation, deer management. Pádraic O'Leary
0871840957

SPRING FOREST WALK - WEXFORD

Friday, 10 May 2024, Walk the Talk
Exploring the Importance of Forest Management with Teagasc
Venue meeting point: Springmount Tractors, Gorey, Co Wexford.
Eircode: Y25 KV59
Event Time: 11am

Broadleaf management.
Frances McHugh
0876222111

SPRING FOREST WALK - ROSCOMMON

Tuesday, 14 May 2024
Walk the Talk
Exploring the Importance of Forest Management with Teagasc
Venue meeting point: Castlerea Mart, Castlerea, Co Roscommon.
Eircode: F45 FC91
Event Time: 7pm

Native forest and Native Tree Area Scheme establishment and young conifer forest management.
Noel Kennedy
0879090504

SPRING FOREST WALK - CAVAN

Wednesday, 15 May 2024
Walk the Talk
Exploring the Importance of Forest Management with Teagasc
Venue meeting point: Killymeehan, Stradone, Co Cavan.
Eircode: H12 FC63

Event Time: 7pm
Oak woodland, close to nature management.
Contact Kevin O'Connell
0871216159.

SPRING FOREST WALK - CLARE

Thursday, 16 May, 2024
Walk the Talk - Exploring the Importance of Forest Management with Teagasc
Venue meeting point: Liscullaun, Tulla, Co Clare. Eircode: V95 RT61
Event Time: 11am

Native woodland, close to nature management.
Jonathan Spazzi
0877102739

SPRING FOREST WALK - GALWAY

Walk the Talk
Exploring the Importance of Forest Management with Teagasc
Venue: meeting point: Kilconnell Community Centre, Kilconnell, Co Galway.
Eircode: H53 E7K6
Event Time: 11am

Native forest establishment, young conifer forest management.
Noel Kennedy
0879090504

SPRING FOREST WALK - WATERFORD

Friday, 17 May 2024
Walk the Talk
Exploring the Importance of Forest Management with Teagasc
Venue meeting point: St Michael's Church, Ballyduff, Co Waterford.
Eircode: P51 K060
Event Time: 11am

Conifer management and harvesting preparation.
Michael Somers
0871216163

SPRING FOREST WALK - LAOIS

Thursday, 2 May, 2024
Walk the Talk - Exploring the Importance of Forest Management with Teagasc
Venue meeting point: Mountrath Mart
Eircode: R32 DH68
Event Time: 11am

Conifer management, thinning & reforestation.
Liam Kelly
0879090495

BEST PRACTICE IN MILKING COURSE - CAVAN

28 May 2024 - 29 May 2024
Event Time: 9am - 4.30pm
Venue: Teagasc Ballyhaise College, Ballyhaise, Co Cavan.
Eircode: H12 E392

A two-day Best Practice in Milking Course. The theory exam takes place on Wednesday, 19 June. Milking Process Routine QQI Level 6 Certification on successful completion of course and individual assessment. The cost of the course is €300. Contact Attracta Dooley, FRS on 086 1300409. Please note prerequisite for attending this course requires 100 hours milking experience.

PIG OPEN DAY - MOOREPARK

May 22, Venue Teagasc Moorepark, Fermoy, Co Cork.
Eircode: P61 C996,
Event Time: 10am

PIG OPEN DAY - BALLYHAISE

May 24 Venue Teagasc Ballyhaise Agricultural College, Ballyhaise, Co Cavan.
Eircode: H12 E392
Event Time: 10am

TEAGASC AT BLOOM 2024

30 May - 3 June, 2024
Venue: The Phoenix Park, Dublin
Event Time: 9am - 6pm

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BEEF2024 at Teagasc Grange – securing your farming future

Pearse Kelly
Teagasc Head of Drystock

Paul Crosson
Teagasc Beef Enterprise Leader

Researchers at Teagasc Grange are to the forefront of global research in pasture-based beef systems.

Teagasc warmly invites all farmers and stakeholders in the Irish beef industry to BEEF2024 on Wednesday 26th June at our national beef research centre in Teagasc Grange, Dunsany Co Meath.

Gates will open at 9am with visitors covering a more compact route compared to previous open days at the centre. Demonstrations and displays will be within easy walking distance. Visitors can view the new biogas plant that is starting in production this year.

The research programme at Teagasc Grange includes a 180-cow suckler herd and dairy-beef studies comprising almost 300 calves taken through to beef. A selection of these stock will be on display and the researchers will be available to chat.

Teagasc and DAFM have invested in cutting-edge technology that can accurately measure methane emissions from beef cattle both indoors and while they are grazing. You can view this equipment and meet the researchers who are at the forefront of global research in pasture-based beef systems.

There is growing interest in incorporating white clover into grazing swards and making silage from red clover swards. Multi-species swards are also being sown on beef farms and many farmers have questions on their potential role in reducing inputs and increasing animal performance.

A major weanling-to-beef research study on grass-clover and multi-species swards is now coming to completion and the first comprehensive set of results will be presented.

In a separate study, the establishment, harvesting and feeding of red clover silage for beef cattle has been assessed.

The researchers involved in these studies will be available to answer any questions you might have.

A new feature at this year's event will be our cow-calf simulators. These are new, life-size, practical models that simulate the calving process where different calving scenarios can be demonstrated and explained.

Grazing infrastructure

Suitable grazing infrastructure on beef farms is the first step to achieving good grassland management. Staff will demonstrate everyday fencing techniques that even the novice can immediately put into practice on their own farms.

There will also be live displays by industry experts on how to assess when cattle are fit for slaughter for traditional early-maturing or continental later-maturing beef breeds. There will be many more live demonstrations at BEEF2024; you'll find a full list of them on our website at www.teagasc.ie.

This year we are putting on two extra discussion forums – one starting at 12.30pm and the other at 1.30pm. These shorter forums will feature suckler and dairy calf-to-beef demonstration farmers from our Future Beef and DairyBeef 500 programmes.

The final forum on 'Securing your future in beef farming', will begin at 2.30pm. This forum will include high profile industry stakeholders, who will address the prospects for the beef farming sector in the coming years.

So remember the date – Wednesday 26th June in Teagasc Grange. Make sure you give yourself enough time to see all of the different talks, demonstrations and live displays. This is a free event, open to everyone to attend and Teagasc Grange is easily accessed on the Dublin-Trim R154 road at Eircode C15 PW93.

Peter Doyle identifies the plant's growing point to Irvine Allen and Fergal Maguire.

It's all about forage

Background

The farmer

Irvine Allen farms a calf-to-beef system just outside Moate, Co Westmeath. The farm consists of 53 ha of grassland in total, which is divided into three main blocks. The land is a mixture of good free draining soil and high organic matter soils.

Approximately 120 Holstein-Friesian male calves are purchased at three weeks of age. The aim is to have as many of the cattle finished by 24 months of age as steers. The lightest 10% of the cattle are finished at grass as under-30 month steers.

Since Irvine joined the DairyBeef 500 programme the main objective has been to reduce the age of slaughter without increasing the level of concentrate input.

"Incorporating red clover into a proportion of my silage ground and white clover into the grazing ground has been a key step to help improve animal performance without increasing spending on fertiliser or meal," says Irvine.

The researcher

Peter Doyle is a research officer on the Derrypatrick herd in Teagasc Grange. He, along with the Walsh Scholar Peter Bennett, and the technician and farm staff team in Grange, is comparing grass-clover vs. grass-only systems on the lifetime animal performance, Greenhouse Gas emissions and nitrogen use efficiency of suckler beef cattle.

In 2023, they found that yearling bullocks and heifers grazing grass white clover swards over the second grazing season had a 24 kg higher live-weight gain than cattle grazing grass-only swards.

This resulted in a 14 kg greater carcass gain at the end of the grazing season. There was also a reduction in fertiliser nitrogen applied.

Teagasc advisor **Fergal Maguire** reports on a meeting he had with Westmeath farmer Irvine Allen and Teagasc forage researcher Peter Doyle

At the start of the conservation Irvine explained that it was a visit to the Teagasc Grange Research Centre in 2022 with the DairyBeef 500 group that piqued his interest in red clover silage.

On the day he was impressed by the ability of the red clover silage to receive no nitrogen application, how the animals performed on the silage and that it seemed to be a lot more persistent than he originally thought.

Peter explained to Irvine that: "The red clover field in Grange in 2022 has performed well since. It is yielding slightly higher than the grass-only field receiving over 200 units of nitrogen and looks as good as ever today, with the exception of the headland where the clover has died due to compaction under traffic.

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(Left to right) Peter Doyle, Irvine Allen and Fergal Maguire.

"Cattle are performing well on the red clover silage with one of researcher Nicky Byrne's trials showing that dairy bred weanlings on red clover silage plus 1 kg of concentrate/day gained 9 kg (or 0.12kg/day) more than the weanlings on 75 DMD ryegrass-only silage and a kg of meal over the winter."

Irvine made the point that this was his first year feeding red clover silage and he felt that the weanlings performed well on it, however, he was feeding 4 kg of beet and 1 kg of concentrates with it.

When Peter was asked what he thought of the weanlings' diet he said that he felt that Irvine could cut back by half a kg on the amount of concentrates, as the animals would otherwise lose out on compensatory growth when turned out.

When we went out to look at the red clover silage sward on the farm, the first thing Peter said was that this was an ideal field for red clover. It is square in shape and dry, even after all the rain that it received in the spring.

Irvine explained his decision on why he chose this field: "The field is 6.8 hectares, it's very free draining and it's an awkward field to graze, as it's down the road from the farmyard but still close enough to get an application of slurry after every cut of silage."

Peter was happy to see that Irvine was applying no fertiliser nitrogen on the crop, but remained adamant that it was important to feed it with Phosphorus and Potassium either through slurry or a compound fertiliser like 0-7-30.

"The quickest way to reduce the lifespan of a red clover plant is to starve it of P and K," said Peter.

Since sowing last May, this field has yielded 11 bales to the acre (26/ha) over two cuts and it got a grazing in October and another grazing this spring. While there was some poaching visible, Peter was of the opinion that there was very little damage done to the red clover.

He showed Irvine where the growing point on the red clover was. He explained that it was important not to damage it. Peter added that red clover will tolerate a bit of grazing, but it should be still used as a silage crop for the majority of the season.

Red clover sward

Irvine outlined his plans for the red clover sward for the coming year: "The field will get slurry using the umbilical system by April 20th, with the aim of getting a cut of silage by May 20th. It will then receive another 3,000 gallons of slurry after first cut with another cut of silage taken seven weeks later in mid-July.

The third and final cut will be taken in early Sept and it will receive approximately 2,000 gallons of slurry at this stage. If weather conditions allow, the field will be grazed in mid-October with light weanlings.

Peter felt that this would be similar to what will be implemented on the red clover silage in Teagasc Grange. Irvine said he was thinking of rolling the silage field after the poaching that occurred in the spring.

The final consensus was that rolling may damage the growing point on the advanced (tall) plant, so it would be better to leave the rolling until we know more about how this practice will affect the longevity of the sward.

"When we went out to look at the red clover silage sward on the farm, the first thing Peter said was that this was an ideal field for red clover. It is square in shape and dry, even after all the rain that it received in the spring

What will be on show at the Teagasc Grange open day regarding silage and grazing?

Key items in the Forage Village will include:

- The management of red clover silage and the performance of cattle on it.
- How to incorporate white clover onto farms through over sowing or reseeding.
- Outline cattle performance data on multi-species vs. grass-clover vs. grass-only swards.
- Permanent fencing demonstrations.
- Grazing demos.
- Pasturebase demos on calibrating slurry and fertiliser spreaders.
- Water quality demonstrations.
- Silage quality demonstrations.

Ryan Callan
(CFES, Dundalk Institute of Technology)

Edward O'Riordan
(AGRIC, Teagasc Grange)

Joseph Lynch
(CFES, Dundalk Institute of Technology)

Reseeded mixed leys can be grouped as: multispecies swards, red clover silage swards or typical perennial ryegrass-white clover swards.

The benefits of ensiling mixed swards

More diverse swards have the potential to make a high-quality silage crop from reduced fertiliser input in the correct conditions. But high-clover swards can be more challenging to ensile than typical perennial ryegrass crops

Reseeded mixed leys can be grouped as: multispecies swards, red clover silage swards or typical perennial ryegrass-white clover swards.

