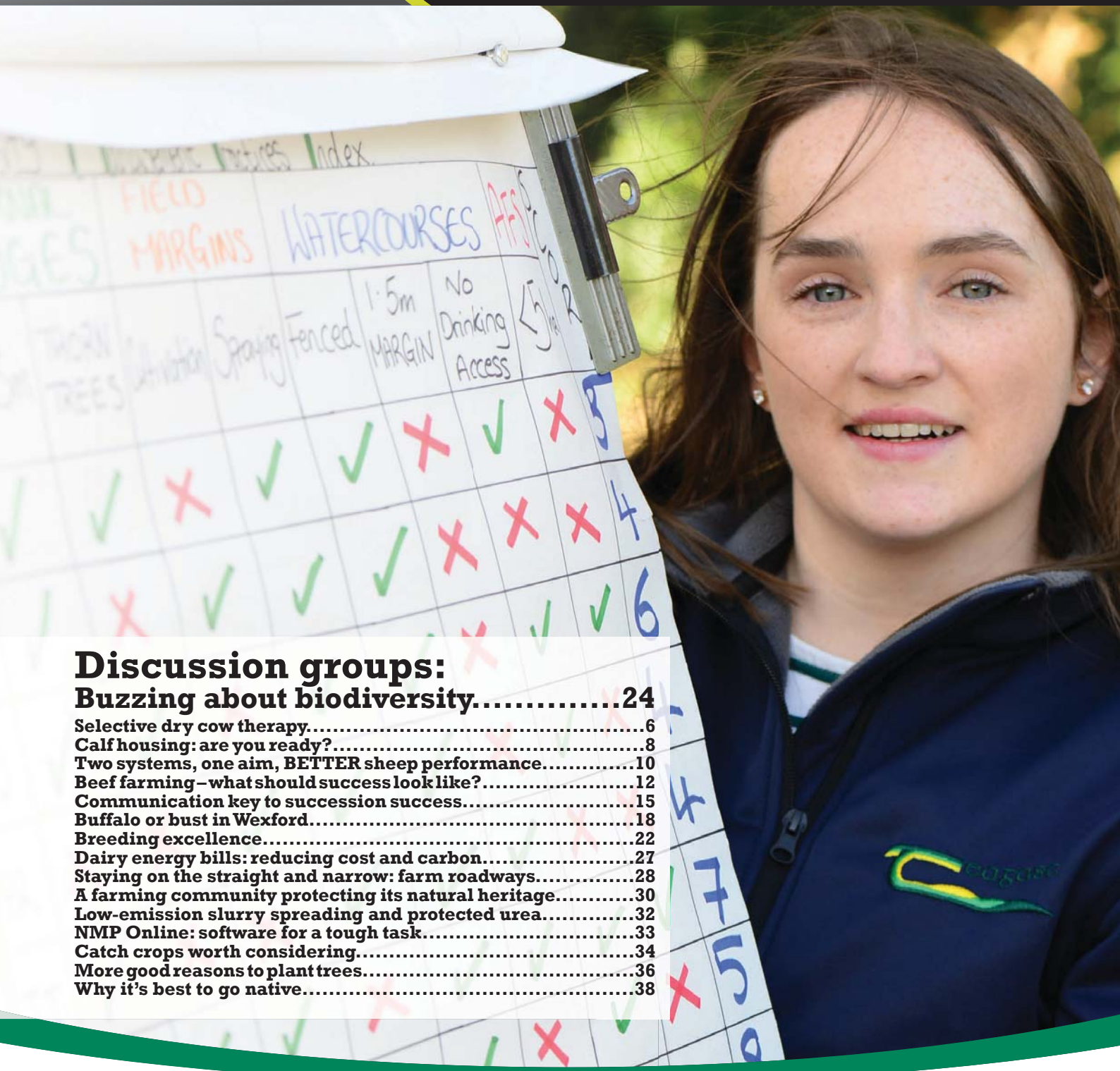
TEAGASC

November-December 2020 | Volume 31 | Number 6

Today's Farm

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



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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*.

Editor: Mark Moore
Sub-editors: Regina Horan and Mary Ryan
Cover design: Design at DBA
Imaging: Philip Doyle and Jerome Dunne
Printing: Boylan Print Group, Drogheda, Co Louth

All editorial enquiries to: Teagasc, Oak Park, Carlow
Tel: (059) 917 0200 Fax: (059) 9183498
e-mail: mark.moore@teagasc.ie | web: www.teagasc.ie

All advertising enquiries to: Paul O'Grady, Think Media
The Malthouse, 537 NCR, Dublin 1, D01V822
Tel: 01-856-1166/086-246 8382

Cover | Teagasc Walsh Scholar Aoife Leader has been introducing the 'Teagasc Biodiversity Management Practice Index' (BMPI) to discussion groups. The Teagasc BMPI calculates a biodiversity management practice 'score' for farms based on biodiversity management practises on linear habitats.
Picture: Mark Moore

COMMENT

Mark Moore
Editor,
Today's Farm

Teagasc is still here to support you

As we enter Level 5 restrictions for COVID-19, Teagasc offices are, for safety reasons, closed to clients. However, your Teagasc regional team including admin, advisory, education, ASSAP et al is still available to you. So, whether your query relates to crops, livestock, a scheme, farm succession or a host of other issues,including Nitrates Derogation courses, make contact by phone or text as usual. Take a look at our message on pages 20-21 where our advisors are pictured.

And if you simply want to contact your advisor for a quick chat, that's fine too. Stay safe and healthy.

Tá Teagasc fós anseo le cabhrú leat

Ós rud é go bhfuil Leibhéal 5 de Shrianta COVID-19 tagtha i bhfeidhm anois, tá oifigí Teagasc dúnta do chliaint ar chúiseanna sábháilteachta. Bíodh sin mar atá, beidh do chomhairleoir Teagasc fós ar fáil le comhairle a thabhairt duit ar raon saincheisteanna a bhaineann le do ghnó feirme. Cé acu a bhaineann do cheist le barra, beostoc, scéim, comharbas feirme nó rud ar bith eile, is féidir leat teagmháil a dhéanamh le do chomhairleoir ar an bhfón nó trí théacs mar is gnách.

Agus mura mbeidh uait ach seal comhrá a dhéanamh leis nó léi, bheadh sé sin go breá freisin. Bí sábháilte, bí sláintiúil.

Teagasc phone-in clinic focuses on forestry

Teagasc is holding a nationwide series of phone-in advisory clinics to help farmers who are thinking about forestry to get their questions answered.

Running between 23 November and 4 December, landowners can avail of a one-to one consultation with an experienced Teagasc forestry adviser by telephone call or by Zoom call.

The clinics are an opportunity to receive objective and independent advice to help answer your questions and inform your decision-making about forestry as a sustainable land use option in your farm. Planting is a big decision and can raise many questions such as:

- What planting grants are available and how will forestry work with my other farm schemes?
- Who looks after the trees and what can I expect from selling the timber?

Forest owners are also welcome to avail of the clinics to discuss how best to manage their forests.

Booking

To avail of a clinic consultation, prior booking is essential.

The consultations will be by telephone call or by Zoom call, depending on your request.

For details of all local clinics please visit the Teagasc forestry website www.teagasc.ie/forestryclinics

– Liam Kelly

Teagasc forestry clinics

County	Date	Contact for appointment
Carlow	Tues 24 Nov	059 9183555
Cavan	Thurs 26 Nov	049 4338300
Clare	Thurs 26 Nov	065 682 8676 065 6828676
Cork East	Mon 23 Nov	022 21936
Cork West	Weds 25 Nov	026 41604
Donegal	Weds 25 Nov	074 9131189
Dublin	Fri 27 Nov	01 8459026
Galway	Fri 27 Nov	090 9642456
Kerry	Weds 2 Dec	066 7194017
Kildare	Weds 25 Nov	045 879203
Kilkenny	Tues 24 Nov	056 7721153
Laois	Fri 27 Nov	045 879203
Leitrim	Tues 1 Dec	071 9631076
Limerick	Weds 25 Nov	069 61444
Longford	Thurs 3 Dec	043 3341021
Louth	Mon 23 Nov	042 9332263
Mayo	Tues 24 Nov	094 9371360
Meath	Tues 24 Nov	046 9021792
Monaghan	Mon 30 Nov	047 81188
Offaly	Tues 1 Dec	057 9321405
Roscommon	Weds 25 Nov	090 6626166
Sligo	Thurs 3 Dec	071 9183369
Tipperary	Mon 23 Nov	050 421777
Waterford	Thurs 26 Nov	058 41211
Westmeath	Mon 23 Nov	044 9340721
Wexford	Weds 25 Nov	053 9239210
Wicklow	Thurs 26 Nov	0402 38171

Teagasc ConnectEd Signpost webinar series

Last March Teagasc was in the process of delivering an ambitious Signpost farm sustainability training series across the country for industry professionals working in agriculture. The series was presented in association with Dairy Sustainability Ireland, Food Drink Ireland Skillnet and the National Rural Network. As we all know, when COVID-19 arrived it put a stop to all face-to-face engagements. In response to this, we decided to go online with the series – The Signpost Webinar Series was born.

The series has gone from strength to strength and so far has broadcast 27 episodes covering topics such as climate change, biodiversity, soil health, nutrient management and water quality. The series has attracted audiences from across all sectors across Ireland and Europe. Latest figures show that on average 332 viewers tune in for the webinar while over 1,500 viewers have registered for the series.

The series focuses on on-farm sustainability.

If you're interested in staying up to date with the latest policy, research and practise on-farm sustainability, you can register for free at www.teagasc.ie/sustainableagriculture and tune in every Friday morning at 9.30am to 10.30am.

– Yvonne Maher

Stay safe and keep COVID-19 away

Recently, Teagasc published a study entitled 'Essential and Vulnerable: Implications of COVID-19 in Ireland'. Lead Author, Dr David Meredith, Teagasc Rural Economy and Development Programme, stated : "There are greater numbers of older people in the rural and farming population and, generally, they are in somewhat poorer health which makes these communities vulnerable to COVID-19 infection. Continuing to adhere to the public health guidelines associated with handwashing, wearing masks and limiting close contacts are critical to keeping these communities safe."

COVID-19 impacts significantly on all farmers' well-being. This year has been and continues to be difficult for everybody. It is essential that we pay attention to our physical and mental health; continue to stay active, healthy and keep in touch with each other.

– Francis Bligh

• See also our message on p20-21.

Selective dry cow therapy

With legislation coming in 2022, it's wise to get familiar with this approach

Clare Clabby
PhD student,
Teagasc Animal and Grassland Research and Innovation Programme

The dry period is an important time for mastitis control on dairy farms – it provides opportunities to treat any existing infections at the end of the lactation and to prevent new infections from occurring.

On the majority of Irish farms, this is achieved by blanket treating every cow with an intramammary antibiotic at dry-off, in combination with a teat seal.

Blanket treating groups of animals with antibiotics when a large proportion of those animals are healthy is a questionable practice, as it can contribute to antimicrobial resistance (AMR). AMR occurs when a bacteria is no longer susceptible to an antimicrobial that was previously effective.

AMR is a major concern in both animal and human health, and as a result, legislation on responsible use of antimicrobials will come into effect in January 2022.

Selective dry cow therapy involves treating only cows that have an infection with an intramammary antibiotic and the remaining cows are dried off with a teat seal only.

We carried out a trial to look at the effect of selective dry cow therapy on five commercial herds in the south-west of Ireland. All herds were spring-calving, pasture-based systems, had a bulk tank SCC less than 200,000 cells/ml for the year and were carrying out regular milk recording.

For each of the five herds, cows with all milk recordings under 200,000 cells/ml were divided into two groups – one group dried off with teat seal only (297 cows) and the other dried off with antibiotic dry cow tube plus a teat seal (294 cows).

Using the milk recordings from the following lactation, we found that cows treated with a teat seal only had a higher SCC than cows treated with an antibiotic plus a teat seal.

Cows treated with a teat seal only also had a higher chance of having an infected quarter at calving, compared to the antibiotic cows. However, for some herds, there was no difference between the SCC of teat seal only-treated cows and the antibiotic plus teat seal-treated cows.

This would indicate that other herd factors, such as the level of infection in the herd, can influence the success of treating cows with teat seal only at dry-off.

Selective dry cow therapy can result in a reduction of antibiotics at dry-off, but it may not be suitable for every herd. Some points to consider before using selective dry cow therapy are:

The use of antibiotics in dairying will fall dramatically in coming years.

- Individual cow SCC.
- Bulk tank SCC.
- Number of clinical mastitis cases in the herd.
- Hygiene levels at dry-off and across the dry and calving period.

Some general management recommendations around drying off are:

- Clip cows tails before dry-off.
- Dry off cows as soon as yield has reduced to 9l per day.
- Preparation is key – set aside adequate time to carry out the job and dry off cows in manageable batches across a number of milkings, if required

Drying off procedure:

- Treat the dry-off procedure as if it was a surgery – wear milking gloves and an apron, and keep them as clean as possible.
- Before treating the cows, disinfect each teat by thoroughly scrubbing them with a wipe or cotton swab containing a disinfectant. Start with front teats first, followed by rear teats to avoid recontamination.
- When infusing the treatment, start with rear teats first, followed by front teats to avoid recontamination.
- Keep the nozzle of the tube sterile to prevent introducing new infections into the teat.
- The first two weeks after dry off and the two weeks before calving are when a new infection is most likely to occur over the dry period – extra attention should be paid to keep cubicles and housing clean at this time, to reduce the risk of new infections.

Clare Clabby.

Farm profile

In a recent edition of *The Dairy Edge*, the Teagasc dairy podcast, Emma Louise Coffey discussed selective dry cow therapy with Brendan Ryan, manager of the dairy herd at Pallaskenry Agricultural College.

