



# Today's Farm

Business, production, environment and countryside issues [www.teagasc.ie](http://www.teagasc.ie)

## Teagasc Virtual Beef Week

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# IFI

Palmerstown, Kilkenny

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**Cover** | The Derrypatrick herd is just one focus of Teagasc Virtual Beef Week, every aspect of the industry will be featured over the five days from 6 to 10 July.

### COMMENT



**Mark Moore**  
Editor,  
Today's Farm

## An Open Day like never before

The Open Day at Teagasc Grange is held every two years. The 2018 event was a great success with farm families turning out in huge numbers to enjoy the sunshine as well as viewing the dozens of beef exhibits. Social distancing was positively discouraged. This year, we can't meet face-to-face but we can meet on-line to experience a wide range of videos, webinars, and discussions about all aspects of beef production go to [www.Teagasc.ie/VirtualBeefWeek](http://www.Teagasc.ie/VirtualBeefWeek). Events during Teagasc Virtual Beef Week will take place throughout each day from Monday to Friday, 6 to 10 July. See you there!



## Lá oscailte nach raibh a leithéid riamh ann

Eagraítear Lá Oscailte ag Gráin-seach Teagasc gach dhá bhliain. D'éirigh go hiontach leis an imeacht in 2018, tráth ar tháinig teaghlaigh feirmeoireachta amach ina sluaite le sproi a bheith acu faoi scaladh na gréine, chomh maith le breathnú ar na scórtha taispeántán a bhain leis an mairteoil. Ní raibh iomrá ar bith ar an scaradh sóisialta an uair úd. Ní féidir linn bualadh le chéile duine le duine i mbliana, ach is féidir linn teacht le chéile ar líne le breathnú ar réimse leathan fiseán, freastal ar neart seimineáir ghréasáin agus plé a dhéanamh ar an uile ghné de tháirgeadh na mairteola. Téigh chuig [www.Teagasc.ie/VirtualBeefWeek](http://www.Teagasc.ie/VirtualBeefWeek). Beidh imeachtaí ar siúl gach lá ó Dé Luain, an 6 Iúil go dtí Dé hAoine, an 10 Iúil. Feicimid ann sibh!

## Farmer cardiovascular health study

Diana Van Doorn (pictured) and John McNamara



A major study of farmers' health was published in June, as part of men's health week. The research found that 74% of male farmers have four, or more, risk factors for cardiovascular disease. This means they are three times more likely to have an acute cardiac event (stroke or heart attack) compared to those with fewer risk factors. Seventy-five per cent of all farmers participating in the research were advised to visit their GP to get further support and advice.

The lead author of the study, Diana van Doorn, a PhD Walsh Scholar at Teagasc and the National Centre for Men's Health at IT Carlow, said that while the top line figures paint a worrying picture there are positives.

She found that the majority of farmers reported having visited their GP in the past year, fewer farmers smoke or drink compared to the general population and farmers, by virtue of their occupation, get a lot of physical activity. There are, however, areas of concern identified by the study.

Results show that the majority of farmers (85.9%) are either overweight or obese. This is substantially higher than the national average for Irish men (68%). Four in five (80.5%) farmers were classified as having an "at-risk" waist circumference of  $\geq 94$ cm (37 inches). Abdominal weight is a major risk factor for heart disease.

### Fit Farmers initiative

Examples of initiatives encouraging farmers' health are particularly welcome. As just one example, Laura Tully, a nurse at Athlone Institute of Technology, created a novel health promoting lifestyle intervention for farmers in 2019 called the "Fit Farmers" programme which aims to improve the nutrition, strength and wellbeing of Irish farmers.

The programme is delivered locally to farmers via a series of expert led workshops and workouts over a six-week period. To date, supported by Roscommon Sports Partnership, 76 farmers have undertaken Laura's



**Fit Farmers equips and empowers farmers to make healthy swaps, embrace physical activity and sustain changes and improvements in their own health into the future.**

programme with outstanding results in terms of weight loss, increased strength, improved cardiovascular fitness, increased physical activity as well as positive gains in mental and social health.

Peter Naughton (55) is one of the farmers who has undertaken Laura's programme. Until the death of his mother, Peter was her full-time carer and opportunities to exercise were rare.

“ Results show that the majority of farmers (85.9%) are either overweight or obese

Peter used to drive to the local filling station for his newspaper daily and usually grab a breakfast roll as well.