Red clover swards are sometimes sown as a single species, but popular reseeds typically contain high proportions of the upright red clover plant along with grass and some white clover. It is mostly targeted for silage crops.

Multispecies swards consist of a minimum of three species of forage plant, but generally contain six or more grasses, legumes and herbs (such as chicory or plantain).

The majority of multispecies swards are seeded for use in grazing systems.

However, in challenging seasons farmers may be interested in making silage with some of these swards to help with management of their grazing rotation.

What does ensilability mean?

When making any silage, three factors interact to determine a successful outcome: weather conditions, harvesting practices and the composition of the herbage.

From the herbage perspective (ie the plants), the factors that need to be considered include: the yield required, and the nutritive value needed in the forage to achieve animal performance targets.

Also important is the ability of the forage to preserve well and not suffer high losses in yield and nutritive value during storage (the ensilability).

When making silage, you are facilitating fermentation wherby microorganisms convert carbohydrates into acids and these acids preserve the feed. The acids generated also slow the activity of organisms that could spoil the forage.

To facilitate good silage fermentation, the forage should have enough freely available sugars, which will be converted into adequate amounts of acid to reduce the pH.

The right micro-organisms are also needed to complete the fermentation dominate the microbial population once everything is sealed up.

These factors change depending on the plant species present in a silage crop at harvest. Research has shown that legumes (e.g. clovers) are more challenging to ensile than ryegrasses.

To counter this, research is ongoing into the actions farmers can take to reduce the potential for a poor silage fermentation in these newer multispecies reseeded swards.

Cutting the crop

Research at Teagasc Grange has highlighted that multispecies swards and silage crops with a substantial clover content can successfully be preserved as pit or bale silage if conditions allow for the correct management.

Cutting at a higher height than typical grass silage swards (e.g. 6-8 cm) is recommended to avoid damaging the growth point of red clover and other herb species that may affect regrowth after harvest.

Harvesting silage swards at appropriate growth stages is also an important consideration as the

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nutritive value (e.g. digestibility) and ensilability change with crop development.

Field tests on ensilability, such as refractometer tests to indicate the sugar content in a sward, are available.These may be of particular value in fields with many species as increased complexity can make visual predictions more difficult.

It is beneficial to take herbage samples for these field tests in several different places to capture the variability within the sward.

In maturing multispecies swards, the amount of different component species and their rate of development can vary quite quickly depending on the growing season.

As such, delaying a harvest may not always be advisable if adequate quality and ensilability is evident. There has not been much research to date on the effect of harvesting system for these sward types (ie baling or precision-chop for a pit).

However, it is only logical that both systems could be effective once good sealing is achieved and the previously mentioned factors are in order. Some farmers have reported that chicory tends to bolt at later growth stages, resulting in a stronger stem that may present issues around sealing the silage crop.

Is wilting required?

One of the primary concerns around ensiling multispecies swards is the lower dry matter at cutting than a more perennial ryegrass-dominated sward.

A low dry matter content forage can inhibit the fermentation when it is ensiled and lead to higher effluent losses. Wilting is of high value in such swards.

The aim with wilting is to achieve an optimal dry matter content of approximately 25-30% quickly in order to minimise nutritive forage losses in the field.

Recent research at Teagasc Grange and DkIT has highlighted that high yielding and dense swards with high herb content (ie chicory or plantain) are likely to dry more slowly during wilting than grass dominated swards in similar conditions (Figure 1 above).

Deciding whether to ted out the mowed swaths or not will depend on the quantity of each plant species in the sward. Swards with a high herb content will most likely need to be tedded to achieve a dry matter of over 25% in adequate time. However, if the herb content of the sward is low, and the red clover content is high (e.g. in a red clover silage crop) take care to prevent high losses from leaf shattering on the clover plants. Mechanical processing may need to be kept to a minimum.

If conditions allow for an optimum dry matter and carbohydrate content to be achieved through good harvest timing and machinery intervention, then these swards can successfully be ensiled. While additional research is required into what additives are most suitable for these swards, additives have been effective at reducing the losses associated with low ensilability indices in previous studies of grass and other forage crops. However, the effects are variable depending on the composition of the crop.

It is important to monitor diverse swards closely as they progress towards a silage harvest as their variable nature can lead to quick changes in the sward composition as the crop matures.

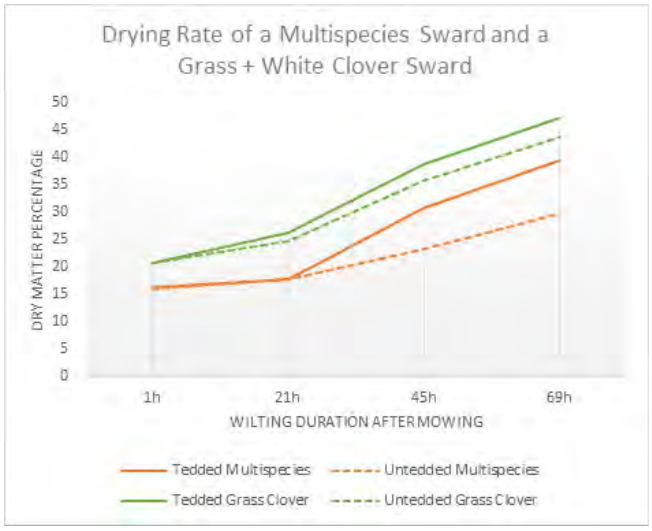

Fig 1. The drying rate of a multispecies sward and a separate grass + white clover sward sampled in the same conditions in experiments last summer at Teagasc Grange.

> The aim with wilting is to achieve an optimal dry matter content of approx 25-30% quickly in order to minimise nutritive forage losses in the field

Attention to detail drives earlier finishing

How to lower finishing age will be a key topic at the Teagasc Grange Open Day, writes Teagasc Beef Specialist **Catherine Egan**

Background

The farmer

Dara Walton operates a suckler and dairy-calf-to-beef enterprise in Cappagh, Co Tipperary. He is a full-time farmer and finishes his steers and heifers at 22 months.

The researcher

Paul Smith is a research officer at Teagasc Grange. He is developing strategies to reduce enteric methane emissions from ruminants via breeding, nutrition, and improving calf health.

The advisor

Terry Carroll, Teagsc Kilkenny, has worked with Dara over many years focusing on the key areas of nutrition, animal health, genetics and grassland management.

Paul Smith and Dara Walton.

Dara Walton, his wife Muireann and children Eloise(4) and Tom (2), have a suckler herd with 60 cows calving from the end of January to mid-April. Some of the cattle are sold as stores; the majority are finished as steers.

Heifers are kept as replacements or finished on farm. Dara also purchases 60 dairy beef calves from his brother Pat and these are finished as steers and heifers.

Dara notes that the first cow calved on January 20th and the last in mid-April. "I would like to knock a month off that and will have to get disciplined and pull the bull," he says.

He does his own AI with 50 calves this year out of 63 born from AI. There were 46 calves born by March 1st.

Base cow

"I have a base cow of a Simmental cross Limousin, so I pick maternal Limousin sires with good terminal traits and milk figures, but they have to be balanced, as there is 50% chance of the calf being a bull. The more terminal type cows like the Charolais cross Simmental type would get a Charolais straw. I won't use a bull with over 10% calving difficulty," says Dara, who lives 13km from the farm.

"I don't want to be getting up at all hours of the morning to come over to pull a calf. On average two calves are born every day. This year I had to jack about five calves, all the Charolais calved themselves."

Researcher Paul Smith observes: "If we look at finishing age relative to when a calf is born, the earlier born calf is getting away a lot earlier.

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With a mean calving date of mid-February, Dara is already on the right path.''

Terry added: ''Dara has great flexibility when he does his own AI to be able to pick difference sires and match certain cows to particular bulls.''

"I calve heifers at 24 months. I have changed what I'm doing this year. I am putting them in calf to an Angus this year and as they haven't been out with the weather, I will scan them and synchronise them," says Dara.

"I did the AI course and this is my third year doing it. I work at my own ease and there is no pressure trying to get in a cow with a reel. I bring them in and AI them and they go back out again.''

Animal Health

''I shave their backs and tails and every one of them use the cubicles. They are spotless, so when the calf is sucking, the udder is clean. Since I put cows on cubicles the incidence of scours on the farm has gone way down,'' says Dara.

"The weanlings are vaccinated with Bovipast. They get the initial shot followed by the booster. They are also vaccinated for IBR. All calves are treated to prevent coccidiosis.

"Once the whole group of cows are together I vaccinate to prevent clostridial diseases. Cows are also vaccinated for leptospirosis, salmonella and IBR. I have a closed herd here apart from the calves that are sourced from by brother's herd, he also has a closed herd. The calves I buy in are only vaccinated for IBR."

Terry Carroll adds: "All stock are dosed for fluke at housing and as the Beef Health Check Report is coming back clear, that shows that the protocol is working."

Nutrition

When Dara's suckler-bred calves were weighed at weaning, they averaged 320-340kg. The average daily gain of the bulls was 1.3kg/head/day while the heifers achieved 1.1 kg/head/day. The aim is to keep that going on grass over the second summer with every animal on the farm gaining 1kg/head/day.

''It's up to me to keep the grass right, keeping them moved on in the paddocks. I'm regularly weighing stock and if they are not performing I investigate why. Do they need a dose maybe? Is the grassland good enough?

Advisor Terry Carroll and Dara Walton.

''I might have 30 acres closed for silage but only cut seven acres when it is ready. I cut it at the leafy stage, 7-8 bales to the acre,'' he says.

Silage is tested for quality, notes Paul Smith: ''Once housed you would like to be putting 0.6kg/day on them over the winter but that does not always materialise. They have done very well this winter.''

Dara adds: ''I have all the bales numbered from each of the paddocks be it number 1, 2, 3 or 25, so I know what's in each of them. This winter they were getting around 74 DMD silage and a kilo and a half of ration to the weanlings.''

By testing all the bales, Dara is able to keep the feeding consistent throughout the winter. ''Before going to grass, the target is to have them at 400kg which means they are right on target,'' adds Paul Smith.

''Dry cows get 65 DMD silage. My cows are naturally very fleshy when they come in and I need to take 50-60 kg off them. Feeding poorer silage keeps condition off them. I have enough feeding space, so the result is the cows are fit and the calves are smaller."

In September, stores are weighed, drafted at 530kg and above and housed according to weight. Over the last 100 days they are fed 74 DMD silage along with 3kg/day of meal for the first month and built up to 5 kg/day and fed 7-8kg/day for the last month before being finished.

The lighter steers are housed in October and built up on the same feeding for the last 100 days. The heifers are all housed in September and fed 3kg/day of meal for the first month and built up to 4-5 kg/day and finished in around 90 days.

Grassland management

''There are 105 acres here in one block and I have 30 acres leased,'' says Dara. "The farm is set up in paddocks with troughs placed so that I can divide paddocks any way I want. I always use a back fence to protect the regrowth."

Terry adds: "Dara operates a two day paddock system which is enhancing the sward quality, increasing daily live weight gain and giving more control of grazing management. The fact the calves can creep graze in front of the cows is a big benefit to them."

Grass mixtures for reseeding on the farm consist of 60% tetraploid and 40% diploid and 2 kg of clover.

As a full-time farmer, Dara has to be efficient. "In the past, I worked selling grass seed and clover. It clued me in to reseeding. In the past I was

sowing clover for protein and carcass gain whereas now I am reducing my nitrogen input on the farm.

"I am measuring grass and targeting grazing covers of around 1,400-1,500kg DM. I can come in and take out covers if they go too strong as I make all bales and don't have a pit. Last year the continental steers that I finished ranged from 360kg-430kg carcass with an average carcass of 390kg at 22 months. While the heifers averaged 350kg carcass at 22 months. The dairy beef steers would have been finished at 315kg carcass on average at 22 months," adds Dara.

"I weigh all the cattle when drafting for finishing. In the crush I can put a hand on them and I know their weight, I know what they will kill out.

"This avoids letting any cattle go that may be too light, for the sake of another three weeks, to ensure you get all the value in them that's available."