Brendan described the 400-cow herd as high-EBI, Friesian but with 40% of the cows having some Jersey genetics.

"The herd is primarily grass-based, yielding circa 450kg of milk solids and receiving 750kg of meal. It's a fast-growing, relatively young herd, with 43% heifers in 2020, so our solids will dip this year.

"We have recently built 465 cubicles, which would equate to 2.8 cows/ha, that will be our upper limit in terms of cow numbers."

Brendan described how the farm is in its fifth year using selective dry cow therapy.

"In the first year, we used it on just 24 cows. They were all below 50,000 cell count and each quarter was tested individually to ensure there was no 'high' quarter.

"By the third year, we had increased our numbers to a level where we participated in the Teagasc Moorepark trial (led by Clare Clabby) where we had 100 cows treated conventionally and 100 on selective dry cow therapy."

In the fourth year (2019), 86% of the Pallaskenry cows were dried off using teat sealer only. Emma Louise Coffey asked Brendan to summarise his advice based on his experience.

"It's important to start small," said Brendan.

"Begin with 8-10% of the herd and be sure to test all quarters. Milk recording is really important to know the health status of the cow – three or four milk recordings a year is not enough.

"Selective dry cow therapy should be selected for the healthiest animals. I'd be cautious about cows with warts on their teats or animals who are inclined to lie in passageways.

"Relatively late calvers, say after St Patrick's day, also seem to do less well with selective dry cow therapy. Heifers should be sealed five to six weeks before calving.

"Generally speaking, good housing is very important. It's also vital to take your time and get well set-up to dry off animals. We find that if we are well organised and not rushing, we do a better job with selective dry cow therapy."

Good accommodation gives

With tighter calving patterns and growing herds, there is an even greater need for calf accommodation

Colin Brennan
Teagasc dairy advisor,
Mullinavat

Calf housing is often forgotten about, virtually until calving starts. And in a couple of months, they'll be coming in thick and fast. Not enough time to build a new shed maybe, but it's worth considering the principles of good calf housing to ensure you make the most of what you have.

Shed space allowance is critical. Each calf requires between 1.8m^2 to 2.3m^2. This space provides them with the freedom to grow and develop comfortably. COVID-19 has given us an unwelcome reminder that disease-causing agents love to develop in buildings.

While calves don't get COVID-19 , air space is crucial in calf accommodation to avoid the build-up of a range of infectious bugs and bacteria. Each calf requires 7m^3 of air space within the shed, increasing to 10m^3 by two months of age. To assess your own shed, measure (length x width x avg height) / 7.

For more information on calf housing specification, see *SI124 Minimum Specification for Calf Housing July 2016* on DAFM website.

Benefits of a purpose-built calf shed

Barry Grace runs a 140-cow, spring-calving dairy herd in south Kilkenny alongside his agricultural contracting business. "I've been tightening my six-week calving rate and this has put pressure on the calf housing," he says.

"Pre-2019, our housing consisted of calf hutches and smaller group pens in multiple houses. There was no issue with disease in the calves, but the labour involved in hauling milk and straw to multiple locations in the yard was very time consuming with a contracting business to run too."

In 2018, Barry constructed a new calf shed that would cater for all his calf housing needs under one roof. Barry needed accommodation for a maximum of 100 calves, as he sells any surplus.

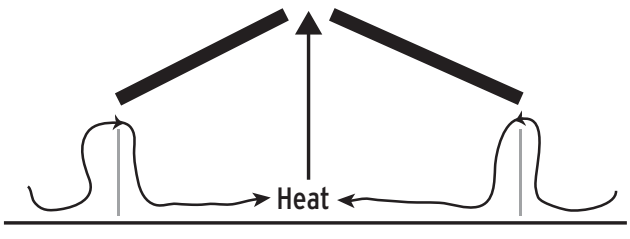
The shed is made up of five pens on either side of a central passage. The passage way at the rear of the shed can double as a bedded area when numbers increase, to make a larger group pen. Each pen divider can be opened, making larger group pens possible. This suits the three-station automatic feeder, which was also installed.

"The shed has three sliding doors in the front, which helps greatly when cleaning out. The four pen dividers are hinged, so they can be opened back against the walls and cleaning out is very quick. The calves are moved to the central passage during cleaning and are back to a fresh bed within minutes."

There is a small door at the rear of the shed leading onto a paddock, if Barry wants to allow calves out during the day.

"The floors in all pens have a slope of 1:20 out from the side walls – the concrete contractor thought I was mad, but I wouldn't change it for the world. The calves' bed stays drier for

Stack Effect



Factors:
- Heat produced
- Heat lost
- Outlet size
- Inlet size
- Height difference inlet to outlet

calves a great start


Colin Brennan and Barry Grace.

longer and less additional bedding is required."

All effluent from the pens is directed into a channel in the central passage. A slope of 1:80 in the floor from the

rear to the front of the shed ensures quick movement of effluent outside to an adjacent slurry tank. When the shed is not occupied, it is used to store machinery and straw.

Feeding routine

Barry feeds calves on whole milk for 14 days, as he is vaccinating against rotavirus, coronavirus and e.Coli and wants to ensure full immunity is transferred. They are then moved on to the automatic feeder.

"Calves transfer to the automatic feeder with little hassle and the information the feeder provides regarding feeding lets me know if a calf hasn't consumed their allowance," says Barry.

Calf rearing tips

•Calves spend 80% of their time lying down, so dry, comfortable bedding is essential.

•Keep your clothes as clean as possible when going near the young animals, as you may be transferring harmful bugs and bacteria from other areas of the farm to the calf shed.

•Check ventilation in pens by kneeling down – if there is a smell of ammonia, there is a ventilation problem. Also, if you get wet knees off the bedding – there isn't adequate straw.

•The longer the calf shed is empty of calves and bedding between groups, the fewer disease-causing organisms will be present when it fills up again.

•Use smoke pellets to test airflow in your calf shed and address any issues.

Two systems, one aim – BETTER sheep performance

A consistent breeding policy and integrating hill and lowland systems are key components of maximising flock performance on this Teagasc BETTER sheep farm in Co Donegal

Frank Campion
Teagasc Animal and Grassland Research & Innovation Programme, Athenry, **John Cannon,** drystock advisor, Donegal

David McLaughlin (facing in black cap) discusses his system with a visiting sheep discussion group.

David and Linda McLaughlin, who farm just outside Greencastle in Letterkenny, Co Donegal, have been participating in the Teagasc BETTER Farm Sheep Programme since 2009. They run both lowland and hill sheep enterprises, alongside a herd of suckler cows. A cornerstone of the McLaughlin's sheep enterprise has been to have a consistent breeding policy, which integrates the two sheep systems on the farm.

Farm layout

The farm is laid out in three main blocks, comprising of 8.5ha of adjusted lowland at the home farm, which joins the 155ha of hill land (adjusted to 31ha). There is an additional adjusted 17ha of lowland ground, which is used for the lowland sheep flock and cattle for most of the grazing season.

The hill flock is made up of 250 purebred Lanark ewes, lambing outdoors from April 5, with the lowland flock lambed indoors from March 10.

The lowland flock comprises of approximately 110 ewes, with 80 Belclare cross Lanark ewes. These run alongside 30 Lanark ewes that have been culled from the hill flock, but are still able to perform on lowland ground.

Defined breeding policy

As with all Teagasc BETTER sheep farms, one of the first things done on the McLaughlins' farm was to develop a detailed farm plan, with a key element being the flock breeding policy. In this instance, the breeding policy was designed to allow the hill flock to produce sufficient replacement ewe lambs for both the hill and lowland flocks, as shown in Figure 1.

This allows for all the lambs born on the lowland flock, which are higher value than the hill lambs, to be sold as factory lambs or breeding ewe lambs. Keeping 30 Lanark ewes for one final crop of lambs on the lowland allows the McLaughlins to breed mule ewe lambs as part of the Donegal Mule group, which adds further value to the lowland lamb crop.

Hill flock performance

In order for this system to work, a high level of performance is required from the hill flock to allow a portion of the ewes to be crossbred. A Belclare ram is bred to approximately 25% of the hill ewes, with the remainder of the ewes being bred to Lanark rams.

The McLaughlins' hill flock is consistently achieving high weaning rates and they have improved this significantly during their time as members of the BETTER farm programme.

Lamb performance has also been consistently on, or above, target for a hill flock. This year at weaning time (14 weeks), the single-born lambs had an average liveweight of 27.9kg and had grown at 234g/day from birth to weaning.

Table 1: Flock performance on the McLaughlins' hill sheep enterprise

	2009	2019	2020
Ewes joined	223	249	247
Ewes lambed (%)	87	85	88
Litter size	1.2	1.3	1.49
Lambs reared/ewe joined	0.9	1.0	1.2

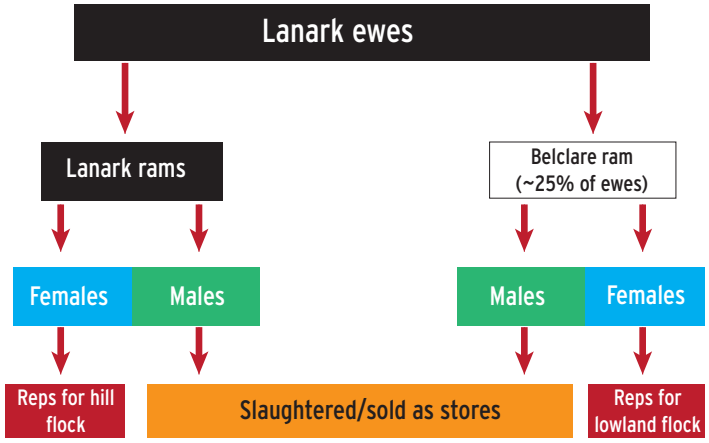
Lowland flock performance

The lowland flock is also achieving high levels of performance and the prolificacy and weaning rates have been improved and maintained over the past 10 years, as presented in Table 2. All the Belclare cross ewes are mated to a Texel ram, while the Lanark ewes taken from the hill flock are bred to a Blue Leicester ram to breed mule ewe lambs for selling.

Ewe numbers have increased over the years while maintaining the same land base, which is a result of improving soil fertility and grassland management on the farm.

In 2020, the twin lambs from the lowland flock were, on average, 32.4kg at weaning and achieved an average daily gain to weaning of 280g/day. This is a good level of performance from a grass-based system and from a flock that has approximately 30% purebred hill ewes included in it.

Figure 1: Description of flock breeding policy on McLaughlins' hill sheep flock



Conclusion

A consistent breeding policy is essential for all sheep flocks and must be designed to suit the farm and the system employed on the farm. David and Linda McLaughlin have demonstrated the benefits of this constantly over the last number of years.

Table 2: Summary of flock performance on McLaughlins lowland sheep enterprise since 2009.

Year	2009	2019	2020
No ewes mated	59	111[1]	110[1]
Litter size	1.87	1.94	1.99
Ewes lambed (%)	91.5	97.3	97.3
Lamb mortality (%)	4.1	11.1	7.5
Lambs weaned per ewe joined	1.59	1.70	1.75

[1]Includes 30 Cull BFM ewes.

Beef farming – targeting high profit per hour

Part-time farming can be rewarding when carefully planned and good facilities are in place to reduce time input to the hours available

Alan Dillon
Beef specialist, Teagasc Animal and Grassland Research & Innovation Programme

Sean Cummins
Teagasc Green Acres Programme

The financial conclusions of various beef monitor programmes and National Farm Survey results have not been encouraging in recent years. This has been exacerbated by a very significant fall in beef prices since mid-2018.

But, when profit/loss figures are quoted, little emphasis is placed on the level of efficiency within the farm gate with regards to levels of grass utilisation, stocking rate, system of beef farming, farm size and, most importantly, time input.

A large number of farmers in Ireland have off-farm employment – many of these jobs pay well (> €35,000) and in reality, the size of farms may be too small (<100 acres) to deliver a full income, or land quality may not lend itself to intensive agriculture.

In these situations, farmers will aim to farm within the hours available outside of their off-farm employment and family time. Beef farming, be it sucklers, dairy calf-to-beef or various other combinations of systems, can usually be fitted in effectively around an off-farm job.

JP Hammersley.

Many farm tasks can be carried out at weekends. Achieving high levels of efficiency in areas such as grassland management, silage quality, herd health etc, shouldn't soak up any more hours in the day than an inefficient system. The difference is that an efficiently-run system can leave a relatively good net profit (>€500/ha) before subsidies.

Farmers participating in the Teagasc Green Acres Calf-to-Beef Programme have been recording their labour hours since early 2020, in an effort to see where time efficiency gains can be made.

One such farmer, who featured in the Teagasc Virtual Beef Week earlier in the summer, was JP Hammersley, who farms 100ac near Lattin, Co Tipperary. JP also features in the Teagasc Green Acres Dairy Calf-to-Beef programme having laid out a farm development plan with his local Teagasc advisor, Joe Hand, and Green Acres advisor Sean Cummins over the past 18 months.

JP and his wife Maura both work full time off-farm and have a young family, so along with each devoting over 40 hours per week to their jobs and countless hours rearing children, time to run an efficient beef farm also has to be found.

"My family and my job come first, but I really love to be out doing jobs and looking after the animals," says JP.

"My goal is run a system I can manage within a set number of hours each year. The system has to be profitable and deliver a reasonable return for each hour spent on it."