Peter admits he ate the "odd apple" but getting his recommended daily intake of fruit and vegetables was never even a consideration. Following the six-week Fit Farmers programme, Peter lost more than 8Kg, shed 10cm off his waist and has gone from couch to 5k and now regularly walks and cycles.

Peter says the frying pan is redundant except for making a healthy omelette.

He feels the overriding benefit of the

programme was the sense of comradeship that the farmers developed during and beyond the programme, "having peer support throughout meant you were more likely to continue to engage with the programme and the banter between us all made it fun".

All of the farmers who have undertaken the programme report an enormous sense of positive wellbeing and regularly commented that they feel less fatigued and stressed.

"Fit Farmers" essentially gives farmers the toolkit they need to look after their own health and wellbeing. Laura keeps the delivery simple and straightforward and uses a reliable evidence base to impart health information in a practical way. From showing farmers recommended portion and plate sizes and helping them understand their cholesterol and blood pressure, to taking them on walks in their locality, they are equipped and empowered to make healthy swaps, embrace physical activity and sustain changes and improvements in their own health into the future.

Some farmers have had undetected high blood pressure picked up and treated during the programme which can be a lifesaving intervention.

A programme such as Fit Farmers has the potential to be scaled nationally, to help farmers develop a healthy attitude to their health and wellbeing into older age.

## Visiting Teagasc Grange

Before the COVID-19 pandemic arrived, the UK's Duke and Duchess of Cambridge, visited Teagasc Grange during a visit to Ireland. The couple were met and welcomed to Teagasc by Minister for Agriculture, Food and the Marine Michael Creed and Liam Herlihy, chairman of Teagasc. They were introduced to Gerry Boyle, director of Teagasc, and members of the Teagasc Authority. To get your very own VIP tour of Teagasc Grange and what's going on there please join us online from 6 to 10 July for the Teagasc Virtual Beef Week 2020.

– Mark Moore



Edward O'Riordan and Paul Crosson with the Duke and Duchess of Cambridge.

See pages 14 to 25

## Recycle that bucket

COVID-19 hit, so it was a perfect time to get the sheep shed cleared of unwanted clutter. Haylage wrappers and netting were brought to the local collection point for recycling as normal. My mother noticed that the loft in the shed was starting to fill up with plastic buckets. Some were broken and mucky and others had gathered years' worth of dust.

We try to recycle as much as possible so the first thing to be done was to clean the buckets. My father spent a day power-hosing all buckets and lids and we sorted through them to see what might be worth keeping. In the meantime, my mother was trying to find somewhere to recycle the buckets, but nowhere would take them. The only alternative was to go to landfill which

no one wanted.

Eventually, we made contact with the Irish Farm Films Producer Group (IFFPG). It is the same organisation that collects silage wrappers and netting. It will take buckets once they are cleaned and gathered in a half-tonne bag. It collects nationwide.

– Grace Driver



## New Teagasc YouTube channels

Recently, each of the 12 Teagasc regional advisory units have established their own YouTube channels to showcase videos produced around the region by advisors. Every week, new videos are being published covering enterprise areas such as beef, dairy, sheep, business management, diversification, tillage, health and safety, grass, environment and schemes.

YouTube is a video-sharing service where users can watch, like, share, or comment on videos they see. The video service can be accessed on a computer, laptop, tablet or mobile phone. To view the videos just do an internet search for YouTube on your device. Once you have found YouTube search for any one of the Teagasc regions and you will find their channel. You don't have to download the YouTube app on your phone to view videos.

Users do not need to sign-in to access the website or to view videos. all videos are public and available for anyone to see. If you have your own YouTube or Gmail account, please subscribe to your regional channel to be notified on your phone or computer when new videos are published. And remember you can share our videos on your own social media accounts such as Facebook, Twitter and Instagram.

– Sean Doorley

dairying

# Milk recording: an essential tool for improving profitability

**George Ramsbottom**  
Teagasc Animal & Grassland  
Research and Innovation  
Programme



**Don Crowley**  
Teagasc, Clonakilty, Cork



As milk price comes under downward pressure, dairy farmers are focusing on reducing costs. Milk recording is one practice that has needs to remain, as it increases profitability. A change in the regulations around antibiotic use means that from 28 January 2022, dairy farmers will no longer be permitted to use dry cow tubes on all cows in a herd at the end of lactation, unless they have evidence that they require them.

Milk recording will provide farmers with the evidence needed to show that antibiotics are required. Another advantage of milk recording is that it will show the actual number of cows to be treated and the success of the previous year's dry cow treatment. If you have never recorded before, now is the time to start.