> My cows are naturally very fleshy when they come in and I need to take 50-60kg off them – the result is the cows are fit and calves are smaller

The Verdict: 'Walton farm's performance is comparable with Teagasc Grange'

"What's being achieved here on Dara's farm with both groups of stock is comparable to Teagasc Grange," says Paul Smith. "The average finishing age of Dara's steers and heifers is five to six months younger, but with a similar carcass weight, to that of the national average in 2023, for a similar animal type.

"The level of animal performance Dara is achieving highlights the benefits that optimal on-farm technical efficiency can have on the finishing age of beef cattle, with minimal impact to carcass weight. Indeed, the optimisation of animal nutrition, genetics and health, is applicable across all beef production systems, and can play a key role in improving live weight gain and reducing finishing age.

In addition, the reduction in finishing age can improve farm profitability by reducing input costs. All of these factors will be discussed at the BEEF 2024 open day.

"The big research question at the moment is 'Why there is such variation in performance in the national herd average in comparison to grass-based research, and high-performing commercial, farms'. The *Beef-Quest* project, recently funded by the Department of Agriculture, Food and the Maine, will aim to address these knowledge gaps, with plans for the research project presented at the open day."

Dara, Paul and Terry with the suckler herd.

How a purpose-built calf shed can minimise health issues

Animal health is a key topic at the BEEF2024 open day, and Galway farmer Colm Reilly outlines the benefits of building a state-of-the-art calf-rearing shed. **Mark Moore** reports

Background

The farmer

Colm Reilly farms 28 ha near Caherlistrane Co Galway. He recently built a state-of-the-art calf rearing shed. Colm also works full-time in his own business, constructing and renovating chimneys.

The researcher

John Donlon is a specialist cattle vet, who works as a researcher in Teagasc Grange. His interests include calf housing/BRD; dairy calf to beef performance; the ruminant microbiome and its influence on calf health.

The advisor

John P Kilboyle works from the Teagasc office in Tuam. He advised Colm Reilly on the design and location of the new calf-rearing shed.

John Donlon, Colm Reilly and John P Kilboyle.

Before he built his customised calf-rearing shed, Colm Reilly had been using a slatted shed with a lie back to rear 60 bought-in calves. "It wasn't designed for calf-rearing which meant that tasks were inefficient and time-consuming," he says. He now rears 100, which arrive in groups from the beginning of March, in the purpose-built shed.

John Kilboyle advised Colm on the choice of location and shed design: "One of the key advantage of the shed is that the floor has a 1:20 fall from back to front and a drainage channel at the front of the pens to remove urine and associated smells quickly," says John. "Calves spend about 80% of their time lying down so they need a dry bed. A dry environment will also reduce the spread and growth of bugs."

The calves are bedded on wood shavings, which costs about €12 per calf annually. "Wood chip works for Colm's calves because they are a month old when they arrive," says John Donlon. "Younger animals benefit from good quality straw, which they can nestle into. It is essential to keep the calf bed dry and ammonia levels very low."

There are 10-12 calves per pen and they have 2.3 sq. metres each. Mesh at the roof outlet prevents birds getting in. The main doors are always closed.

Colm, who is a qualified plasterer, says he project-managed the building of the shed and did a lot of the work himself including fabrication of calf pens, concrete work, shed erection. The shed cost approx. €45,000 to build; he did not apply for a TAMS grant.

Calf rearing system

"I buy in batches of 10 with 10-30 calves per week arriving on farm from the first week of March," says Colm. "Most of the calves are male Angus X Friesian with some Belgian Blues X Friesian & Friesian X Friesian."

The calves are approximately four weeks old on arrival and Colm puts huge emphasis on sourcing quality

Colm's shed is built with Yorkshire Boarding on the windward side and Space Boarding on the other for optimal comfort and ventilation.

calves from as few sources as possible. He puts a lot on emphasis on judging the animals by their conformation: "85% of the calves this year were sourced from one farm whose stock I have found performed well on farm in previous years," he says.

"This helps ensure the quality and consistency of calves I'm getting, along with reducing the risk of disease introduction into the herd having previously sourced calves from four farms."

"Buying calves from a large number of sources or from marts can increase the risk of disease spreading," says John Kilboyle. "Colm's approach is wise." The calves have access to fresh water, straw as fibre/roughage source and ad-lib access to concentrates once they arrive on-farm.

They are also given electrolytes for their first feeds on the farm. Their feeding programme of milk replacer is focused at getting the calf to increase intake of concentrate to develop the rumen.

"I mix the milk replacer based on weight rather than volume as the density of the powder can vary a lot. It takes about 45 minutes to feed the calves in the morning." Colm says a few simple changes to his calf rearing system in 2024 have really simplified the feeding process and given it great consistency.

Water heater, mixer & pump

"I have installed an on-demand gas water heater to heat water for mixing the milk. And I have fabricated a milk kart with motorised mixer and pump, which allows me to mix the feed for all calves in one go, and then evenly feed all calves with right volume daily."

Calves are fed at 06.30 and 07.30 on Sundays. The calves like consistency," says Colm. "Although the shed has been designed to allow for the potential installing of an automatic calf feeder in the future if needed, I will find it hard to justify given the milk feeding system and feeding programme I have in place at the moment."

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Colm with his wife Edel, and daughter R'ealta.

Disease prevention

"Another key design feature of this shed is the ventilation it provides to keep air fresh while having no draughts," says John Kilboyle.

"Air inlets are provided by using Yorkshire boarding on the windward side and space boarding on the sheltered side of the shed, with an air outlet in the form of a capped ridge."

Good ventilation takes away moisture, dust, ammonia, bugs and excess heat. It also kills harmful organisms living in the air – viruses, for example, will survive for a shorter time in fresh air than in stale air. Dust and ammonia irritate the respiratory tract and make the animal more vulnerable to respiratory disease.

John Donlon says the complete absence of any coughing whatsoever by the calves in the shed is a good sign. "If you hear any coughing, the calves may have sub-clinical pneumonia. In the future vets will ultrasound scan the lungs of calves at arrival to detect pneumonia.

"We do that now at Teagasc Grange – this allows us to make better treatment decisions earlier and reduce the loss in performance associated with BRD."

And speaking about the BRD project at Teagasc Grange, he added: "All the calves involved in this project will be monitored using lung scanning, which is a new technique that allows us to detect respiratory disease earlier."

Meanwhile, Colm noted that the Beef Health Check Report for all stock finished last year had come back clear indicating the animal health plan he has implemented, is working.

> "I think we have to be constantly looking for new ways of doing things,that's why I'm interested in seeing what Teagasc Grange are doing at the open day – **Colm Reilly**

Colm is also interested in the calf microbiome, the community of bugs living within and around calves and the influence on health and performance. John Donlon said Teagasc Grange is currently investigating how a calf's microbiome changes over time and in relation to disease events.

Colm is also really interested in vaccination strategies and preventing and treating scour in the early days and weeks following turnout.

John Donlon says cleanliness is key, so the shed is a good start. "Ideally the beef farmer would decide the vaccination programme before the calf left the dairy farm," he said.

Vaccination

"The gold standard would be to give an intranasal vaccine on arrival and follow up with an injectable vaccine later but this is expensive."

Colm is also concerned by summer scour. It can occur if calves have access to too much lush grass, especially in early days/weeks following turnout. He explains having a well reared calf (+120kg) at turnout and getting the calves to 'clean out' a paddock are two key factors helping him avoid summer scour outbreaks on farm.

"Calves go out to grass when they are 120 kg, and they receive one kg of meal per day on paddocks which are strip grazed."And as Colm manages the calf-rearing phase so well, "the calves are set up to perform well on grass and maximise lifetime performance on the farm and finish in a 20 month system," says John Kilboyle.

"I think we have to be constantly looking for new ways of doing things," concludes Colm.

"That's why I'm interested in seeing what Teagasc Grange are doing at the open day and also taking part in the Tuam Dairy Calf-to-Beef Discussion Group. You will always pick up something useful."

What's new in dairy beef systems?

A Teagasc team recently met with a group of Wexford farmers to discuss the latest developments, writes **Pearse Kelly,** Head of Drystock in dairy beef production

Harry Murphy, Paddy O'Brien, Jack Murphy, Ellen Fitzpatrick, Pat Rowe, Philip Murphy.

Background

The farmers

Paddy O'Brien farms in Campile, Co Wexford, running a dairy calf to beef system. He buys 110 dairy bull calves each year, mostly Friesian plus a few Angus. He was finishing half as bulls, but has moved recently to finishing nearly all of them as bullocks.

Philip Murphy also farms near Campile, finishing Hereford and Angus bull calves bought from dairy herds in a 24 month steer system. He buys 100 calves every year – mainly Hereford and Angus bulls and finishes them as steers. He previously bought Friesians and finished them as bulls. He also has 75 suckler cows and tillage.

Harry Murphy from Ferns Co Wexford aims to finish at least 350 dairy bred calves each year with most being Friesian males. He finishes a mixture of bulls and bullocks and has also reared a number of autumn-born Friesian bull calves in the past.

Pat Rowe farms near Campile. He buys 135 Friesian bull calves each year and finishes them at 17 to 20 months of age with a large proportion of their diet coming from zero grazed grass fed indoors.

The researcher

Ellen Fitzpatrick is from New Ross Co Wexford and is a research technologist based in Teagasc Johnstown Castle Research Centre just outside Wexford town. Her trial work includes research on how early and late-maturing beef heifer calves perform on different grass-clover mixtures and multi-species swards.

The advisor

Jack Murphy is a drystock advisor based at Teagasc Johnstown Castle.

Ellen Fitzpatrick opened the discussion by explaining that the trials in Johnstown Castle were focusing on heifer beef production from the dairy herd because all the recent trial work on dairy calf-to-beef systems in Teagasc Grange has been around steer beef production systems.

"Also it has been a long time since we looked at what can be achieved from calves sired by continental breeds," she said "Half the heifer calves in this new trial are bred from Limousin and Belgian Blue AI bulls and these will be compared to heifer calves bred from Angus and Hereford sires."

When asked why nearly all of the farmers were buying only male calves, there was a common response from the group. Philip Murphy said: "The convenience of having all of the same type of stock puts me off buying a mixture of bulls and heifers."

Paddy O'Brien said he did not like buying heifers. "If you have them there is always the risk that some of them could end up going in calf if they are running with male stock." Pat Rowe said he prefers only males because "they come into a much heavier carcass weight, with Angus and Hereford heifers often finishing at very light weights."

Harry Murphy was the only one of the four who buys heifers, but said that is often not by choice: "If I am buying a bunch of calves from a dairy farm and there are a small number of heifers in the group, I don't like refusing to buy them with the rest of the calves."

Ellen agreed that early maturing beef heifers from dairy cows often do finish at low carcass weights. "Some of the first Angus and Hereford heifers bought for the previous trials were purchased because of their breed with little investigation into their genetics," she said.

Better genetics for carcass weight

"These finished at 19 months of age and were 243 to 250 Kg carcass weights. The early maturing heifer calves bought last year that will be finished in 2024 were bought based on having better genetics for carcass weight. We expect carcass weights increased by 15 to 20 Kg as a result."

An important component in ensuring that calf-to-beef systems are profitable is maximising the amount of grass in the lifetime diet of the finished animal.

Ellen explained that this is one of the big advantages of the heifer finishing systems over more expensive steer systems.

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Paddy O'Brien and Ellen Fitzpatrick.

Continued from p17

"Most of the Angus and Hereford heifers [in the Teagasc Grange trials] were finished off grass last year with only 14% of the grass-clover treatment requiring an indoor finishing period. No meal was fed at grass to achieve this, with only the heifers that were housed getting 4 kg of meal".

The amount of meal fed to the heifers from when they were bought as reared calves (around 20 weeks of age) to slaughter was only circa 300 kg. Calves are on a grass-only diet from the middle of June until mid-September. From mid-September onwards, calves are supplemented with 1.5 kg of meal until housing in November.

Meal feeding strategies

There were different meal feeding strategies for the farmers' calves during their first grazing season. Paddy O'Brien also stopped the meal from the middle of June to September, but does offer the calves some straw at grass if required. Some years he continues to feed meal to lighter calves until they hit a certain weight and then he stops.