JP had a number of positives on his farm to begin with when the Teagasc Green Acres team first visited in 2019:

- A plan had been laid out detailing what they wanted to achieve from the farm and how much time they had to

Table 1: Breakdown of hours on-farm 2020

	Spring	Summer/autumn	Winter
Average (hours/week)	27	17	11
Total (hours/period	349	440	146.5
No. of weeks	13	26	13
Breakdown (hours/week)			
Calf rearing	15	0	0
Indoor feeding	7	0	10.5
Grassland management	2	10	0
Silage making	0	6	0
Animal health	3	1	0.5

Mindful of COVID-19 restrictions (picture taken pre-level five lockdown) are Alan Dillon, Sean Cummins, Joe Hand (local Teagasc advisor) and JP Hammersley with his stock.

achieve it.

- Farm infrastructure was excellent, with a good network of roadways and paddocks, along with a well laid out farmyard.
- A straightforward system was in play on the farm, with 50 calves purchased from one local source and all finished off grass at 30 months of age.
- Focus for the previous years was on improving soil fertility to allow more grass to grow, along with developing some labour-saving techniques.
- Good use of contractors for all major jobs on-farm.

A few negatives were identified also

- Silage quality was poor, due to later cutting dates and old pasture.
- No reseeding had been carried out, leading to later turnout in spring and lower levels of weight gain on poor older swards.
- Low levels of output due to poor weight gain in stock and low overall stocking rate.
- Profitability excluding premia was non-existent at -€213/ha net margin.
- Shed space was limited on-farm and some sheds required scraping with a tractor.

With time being his major constraint, JP outlined how he had in the region of 16-18 hours per week available to spend on the farm. This would have to cover calf rearing, spreading fertilizer, grassland management, feeding stock indoors and moving to new grass outdoors.

When the figures were looked at, it was decided that stock numbers needed to increase. The farm was already growing a significant amount of grass at 9t/ha, despite no reseeding being carried out, so the potential was obvious to achieve cheap weight gain on stock.

A reseeding plan was put in place, with silage ground reseeded by a contractor in autumn 2019.

Calf numbers would increase gradually over the next three years to a total of 80 to be purchased in spring,

Hours per week (target 16-18 hours avg) year to date

Continued on p14

A new slatted shed will allow additional stock to be housed and eliminate the need to scrape sheds each day with a tractor.

From page 13

with a proportion being slaughtered out of the shed in spring and the remainder in early summer to achieve better cashflow.

A new slatted shed was to be constructed. This would allow extra stock to be housed in winter, thus enabling the 80 calves to be purchased and also to eliminate the need to scrape sheds each day with a tractor. Extra slurry storage would be an added bonus during a wet spring.

Three groups of stock would rotate on-farm for the majority of the grazing season, with a grazing plan in place to ensure minimum labour moving stock.

The target was to continue working around 18 hours on-farm per week on average, obviously with fluctuations at certain times, such as when calves arrive on farm.

The target was set at a minimum of €500/ha net profit (excluding premia), which, on 34.7ha of grassland, would equate to around €18-19 per hour earned on the farm. If someone was to earn this level of income on a 40 hour week, it would equate to a salary of around €40,000. Premia income is available to fund investment on-farm afterwards.

Key labour saving techniques:

- A properly designed farm yard to make the winter management of animals as efficient as possible;
- All machines have a service/maintenance schedule to reduce the risk of downtime;
- Silage is located beside the sheds enabling quick feed out;
- Meal bins and moveable troughs are used to reduce the requirement for hauling meals / heavy troughs;
- Contractors are used for slurry and silage to minimise on-farm labour requirements;
- Calf rearing and winter feeding management is simplified to allow it to be carried out quickly;
- New paddock layout with road network to move stock easily.

Always learning: In 2019, JP completed a course in Business Strategy for Farming, delivered by the UCD Michael Smurfit Business School and Teagasc.

"The course focused on how to formulate a strategy for the family farm business," says JP. "You need to define where you are now, where you want to get to and how you will get there."

JP defined his goal as: "To produce beef in a safe workplace in a sustainable manner, with a reasonable profit margin and a good work-life balance."

By working with his local Teagasc advisors and the Greenacres calf-to-beef programme, JP will be able to implement a beef enterprise that is profitable, satisfying and can be managed within the hours he has available.

His job also yields new ways to think about farming. "In work we operate to 'Lean Principles'," he says. "That basically means we are always trying to achieve higher quality, while reducing or eliminating waste of time or inputs. In my opinion, Lean Principles are as applicable in farming as they are in any other business."

Summary

While the farm will potentially generate around €20,000 before any subsidies are added in, it isn't enough to support a family on its own. It is, however, a much better performance than the majority of beef farms in the country and when return per hour is calculated on a well laid out farm, it equates to quite a favourable return on time inputted.

The key to success on this farm is to avoid complicating the system by diversifying away from the core target of producing beef from dairy-bred calves at 24-28 months and to follow best practice, to avoid any unwanted upsets to time input on farm. Herd health protocols, grassland management and silage quality will all be key to success on this potentially very efficient beef farm.

Communication key to succession success

Seldom straightforward, succession decisions can be made easier by involving skilled communicators and experts in this once-in-a-lifetime process.

Clare O'Keefe
Accredited Mediator,
Succession Ireland.

Kevin Connolly
Teagasc.

James O'Donoghue
Teagasc, Monaghan.

In this article, we feature a farming family – the "McMurphys" – and describe how they dealt with a recent succession dilemma. To respect confidentiality all names and locations have been anonymised. In this, real case, Clare O'Keeffe was the succession mediator and James O'Donoghue was the Teagasc advisor.

The family

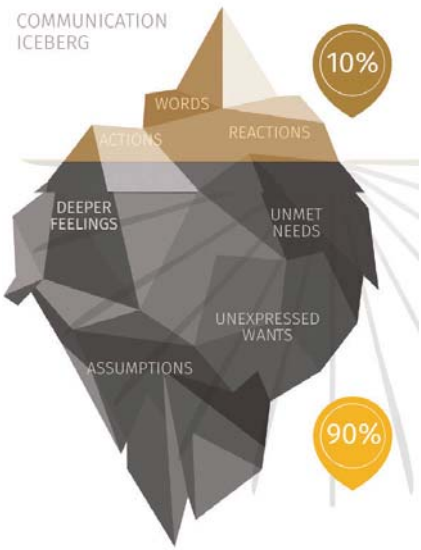
The McMurphy farm is owned by Tom (63), who has farmed it all his life, and his wife Anne (61), who has a part-time, off-farm job. They have five adult children: John (40), Patrick (38), Denise (35) Tomas (34) and Peter (19). Both John and Tomas completed the Green Cert some years ago, but have not been working within the agri sector.

Four of the children have graduated from college and are employed off-farm. Peter commenced third level studies this year and college education had been funded from the farm account.

In March this year, Peter returned home from college to continue his studies online due to COVID-19 restrictions. Peter helped with the farm work, calving and milking, gaining valuable hands-on experience with the dairy enterprise while working alongside his father.

While glad of the unexpected help, Tom was increasingly anxious to discuss long-term labour options on the farm (which is in winter milk), as well as to start a conversation on the wider topic of family succession planning.

Both Patrick and Tomas had recently expressed an interest in the possible future ownership of the farm, though neither wanted to continue with milking cows as both were employed full-time.



The Farm

The McMurphy farm is primarily a dairy enterprise, with 72 cows and followers on 126ac. The business has no major borrowings. The home block of 80ac is adjacent to the farmyard and milking facilities, with an outside 26ac hilly field on a separate folio located a mile away. A block of 20ac, adjacent to the home farm, is leased.

Buildings and winter accommodation are in good condition, all under one roof, and the farmyard is well maintained. The family home is adjacent to the yard, with no visible boundary, and callers to the farm usually visit the house where farm business is discussed. The office is the kitchen table.

Farming is the most traditional and hereditary of professions, where the actions of the previous generations influence the next generation, as the asset is handed down or transferred to keep it within the family.

The innate desire to keep the land for the next generation, to keep the family name attached to the land, adds to the complex layers of legacy and emotional attachment to the 'home place' within the farming community.

The McMurphys were united in their aim to keep the farm within the family. No one wanted to see the farm sold. However, friction and tension were not uncommon between siblings, particularly when asked to help out in latter years, as their personal lives had moved them away from the farm.

"Emotions prevent progress" - The family's predicament

Clare O'Keeffe

Traditionally in a farming family, labour is taken for granted and assumed to be available should the need arise, particularly at busy times and in cases of emergency. This deeply rooted relationship invested in both family and farm may also be emotionally enmeshed and will be reflected in the family's communication style.

How this family approached the immediate farm labour need, sparked by deterioration in Tom's health, influenced the necessary succession discussion. There was awareness within the context of discussing the current position and future plans that emotions can prevent progress.

Previous attempts at these conversations within the family had failed. The family had also experienced traumatic succession challenges in previous generations and did not want history repeating itself.

It was decided to contact an outside, independent succession mediator to co-facilitate discussions and get all voices heard, and ideally arrive at a workable outcome. A succession mediator (me) was contacted by the family's Teagasc advisor, James O'Donoghue, and we worked together to assist the family.

The mediator's input

In my role as mediator, I began by engaging with Tom and Anne to gain an understanding of where they had

concerns and needs, both short-term and long-term. As outlined in the Communication Iceberg, the mediator focuses on what's beneath the surface – what are the assumptions, the unmet needs and deeper feelings of the parents and their offspring.

All the family members were invited to contact me in advance of the initial 'family mediation session'. All family members engaged and we became familiar with each other on a one-to-one, confidential basis. This lessened any anxiety associated with the process. Everyone was treated equally, including the family members abroad, who were accommodated via Zoom.

The family session day, which commenced at 11am, was co-facilitated by James O'Donoghue and myself in a large, socially distanced room. A Zoom link was set up by the family to include a live link throughout the day to family members in Norway.

The meeting concluded at 6pm, with a broad outline of a plan agreed. Secondly, and equally as important, family inheritance was discussed by the siblings. One family member had previously been given a site for their home, which set a precedent.

Tom and Anne do not have any private pensions and their future needs were also considered within the plan. The McMurphy family each articulated their appreciation for what was an emotional family session and were happy with the outline framework, as agreed, to progress.

The Teagasc advisor perspective – James O'Donoghue, Teagasc Monaghan

There is a diverse range in age category within my client base, and each year, I am involved to some degree with succession planning. No two farms or farm families are the same, which ultimately means that no single solution fits all farms.

Not every farm has an identified successor– in others there may be more than one potential successor, as was the case with the McMurphy family. However, this is not always the only issue parents are dealing with – many parents want all children to be satisfied when the process is complete and for interpersonal relationships within the family to be protected.

Some may struggle with this if communication lines are weak and intentions of parents are not realised, or where childrens' expectations aren't clear.

Actually transferring the family farm can be the most straightforward part of the process if there is an identified successor. However, most parents wish to look after other family members in the process too. This is where difficulty can arise also, as a gift to them may be:

- A site.
- An education.
- An asset.
- Money.

This can lead to difficulty agreeing the value and fairness of each gift to individual children.

This is where the mediation process works best in my opinion, especially when parents reach a point of discussion with the family advisor, but can

get no further. Tom and Anne McMurphy needed an immediate plan for the farm and a long-term succession plan for their family.

What made the process particularly successful was the unprejudiced and unbiased position of an external succession mediator, in this case Clare O'Keeffe, combined with my knowledge of farm business management and the McMurphy farm in particular.

Once the mediation meeting was complete, the onus then landed back with me to work with the family to deliver the agreed outcomes and to follow up on the agreed plan.

My experience of the mediation process has been very positive. The service offered is private and confidential. Ultimately, the mediation process helps to preserve family relationships, which is an important outcome for every farming family.

The McMurphy outcome

Broadly, the outcome that evolved late in the afternoon following the family session was that the youngest son Peter, who had enjoyed working with his father during the spring/summer of 2020, would become the successor. While his studies are not in agriculture, he did express a desire to complete his current studies to degree level.

Peter asked to be given the opportunity to complete the Green cert and return home to farm, however this would be within a five-year plan. This disclosure had not been considered prior to the family meeting, as other voices had typically dominated all previous attempts at succession conversations.

In the short-term, the dairy enterprise would continue with paid labour. It was felt by the advisor and the family that it was better not to make any rash decisions on farm management until a broad plan for the succession was decided upon.

Once the family has had time to process and consider the options, as agreed from the outcome of the mediation session, it is important that the advisor follows up in the immediate days to clarify any questions or queries, and to keep the momentum in progress.

Generally, following on from the agreed understanding reached by the family, the advisor should help the family navigate through the next part of the process.

This can involve identifying which professionals are needed and the responsibilities they have in the transfer process, such as accountants, solicitors etc.

Throughout these consultations, the advisor is at hand to deal with any scheme issues that may arise. On the farm, the sharing of roles and management leads to a positive transition, where experience and youth support each other for mutual benefit.

Once the process is complete, in most cases, a farm plan is developed for the successor to help direct the future of the farm and maintain its sustainability.

See also: www.successionireland.ie

Buffalo or bust in Wexford

"Behind every great man's idea is a great woman's suggestion," says Liam Byrne of Macamore Buffalo

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

Bob Sherriff
Teagasc drystock advisor, Gorey, Wexford

Liam Byrne.

Liam, his wife Sinead and their three children, Rebecca, Matthew and Peter, farm water buffalo just outside Ballygarret in Co Wexford. Not a familiar sight in the wilds of Wexford – so how did it come about?

In 2015, Liam, a well known singer, was traveling the length and breadth of the country, playing in pubs and festivals. Sinead was working from home and taking care of their three children and they were also running a drystock enterprise.

Liam and Sinead wanted to develop the farm, but were looking for something different, something new to get their teeth into. They were really interested in the whole concept of "farm to fork", selling directly to customers. They knew that to compete, they would need a product that was different, that had an edge. They looked around to see what new and innovative businesses were out there, but nothing excited them.