If your new infection rate is high with the use of blanket dry cow, this could indicate poor technique or housing. Milk recording will highlight this weakness and allow you to address it before it becomes compulsory.

You need data to make the correct decisions. Regular milk recording will allow you to build up a picture of the infection levels in your herd.

There are only two more dry-off seasons before the new regulations come into place.

If you have to provide evidence of your need to use dry cow tubes, you will need to build up a picture of the pattern of mastitis in your herd. To do this correctly, a minimum of five or six milk recordings are needed. An example timeline to start milk recording a dairy herd is presented in Figure 4.

We normally see a rise in SCC after the herd passes peak milk production. This is mostly due to an infection of a bacterium called *Staphylococcus aureus*. It's a contagious bacterium that often passes unnoticed, as 'sub-clinically' infected cows don't show any signs of mastitis like clots in the milk or a hard quarter. Despite this, an infected cow can pass on the infection to as many as eight other cows over the course of the lactation.

Even in a low SCC herd, the number of infected cows can slowly increase over the summer – and with it the bulk milk SCC levels (see Figure 1). In a higher SCC herd, bulk milk SCC can fluctuate wildly from month to month as the farmer struggles to maintain SCC within the limits set by the milk processor.



In these cases, the farmer will practice strategies such as withholding milk from problem cows for feeding to calves, treating high SCC cows and drying off or culling cows with a high SCC.

What usually happens is that a cow with a sub-clinical infection is dried off with dry cow antibiotics at the end of the previous lactation. She calves down and appears 'cured' because her milk is apparently normal looking.

Infected cows typically have an abscess in the infected quarter, which occasionally ruptures, spilling bacteria into the tissue of the quarter. At drying off, the long-acting antibiotics kill off the bacteria in any of the infected tissue, but the abscess protects the bacteria inside from the antibiotic and they lie dormant there until the following lactation.

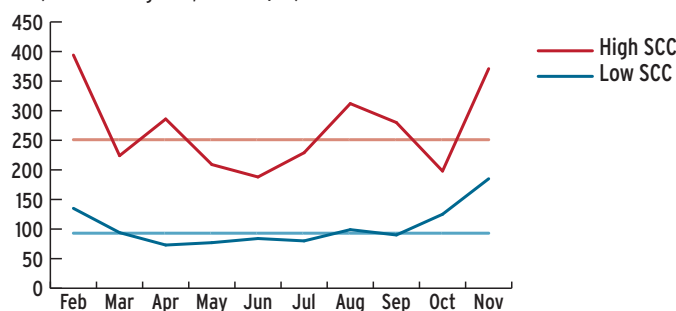
For the first couple of months after calving, the cow appears cured, until the abscess ruptures again causing a new episode of infection. While she has clinical symptoms of infection, the cow is very contagious and can infect other cows, as the liners are contaminated by bacteria which pass from an infected cow to an uninfected one.

## Identifying problem cows

One of the most important reasons to milk record is to help identify high SCC cows. When a milk recording has been carried out, the Mastitis Incidence Problem – Cow Report highlights the cows that are the greatest contributors to the bulk tank milk SCC (see Figure 2).

The report in Figure 2 shows that cow no. 1831 had the highest SCC in the October milk recording. Her SCC was 5.35m cells/ml in the test. It was

**Figure 1:** Monthly bulk milk SCC levels in a low SCC herd (annual average 93,000 cells/ml) and a high SCC herd (annual average 251,000 cells/ml).



Teagasc dairy advisor Lorcan Dooley with Laois farmer Martin Davin



her second time testing over 200,000 in the current lactation.

Having been a low SCC cow in her previous lactation, she had a SCC of 1.867m cell/ml, followed by two recordings in June and August when she had a low SCC.

She is a typical sub-clinically infected cow. The farmer recorded

Figure 2: October 2019 mastitis incidence problem cow report for the low SCC herd.