Pat Rowe said: "I feed a small amount of meal to calves throughout the summer as it can often be hard to get enough grass into young calves". Paddy O'Brien agreed that grass was one of the most important management practices to get right in a calf to beef system: "I am a big believer in giving calves fresh grass every day. What they don't eat I let older cattle clean up," he said.

One of the major questions that Ellen's work is trying to answer is how well do calf-to-beef systems perform on different sward types and can we reduce the amount of nitrogen that we need to spread, even on heavily stocked farms.

Multi-species swards that have been growing in Johnstown for a number of years are being grazed in this trial along with swards that only have perennial ryegrass and also perennial ryegrass swards that have a reasonable amount of white and red clover in them.

The multi-species swards (a mixture of grass, red clover, white clover, chicory and plantain) and the clover swards get only half the nitrogen per year that the grass only swards are given (75 vs. 150 kg N/ha).

Jack Murphy pointed out from the Johnstown Castle Trial how in their first grazing season, the calves grazing multi species swards gained 0.2kg/head/day more compared to their counterparts grazing conventional grass swards, a really significant difference.

Ellen said: "The three different sward types all grew very similar amounts of herbage across the year. "Calves grazing in their first year grew significantly faster on the multi-species swards compared to the other two swards. We saw this over three different grazing seasons.

> "The calves on the multi-species swards were much bigger at the end of the summer compared to all the other calves

"There was no difference between the multi-species sward and the clover sward in animal performance In their second year at grass, as yearlings. The difference in performance in the calves was so great that it was obvious when looking at the calves on the multi-species that they were much bigger calves at the end of the summer compared to all of the other calves."

Multi-species swards

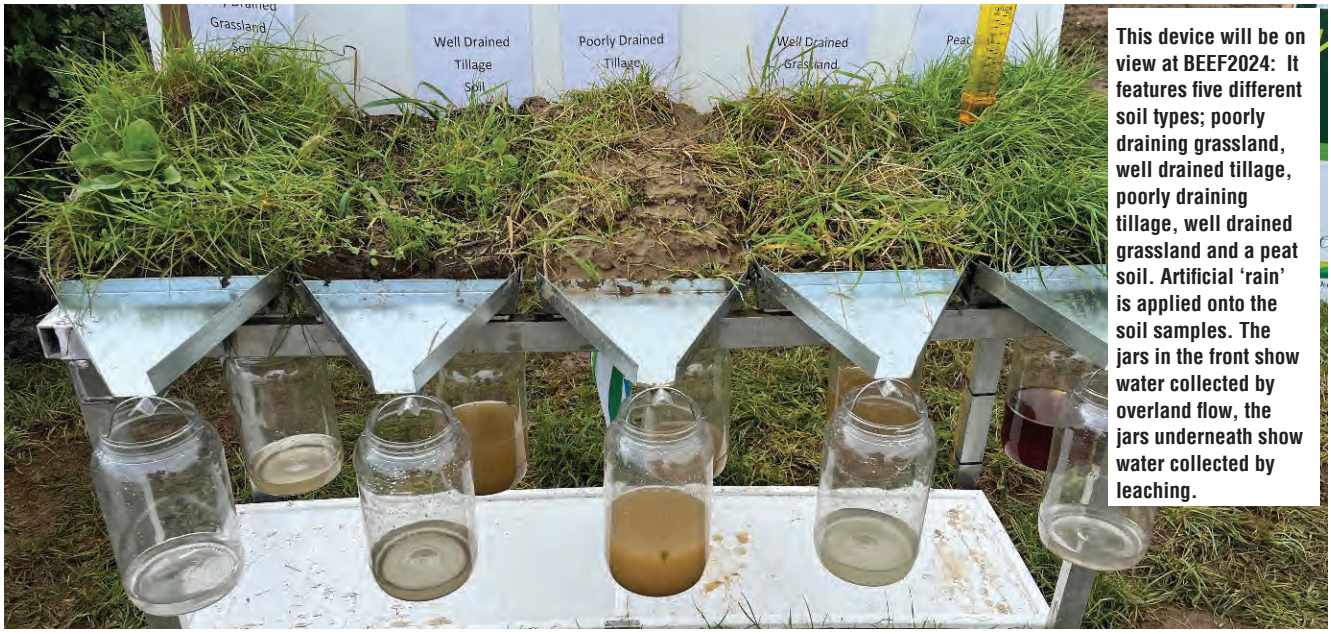
All four farmers were impressed with the performance of the calves on the multi-species swards in Teagasc Johnstown Castle and could see the potential benefits of incorporating these swards into their own systems – even if it is only on a small proportion of the farm to begin with to graze young calves on.

Ellen explained that it is not fully understood yet why calves, in particular, benefit from these swards but that it is likely due to improved digestibility of the forage. Future research will focus on this.

Dairy calf-to-beef systems, including the work that is being carried out in Teagasc Johnstown Castle, will feature strongly at BEEF2024.

Ellen Fitzpatrick and other researchers, who are working in Teagasc on topics of interest to farmers who are rearing dairy-bred beef calves through to finish, will be available to speak to on the day along with DairyBeef 500 specialists and advisers.

A number of calf-to-beef demonstration farmers from the DairyBeef 500 programme will also be pesent to share their experiences with different finishing systems.



This device will be on view at BEEF2024: It features five different soil types; poorly draining grassland, well drained tillage, poorly draining tillage, well drained grassland and a peat soil. Artificial 'rain' is applied onto the soil samples. The jars in the front show water collected by overland flow, the jars underneath show water collected by leaching.

Focus on contaminants

Noel Meehan
Teagasc Agricultural Sustainability & Advisory programme

The loss of contaminants such as nutrients, sediment and pesticides to water from agriculture sources is increasingly under the spotlight. Recent Environmental Protection Agency (EPA) reports have highlighted the role farming plays as a source of contaminants impacting water quality

Soil type, weather conditions and land management all influence the type of contaminant lost and the pathway through which it enters the nearby stream or groundwater. When assessing farms under the ASSAP programme, Teagasc and dairy co-op advisors discuss the diffuse loss of nutrients (phosphorus and nitrate), sediment and pesticides to water with farmers. The aim is to help improve understanding of how contaminants leave a field and enter the drainage network.

This year at the Teagasc Beef 2024 Open Day in Grange the ASSAP stand will simulate field management (grassland and tillage) and weather conditions to show how water interacts with different soil types and moves through different pathways to enter water.

The demonstration will have five soil trays that are filled with different soil types. When combined with a rainfall simulator this provides a visual representation of real time losses of phosphorus and sediment by overland flow and nitrate leaching through soil to ground water.
The five soils are:

- **1** Poorly draining grassland soil
- **2** Freely draining tillage soil
- **3** Poorly draining tillage soil
- **4** Freely draining grassland soil
- **5** High organic matter peat soil

Soils 1, 3 and 5 will show that these soils become saturated quickly; water moves via the over land flow pathway bringing with it phosphorus and sediment. There is a greater potential for sediment loss on tillage fields.

Soils 2 and 4 will show that these soils allow water to move downwards through the soil profile with nitrate lost via the sub surface pathway to groundwater. There is a greater potential for nitrate losses from tillage fields in autumn where no cover/catch crop is present.

Depending on nutrient/sediment loss pathway, (overland flow or leaching), ASSAP advisors recommend actions to minimise these losses. Where phosphorus and sediment is the concern farmers can put in place 'break the pathway' measures like riparian areas, earthen bunds, sediment traps and modified drains, trees and hedges to capture and slow down contaminant losses.

Nitrate leeching

Where nitrate leaching is the concern, farmers can reduce losses through careful application of nitrogen fertilisers, taking into consideration soil temperatures, greater than 6°C; soil moisture deficits, saturated soils and drought conditions; matching applications to growth rates, particularly in spring. Distributing nitrogen fertilisers across the farm and avoiding excessive loads on the grazing platform will also help to reduce nitrate losses.

The EPA developed Pollution Impact Potential (PIP) maps are very useful in identifying areas of farmland that are at risk of phosphorus/sediment and nitrate losses to water. These also include maps that will show the flow of water overland during periods of heavy rainfall. For more information contact your local ASSAP advisor.

The Horgans pictured with Teagasc advisor Michael Bourke on the family farm in Kilworth, Co Cork. Farm succession will feature at BEEF2024.

How this Cork family achieved a smooth farm succession process

There are some key things to consider in the farm succession process and the Horgan family ticked all the boxes

Alan Dillon
Teagasc Beef Specialist

John Horgan from Kilworth, near Fermoy, Co Cork is a part-time beef farmer who recently took over the farm from his parents Pat and Catherine. John works full-time as a primary school teacher in Kildorrery around 21km from where he lives and is married to Noelle who hails from Donegal. They have two young daughters, Alannah and Órla and Noelle works full time as a nurse in Cork.

This makes for a busy lifestyle with John still involved in the local GAA. He competed in the sport of handball at a high level.

Beef enterprise

The farm consists of 70 acres split by the main road and bordering the river Araglen. It was originally run as a dairy farm but in 2007 it changed over to a calf-to-beef enterprise, which is still the main enterprise on the farm. "I buy around 50 calves locally each spring with the calves being taken through to either forward store stage or finished in Kepak Watergrasshill," says John.

Pat and Catherine began the process of transferring the farm in 2018. "We are very happy with how smoothly the transfer of the farm to John has been," says Pat. "We firmly believe that it is vital to gather as much information as possible before starting the succession process."

Catherine, Pat and John sought advice from both Teagasc and their accountant who has expertise in the area of farm succession planning.

"One of the most important areas we focused on with our accountant was to ensure we qualified for all the

reliefs available such as Retirement Relief, and relief from Capital Gains Tax," says Catherine. John made sure he qualified for Stamp Duty relief and Capital Acquisitions Tax relief.

This all had to be completed by the time John turned 35 and the process of transfer began a number of years prior. "We sat down as a family to ensure that everyone was happy with the decisions made," says John.

Catherine and Pat said they were happy to stay involved in the farm as they are still fit and healthy and enjoy working with the stock. John was also happy with this as he would have extra help during spring when workload increased.

Time constraints can be one of the main problems for part time farmers. The Horgans have children to be picked up and dropped off and involvement with the likes of GAA and other outside interests taking up many of the free hours in the day.

Contractors

"We use contractors for all the main jobs on the farm such as silage, slurry, reseeding and even fertilizer spreading," says John. "A good relationship with your contractor is key. I keep him up to date on any works coming down the line and he ensures tasks are carried out on time."

To make the calf rearing process easier and avoid hassle with health problems John has made some labour saving investments on the farm. He built a calf shed to hold 50 calves with easy access to clean the sheds with a tractor and loader.

A mobile calf milk feeder and mixer was also purchased three years ago and this has been a 'game changer' in terms of the time spent preparing milk replacer and feeding calves according to John.

A weighing platform was also purchased to monitor performance of cattle at various times of the year. This helps John make informed decisions around selling cattle or when to begin intensive feeding.

"To condense the busy period rearing calves I purchase them over a 3-4 week window," says John. "This avoids having large age gaps between calves and avoids calves being bullied in the groups at troughs etc."

John's plans for the future include investing in slurry storage and some machinery. A new slatted shed would take pressure off housing in winter, allowing him to finish all his stock and ensure he has enough storage to hold slurry until at least March each year. "That means we can put out slurry when grass needs it so we get maximum benefit from the nutrients," he adds.

John and Pat Horgan: As part of the succession plan, Pat has remained active the farm.

Key points:Horgan family's farm succession plan

- Parents still have an active involvement in the farm while relinquishing overall responsibility.
- The gradual step back for parents means they are there to assist, while John works part-time and gets established on the farm.
- Early farm transfer means John still is young enough to make investments in the farm safe in the knowledge that his family will reap the benefits
- Advance financial planning. Having discussions with accountant, solicitor/tax consultant and Teagasc advisor well ahead of the transfer ensured financial mistakes were avoided.
- Succession decisions should not be rushed.
- Ensure that all tax reliefs from capital taxes involved in farm succession are availed of: Stamp Duty, Capital Gains Tax and Capital Acquisitions Tax.

Investment

John also plans to invest in a newer tractor and maybe a loading shovel. Given how tight time constraints are in evenings especially in winter, good equipment that starts and drives and gets the job done quickly is essential to ensure family time isn't interrupted by unwanted breakdowns.