Then, one evening, Sinead was watching a cooking show featuring Steven Mitchell and his buffalo farm in Scotland. Sinead noticed that the land they were on was heavy like their own and Steven spoke with great enthusiasm about the venture. So, they decided to investigate water buffalo.

Originally from Asia, water buffalo have been domesticated for over 5,000 years and are used for draft, meat and milk. Currently, there are at least 130m domestic water buffalo, and more people depend on them than on any other domestic animal. But what perked the Byrne's interest was their meat. According to literature, buffalo meat is:

- Lower in cholesterol
- Higher in mineral content
- Has less than half the fat content of conventional lean beef.

The animal itself is also very healthy, requiring no dosing or antibiotics. The target market could be the health-conscious meat eater. Was this the unique product they were looking for?

Liam contacted Steven Mitchell, who put him in contact with John Lynch, a buffalo farmer producing Mozzarella cheese in Macroom, Co Cork. They got talking and in January 2016, the first four buffalo calves arrived in Ballygarret, Co Wexford. Later that summer, 16 in-calf cows, along with two bulls, arrived from Wales and Macamore Buffalo was born.

What's in a name?

The name Macamore Buffalo quite literally comes from the ground they graze on. The farm is on Macamore soil, which, if you like your geography, is actually a sea mud that was pushed up by the glaciers in the last Ice Age. It has a high clay content, meaning it's poorly drained and hard to manage, providing an ideal habitat for the wallowing buffalo.

Upon visiting the farm, the buffalo really are a sight to behold. Huge black beasts with large heads and fantastic horns, they are also incredibly friendly.

"The buffalo are very docile – they love company and a good scratch. They love water and mucky spots and I often come down and two or three would be wallowing in mud. It's like something on a nature programme – they would be covered head to toe in muck. They are, however, a huge animal and you must always be aware around them. They may not mean to hurt you, but an animal that size with those horns demands respect."

Raised and grazed in Wexford

The buffalo calve in the autumn and always on their own. Liam has never actually seen one calve and has never lost a calf. They have a long gestation, around 10 months, though some may go longer. After calving, the mother is very protective of her calf, as is the whole herd, so Liam doesn't interfere.


Liam Byrne says water buffalo are hardy and well-suited to his Macamore soils.

As their name suggests water buffalo just love any body of water, however small.

The cow is a large animal and costly to keep, so Liam is moving more towards buying in bull calves and finishing them. As the buffalo's milk is very high in fat and protein, lamb milk replacer, rather than calf milk replacer, is fed. Each calf gets 2.5 bags (25kg) to bring them to weaning at 12 weeks. After weaning, they graze the Macamore until they are housed for the winter. While housed, they are fed good-quality silage and a kilo of meal. The following spring, when the land is dry enough, they return to grass, their large, wide hooves helping to keep them up on the Macamore soil, another bonus of the buffalo.

They are fit for slaughter at around 24 months of age and weigh 600kg+. On average, the meat yield is 180-200kg of saleable meat. At the moment, Liam is killing one bull a week. "I use O'Gorman's Meats in Castledermot as my abattoir and Richie Doyle's & Sons in Wexford do all the butchering for me. I like to keep everything as local as possible."

In 2018, with funding from Wexford Local Development, the Byrnes were able develop their Farm Shop, which opened its doors in March. They also invested in a refrigerated van to transport the meat from the butchers to the on-farm shop.

Starting a business like this is not for the faint-hearted.

"We worked day and night to build up a customer base. We went door to door to hotels and restaurants, talking to chefs and owners alike, to try and get my buffalo onto their menus. We approached shops, supermarkets, and developed a website. Today, we stock 42 outlets between hotels, restaurants and shops."

Macamore Buffalo is a member of the Wexford Food Family, which was set up in 2011 to promote Wexford as a food brand locally, nationally and internationally. It is also a member of Neighbour Food, an organisation that allows you to buy online directly from local producers and pick up at a collection point.

"It is important to use all the outlets available to raise awareness of your product. Farming is the easy bit, selling it is the difficult part."

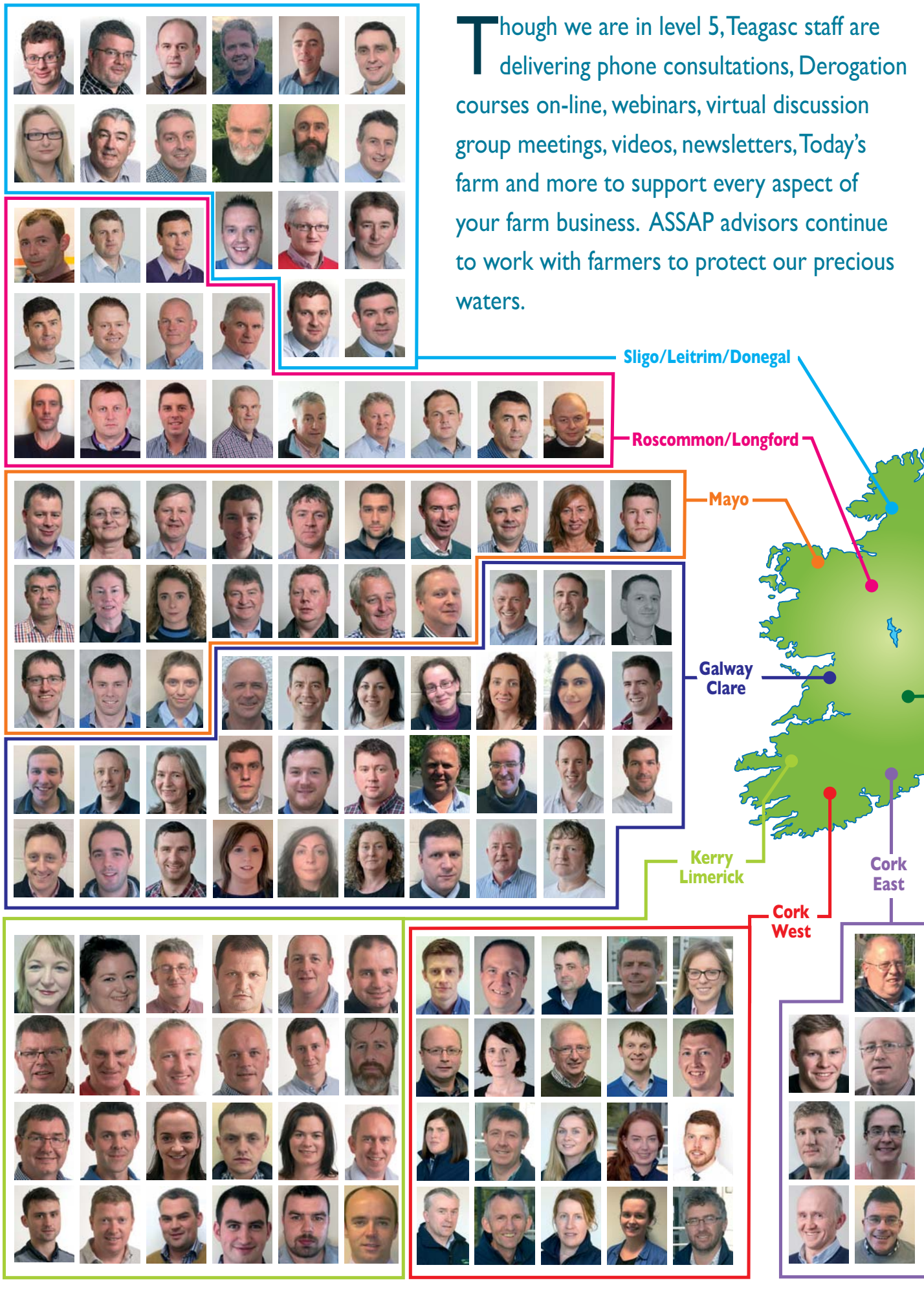
All the hard work has not gone unnoticed. Macamore Buffalo won silver at the 2018 Blas na hÉireann awards for their Buffalo Burger and can claim Michelin star celebrity chef Derry Clarke as a customer and fan.

So what does the future hold? In the Byrnes' eyes, it's "buffalo or bust". They have a real sense of pride in the business they built, and can see the potential to expand and find new markets.

"It's all about exposure and getting the message out there that buffalo is a great quality product and a healthier alternative to conventional beef."

> They may not mean to hurt you, but an animal that size with those horns demands respect

Though we are in level 5, Teagasc staff are delivering phone consultations, Derogation courses on-line, webinars, virtual discussion group meetings, videos, newsletters, Today's farm and more to support every aspect of your farm business. ASSAP advisors continue to work with farmers to protect our precious waters.



Where crucial, we can meet you, with appropriate safeguards. And if you'd simply like to have a quick chat with your advisor in these strange times, that's fine too.

Dermot McCarthy, Head of the Teagasc Advisory Service

Diversification

Cuffesgrange sport horses – excellence in breeding

Dr Alan M Hurley
Equine specialist, Teagasc Rural Economy Development Programme.

Eamon Sheehan and his wife Lois from Cuffesgrange, Co Kilkenny, have a passion for breeding and producing sport horses. They also run a 191-cow dairy herd on 240ac. Their children, Rachel and Julia, are passionate about ponies.

"It's thanks to my father Eamon Snr and brother Ronan that the horse business at Cuffesgrange was established," Eamon says.

"It's a family affair – my brother Brian and sister Orlaith are also involved with horses, and there is very little that gets decided on without us consulting each other."

After studying agriculture at Teagasc Kildalton, Eamon spent two years on the show jumping circuit in West Palm Beach, Florida, working for Robin Sweely, jumping her young horses while gaining a wealth of knowledge.

"The US is brilliant in the production of horses and they have a great forward style. There is a very good potential market for Irish horses there. The majority of imports currently come from Europe. Running costs to keep and raise horses in the United States are very high."

Returning home in 2002, Eamon began jointly managing the farm, then in sucklers, with his father. They had 120 cows and were also foaling down between 10 to 12 broodmares a year.

"I was producing all of the three- and four-year-olds for the sales and we were doing a lot of buying and selling too," explains Eamon.

"During the recession in 2008 and 2009, beef prices were becoming increasingly marginal and I was looking for a better option, so I decided to go dairy farming."

Eamon received the New Entrant milk quota and started milking 64 Holstein-Friesian cows in 2013.

Foundations

As Eamon's dairy numbers increased, he decreased his broodmare herd to between five and six mares and focused more on superior breeding mares.

"We had two families that were really good, so we decided to concentrate on them."

Cuffesgrange Millennium was one of the mares retained: "She was a mare that my father and brother Ronan purchased from Tom Brennan." Cuffesgrange Millennium has had several successful progeny, but the most successful was Cuffesgrange Cavalidam.

Cuffesgrange Cavalidam (by Luidam x Cavalier Royale).

Eamon says: "She was bred to be a horse, but stayed small after being covered with a Section B Welsh Pony as a two-year-old. She foaled down at three." She had three foals before being broken and produced. She was then sold to Clare Hughes, who took her through the ranks.

"We were really fortunate that Clare purchased this mare. It's important to get your horses into the right hands to realise their true potential," Eamon says.

In 2019, Cavalidam's second foal Cuffesgrange Cavadora was ridden by Seamus Hughes-Kennedy to win the WBFSH seven-year-old final in Lanaken.

Cuffesgrange Cavalidam has also been hugely successful in the show jumping ring. Her first success was with Seamus Hughes-Kennedy, who won the Michelin World Cup and was also on the European team. Last year, Tipperary's Max Wachman and Cuffesgrange Cavalidam won team and individual gold medals at

Eamon and his father Eamon Snr.

Eamon Sheehan (left) and Alan Hurley.

the Pony Europeans at Strzegom in Poland.

The pair won the silver medal in the championships in 2017. Cuffesgrange Little Ric is another highly successful pony bred in Cuffesgrange. The pony was on the medal-winning British pony eventing team for three consecutive years.

Eamon's advice

Breeding:
"First and foremost, you need to have a plan and a defined breeding goal, be it eventer, show jumper or show hunter. You also need to know your target market and at what stage you are going to sell. Some people think they are breeding a show jumper and if it doesn't jump, it can go eventing. That's not going to work and inevitably these decisions will hit you hard financially."

"The dam is hugely important. It's easy to look back through a mare's pedigree on CapallOir, where you can ascertain their pedigree. For example, our breeding goal is to breed top level show jumpers and if I look back on the performance of a mare line with only a few 1.10m or 1.20m horses, that's not good enough. You need to be looking for a line that produces 1.40m to 1.60m horses back through the pedigree."

Eamon says that if he were to begin his breeding career again, he would start by sourcing the best genetics by buying into a proven line.

"You are much better off having a dam line that has a lot of competitive 1.40m horses rather than having one flash stallion for appearances' sake."

When selecting stallions, Eamon's advice is to use proven sires with successful progeny.

"I use proven stallions that I know complement a particular mare. Using an unproven stallion with a proven pedigree is a risk. I would rather wait until they are proven producers."

Eamon promotes his stock through social media: "Facebook, YouTube, and Twitter are excellent marketing tools for the business," he says. The Cuffesgrange Sport Horse page has grown to almost 2.5k followers.

"If you can sell your story and market your horses properly, you will get more customers."

"One important tip for breeders is to register their prefix. Our 'Cuffesgrange' prefix is very important to us from a marketing point of view. It also makes it much easier to look-up and evaluate the performances of horses previously sold."

Grassland management:
"You need a good paddock system and proper fencing to manage grass effectively. We have 30 separate acres for the horses. We use store cattle or cull cows to clean off the horse paddocks. This will ensure good-quality grass. Mixed grazing of horses and cows works particularly well for the horses, in terms of parasite control and keeping the pastures clean and well grazed.