Mastitis Incidence Problem - Cow Report											
PROGRESSIVE GENETICS KILMORE ROAD BLURBELL DUBLIN Tel: 01-450142				Herd owner: [REDACTED] Herd No: [REDACTED] Scheme A6 Print date: 23/10/19 Test date: 18/10/19 Page: 1/8							
Cow ID Cow name Site ID	IAR-Tag	Calv. Date Age Group	Lact. Days Test	Days >200 Mast Treats	Lactat SCC % Herd SCC Last level	Mastitis Incidence History (Current Lactation)					Prev. Mast. Avg. SCC Tests >200 Mast Treats
						18-oct	19-aug	24-jun	30-mar	26-oct	
1831	[REDACTED]	14/02/19	8	2	5350	60	22	1867			85
	[REDACTED]	7y 9m	246		14.4						0
	[REDACTED]	Spring	4	2	14-apr	08-apr					1
2093	[REDACTED]	26/02/19	5	3	2396	1033	8	348			994
	[REDACTED]	8y 9m	234		6.2						4
	[REDACTED]	Spring	4	2	07-mar	28-feb					4
2803	[REDACTED]	03/02/19	3	1	872	144	34	28			46
	[REDACTED]	3y 8m	267		2						0
	[REDACTED]	Spring	4								2
2611	[REDACTED]	01/02/19	2	4	372	842	755	417			259
	[REDACTED]	3y 8m	269		1.4						2
	[REDACTED]	Spring	4	1	08-mar						0
2225	[REDACTED]	18/02/19	4	2	334	276	15	38			203
	[REDACTED]	5y 9m	241		1.3						3
	[REDACTED]	Spring	4								0

a mastitis treatment on 14 April to cure her infection. She accounted for 14.4% of the total bulk milk SCC in the October milk recording. The first five cows (2% of the 260 cows recorded) accounted for over 25% of the herd's SCC. In other words, a small number of cows can be responsible for a big proportion of herd SCC.

### Monitoring mastitis control over the dry period

A second really important role of

milk recording is its value in monitoring mastitis control over the dry period. Recording cows close to the start of their lactation (within around 60 days of calving) allows you to monitor how successful you were at curing existing infections and preventing new infections from occurring during the dry period. The March 2020 CellCheck Farm Summary report for the low SCC herd is

» Continued on page 8

# BOBMAN

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- Using the BOBMAN on a regular basis will improve hygiene in the cow housing, prevent diseases and maintain good health and well-being of the cows, leading to high volume and quality milk.
- Time and labour saving
- Save on the amount of bedding materials used
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» From page 7

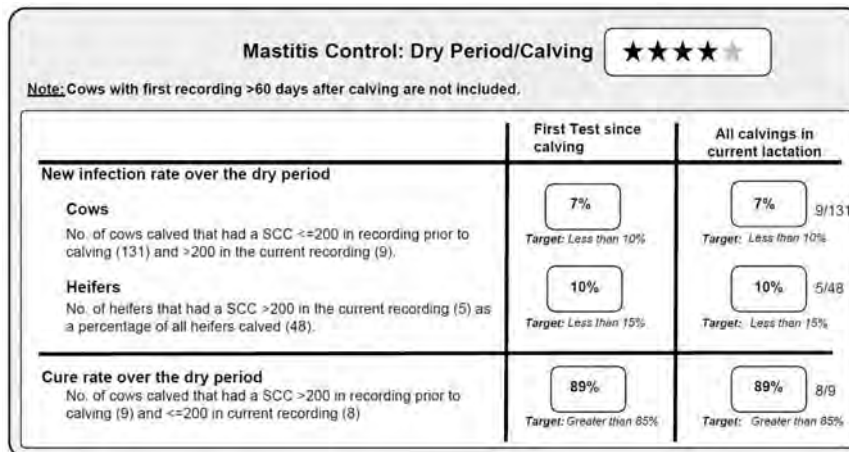
presented in Figure 3.

The new infection rate for cows and heifers on the farm across the dry period are 7% and 10% respectively, indicating that the farmer was successful in preventing the cows and in-calf heifers from becoming infected during the dry period. The relevant targets are <10% and <15% for cows and in-calf heifers respectively. Secondly, as 89% of the cows that had a high SCC (>200,000 SCC/ml) in the previous lactation had a low SCC in this first milk recording, the farmer used a dry cow tube that was effective in his herd.

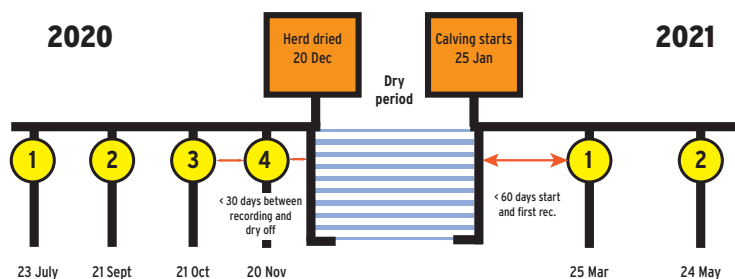
For spring-calving herds looking to start milk recording this summer, four recordings, the first taken in late July, will provide a baseline profile of the high-SCC cows and spread of mastitis within the herd from mid-summer onwards. The last two recordings should take place one month apart in late October and late November for a herd that will be fully dry before Christmas.