"Having completed the process of transferring the farm at a relatively young age allows us to not only plan investments but also to reap the benefit of these investments," says John.

"Big spend items such as farm buildings will take a number of years to pay back and depreciate and getting these investments completed early means Noelle, myself and the children will see the benefit," he concludes.

Call for study participants: delayed succession on beef and sheep farms

Approximately one-third of registered farm holders in Ireland are aged 65 or older. The traditional method of succession, where the father passes the land to his eldest son, is declining in prevalence.

While there's a noticeable shift with 18,000 farm holdings now registered to women, there remains a gap in understanding of the intentions of 'mature' successors. These potential successors are increasingly pursuing off-farm careers, leading to prolonged absences from the farm.

A new study, jointly funded by Teagasc and Macra in partnership with Ulster University, seeks to explore the barriers to farm succession within the beef and sheep farming sectors from the perspective of potential successors. The study aims to gain insight into the plans of these individuals regarding the future of the farm.

If you're aged over 35 and considering taking over a farm, or if you're a farmer contemplating transferring the farm and are interested in participating in the study, please contact Holly Mullan at shepherd-h@ulster.ac.uk, or Emma Dillon of Teagasc at Emma.Dillon@teagasc.ie

Key tasks in a tricky season

It's been a challenging spring for sheep farmers, but there's still time to get back on track prior to weaning

Ciaran Lynch
Teagasc Sheep Specialist

GRASSLAND

•Getting grazing group(s) set up and establishing a grazing rotation early in the season will help boost lamb performance and can aid grass growth. Aim to have five grazing divisions per group. Batching up ewes and lambs into larger groups will streamline this.

•Target pre-grazing covers of 1,100 – 1,300 kg DM/ha (7 to 8 cm) grazing down to a residual of 4.5 cm for optimum performance. Monitor paddocks. Higher covers are not ideal for sheep grazing and may suit other classes of stock (cattle) or can be dropped out and cut for silage.

•Reduce residency period i.e. the time sheep are spending grazing out fields. To get the balancing act right between keeping fresh leafy grass in front of the flocks while maintaining sward quality by achieving good graze outs can be tricky in May and June.

There are two approaches you can take:

– Increase grazing group size: batching up groups further, or where available, by adding cattle to the group

– Reducing grazing area though the use of temporary fencing.

Get these set up early in the season and focus on the larger grazing areas first.

TEMPORARY FENCING: KEY TIPS

•Ensure the fencer is suitable to cover the area required

•Connect power to the open end of reel

•Ensure good connection between strands

•Ensure fencer is well earthed

•Check for breaks in wire

•Recommended heights for early and mid-season can be seen in Figure 1 (opposite).

Lastly aim to produce a portion of high quality silage for the coming winter either through surplus or dedicated cuts – this will have a major impact on ewe performance and concentrate requirement next spring. Ewes will require approximately 20 bales per 100 ewes per month during the housed period.

HEALTH

•The first two parasite challenges young lambs will face are Nematodirus and Coccidia. On occasion lambs can be infected with both parasites at the same time.

•Coccidia primarily effects lambs from two weeks up to 8 – 9 weeks of age. Nematodirus (battus) is the other main early season parasite, In general it affects lambs aged from 6 to 12 weeks but may occur in younger lambs.

•While the high risk period has passed parasites will still pose an issue for flocks lambed in late March/early April. Earlier lambing flocks should also be mindful of late lambs as these often don't fall into the main dosing schedule.

•Strongyles are the main stomach worms that impact lambs during the grazing season and can pose a significant challenge particularly with wide spread anthelminthic resistance. This will begin to pose an issue from May onward as lambs consume increasing amounts of grass.

•Monitor groups for signs of scour/ill thrift, consider collecting faecal samples fortnightly to monitor worm burden and inform dosing decisions.

• Post-weaning, conduct a drench test on the product(s) being relied on when dosing. Talk to your vet/advisor in advance of this to find out what steps are necessary and have this lined up as an essential task to complete this summer.

Blowfly control

The typical risk period for blowfly strike starts each season as temperatures increase from late April and continues right through to October. It's important to have preventative measures in place early.

There is no benefit to waiting until the first strike occurs. Aside from the damage to the individual affected it also results in an increased challenge on the farm. These common products used can be split into two categories based on their active ingredient and mode of action:

Insecticidal pour-ons

•There are a number of pyrethroid based pour-ons (e.g. cypermetrin) which offer short term cover (6-8 weeks) from flystrike on the areas where they are applied. These products will also kill maggots if they are applied directly to the larvae.

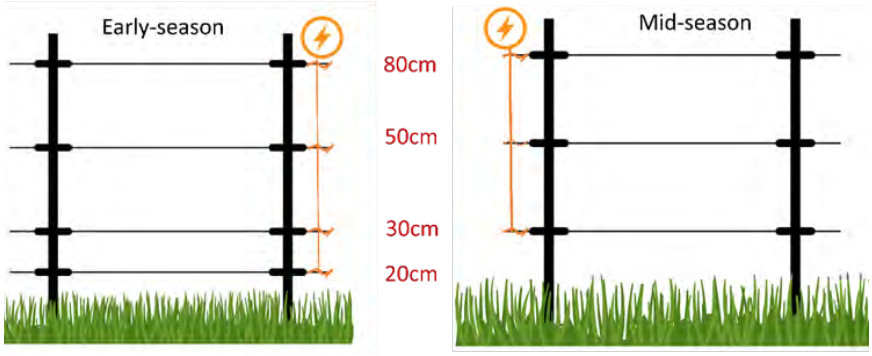


Figure 1: Recommended heights for early and mid-season fencing

Correct procedure is essential to foot-bathing success.

Insect Growth Regulators (IGR's)
These products work by interrupting the life cycle of the larvae and need to be applied before the blowfly lays eggs. There are a number of different products within this category on the market with varying lengths of cover.

Be aware of the periods of cover for the chosen product and re-apply once this is up where required. Check withdrawal dates as these vary between products

Lameness

The main causes of lameness are scald, footrot and increasingly CODD. Scald and Footrot can be controlled with regular foot bathing, however more severe cases of footrot and CODD will require antibiotic treatment and farmers should consult their vets.

When foot bathing using the correct procedure is going to have a major impact on success.

•Use products appropriately: correct dilution and mixing procedure is vital
Formalin – 3% dilution
Zinc sulphate – 10% solution
Copper sulphate – 10% solution
Others according to manufacturers' instructions.
•The solution should be 5cm deep – this may need to be topped up in walk-through footbaths.
•Contact time is important for products like Zinc and Copper sulphate.
•After foot bathing animals should be allowed to stand on a clean hard surface ideally for up to one hour before going back to pasture.

Monitoring ewe performance

A difficult season will always highlight the poorer performing ewes. One of the most effective ways of boosting flock performance is to remove the poorest performers or put in place the necessary interventions to address the underlying issues.

Some of these will be obvious culling reasons but on occasion you will find ewes in good condition that simply display either poor mothering ability or milk yield. Is it worth carrying these into the next season?

It has been challenging to keep ewes on target body condition this past season which will have an impact on this year's lamb performance. Assessing body condition on ewes and managing accordingly is a useful management tool. Here are a couple of things to consider for thinner ewes:

•Is there an underlying health issue that needs to be addressed e.g. lameness, fluke, poor mouths. Can these be addressed?
•Can they be grouped separately and their lambs receive concentrate supplementation?
•Is early weaning an option for this cohort to allow them longer to recover - may be a worthwhile consideration for younger ewes.

Looking forward, have you plans in place for weaning and subsequent management? Look back at last year's performance and drafting. Are there potentially issues that can be addressed such as conducting a drench test? Do you need to establish finishing groups earlier in the season?

These are areas that are worth reviewing and will require some advanced planning to improve performance this season. Keep the focus on getting the basics right and what you can control inside the farm gate. Where issues occur, take action and don't hesitate to seek advice.

How using lime can reduce Greenhouse Gas emissions

Mark Plunkett
Teagasc Soil & Plant Nutrition Specialist

Aisling Molloy
Teagasc Future Beef Programme Advisor

Considerable progress was made improving soil pH through liming from 2012 to 2018. However since then, across both dairy and beef enterprises we have seen a significant increase in the proportion of soils that have low pH, requiring lime. Any soil below pH 6.2 needs lime.

Just under two-thirds (65%) of soils on cattle farms having a soil pH less than 6.2. The equivalent figure on dairy farms is almost half (50%) below 6.2.

What are our targets for lime use to help achieve our emissions targets?

The Teagasc Marginal Abatement Cost Curve (MACC) aims to assist farmers and the Agriculture industry to reduce Greenhouse Gas (GHG) emissions. It sets out targets for levels of lime usage which will assist in GHG reduction on farms.

In 2022 Irish farmers applied 1.4 m tonnes of time. This fell to ~ 0.7 m tonnes in 2023 (Industry estimate) due to limited opportunities to apply lime as a result of adverse weather conditions.

The MACC target is to use 1.75 m tonnes of lime per annum up to 2025 and 2.5 m tonnes per annum to 2030.

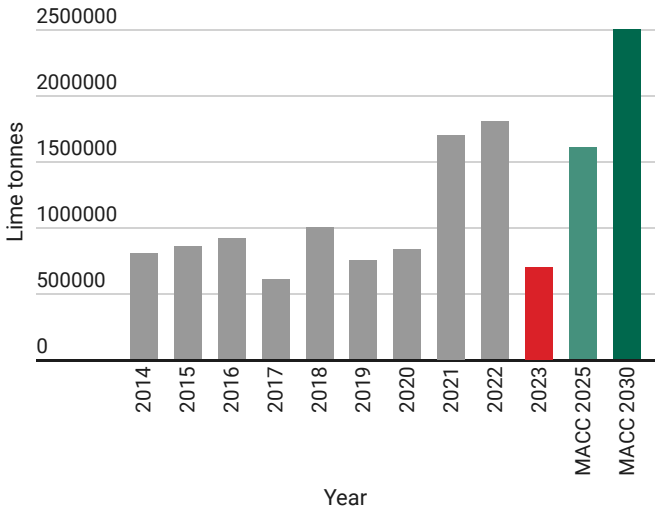
We are significantly behind these targets and increased emphasis on liming is needed to redress the situation.

How does lime reduce Greenhouse Gas emissions?

Lime helps reduce Greenhouse Gas emissions in two ways.

• Research at Teagasc Johnstown Castle has shown that increasing soil pH by liming results in a significant

Figure 1: Lime usage since 2018 and MACC lime targets up to 2030



reduction of nitrous oxide (N_2O) emissions and increased grassland productivity compared to the un-limed plots under the same management and fertiliser regime.

The degree of reduction in N_2O emissions mainly depended on the amount of lime applied. When soil pH was increased to 6.9, N_2O emissions were reduced by 39% compared to a control soil at pH of 5.0 (Figure 2).

The long-term results showed that the highest grass yields were achieved when liming was combined with regular Phosphate application. Plots limed to above pH 6.0 had 0.5 t/ha higher dry-matter yields. The yields in limed plots with optimal P content (P Index 3) had an even better outcome . On average they delivered 1.5 t/ha higher yields compared to un-limed soils with P Index 1.

- Applying chemical nitrogen releases N_2O, which is a big contributor to emissions from farming. By getting soil pH right, up to 70kg of nitrogen per hectare can be made available in the soil... at no cost.

If nitrogen availability in the soil is increased by liming, you will need to apply less chemical nitrogen and as a result farm emissions will decline.

So, does lime contribute to Greenhouse Gas emissions?

Yes in the year that lime is applied short term emissions can rise. For every one tonne of lime applied, 0.4 t CO_2 equivalent is emitted but the benefits of this lime in terms of releasing N in the soil far outweigh this loss over time.

What contribution does reducing chemical N use make to achieving our emissions target?

We know from the Teagasc MACC that by reducing chemical N by 25% we can reduce total emissions by 0.5 Mt or 11% of the total reduction needed. This can be achieved, without yield reduction, as a result of correcting soil pH through lime application, making better use of slurry, incorporating clover and optimising soil P & K.

What is the return on investment for liming?