We keep on top of soil fertility by testing paddocks every two years. Making sure the soil is balanced in terms of soil nutrients. Lime is very important to correct soil acidity and fertiliser is applied as required."

It is evident that Eamon is hugely motivated to continue breeding. "It was incredible last year to be in Lanaken to see Cuffesgrange Cavadora win the seven-year-old final – you cannot buy that stuff. My next ambition is to have a horse in the Aga Khan team and once you have done that you would love to have a horse in the Olympics – that would be the pinnacle."

Costs

Teagasc estimates the average cost of producing a foal for auction to be in the region of €1,500 to €2,250, while the average cost of producing a three-year-old for auction can be €4,000 to €4,500. These figures can be highly variable and the final cost can be considerably higher.

These estimates include basic costs of production, but do not take account of stud fees, mare depreciation, professional training fees and barren years. Breeders need to critically assess breeding strategies, remain critical of their mares, breed for a particular market and consider upgrading poorer breeding mares.

Discussion groups:

The new Teagasc Biodiversity Management Practice Index (BMPI) is showing farmers how well they score on biodiversity management practices.

Aoife Leader
Teagasc Walsh Fellow, Kilkenny.

Catherine Keena
Teagasc Countryside Management Specialist.

Do you listen to the dawn chorus as you cross the yard in the early morning? Do you smell honeysuckle at dusk as it emits its scent to attract night flying moths? Have you picked mushrooms in dewy autumn fields? Are there primroses in your hedge banks? This is all down to biodiversity.

Biodiversity is the new 'buzz word'. Farmers availing of the Nitrates Derogation are now obliged to commit to undertaking a biodiversity action and the new CAP will certainly include many references to the 'b' word.

What is biodiversity?

Biodiversity includes birds, bats and bees – not forgetting the insects that are the first rung in the food chain. People like trees, and sometimes clear vegetation from underneath them. But these shrubs, wildflowers, fungi and mosses are as important in terms biodiversity as the trees themselves.

On Irish farms, we are only interested in native biodiversity, which means species that have been here for 10,000 years – since the last ice age ended. This excludes alien species (there are about 100 such species, including Japanese knotweed and the grey squirrel). Many familiar species, such as beech, sycamore and chestnut, are introduced ornamental garden plants and have only been here for a few hundred years.

The reason to favour native Irish flora and fauna is that they are in tune with each other – flowering and fruiting at a time suited to associated invertebrates. For biodiversity, only native species of Irish provenance – which means grown from seed collected in Ireland – should ever be sown.

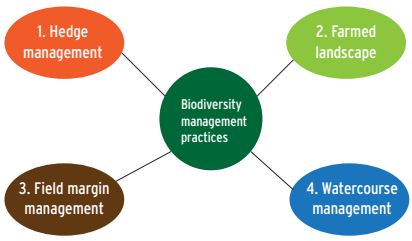
There is a group of native species that must be controlled, however. These are the six noxious weeds: ragwort, docks, thistle, male wild hop, barberry and spring wild oat. All other 'weeds' have biodiversity value and should be allowed to grow and flower where possible.

Why maintain biodiversity?

The law is the first reason to take care of biodiversity – if you have SACs (Special Areas of Conservation) and SPAs (Special Protection Areas) on your farm, you are legally obliged. In addition, laws prohibit hedge cutting during the bird nesting season from 1 March to 31 August throughout the country.

There are financial considerations too, as biodiversity becomes an increasingly important part of agricultural schemes, such as the Basic Payments Scheme and the Nitrates Derogation, as well as agri-environment schemes. Irish food has a clean, green image and maintaining these green credentials includes looking after biodiversity.

Another reason often mentioned by



Nitrogen derogation commitments

Adopt at least one measure:

- Leave at least one mature whitethorn or blackthorn tree within each 300 metres of hedgerow.
- Maintain hedgerows on a minimum three year cycle.

Cutting annually stops flowering and fruiting

Buzzing about biodiversity

Members of the Tallow Lismore Knockanore Discussion Group with Aoife Leader, Eamonn Lynch and host Brian Ronayne.

Brian Ronayne and Eamonn Lynch

Farmer focus

Derogation dairy farmer Brian Ronayne is a member of the Tallow Lismore Knockanore discussion group, milking over 400 cows in Dungourney just over the county border in east Cork. He says he enjoys the biodiversity on his farm.

The farm, which has an average field size less than 5ha, proves that scale and efficiency are compatible with encouraging biodiversity.

"The internal hedges provide shelter for the cows and they are part of the landscape. It's nice to see cows and wildlife living side by side," says Brian.

Dairy advisor and group facilitator Eamonn Lynch adds: "The Teagasc Biodiversity Management Practice Index is very useful for advisors to get a conversation going among farmers in a discussion group on the topic of biodiversity.

"It leaves farmers with a clear understanding of what they can do to maintain and improve biodiversity, without abandoning efficient farming."

Aoife Leader with the results from a BMPI discussion.

farmers looking after nature on their farm is 'well-being' – it is nice to work and live on a farm that is highly productive, but also of high nature value.

Where to start?

There are four key principles. The first is to retain existing habitats. Secondly, maintain habitats following best practice.

Thirdly, rejuvenate degraded habitats. Once these options are exhausted, the final step, the last resort you might say, is to create brand new habitats. For example, while planting new hedges is good for biodiversity, retaining existing old hedges with huge levels of associated fungi, lichen, moss and invertebrates, which have developed over hundreds of years, is far more beneficial.

On intensively managed farmland, the most common habitats are linear – hedges, field margins and watercourses. The value of these linear habitats far outweighs the area they take up.

They are corridors for movement, acting as protected routes for nature through the farmed landscape, allowing productive farming and biodiversity to co-exist – provided both are managed according to best practice.

Benchmarking Biodiversity

More than 90 farmers from Kilkenny and Waterford have 'benchmarked' their biodiversity management practices at recent discussion group meetings.

Using the Biodiversity Management Practice Index BMPI, each group took an in-depth look at their management practices, in relation to biodiverse areas such as hedges, watercourses, field margins and the 'farmed landscape'.

Lively discussion was had around various aspects of farmland biodiversity and its management.

The average BMPI score across these groups was five out of maximum possible of eight. Individual farm scores ranged from two to seven. This highlights that there are areas where positive practices are already in place on all farms and also areas where improvements can be made.

The target BMPI score for all farms is eight out of eight. With some relatively simple changes in practice, this can be achieved.

How do you score?

1. Hedge management		
	Internal Hedge Height	
	Is the average height of most of your internal hedgerows (above ground level including banks where present) above 1.5 m?	Yes / No
	Flowering Thorn Trees in Hedges	
	IF hedge is escaped (line of tall trees) - does hedge contain mature flowering thorn trees OR IF topped – does hedge contain thorn saplings and trees?	Yes / No
2. Farming Platform Structure		
	Average Field size	
	How many hectares do you own?	
	How many fields (surrounded by permanent diverse boundaries) are there on your owned land	
	What is your average field size?	
	Is your average field size is less than 5 ha:	Yes /No
3. Field Margin management		
	Uncultivated Field Margin	
	When cultivating fields how close do you cultivate to the permanent boundary	
	Do you retain at least 1.5 m uncultivated field margins	Yes / No
	Unsprayed Field Margin	
	Do you avoid spraying within your field margins (except for spot spraying noxious weeds)	Yes / No
4. Watercourse management		
	Fenced Watercourse Banks	
	Are all watercourse banks on your farm fenced?	Yes / No
	Watercourse Margins	
	Is there a fenced watercourse margin of at least 1.5 m on all watercourses?	Yes / No
	Prevention of Drinking Access	
	Do you prevent livestock gaining drinking access to all watercourses?	Yes / No
Number of positive Biodiversity Management Practices (Yes's)		

1.Hedge management

In winter, birds' nests are clearly visible and most are at about eye level. Birds do not nest near the ground where foxes can reach them. Therefore, hedges must be at least 1.5m to be used for bird nesting. Nests too high up are vulnerable to birds of prey.

The fact that there are no birds' nests in hedges cut to a 'short back and sides' has been an argument for allowing such hedges to be cut in the bird nesting season. However, we cannot claim that our farms are good for biodiversity if our 'scalped' hedges are of little use to nesting birds.

Similarly, we cannot claim that our farms are good for bees if there are no flowers in hedges. Bees need flowers. These are present in 'escaped' hedges, where thorn trees have grown up into single mature trees, with a single trunk and full canopy, or where occasional thorn saplings are retained in topped hedges.

Therefore, the management guidelines for hedge cutting are: Side trim with a wide base creating a triangular profile, leaving the peak as high as possible, while still cutting the growing point. Occasionally, leave individual thorn saplings to grow up into mature trees.

2.Farming Platform Structure

As diversity is good for biodiversity, the average field size is the recommended benchmark – not the minimum or maximum size of any individual field. A'dairy prairie' with very large fields and no internal hedges scores poorly for biodiversity.

Farms with a network of internal boundaries, rich in biodiversity, provide movement corridors for birds, bats, bees and mammals. Linear habitats and networks are far more valuable for biodiversity than the equivalent area in a block. The cut-off in this index is 5ha, so farmers with an average field size of less than 5ha are rewarded with a score.

3.Diverse Field Margins

Diverse field margins are valuable habitats for biodiversity. These are distinct and separate from the adjoining hedge, provided that they are more diverse than the adjoining crop in the field. They could be a permanent boundary on their own, separating two fields.

The value of diverse field margins lies in the range of species of grasses and flowering plants, and also in the structure of the vegetation compared to the adjoining crop of grass or tillage. This diversity means they provide food, shelter and nest sites for birds, mammals, bats and invertebrates.

If cultivated and cropped similar to the remainder of the field, their value is removed. Spraying decreases their diversity and value.

4. Watercourse management

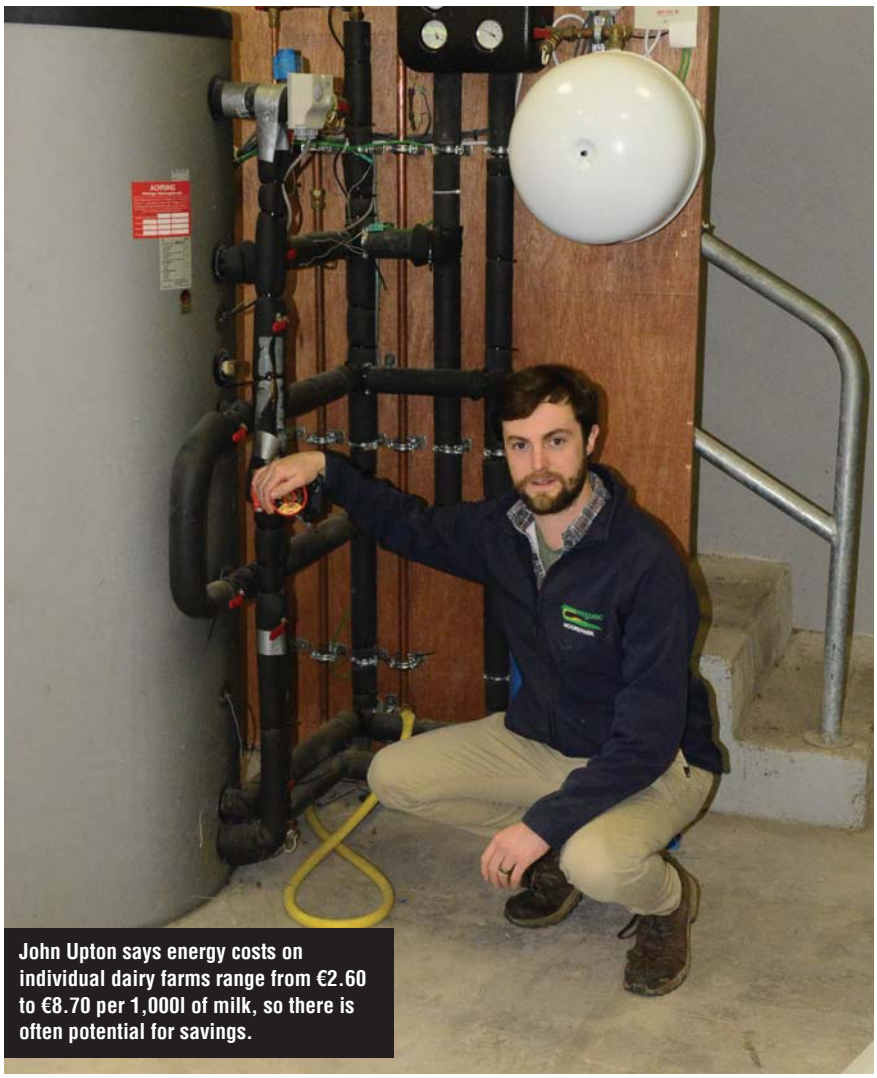
In addition to protecting water quality for human use and livestock drinking, watercourses are very rich in biodiversity. The presence of water in a habitat adds an additional range of flora and fauna species.

Watercourse banks include habitats for a specific range of plant species and associated fauna. Fencing banks from livestock protects the biodiversity in the watercourse from sedimentation and nutrient enhancement, and protects the vegetation along the watercourse banks.

Extended fencing to create a watercourse margin further protects the watercourse. It also creates an additional habitat similar to a non-watercourse diverse field margin, but one which is used by birds and mammals associated with watercourses. Preventing livestock drinking access eliminates the direct deposition of nutrients by livestock, disturbance of the watercourse and sedimentation.

Dairy energy bills: reducing cost and carbon

John Upton
Teagasc Animal and Grassland Research & Innovation Programme.



John Upton says energy costs on individual dairy farms range from €2.60 to €8.70 per 1,000l of milk, so there is often potential for savings.

How to reduce energy consumption

It is possible to reduce on-farm electricity consumption and related CO_2 emissions by up to 60%.

Key steps include the installation of a milk pre-cooler (plate cooler), heat recovery system (recovery of heat from the cooling system for pre-heating of water), VSD motors (variable speed drives on the vacuum pump and milk pump) and a micro-generator Solar Photo-Voltaic (PV) system (solar panels that generate on-site electricity from the sun with zero emissions).

These measures would save over €2,500 on a 100-cow farm. This is also good for the environment, as 8t of CO_2 per year would be offset. Adding a night rate electricity meter and changing to the least cost energy supplier is also worthwhile, as there is downward pressure on prices currently due to additional competition in the market.

Electricity costs can be reviewed using www.bonkers.ie. There are large variations in the price of a unit of electricity (e.g. from 18.3 to 13.8 cent per kWh for day rate electricity). An average size farm can save over €800 per year by simply changing electricity supplier.

Night rate electricity is a good fit for all dairy farms. There is no charge from ESB networks to install a night rate meter. The meter standing charges increase from approximately €0.46 per day to €0.60 per day after moving to night rate electricity.

Integrating renewable energy

Solar energy can be harnessed and used to reduce the demand of the milking parlour or heat water on dairy farms. Photo-voltaic (PV) panels are the most feasible means of achieving this. Small PV installations (up to 11 kWp) have been grant-aided to-date under TAMS.

This technology is expected to feature again in future grant schemes. Solar PV can deliver a good return on investment where the farmer is grant eligible and where the expense is written off against tax in the year of purchase under the accelerated capital allowance scheme.

Decision Support

Consult the Teagasc Dairy Energy Decision Support Tool at https://www.teagasc.ie/animals/dairy/energy-support-tool/

The tool delivers farm-specific advice on energy efficient and renewable technology investments.

- Average electricity costs on Irish dairy farms are €5 per 1,000l of milk produced. Energy costs on individual dairy farms range from €2.60 to €8.70 per 1,000l of milk, so there is often potential for savings.
- The main drivers of energy consumption on dairy farms are milk cooling (31%), the milking machine (20%) and water heating (23%).
- Reducing fossil energy use is also good for the environment, as energy use contributes to the farm's carbon footprint.
- It is easy to estimate on-farm electricity costs on your farm. Simply divide the electricity cost from your bills by the number litres of milk produced over the same period. If the house is on the same meter as the farm, deduct 5,000 units of electricity per year for a three bedroom house.

Staying on the straight and narrow

New regulations on farm roadways and waters coming from 1 January

Tim Hyde
Environment Specialist
Teagasc.

Eamonn Grace
ASSAP advisor.

Farm roadways are essential infrastructure on livestock farms. Dairy farms must pay particular attention to roads, due to the distance cows move to and from the parlour. Roads help farmers achieve high animal performance from pasture-based systems, by facilitating grassland/paddock management.

However, new Nitrates rules coming in from the 1 January 2021 state that:

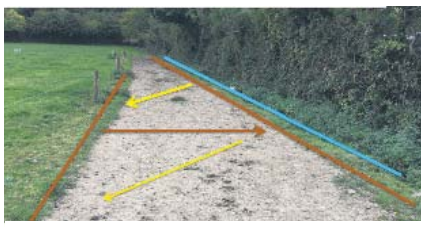
"There shall be no direct runoff of soiled water from farm roadways to water from 1 January 2021. The occupier of a holding shall comply with any specifications for farm roadways specified by the Minister for Agriculture, Food and the Marine, pursuant to this requirement."

The aim of the measure is to prevent runoff of sediment and nutrients from farm roadways to waters, thereby protecting and improving the water quality.

This applies to:

- All farmers who have farm roadways adjoining watercourses, rivers, drains, lakes, etc, as well as any features that can convey water (including features that may carry no water for part of the year).
- Farm roadways that are adjacent to or cross any watercourse, stream or larger channel.
- All roadways used for cows, cattle, sheep, machinery and roadways on tillage farms.

So, what are the options to prevent direct discharge from farm roadways to waters?



Solutions

- Slope road to field.
- Remove clay on field side to allow flow off road.
- Use clay removed from field side to build up bund on waters side.
- Widen the roadway to create room for the clay bund.
- Fence to keep animals off the clay bund
- Facility to discharge trapped water onto field.
- If the roadway is relatively flat, creating a cross fall into the field should be done.

10 key points to consider:

1 Camber the roadway away from the stream/drain using a cross fall of 1:25. This diverts the run-off towards the field/paddock. (see Figure 1).

2 Existing farm roadways running beside a watercourse that are already fenced do not require the above buffer margin of 1.5m. A good camber away from the watercourse is still required.

3 All new roads installed must be fenced 1.5m back from the top of the bank from watercourse/drain – more information on this is available on the DAFM website in Farm Roadway Specification S199.

4 For farm roads on slopes: "Divide and conquer" – install regular diversion ramps to divert the roadway run-off into the adjacent paddock/fields. This will have the effect of reducing the volume of run-off at the end of the roadway before it crosses the stream.

5 Where the land is higher than the roadway, it may be necessary to install a clay bund beside the roadway to protect the watercourse/drain running alongside the road.

Figure 1- Farm Roadway resurfaced with T.1 Struc. fill and dust to a 1:25 crossfall away from stream

The run-off needs to be channelled to a point where it can be diverted away from the watercourse to a paddock.

6 In most instances, the edges of roads build up a natural clay bank/bund, which should be scraped along the edge of adjoining fields to let run-off go into the field, thus reducing the volume going towards watercourse/drain.

In some instances, when cleaning the edge of the road on the field side, this material could be used to create a clay bund between the road and the waters.

7 Relocate the farm roadway – in some situations, the best solution may be to move the farm roadway away from the stream/drain.

This may sound like drastic action, but it can give rise to added benefits.

Apart from better protection of water, this could improve paddock access and enhance overall design of the paddock layout.

8 Moving paddock access more than 5m away from the watercourse/drain is also recommended, in order to reduce the possibility of any sediment/nutrient entering watercourse/drain.

9 Engineered solutions – where the runoff cannot be prevented from heading to a stream/drain – it may be necessary to construct a clay-lined settlement/percolation area to collect the run-off, allowing the solids to be trapped and to discharge the remainder of the run-off via a percolation area.

Any nutrients that are in the run-off water entering the percolation area will be taken up by the grass plant, in a similar way to what happens in a septic tank percolation system.

This solution would involve detail design considerations and calculations with your agri-consultant.

10 A plan for all the roads on the farm needs to be put in place that may contain several of the options in this article including diversion ramps, re-cambering roads, clay banks/bunds and settlement areas.

Summary

The run-off issues from roadways differ greatly from farm to farm.

The variables are soil type, stream/drain density on the farm, rainfall levels, slope and topography, roadway condition, herd size, frequency of road use, machinery traffic and residency time of animals on the roadway, etc.

All of these variables must be taken into account when you are considering a solution to prevent run-off of sediment and nutrients into water.

The DAFM *Minimum specification for farm roadways (S.199)* gives details on how to comply with these new requirements and also provides the full specifications on the construction of a new roadway.

Farmers may need to employ the services of their agricultural advisor to assist in designing a workable long-term solution.

Three other water protection measures from 1 January 2021

There are other additional new requirements that derogation farmers and non-derogation farmers with a grassland stocking rate (GSR) over 170kg N/ha must comply with.

If you are a non-derogation farmer and exporting slurry to come below 170kg N/ha, or a tillage farmer with a small area of grassland and a high GSR, this also applies to you.

To work out your GSR, take the total N produced by your grazing animals in 2020 and divide by the 2020 grassland area.

Contact your Teagasc advisor or agri-consultant for more information.

- Water troughs cannot be located within 20m of waters. This means that all water troughs on these 12,000+ farms have to be moved 20m away from waters by 1/1/2021.
- All farmers with a GSR over 170kg N/ha who have water troughs adjoining watercourses, rivers, drains, lakes or features that can convey water (including features that carry no water for part of the year) are affected by this.
- Bovines are to be excluded from watercourses* and drinking points removed. These watercourses must be fenced 1.5m from the top of the bank by 1 January 2021. However, if these fences are already in place, then the existing fence will suffice.
- Livestock cannot cross through a watercourse* on a regular basis. A culvert/bridge construction will be required.

*A watercourse refers to one that is clearly marked on an ordnance survey 1:5000 scale map.

If you have any queries on these matters, talk to your Teagasc advisor/agri-consultant.

The Caha project

A farming community protecting its natural heritage

Lane Giles
Teagasc ASSAP Programme

Clare Donovan
Dairygold

Tim O'Donovan and, below, pictured with Lane Giles and Clare Donovan. Pictures: Valerie O'Sullivan

Since COVID-19 arrived, we have been encouraged to do our bit for the common good. Caring for Ireland's waters, a shared resource, is also for the common good and the beef, sheep and dairy farmers of the Caha valley in west Cork have been doing so for generations.

The Caha Priority Area for Action (PAA), was one of the first areas that the Local Authorities Waters Programme (LAWPRO) and Teagasc Agricultural Sustainability Support and Advice Programme (ASSAP) teams worked in during early 2019.

The Caha is the headwater to the Bandon River and has a 'High Water Status' objective. Much of the lower section of the sub-catchment is also located within a Special Area of Conservation (SAC), primarily due to the presence of the critically endangered Freshwater Pearl Mussel.

The region is home to a diverse mix of land types and land use, including forestry, low intensity sheep and beef farming and pockets of intensive dairy farming. ASSAP advisors have been met with open minds and genuine interest during farm assessment visits. The farmers' desire to protect 'their river' was evident from the start.

One outcome of the ASSAP visits was the setting up of a group including the most interested beef, sheep and dairy farmers, which applied for and received a grant from the Community Waters Development Fund. The application was made in conjunction with the Bandon rivers trust to help them to protect the river.

This group, consisting of nine farmers, are now well underway, fencing off almost three and a half kilometres of previously unfenced sections of the most sensitive lengths of the river.

The group will also install piped water troughs or mechanical nose-pumps to these now fenced off fields. Tim O'Donovan and Jerry and John McCarthy are three of the nine participants in the Caha Project.

Tim O'Donovan

Tim O'Donovan of Waterfall house is a local historian and suckler farmer, whose family has been farming in the locality since the 14th century. Tim's family has kept a record of the many floods in the area, including the great flood of 1903. Tim tells us the story of a flood that caused a local family to retreat upstairs.

"To their amazement, a loaf of bread that they had been baking on the bastible floated up the stairs to them during the event," he relates. "A 1903 flood washed a bayonet dating from the 1790s onto the river bank." This was passed down to Tim and he still has it to this day.

As a result of that same flood, the river changed its course on Tim's land, creating islands. The dry river bed was later filled in and converted to farm land. In 1972, within this same section of river, Tim recalls being called home from agricultural college, as a cow and a sheep had been swept away in a flood while grazing on one of these islands.

"I remember some of the 'land improvements' initiated during the 1960s," recalls Tim. "Stepping stones across the river channel, the main access to a deserted famine village of 12 houses called Bothy, which had been there for hundreds of years, were bulldozed to improve drainage."

The river, as Tim says, is "steeped in history. People who come to stay do so as a result of the history and the natural beauty of the area."

In the past, when pearls were rare and valuable, the Pearl Mussel was sought by many a treasure seeker along the Caha River. Tim explains:

The McCarthy twins farm within the Caha Catchment.

"It is said that the pearl used in the broach that tied the cloak of King Henry VIII came from the Caha river."

Tim is one of a number of farmers who are taking steps to protect the life of their precious Caha River, recognising how it was key to their community's survival throughout history and particularly during the potato famine, providing both salmon and mussels when the potato crop failed. Tim explains that he is participating in the Caha Project so that "the river will there for the benefit of generations to come."

John and Jerry McCarthy

Twins John and Jerry McCarthy farm in partnership within the Caha catchment. They operate one of only seven dairy farms located within the boundaries of the PAA. Their land bounds a section of the main river along their out farm, an organic sheep farm and their main dairy enterprise, which is located along a main tributary into the Caha PAA.

Prior to a farm visit through the AS-SAP project, much work had already been carried out to protect water quality and enhance biodiversity on their lands. On the day of the AS-SAP farm assessment, John pointed out numerous areas of land within the 105ac home block that had been planted with a mixture of deciduous trees almost 20 years ago.

Much of this planted area was along the banks of the Caha stream and is acting as a buffer, helping to prevent any nutrient loss from the grazing platform. John and Jerry's father always had an interest in trees and clearly passed along this interest to his sons. In total, over 15ac of non-commercial deciduous trees had been planted.

The boundary along the main Caha River (within the SAC), stocked only with sheep, had been completely fenced off and only three small, well-managed cattle access points still existed within the home block. These three drinking points have now been fenced off and water troughs have been installed to supply water to these plots through the Caha Project.

Another eye-catching feature on the farm is the relatively large fen wetland area, located just under the highest peak of the farm. This wetland, known fondly to the McCarthy brothers as 'the lake', is now almost completely filled in with vegetation, since it has been fenced off and left completely untouched for many years. This habitat is an important, natural flood relief mechanism, slowing the movement of water during flood events. It also acts as a carbon sink, locking in carbon dioxide from the atmosphere. In addition, it massively increases the biodiversity on the farm.

When asked why they wanted to get involved in the Caha project, John's answer was that "water is such an important amenity that we need to do as much as we can to protect it."

Jerry then listed some of his neighbours, whose income depends on tourism and explained that tourists are here to visit the pristine waters.