- Research shows an average grass production response of ~1.5 t DM/ha from lime alone.
- This is worth ca. €181/t DM on a dairy farm and €105/t DM on a drystock farm.
- An investment of €30/ha to maintain soil pH in the optimum range returns €150/ha
- This represents a return of €5 – 10 for every €1 invested in lime.

> We know from the Teagasc MACC that by reducing chemical N by 25% we can reduce total emissions by 0.5 Mt

Continued on p26

Case study: The impact of spreading lime

Eamon and Donnchadh Carigeen, Glendine, Co Waterford took soil samples on their farm in winter 2021. The results showed that only 32% of the farm had a soil pH of over 6.2. Their nutrient management plan showed that Eamon and Donnchadh needed to spread 133t of lime.

"We decided to spread all of this in autumn 2022 so that it would start working in the soil," says Eamon. "Spreading at that time of the year avoided any potential nitrate losses through spreading slurry or preservation issues when cutting silage. We spread a total of 134t at a cost of €29/t. We spread all of it because it was needed and we could afford to do it that year. I was expecting to get an increase in the soil PH and phosphorus indexes but did not expect it to happen so quickly and did not expect the level of the growth response either."

Soil samples

Soil samples have since been taken in spring 2024 and these show the impact that the lime has had. The percentage of the farm with a soil pH over 6.2 has increased to 95%. The lime has also released background phosphorus that was locked up in the soil, and the percentage of the farm in Index 3 or 4 for P has jumped from 38% to 79%.

Eamon and Donnchadh measure grass on their farm and growth has increased by 2.6t DM/ha from 2022 to 2023 as a result. Eamon says: "I have spread lime in the past and sometimes saw that the grass was greener but at other times wasn't sure if it worked. Now that we are measuring grass I have figures from PastureBase and the soil sample results prove that it worked.

"In previous years I have had to feed silage during the summer to cows and calves at grass but in 2023 I didn't need to. Growing the extra grass has also helped to increase our silage stocks and has really taken pressure off this year with the late spring. The benefits to my farming system have definitely shown it was a necessary and valuable thing to do."

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How much lime should I apply?

- Test soils on a regular basis (every three to five years) to determine lime requirements.
- Only apply lime based on a recent soil test report.
- Don't exceed 7.5 t/ha in a single application.

When should lime be applied?

- Prepare a farm liming plan to identify where lime is needed. It will indicate when, and at what rate, lime should be applied. Lime can be spread all year round.

How often should lime be applied?

- Apply lime often as per the soil test report.
- On very acidic soils apply 50% now and the remainder in two years' time.
- Apply lime to 20% of the farm annually.

How do I handle lime on high molybdenum (Mo) soils?

- Soils with high molybdenum (Mo) status may give rise to copper deficiency in grazing animals.
- Increasing soil pH above 6.2 increases Mo availability.
- To reduce elevated Mo levels maintain a somewhat lower soil pH of 6.0 to 6.2.

Avoid applying lime to species rich grasslands in order to maintain swards species biodiversity.

*** Scan the QR code to download the worksheet**

Why spread lime?

1. Release up to 70kg of soil nitrogen (N)/ha/year for free. This will allow chemical N use to be reduced and consequently reduce greenhouse gas emissions.
2. Some 65% of soils on drystock farms and 50% of soils on dairy farms don't have the right soil pH.
3. Increasing soil pH will allow you to grow 10-15% more grass (five to eight bales of grass silage).
4. The economic return is high. For every €1 you spend on lime on a drystock farm, you get back €5. For every €1 you spend on lime on a dairy farm, you get back €7.

Apply lime based on soil test report results.

The facts and advice about lime

How much?
- Test soils on a regular basis (every three to five years) to determine lime requirements.
- Only apply lime based on a recent soil test report.
- Do not exceed 7.5t/ha in a single application.

When?
- Prepare a farm liming plan. This will identify where lime is needed, and when and at what rate it should be applied.
- Lime can be spread all year round. Having a lime plan in place will open up opportunities to get it applied over the year when conditions are suitable and land is available.

How often?
- Apply lime often as per the soil test report.
- On very acidic soils, apply 50% now and the remainder in two years' time.
- Apply lime to 20% of the farm annually.

Which lime to use?
- Calcium ground limestone is the most common: it's fast acting (less than three months) and offers rapid pH adjustment.
- Magnesium (dolomitic) ground limestone is available: this is somewhat slower to react but has a higher liming value.
- Granulated limes: finer limes (less than 0.1mm particle size) and very reactive – apply as maintenance product when soil pH is >6.0.

Lime and high-molybdenum soils
- Soils with high-molybdenum (Mo) status may give rise to copper deficiency in grazing animals.
- Increasing soil pH to >6.2 increases Mo availability.
- To reduce elevated Mo levels, maintain a somewhat lower soil pH of 6.0-6.2.

Lime and slurry/urea

The type of N in slurry and urea is ammoniacal N and prone to loss if applied to freshly limed soils. To avoid N loss the following is recommended:
- leave seven days between applying urea or slurry and applying lime;
- leave three months between applying lime and following with urea or slurry application; and,
- no interval required between liming and NBPT urea.

Avoid applying lime to species-rich grasslands to maintain swards' species biodiversity.

teagasc
Agriculture and Food Development Authority

SIGNPOST

Liming plan

Two-year liming plan

Field name	Soil pH	Lime advice (t/ha)	Field size (ha)	Best time to spread: Lime required 20__	Best time to spread: Lime required 20__
Example (back field)	5.7	5t/ha	4	20t	
			Total ha		
			Total lime required in tonnes		

Note: apply a maximum of 7.5t/ha in single application of ground limestone; where >7.5t/ha split the application – 50% now and 50% in two years' time. Leave a minimum of three months between lime application and closing for grass silage.

The Signpost Programme is a collaborative partnership of farmers, industry and State agencies, working together for climate action.
For more information please visit: www.teagasc.ie/signpost.

Colm Geraghty and Teagasc advisor John Mahon

How milking efficiency facilitates an off-farm job

Part-time farmers, in particular, are considering whether they can return more income from the time spent working on their farms. Some switch to milking cows and invest in milking equipment to offset the increased workload. This makes it easier to continue with their off-farm job

Patrick Gowing
Teagasc Dairy Specialist

Generally, there are two options to achieve greater efficiency when milking cows. You can build a bigger parlour to decrease milking time; or automate the process by using an automatic (robotic) milking system.

PJ and Colm Geraghty farm near Miltown Pass, Co Westmeath. Both have off-farm interests. PJ operates a contracting business focusing on hedge-cutting. Colm works off-farm for an agricultural machinery dealership."

The Geraghtys farm 26ha of owned land, all of which is around the yard, and lease an additional 21 ha that is away from the farm. They converted from sucklers to dairying three years ago.

Why cows? "The sucklers worked well for us here for years," says PJ. "We had built up a good breeding herd, but we just felt for the time we were putting into it, we were not getting the return we would have liked.

"We wanted to improve the farm but we found it hard to justify the investment given the relatively modest profit that we were generating.

"Thanks to the value we had built up in the suckler herd we were able to change nearly one for one for dairy stock which helped with the cost of conversion."

Parlour or robot? "We went to many robot farms," Colm explains. "But ultimately, we opted for the simplicity of a parlour system, particularly around grazing management. The cows run one grazing pattern and are in the paddock in the morning where we put them.

"Also, our goal was to milk over 80 cows and we felt that this was too

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much for one robot but not enough for two. We liked the potential of the parlour to accommodate more cows if the opportunity arose.

"We installed a 14-unit parlour with space left to increase to 20. Normally this would be deemed too large for our cow numbers but our target was to be able to milk the cows in an hour. We milk 84 cows in six rows which takes roughly 10 minutes per row on average throughout the year.

"We spent a lot of time on the design of the grazing infrastructure and cow flow in the parlour to streamline the milking process.

"If I was full-time farming I could not justify the increased capital outlay on the parlour," Colm explains. "The cash drawings needed for the household wouldn't allow it."

Are you busier since you converted? "There is a heavier workload in the spring," Colm says. "Fortunately, I can take time off work at that time of year. But I also needed to do that when we were calving sucklers."

PJ adds: "The calves create the extra work, feeding and minding them compared to the sucklers. But once that period is over, the work settles into a consistent pattern. Milking is not an issue as we can handle cows so well in the parlour."

PJ Geraghty, Colm Geraghty and Patrick Gowing

Cathal Fleming says he can make good use of data collected by his milking robot.

Robot options

Cathal Fleming and his father James farm 69 ha in partnership, all owned, in the Swan in Laois. Twenty five years ago the farm was in dairy cows but, in recent years, the farm has been in a calf-to-beef system. The farm is unusual as there is little or no land adjacent to the farmyard. In the past, dairy cows had to walk up and down the road to access grass.

Cathal works off-farm in data management. "I had long been contemplating converting back to dairy," he says. "We were doing well on the calf- to-beef and maximising the profit of the system. However, as the farm is fragmented and we were running multiple groups of calves we found the workload increasing, particularly in the spring.

"We knew we had to relocate the new milking system to an out block. My preference was for a robot. I manage and use large amounts of data in my day job. I am very comfortable using information to make decisions. I liked this about the robot.

"It gives you a huge amount of information compared to a conventional parlour. I feel I am equipped to use the data to make the farm more profitable.

"The robot means I am not tied to milking times. Occasionally I can get held up coming home from work and we have young children. My father or wife can change the wire in the evenings if I am not around.

> My preference was for a robot. I manage large amounts of data in my day job, so I am very comfortable using information to make decisions. I liked this about the robot.

"But it is important that if you are going for a robot system to have somebody available during the day in case there is a problem when you are gone to work.

"It's early days yet as we only started with a robot this spring and it has been busy especially trying to finalise on the building, ESB and all else that goes with any major investment. I am delighted with how it turned out.

"I was expecting to be spending a lot of time pushing cows and running them up to the robot to make sure they got milked, particularly as none had been in the robot prior to calving. They normally settle within two to three days and never look back.

"I find the robot gives massive flex-

ibility and the information provided is second to none. We are hoping to get them out to grass soon, as the spring has been tough, and that will free up more time.

"We are well set up for calves as we were previously in a calf- to-beef system. Looking forward, I can see that when we have a settled system it will be relatively labour efficient."

Conclusion

Both farmers featured invested heavily in milking facilities to optimise their workload. Every situation is unique and we have deliberately not included the investment figures here. Anyone thinking of converting into dairying should, like the lads featured, visit as many farms as possible and take advice on the investment required.

It is important to note that both farms did not skimp in the areas that lead to higher profitability in dairying: grazing infrastructure, reseeding and in particular, good breeding stock.

There are pros and cons to both milking systems and the final decision can come down to personal choice. The Flemings and the Geraghtys chose systems that work for them and their families in tandem with their off farm employment.

Patrick Gowing and Cathal Fleming

Shay Phelan
Teagasc Tillage Specialist

Vijaya Bhaskar
Teagasc Researcher,
Oak Park

Charlotte Morgan, a PhD student, shows the resistant and sensitive populations of Italian ryegrass.

Grass weeds - a growing problem on Irish tillage farms

The recent Enable Conservation Tillage (ECT) project aimed to inform farmers, who wish to transition into reduced cultivation systems, about one of the potential pitfalls: uncontrollable grassweeds

In the past, some growers who dabbled in min-till, direct drill or no till and were unsuccessful. Many identified the difficulty of controlling of grass weeds as one of the primary reasons for reverting to plough-based systems.

The Enable Conservation Tillage project highlighted a number of monitor farmers who had successfully made the change. One of the big learnings from the project was that the establishment system is only part of the puzzle, more IPM tools must be incorporated into the farm system for the practice change to work.

As many of the growers commented: "The drill is only the final part of the jigsaw". Good rotations, avoiding compaction, learning from mistakes and reducing grass weed problems through cultural control as well as herbicides are all important parts of a successful transition.

At the start of the project there was reluctance to acknowledge that a particular farm had a grass weed issue, especially when it came to blackgrass. We came across many cases where growers were in denial or simply didn't recognise that blackgrass was present on their farm. It was becoming increasingly clear, however, that herbicide effectiveness was starting to fail.

Blackgrass

In Teagasc Oak Park we have seen that blackgrass can become an issue unless you are vigilant. In 2020, as part of a plan to increase biodiversity on the farm, wild flower margins were planted. Brendan Burke, the farm manager, identified blackgrass plants in one field.