Whether looking into the past or examining the present, the Caha River is intrinsically linked to the livelihoods and lives of those who live here and the local community is determined to protect it for future generations to come.

A short video can be viewed on Youtube by searching 'The Caha Project'.

LESS key to reducing Ammonia emissions

Pat Murphy
Teagasc Crops, Environment and Land Use Programme.

Teagasc recently published *An Analysis of the Cost of the Abatement of Ammonia Emissions in Irish Agriculture to 2030*, otherwise known as the Ammonia MACC Curve. This document sets out the options for Irish agriculture to reduce ammonia emissions. Almost 99% of ammonia emissions come from agriculture.

What is the problem with ammonia?

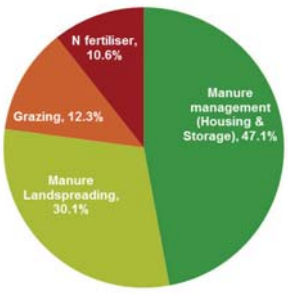
After ammonia is lost to the atmosphere, much of it is re-deposited and where this occurs, it can cause significant damage to sensitive habitats. It can also cause health problems – ammonia combines with other air pollutants to form minuscule particles, known as PM2.5, which can trigger respiratory problems when inhaled into the lungs.

Since 2011, ammonia emissions in Ireland have been steadily increasing and in 2018, reached approximately 118,000t. Teagasc projections indicate that without action, emissions will continue to increase. Our national target, on the other hand, is to be down to 112,100t by 2020, with further steady reductions to 107,500t by 2030.

Where does ammonia come from?

Animal housing, manure management and storage account for 47% – almost half – of total ammonia emissions. The next biggest portion (30%) comes from spreading manure. Another 12.3% comes from grazing, but having animals grazing for as long as possible is important, as ammonia losses at grass are low compared to when animals are housed. The final 10.6% comes from the application of chemical nitrogen – particularly urea.

Figure 1: Breakdown of agricultural sources of ammonia emissions in ireland (based on EPA, 2020).



Reducing Ammonia

Teagasc has examined different measures to reduce ammonia emissions. The two main criteria being considered are how much reduction can be practically achieved by implementing a measure, and how much it would cost to implement that measure.

In the MACC curve (Figure 2), the measures are ordered from left to right based on cost –the lowest on the left. Of the 13 measures considered, six come at no cost and can, in fact, improve farmers' income when implemented. The width of the bars indicates the amount of possible mitigation.

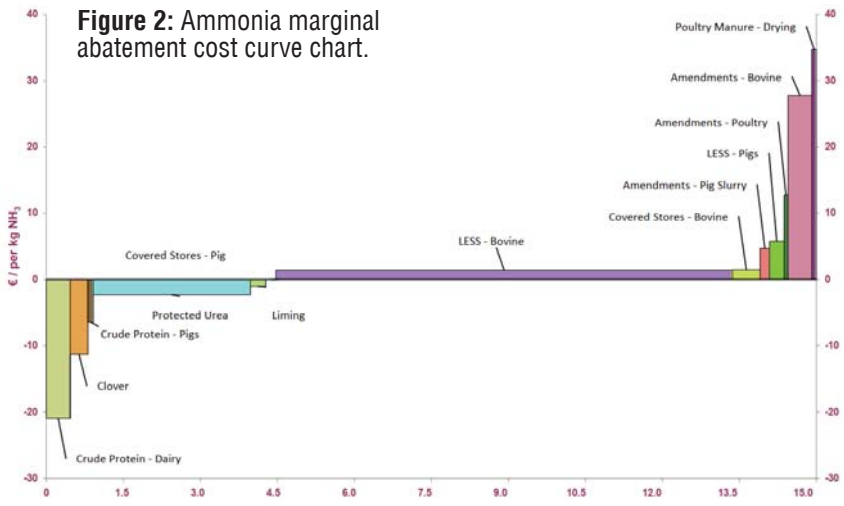
How to reduce ammonia

In the MACC curve, there are two wide bars. Low Emission Slurry Spreading (LESS) and the replacement of urea with protected urea accounts for 80% of the potential ammonia reduction. The usage of LESS is increasing rapidly. It is likely to continue to rise, as regulations increase and farmers realise the benefits of retaining more nutrients and reducing the contamination of grass with slurry.

While the uptake of protected urea has been slow to-date, ongoing research is demonstrating that it is as effective as urea and CAN right throughout the season. The fact that it delivers very significant reductions in both ammonia (compared to urea) and greenhouse gases (GHG) (compared to CAN) will lead to it becoming the predominant form of N fertiliser on Irish farms.

Of the other measures, reducing the crude protein of dairy rations at grass is becoming widely accepted as yielding multiple benefits – reducing ammonia and GHG emissions, reducing costs and improving performance. Over the next few years, amendments to slurry will also play a role.

Figure 2: Ammonia marginal abatement cost curve chart.



NMP Online: software for a tough task

Padraig Foley
Teagasc Crops, Environment and Land Use Programme

NMP Online is a nutrient management planning (NMP) tool which generates fertiliser advice. You can access it yourself or work with your advisor to create a plan tailored to your fields.

What information is the fertiliser advice NMP Online based on?

NMP Online is underpinned by the "Teagasc Green Book of Major and Micro Nutrient Advice for Productive Agricultural Crops". A revised version has recently been released which brings together the latest research and science available to guide farmers, advisors and agronomists alike on how to achieve optimum soil fertility. This information is used to power NMP Online.

What fertiliser advice does NMP online provide?

Using NMP Online, your advisor will determine the nutrient demand of the crops on your farm for each individual field, taking into account your grass and crop types, your stocking rate and your soil sample results, to deliver a fertiliser plan.

The NMP Online systems tailors the advice to your farm and will tell you the right type, the right rate, the right timing and the right field that fertiliser or manure needs to be applied to over the growing season. You are investing in your soil and doing it right will yield solid returns.

What are the results?

You wouldn't waste your money, so don't waste your nutrients. NMP Online and your advisor can help you get the most out of your soils. It can deliver a fertiliser plan that will help you target the fields that need the nutrients.

Getting the fertiliser out at the right rate, right time and in the right place will improve the production capacity of each field on your farm, which will build profit while also enhancing the environmental sustainability on your farm. Ultimately, it will help you get the very best out of your fertiliser investment.

Maintaining a safe distance, Derry O'Brien and Padraig McCormack review the coloured fertility guidance maps generated by NMP Online.

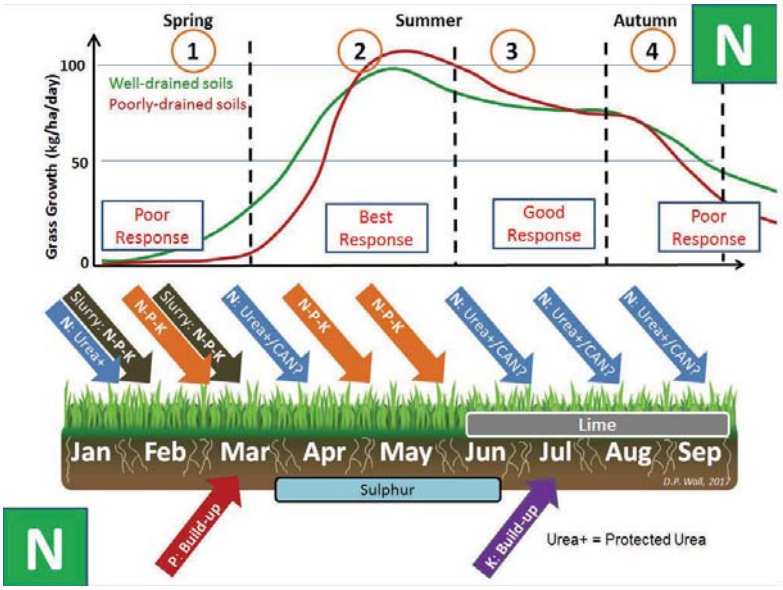
Farmer profile

Derry O'Brien farms in Ballard, outside the village of Kilworth, Co.Cork. The farm is a 76-cow dairy farm of approximately 34ha, with a 21ha milking platform. "Improving soil fertility is important to me as I want to grow as much grass as possible over the year," says Derry.

Soil samples are taken on the farm every three years which Derry says is a vital exercise. The results of these soil samples are then analysed with his Teagasc advisor, Padraig McCormack, using NMP Online.

"The maps are a great visual aid to know what each paddock needs in terms of P, K and lime," says Derry. Derry keeps copies of the maps on the wall of his milking parlour and also in his jeep, where he can consult them when needed.

"The colour maps are handy to know exactly where to target slurry, especially in the early part of the year and to identify what fields need to be targeted with lime and P and K and the rates. So by working with Padraig and NMP Online we're saving money and getting a better result by not just blanket spreading across the farm."



Catch crops worth considering

Catch crops/cover crops deliver a feed bonus while preventing soil erosion and nutrient loss

John Brophy
Teagasc tillage advisor


John Brophy.

The old saying goes that "one day's growth in August is worth two in September." So, while GLAS sets 15 September as the deadline, earlier sowing of catch crops is needed for maximum benefit. Crops planted in August will trap more nutrients, establish deeper roots and generate more top growth than those sown later.

Provided that crops are established on time and grow well, a range of benefits can be achieved;

- Nutrients that might be lost through leaching over the winter are retained.
- Legume catch crop, such as peas, beans and clovers, will add nitrogen to the soil.
- Soil run-off or erosion is reduced.
- Soil structure and tilth improve, compaction is alleviated. This makes subsequent cultivations easier, saving money on fuel and time.
- Soil organic matter percentage increases and, in the long run, soil carbon does too.
- Earthworm activity is usually boosted.
- Suppressing and controlling weeds and problem grasses can be assisted by catch cropping.
- Catch crops act as green cover over the winter, or act as 'Greening Equivalence' within GLAS.
- If a good crop is established, it can be leased out for grazing or used to reduce feed costs with your own stock.
- Catch crops provide a habitat for wildlife, flowering crops can provide food for bees late into the season.
- There is a wide variety of crops that can be used – ideally two or more complementary species should be planted together. Where crops are grown for GLAS, there are guidelines that must be followed regarding seeding rates and crops, which are in the terms and conditions. Table 1 shows the claimed benefits of some of the available species.

Table 1: Benefits of different species.

Species	Benefits
Buckwheat	Nutrient trapping and increased availability of soil P
Forage Rape	Nutrient trapping, grazing, soil structure
Mustard	Nutrient trapping, soil structure
Leafy turnip	Nutrient trapping, grazing
Oats/Rye	Nutrient trapping, grazing
Tillage radish	Nutrient trapping, soil structure, compaction alleviation
Phacelia	Soil structure, compaction alleviation
Peas/Beans	Fix nitrogen
Crimson/ Berseem Clovers	Fix Nitrogen

One of the most important considerations when growing catch crops is how they can be incorporated into the farm rotation. There can be issues – for example, where oilseed rape is in the rotation, then brassicas should be avoided as clubroot may become a problem. Where oats are in the rotation, an oat cover crop also may not be suitable. Where legumes such as peas or beans are grown, avoid using these as cover crops.

On some GLAS farms, clubroot has been noted in brassica catch crops as a result of growing them continuously – this should be avoided if the scheme is extended. Crops should be rotated around the farm and other crops can also be used, for example, oats may be an alternative where crops are being grazed by sheep. Winter barley should be an important consideration in your rotation, due to its early harvesting allowing time to sow catch crops in early August.

What should I do with my catch crop?

Remember that catch crops in GLAS

John Brophy and Daniel Woods in a crop of fodder rape and stubble turnips.

cannot be grazed until after 1 December. If sown early, cover crops can offer an excellent source of winter fodder.

Grazing.

Grazing must be carefully managed:

- Introduce animals to brassica crops gradually – don't let them into the brassica crops when very hungry, as the resulting rapid intake can cause upset and sickness.
- Supply fibre such as hay or silage and clean water as well as the catch crop.
- Be aware of mineral deficiencies – minerals should be supplemented, e.g. Iodine for pregnant ewes.
- Crops should be grazed before they flower. Early sown crops may go to seed 12 – 14 weeks after sowing if conditions are right.
- Grazing can reduce N lockup as nitrogen in animal manure is more readily available than a decaying catch crop. Animals process the crop into readily available organic matter, which can influence the levels of nitrogen required for the following crop.
- Strip graze where possible using long narrow lengths rather than deep short ones.
- Avoid over grazing. Do not poach the land or cause soil erosion from the animals, as this can result in more soil damage. If soil conditions are poor or it is wet, partially graze the crop and incorporate the rest.

Incorporation.

Crops can be ploughed back indirectly, disked, or sown directly into them using strip-till. This may suit where there isn't a large canopy.

If there is a large canopy, use a disc, or roll to break down the crop. Do this as early as possible to allow the plant to break down before sowing, so as to release nutrients, create organic matter, and ease sowing.

Daniel Woods says he will let his steers graze his fodder rape/stubble turnip catch crop this year.

Chemical destruction

Glyphosate can be used for crop destruction and should be done early if spring cereals are to be sown. Cover crops containing volunteer cereals should be destroyed four to five weeks in advance of drilling, to avoid direct transfer of aphids. This also helps in the control of weeds grasses and volunteer cereals.

Catch crops in the future

GLAS may be extended and catch crops will have to remain within the specifications of the scheme.

Whether in GLAS or not, carefully develop a plan for the coming years, based on rotation, the available species, the desired function of the crop and the plan for destruction or incorporation. Once this has been completed, you will be well placed to maximise the benefits from the crop.

For many farms, whether in GLAS or not, catch crops are increasingly an integral part of the crop rotation. With ever increasing changes in land use, pesticide regulations and environmental commitments, catch crops are another factor to consider within integrated pest management, nutrient control and carbon sequestration.

• See also p4-5.

Farmer profile:

Daniel Woods farms approximately 130ha, including 12ha of catch crops near Clonmore, Co Louth: "We know all about trying to sow our catch crops early and the benefit that brings. But you don't always get to sow as early as you would like.

"I've had years where sheep men will happily pay to graze the crop, but when the crop is weaker, they'll say the value isn't there." This year, Daniel, who participates in GLAS, intends to let his six to nine month old steers graze his fodder rape/stubble turnip crop. "There's no doubt that catch crops improve soil structure and we sow it after winter barley. Of course, this year was a difficult harvest and our catch crops haven't performed as well due to later sowing. But, given half a chance, they make a good contribution to our rotation."

More good reasons to plant trees

New schemes are supporting tree-planting, in particular native broadleaf species. The private sector, aiming to help the environment, is now providing additional payments to farmers who grow trees.

Liam Kelly
Teagasc forestry advisor,
Mullingar.

The decision to establish a farm forest involves a significant, but rewarding, change of land use. Since 1980, (according to the Department of Agriculture, Food and the Marine (DAFM)) 23,256 individual private land owners have received grant aid to establish forests. Since then, nearly half (46.2%) of all individual owners have received afforestation grant aid at least twice.

In making a decision to plant, lots of factors come into play – the land types on the farm, the current enterprise mix, available forestry schemes. The most important of all, however, are the owner's personal objectives.

Over the years, as the range of land types available for planting has broadened, complementary schemes have been established to ensure that there is an option available to suit almost anyone. As people begin to focus more on climate change and environmental challenges, one of the planting options that is currently receiving a lot of traction is the Native Woodland Establishment Scheme (NWS Est).

The aim of NWS Est. is to support the creation of new native woodland on 'greenfield' sites by farmers and other landowners. This facilitates the expansion of Ireland's native woodland resource and associated biodiversity.

Each new woodland plantation must reflect the appropriate native woodland type (or types) identified during the application process as the most ecologically appropriate for the site. The scheme is supported in the form of a grant payment of up to €6,220/ha and a 15-year annual premium payment of up to €665/ha. This can go to €680/ha when planting in excess of 10ha.

The planning and approval stage can take a certain length of time when considering an afforestation project. It is important to get advice and plan in good time. Teagasc offer an independent advisory service for all considering forestry.

Woodland Environmental Fund

The Woodland Environmental Fund (WEF) provides an opportunity for individual businesses to expand Ireland's native woodland resource, by providing additional incentives to encourage landowners like Brian Collentine to plant new native woodlands. WEF can be regarded as a 'Corporate Social Responsibility' (CSR) project, assisting in the restoration of Ireland's once-vast forests of native species such as oak, birch and alder.

Each individual business that participates in the Woodland Environmental Fund provides €1,000 per hectare as a once-off top-up payment to the landowner upon establishment of the native woodland. Farmers and other landowners interested in planting native woodlands may opt into the WEF as part of their standard application under DAFM's existing Native Woodland Establishment Scheme.

In Brian's case, the business partner involved was the supermarket chain Lidl. The company sees its involvement in this initiative as an opportunity to expand its 'A Better Tomorrow Corporate Social Responsibility (CSR)

Liam Kelly and Brian Collentine.

Strategy', which is already working to reduce its own carbon emissions.

This project is intended to absorb approximately 12,500t of CO_2 equivalent from the atmosphere and to complement the landscape as protected native woodland.

Lidl are very pleased to be involved in the Woodland Environmental Fund initiative and to be working closely with Brian and the Department of Agriculture, Food and the Marine. This collaborative approach is helping to restore richer biodiversity in Ireland through its contribution to reforesting the countryside.

"Our woodland has featured on a number of Lidl's publications and magazines, highlighting the benefit of the collaboration," says Brian.

"Lidl may call to the site from time to time and keep in touch with its development over the next 15 years. I'm happy to see the scheme promoted in this way."

The future

While forests are now valued for the full range of benefits they deliver, timber production will continue to be a core objective of Brian's venture.

Nonetheless, Brian says he may develop the recreation element of the forest as the trees grow and mature.

The proximity of the forest to Mullingar town and its midland location provide Brian with scope to explore this opportunity in the future. The assorted mix of tree species has potential to be enjoyed by many.

"The forestry is a great addition to the farm. I'm happy with its contribution, both from a financial and environmental prospective," concludes Brian.

Case study: Brian Collentine

"Since planting my native woodland, the trees are progressing well – perhaps I will plant some more in the future."

This is the considered view of Brian Collentine, who farms a 14.6ha family holding at Burnellstown on the outskirts of Mullingar. Brian recently planted a native woodland plantation on part of his farm.

"I mainly practice summer grazing, purchasing bullocks in the spring and selling to the factory in the autumn," says Brian.

This year, he has a nice herd of Limousin cattle, (though reduced in number) grazing on the farm. Brian also works as a director and Chartered Energy consultant with a large midland-based engineering consultancy.

"The family has been farming here for generations, so I wanted the farm to be in balance with nature and to see the farm become a carbon sink benefitting the environment."

He researched various options for environmental enhancement, but the option that ticked the most boxes for Brian was forestry.

"I particularly liked the biodiversity attributes of the Native Woodland Scheme.

"But, I still took my time to consider all important factors over a number of years before reaching the decision to plant."

Together with forester Alec Mooney of SWS Forestry Service and an ecologist, Brian designed a woodland plan that best suited the ecology of the site. In the spring of this year, he planted approximately two-thirds of his farm (10.42ha) under the Native woodland Scheme. The application process took approximately nine months.

"The site was sheep fenced to exclude all livestock," adds Brian.

"The site is mainly a rich, fertile brown earth, along with some peat in the lower areas. The terrain is drumlin-like, with short, gentle slopes across the site."

Ground preparation comprised inverted mounding, which minimised soil disruption, yet provided an ideal planting medium for the young trees. This site was planted under GPC 9, allowing the following species – 50% sessile oak, 10% scots pine and 40% additional broadleaves (including rowan, alder, birch, hazel, willow and whitethorn).

The Scots pine and additional broadleaves were intimately mixed in groups among the oak.

When the crop starts to establish, this eclectic mix of species will be very appealing. Vegetation control will be a 'close to nature' approach, with innovative means to help trample down the grasses and competing weeds to allow the trees establish and flourish in an environmentally friendly way.

Planting native trees

James Brady
Lecturer at the Teagasc College at the National Botanic Gardens

Ireland, a countryside of rolling hills, scenic valleys, majestic waters and lush green pastures, is guarded by its custodians, our farmers. It's a lush, green landscape that makes and supplies produce of exceptional standard, strengthening Ireland's global reputation for sustainable practices, both in the agricultural and horticultural sectors.

Recent years have seen increasing concerns over the environmental impacts of agricultural practices across Europe, resulting in the introduction of agri-environmental schemes – GLAS being one example.

GLAS encourages farmers to promote biodiversity, focusing on immediate areas of concern such as protection of various habitats and species, while conserving our traditional landscape.

One focus of the GLAS is the planting of native trees, which is an important consideration when trying to enhance biodiversity within the countryside, while also aiding in our fight to reduce carbon emissions.

There are several requirements to follow under the GLAS when considering native tree planting.

- Establish a grove of native trees in a single location only.
- Minimum area of 0.05ha with 250 plants and maximum area of 0.09ha with 450 plants. Plants must be a minimum of 40cm tall when planted.
- Use native tree species only, including the following:

  Alder, Alnus glutinosa
  Silver Birch, Betula pendula
  Downy Birch, Betula pubescens
  Sessile oak, Quercus petraea
  Pendunculate oak, Quercus robur
  Mountain ash, Sorbus aucuparia
  Whitebeam, Sorbus hibernica
  Wild cherry, Prunus avium
  Goat willow, Salix caprea
  Rusty willow, Salix cinerea
  Eared willow, Salix aurita
  White willow, Salix alba
  Hazel, Corylus avellana
  Scots pine, *Pinus sylvestris*

- Use plants derived from suitable seed sources within Ireland, which are regarded as being indigenous in nature.
- Trees must be planted in rows 2 metres apart, with a distance of 1 metre between the plants within the rows.

Mountain ash.

- Grass and other competing vegetation must be controlled around the trees, until they have become established.

The planting of native trees greatly enhances our landscapes and farms, while providing shelter for livestock, screening farm buildings and drying up wet areas of the farm. The perfect time for planting trees is November to March, as they are available bareroot.

Bareroot means field-grown plants that are are lifted, transported and transplanted during the dormant season. Buying trees by this method makes the planting task much more cost effective and affords the trees a greater chance of establishing successfully.

It's important to note that the roots must not be allowed to dry out prior to planting, so make sure exposed roots are covered. Ensure there is adequate stockproof fencing to prevent any damage from livestock, allowing sufficient distance from the edge of the plantation to the fence, giving consideration for the tree's growth over the next few years.

Maintenance is key for the trees establishing successfully, so invest some time in monitoring the trees throughout the growing season. Apply rabbit guards around the stem of the trees when planting. Check young trees regularly for wind rock in exposed sites and firm in with your heel, if required.

Try and reduce any grass or vegetation around the base of the trees, as this will reduce the competition for moisture and nutrients, preventing slower establishment or even a higher mortality rate among the newly planted trees.

Matching tree species to your particular site is key – considerations should be given to wind exposure, soil type, and most importantly, soil moisture levels. We are fortunate to have a vast array of native trees to suit the majority of conditions, with birch, willow and particularly alder growing best in wet soils. Mountain ash and hazel are best suited to exposed areas, while oak and cherry establish and grow well on fertile soils.

By following these simple steps, farmers are leaving a legacy for the next generation, by creating the best natural environment for their families and local communities, leaving a land with a greater value – both environmental and economically.

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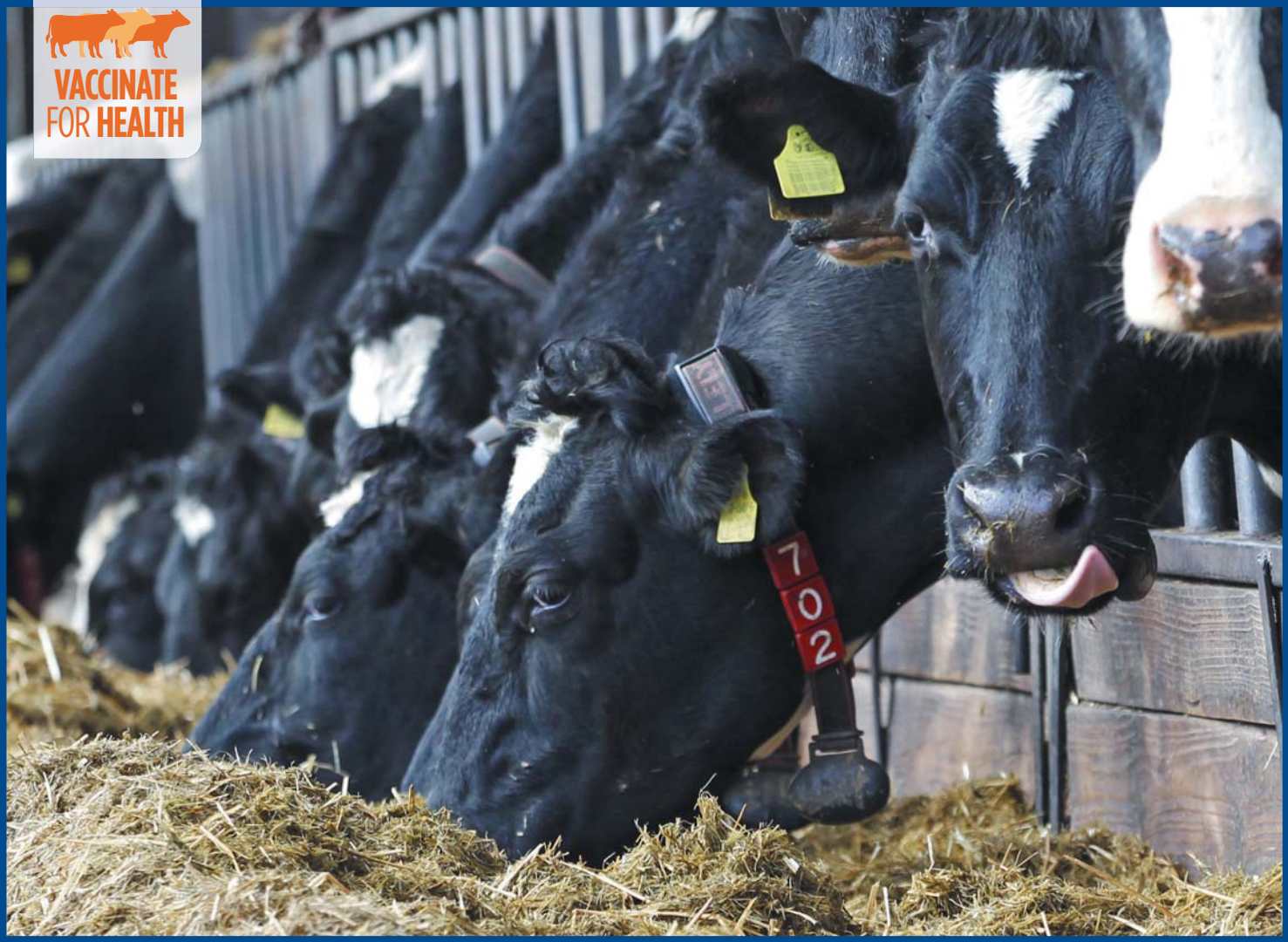

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