A plan was put in place to eliminate the blackgrass. Glyphosate was used to burn off the affected margins, multiple stale seed beds were applied and the margin in question was ultimately planted with grass.

Italian ryegrass is another grass weed that is starting to become an issue on many farms. The problem can be traced to the autumn of 2018 when tillage farmers were paid to establish forage crops after harvest to produce much need forage for livestock farms.

Some of this Italian ryegrass has now become a problem with many herbicides struggling to control it. In the summer of 2023 a group of farmers who are participating in a European project called IPMworks visited Denmark where Italian ryegrass has overtaken blackgrass as the main grass weed problem. With no herbicide control available, their only option is cultural control methods such as whole crop, land swapping or crop destruction.

ECT monitor farm

On all of the ECT monitor farms, farmers have used IPM techniques to control grass weeds. These include crop rotation, spring cropping, grass margins, delayed sowing, rogueing, increased seed rates, stubble cultivations, stale seed beds, crop destruction ploughing and herbicide resistance testing to control grass weeds.

The last part of the IPM toolbox that they use is a herbicide, as we have seen over the course of the project, more and more populations of the various different grass weeds are becoming resistant.

Other problem weeds that have been discovered over the last few years include herbicide resistant wild oats, rat's tail fescue and even some meadow grass resistance. Trying to control grass weeds with herbicides alone is a very risky strategy.

A worrying trend

The latest two-year compilation of herbicide resistance test results reveals a worrying picture. It shows 68 out of 112 (61%) grass-weed populations resistant to a wide range of herbicides. These were the samples suspected of herbicide resistance submitted by growers/advisors from the 2022 and 2023 harvest.

The resistance spectrum, and distribution, of resistant grass weeds from the two harvest are presented in Table 1 and Figure 1.

- 22 out of 24 Italian ryegrass populations tested were ALS-resistant, and 14 of those were also ACCase-resistant
- 16 out of 21 blackgrass were resistant, of which 11 were ACCase and ALS-resistant, 4 were ACCase-resistant only and 1 was ALS-resistant only
- 19 out of 30 spring wild oats were ACCase-resistant
- 10 out of 11 meadow grass were ALS-resistant
- Out of 26 brome populations tested, no full resistant brome was found.

Herbicide resistance has clearly increased since the 2019 to 2021 tests (Figure 2). This is concerning when you consider the changing climate and other challenges facing the industry.

Growers should note that these challenges are not limited to resistance-prone Italian ryegrass, blackgrass or spring wild oats; meadow grass species, considered lower priority weeds, can also succumb to resistance development where late post-emergence control is relied upon.

Farms with a heavy reliance on spring herbicides or practicing 'one product for all' weed control pose a high-risk and require urgent change in crop/weed management practices to continue to stay in tillage crop production.

	Population samples (2022-2023)		ACCase modes of action (Full label rate)				ALS modes of action (Full label rate)	
	Tested	Resistant	Axial	Falcon	Stratos	Centurion	Pacifica	Broadway
Italian ryegrass	24	22 (92%)	R	R	R	R / S	R	R
Blackgrass	21	16 (76%)	-	R	R	R / S	R	-
Spring wild oats	30	19 (63%)	R	R	R	-	S	S
Bromes	26	-	-	S	S	-	S	S
Annual meadow grass*	9	8	NT	NT	NT	S	R	-
Rough meadow grass*	2	2	S	S	S	S	R	-

NT – naturally tolerant or resistant; R – resistant (>20% plant survival); S – sensitive
**Chemical control options are not usually listed on the product label*

Table 1. Grass-weed sensitivity screening results from the 2022 and 2023 harvest

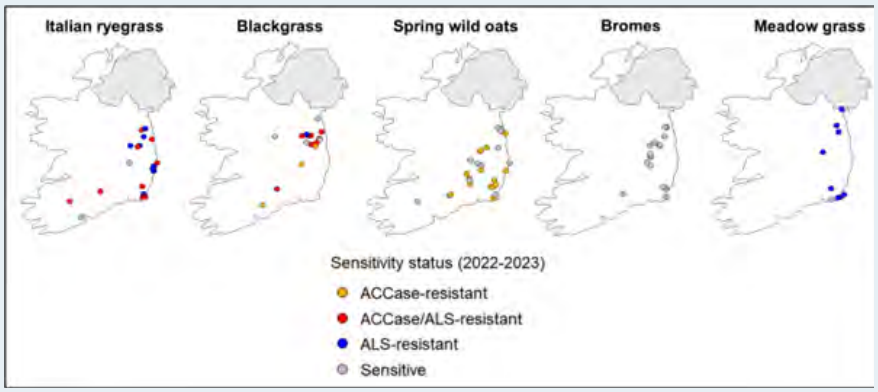


Figure 1. Distribution maps for resistant and sensitive grass weeds from the 2022 and 2023 samples

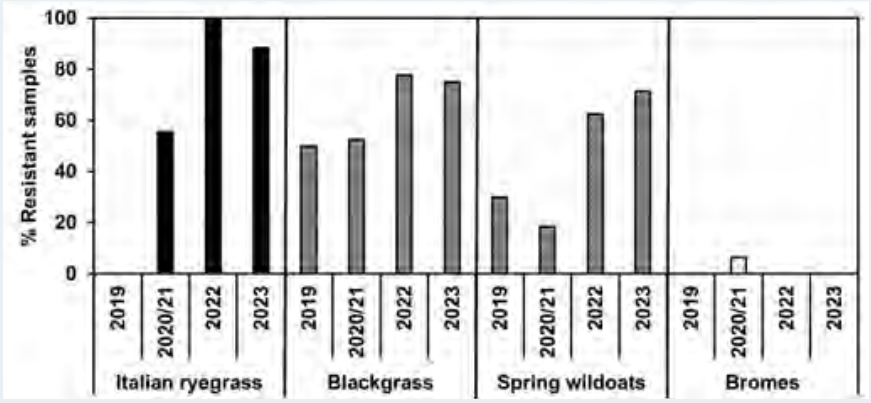


Figure 2. Percentage of resistance detected in Italian ryegrass, blackgrass, spring wild oats and bromes from samples taken from 2019 to 2023. Note: 2020/21 tests include both industry-submitted samples and samples collected as part of the nationwide grass-weed survey.

Steps to take

- Identify weeds correctly at all growth stages.
- Adopt integrated weed management including cultural/non-chemical approaches
- Rotate herbicide modes of action
- Use robust rates of glyphosate in stale seedbeds
- Stack or tank mix residual herbicides
- Use spring herbicides as a tidy up only for grass weeds – not as the only measure.
- Avoid importing weed seeds by adopting stringent machinery hygiene and biosecurity measures.
- Take decisive one-off actions such as crop destruction, ensilage or sowing down to a grass ley to avoid the consequences of competitive resistant weeds becoming established.
- Use the Oak Park testing service, which is currently free as part of the DAFM-EVOLVE project to test suspected resistant weeds; grass or broad leaved. Testing will inform you which herbicides will still work and what actions to take to contain the problem. The resistance testing form and seed collection instruction is accessible via., https://bit.ly/3MrlcgR or scan the QR code below. Your advisor will have all the details too.

A guide to storing silage and managing effluent collection

After a long winter farmers are replenishing silage stocks. Storage capacity, silage quality, effluent management and safety are all vital considerations

Tom Fallon
Teagasc Farm Buildings & Infrastructure Specialist

Silage pits that are excessively high pose a safety risk to you, family members, employees and contractors. They are more difficult to manage and there is invariably more waste silage with such pits because it is hard to adequately consolidate the grass and keep air out.

To help minimise losses always cover silage with two or more sheets of 500 gauge polythene. Pits should be regularly inspected so that any flapping, damage from birds, cats etc. can be repaired. A net over the tyres will help.

Measuring a silage pit

The best way of measuring a silage pit is to break it into sections as shown in the diagram opposite, for a pit with three walls (one is hidden). It's the number of tonnes of settled silage you want to establish so wait at least four weeks after ensiling.

The typical density of pit silage of approximately 25% dry matter is one tonne per 1.39 cubic metres (49 cubic feet). It is recommended that the pit above the wall slopes in at 45 degrees; this will reduce the risk of the loader slipping. It will also prevent pressure beyond that which the wall is designed to carry.

To achieve a 45 degree angle, for every metre of a rise the side has to come in by a metre. In this case, to calculate the silage in section B we deduct 0.6m from both the length and width.

In section C there will be a wedge of

> A target height of up to 3.6m (12 feet) of settled silage is reasonable. At ensiling the pit will be one to two metres higher. You will get better value from your walls if your pit is reasonably wide

silage on each side. So again we reduce the width by the height (on the ground you would measure from half way up one side to half way up the other side to get an average width).

In the diagram, for simplicity, we assume the front of the pit is a neat triangle. In reality this section might start at 0.8m rising to 3m. If that is the case you would use an average height of 1.9m for this section by its full length.

Ideally a pit should be filled from one end and emptied from the opposite (high) end, to make it easier to pull back the covers and to keep rainfall away from the pit face.

How high is safe?

In the past silage pits were about 12m (40 feet) wide with walls of about 2.1m (7 feet). With large herds we can justify going to 3m high walls and pits 15.2 to 18.3m (50 to 60 feet) wide.

A target height of up to 3.6m (12 feet) of settled silage is reasonable. At ensiling the pit will be one to two metres higher. You will get better value from your walls if your pit is reasonably wide.

The pit in the diagram would suit a 200 cow herd. At an intake of 40 kg silage per cow per day, the herd would consume 56 tonnes per week. The recommendation is to use at least a shear grab depth (typically 0.9m) of the face each week which in this case is 39 tonnes so almost 1.5 times the pit face will be used each week.

Chop length

Precision chop harvesters cut grass to an average length of about 5cm. Wagon-cut silage will be somewhat longer. Finely chopped grass does not bind well. This means that the sides of silage clamps cannot be too steep. The same applies when piling grass above silage pit walls.

Pits slipping during or shortly after silage making is related to the dry matter of the silage, the speed of filling the pit and possibly how easy it is for effluent to escape (presence of channels).

Wilting grass to about 30% dry matter will reduce the risk of the pit slipping. It is important that the grass in the pit is rolled in layers of about 15cm so that there is a consistent density throughout the pit. A spongy silage pit is not stable in more ways than one

Most farmers now aim to make reasonably dry silage. If this is not possible and your silage is likely to be 25% dry matter or less it would be worthwhile talking to the contractor about increasing the chop length to 8cm.

Effluent collection and storage

A silage clamp (i.e. no walls) is required to have a channel on all four sides. The silage cannot extend beyond the boundary of these channels. Place a perforated pipe in these channels to facilitate effluent flow and to reduce the possibility of stepping into a channel and twisting an ankle etc.

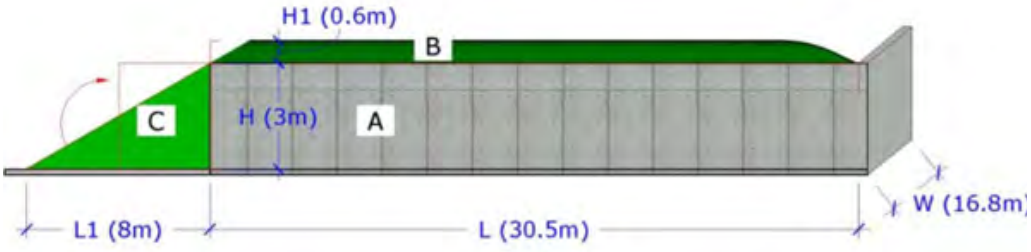
Any grass lying on the pipe/channel needs to be removed before covering the pit. The plastic covering the pit should extend out over the channel so that there is no unnecessary collection of rainwater.

Many farmers store silage effluent in slurry tanks. On some farms there is a dedicated tank for storing silage effluent. This tank needs to have a capacity of 7m^3 per 100 tonnes of silage and a vacuum tanker has to be available for emptying.

Effluent is largely generated in the six weeks after ensiling. It is essential that effluent is collected from silage pits right up to when silage feeding commences in the following autumn/winter.

Runoff from open silage pits can be classified as soiled water and county councils may require partial or full collection unless the silage pit is kept clean.

Check the silage effluent collection facility from the pit all the way to the storage tank. Ensure that the pit channels and pipework are clear, that any manholes are properly set up and that there is always adequate spare capacity in the tank especially if you are going away for a weekend etc.



A (30.5 x 16.8 x3)1.39 = 1,106 tonnes

B (29.9 x 16.2 x 0.6)/1.39 = 209 tonnes

C (4 x 13.8 x 3)/1.39 = 119 tonnes

Jimmy Lillis pictured with his Teagasc advisor Michael Bourke. The salt applied to the clamp is visible.

Cork drystock farmer makes superb silage with no waste

Jimmy Lillis shares his insights on silage-making with Tom Fallon

Attention to detail in rolling the pit, coating the full pit with salt and covering with four sheets of plastic all help to ensure there is minimal waste.

"I buy in about 50, 6- to 12- month old bullocks and rear them to beef. Quality silage is essential to making money," says Jimmy Lillis.

The farm at Craig, Shanballymore, Co Cork, is very prone to drought. He doesn't graze the silage ground in the spring so, given the high grass cover in late March this year from earlier applications of slurry, he spread just a half bag of urea per acre.

He took the first cut of silage on the 22nd April and got a yield of about 5.5 tonnes per acre (equivalent to 5.5 bales/acre). We expect this silage to be 80 DMD.

"Achieving quality silage begins with rolling the fields early in the year," says Jimmy. "Gaps in the fields are well 'stoned up' and the pit is cleaned and well prepared."

The mower has a spreader so the grass is distributed over the full width. Normally the grass is cut after dinner and picked up the following day.

"Getting grass just right is a fine line," says Jimmy. "Too dry and it is fierce hard to pack." He hasn't used a tedder for a few years and he will row up sooner in very hot weather.

Rolling the pit

Jimmy places strong emphasis on rolling the pit, "Every load gets at least some rolling." He does the rolling himself. The 15 x 11m clamp is dome shaped and up to 3m high. Five, 20 kg bags of food grade salt, costing a few euro each, are spread over the surface before putting on cling type plastic.

This equates to 2/3 of a kg of salt per m^2 compared with 3kg/m^2 or more that is used on maize silage pits. Three sheets of plastic are placed above the cling film. Initially a limited number of tyres are placed around the pit.

The plastic is tightened up twice the first week and then weekly until the pit has settled. At that point the pit is covered with tyres.

"When opening the pit we pull away the top three covers so there is enough silage for three weeks," says Jimmy. A section of cling film is cut as required.

He said it is 'amazing' that the salt will still be visible. He uses an ordinary grab to take out the silage.

Jimmy makes bales for the 2nd cut unless 10 or 15 acres are ready at the same time. "I try to mind the land by not cutting the same field twice in the one year," he concludes.

Investment in farmyards is unrelenting

David & John O'Gorman are pictured with Tom Fallon from Teagasc in a silage pit that was completed in 2023. The O'Gormans have invested heavily in their farm, completing a 50-unit rotary parlour in 2022 and a 164-cubicle house in 2020.

They have two substantial silage pits (36.6m x 18.3m and 25m x 24m), each with one side wall but they still need additional storage especially in the context of longer winters and having spare feed to cover a dry summer.

They are considering building a pit for maize silage, additional cubicle housing and a settlement tank for yard runoff. A walled pit for maize 37m long 10m wide and 1.8m high will add 500 tonnes to their silage storage capacity.

Five months supply for 350 cows

They will then be able to store about 2,900 tonnes of silage with an average pit height of 3.3m on the grass silage pits.

This will cover a five-month winter for 350 cows and for the feeding of 6 kg maize dry matter per cow per day over a 30 day dry spell in the summer.

They will also look at building a silage apron complete with channels at the back of the new pit.

This will allow the pit to be filled from the back. In the winter time this apron could be used to store farmyard manure as it will be separate from the working face of the pit.

Woodlands and water quality targets

John Casey,
Teagasc Forestry
Development Officer

Kevin O'Connell
Teagasc Forestry
Development Officer

Eimear Connery
ASSAP Advisor

Clean water has become a very important concern in Ireland today. We have an obligation to meet our water quality objectives as set out in the River Basin Management Plan for Ireland 2023-2027. We also need to protect our drinking water sources

DAFM Forestry Division has introduced two new grant aided options under the Forestry Programme 2023-2027 to create native forests to deliver specific services regarding the protection of water and aquatic ecosystems.

These exciting options are available through Forest Type 2 (FT2); Forest for Water; and the Native Tree Area Scheme (NTA2).

This approach can provide numerous other benefits including: increased biodiversity, habitat creation and carbon capture. It will also facilitate the expansion and reinforcement of Annex 1 Alluvial Woodland Habitats.

Alluvial woodland is defined as woodland that is subject to periodic flooding by a stream, river or lake. This is Ireland's rarest native woodland type.

FT2 Forests for Water

FT2 – Forests for Water is planting native trees species suitable to the site for the protection of a water body or an aquatic ecosystems or to reinforce and expand areas of alluvial forests.

DAFM's Forestry Division will cover 100% of the costs to establish the forest through a grant of €6,744/ha, as well as a generous fencing grant. Additional support such as the Woodland Environmental Fund is available wherein the landowner partners with a business and receives a once off single payment of €1,000/ha on top of the grants received.

There is an additional payment of €1,000/ha paid to the landowner from DAFM on completion of the planting.

If the landowner is a farmer, he/she will receive a premium payment of €1,142 for 20 years. A non-farmer will receive the same premium payment of €1,142 for 15 years.

All payments and earnings are income tax free. Planting does not affect entitlements under CAP and a farmer can continue to claim the BISS scheme on their forested land, subject to the terms and conditions of the BISS scheme.

To be eligible, applicants must acquire an afforestation licence and meet one of the following targeted objectives:

- Plant in areas identified as Rank 1-3 on the EPA Pollution Impact Potential (PIP) maps for phosphorus to break the pathway and protect the delivery point to the receiving aquatic zone;
- Plant in areas identified by the Local Authorities Waters Programme (LAWPRO) or Agricultural Sustainability Support and Advice Programme (ASSAP), for Native Forest creation as a mitigation;
- Plant in areas identified by Irish Water or the National Federation of Group Water Schemes for drinking water source protection;
- Plant in areas suitable for Natural Water Retention Measures. Such areas are in the process of being identified by the Office of Public Works (OPW);
- Plant in areas identified by Inland Fisheries Ireland for improvement of fisheries habitat and stream ecology;
- Plant to facilitate the expansion of the Habitats Directive Annex I Habitat: Alluvial Woodland.

Native Tree Area (NTA) Scheme

This scheme supports the creation of small native forests on farmed land. It is open to both farmers and non-farmers. This scheme does not require an afforestation licence but is subject to the terms and conditions of the NTA scheme.

Direct entry to the scheme will apply, using the same approach that is employed with Agri-Environmental Schemes. All forests established under this scheme are protected by the

Some of the three hectares of new native woodland and undisturbed water setbacks along the Funshion River at Teagasc Moorepark, Fermoy, Co Cork.

Forestry Act 2014, which controls the felling of trees. Under this Act, it is illegal to cut down any tree unless a Felling licence has been obtained.

Two scenarios can be considered:

• **NTA 1** – Creation of small native forests supports the establishment of new native forests on farmed land.

• **NTA 2** – Creation of small native forests for water protection supports the establishment of new native forests alongside streams, rivers and lakes protecting and enhancing water quality and aquatic habitats.

It is hoped that through the creation of such corridors, existing native forests can be reconnected thereby addressing the negative effects of fragmentation.

Premiums

Like the Forest for Water option, DAFM, Forestry Division, will cover 100% of the costs to establish the native tree area through a grant of €6,744/ha excluding a generous fencing grant and a deer tree shelter grant if needed. Deer fencing is not supported.

Under NTA2 an annual premium of €2,284 is payable for 10 years. The tree planting area must be between 0.1 and 1.0 hectare. Maximum width is 20 metres, measured tree-to-tree (or 25 metres when open spaces are included).

NTA 1 and NTA 2 can be combined, where appropriate, up to the maximum limit of 2.3 ha per farm holding.

Moorepark event will highlight water-related ecosystem services

A Woodland for Water national event will take place in Teagasc's Moorepark Research Centre, Fermoy on Wednesday, May 29.

This event will highlight the wide range of significant water-related ecosystem services provided by the establishment in 2023 of almost three hectares of new native woodland and undisturbed water setbacks along the Funshion River.

Moorepark Farm benefits from the trees through the reduction in sediment mobilisation and runoff, the interception of nutrient runoff, as well as increased native woodland biodiversity, carbon sequestration, improved landscape and greater habitat linkage within the wider Moorepark landscape.

The event is open to all advisors, both Teagasc and private consultants, to local discussion groups and farmers. Booking is through Clear Bookings/ Event Brite.

There will be a number of stakeholder stands on the day giving short 10-15 minute presentations including Teagasc Moorepark, the Forestry Development Department, ASSAP/LAWPRO, the Signpost Programme, and the new Water EIP, etc.

Grow herbs to give your garden a touch of the Mediterranean

Chris Heavey
Lecturer at the Teagasc College at the National Botanic Gardens

Many of the herbs we grow today have been around, in one culture or another, for thousands of years. During the middle ages they were grown mainly in monastic settlements and it is from this tradition that we derive our herbs and herb gardens today.

We can grow herbs in many different situations and locations because many of them are so easily mobile. The raised bed is a particularly useful place to plant and successfully grow herbs. Herbs like basil, oregano, chives, rosemary and thyme are easy enough to grow in the average garden.

Herbs tend to enjoy lots of sunshine and a well-drained soil. This makes them good candidates for raised beds, gardens with sandy soil, containers and pots. They provide a tasty addition or are indeed essential to many of our culinary exploits.

Summer months

Consider the herbs that you will make most use of, and base your herb garden around these. Herbs such as basil and coriander may need to be sown every couple of weeks over the season to ensure you have fresh material through the summer months.

Prune and tidy up in the autumn and where necessary, divide plants that can be divided. This is particularly important for mint. Mint spreads wildly when allowed.

Always keep it in a pot and every two years divide the plant into four, repot one and give away the others. The newly potted plant should provide you with leaves for two years before dividing again.

Fennel, which can reach a height of two metres, can be both ornamental and culinary. I make a mixture of fennel seed and either garlic or sea salt. The mix is crushed in a pestle and mortar and can be applied to both sides of escalloped chicken and cooked on the barbeque.

Some herbs lend themselves to shaping.

Bay laurel (Laurus nobilis), for example, can be grown as a standard of any shape. You often see them grown like 'lolly pops' as a central feature or on both sides of an entrance. Thyme and plants such as camomile can be used as easily-controlled ground cover.

Herbs like basil, oregano, chives, rosemary and thyme are easy enough to grow in the average garden.

Sensory value

Sage and lemon scented verbena have wonderful sensory value, as do many plants in this category. Verbena is not very interesting from an aesthetic point of view, but its overpowering scent is magnificent. When crushed its leaves can be used to brew a refreshing lemon tea.

Plants like these, and of course lavender, should be pruned for best effect. Prune in the spring just as the plants are about to come into growth and not in winter when it is too cold and wet.

Grow those plants which you will use regularly but don't forget a few for scent and their sheer beauty. On these wet Irish summer days they create a little Mediterranean oasis to cheer up both yourself and your kitchen.

Teagasc
Agriculture and Food Development Authority

FBD INSURANCE

BEEF2024

'Securing your Future'

Wednesday, 26 June | 9am

Teagasc, Grange, Dunsany, Co. Meath

The focus of **BEEF2024** will be on the application of technologies that will help beef farmers increase the profitability and environmental sustainability of their family farm businesses.

Technology Villages

- Grassland & Forage
- Suckler Beef
- Dairy Calf-to-Beef
- Advisory, Education & Opportunities
- AgTech

Scan the QR code to enter our photo competition!

Highlights

Engage in panel discussions covering key topics across a range of beef cattle production systems throughout the day.

Don't miss the demonstrations on the use of protected urea, calibration of spreaders and farm infrastructure.

View the cattle from the various suckler and dairy-beef studies at Grange and see the principles of safe calving and handling of livestock with our cow simulators.

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