Next spring, the first milk recording should take place within 60 days of the first calving and a second recording approximately 60 days later will catch the later-calving cows, so that you can monitor winter cure and infection rates.

**Figure 3:** The dry period/calving section of the CellCheck Farm Summary report (March 2020) for the low SCC herd.



**Figure 4:** Suggested milk recording schedule for a dairy herd milk recording for the first time this season.



**Summary**

- Milk recording is a vital tool to identify cows with high SCC and prevent bulk tank SCC from rising from mid-summer.

- Milk recording is essential in monitoring infections acquired during the dry period and the success of dry cow treatments administered at the end of lactation.

- New regulations being implemented from 2022 will restrict the blanket use of dry cow antibiotics: milk recording can provide the evidence needed to justify their use.

# Q&A

**For a herd that hasn't milk recorded before, is it too late to start now for this year?**

For any herd, the best time to start milk recording is close to the start of lactation. For a herd that hasn't ever milk recorded, the second-best time to start is now. The reason for this is that all milk recordings will build a profile of mastitis spread and control.

**Can I start milk recording with the COVID-19 restrictions in place?**

Yes. It is never too late to start milk recording. With the present COVID-19 restrictions, a DIY milk recording service is available. Meters will be dropped to your farm with a hand held recorder and sample bottles. Samples are taken at pm milking only and cows' ID are recorded during am

and pm milking. A second person is required for milking, to make it easier.

When setting up, turn off cluster flush system while milk recording and turn automatic cluster removers to manual. One person should be milking while the other person is working the hand held and applying the sample bottles.

If help is available within your family, it should really be considered. MunsterBovine.ie has a video on their website highlighting how it works and troubleshooting issues that may arise.

Allow plenty time for the first milk recording and get your routine sorted. Clean down meters and remove them from your parlour. Place them in an area where the technician

can collect them cleanly and observe social distancing.

**Who should I contact to start milk recording?**

To start milk recording, ring one of the following numbers:

Progressive Genetics	046 954 0606
Munster AI	022 432 28
Tipperary Co-op	062 331 11

**Where can I learn more?**

Episode 120 of Teagasc's Dairy Edge podcast featured an interview with Don Crowley, who discussed the mid-lactation mastitis challenge. The full interview can be accessed on the Teagasc public website at <https://www.teagasc.ie/animals/dairy/the-dairy-edge-podcast/>.



# Milk recording to identify cows for culling

**M**ilk yield alone is not a reliable measure to use when selecting cows for culling from a dairy herd. The culling tool, Cows Own Worth (COW), is a much more reliable means of identifying suitable cows for culling.

This is because it incorporates not just milk yield, but a number of other factors including the cow parity, SCC and EBI, to develop a more balanced measure of suitable cows.

In Table 1, we compare the results after selecting the bottom 10% of mature cows (from among 71 cows in their third or greater lactation) for culling based on either their milk yield or COW value from a 100-strong spring-calving herd from south Kilkenny.

The data in Table 1 shows that compared to the mature cow average, the cows with the lowest milk yield are predicted to produce 73kg less milk



solids than the mature cow average.

However, compared to the cows selected on COW, they are younger, higher-EBI, earlier calving and have a lower somatic cell count.

In other words, the COW identified

the 10% of the mature cows that in their current and future lifetime are likely to be less profitable for the herd owner. You can only generate the COW if you are milk recording your herd.

**Table 1:** Selection of bottom 10% of mature cows for culling from a herd selected either on lowest milk yield or lowest COW.

	MS yield (kg/cow)	Lactation number	EBI	Calving date 2020	SCC (000 cells/ml)	COW
Herd average	592	4.7	€165	11th Feb	87	€1,373
Bottom 10% ranked by milk solids yield	519	4.9	€149	18 Feb	82	€1,028
Bottom 10% ranked by COW	547	5.9	€125	4th March	166	€596

## >> Selective dry cow therapy case study – Martin Davin, Rathdowney, Co Laois

Martin farms 68ha including 4ha of rented land. He milked 76 cows in 2014, but now milks 120. Long-term, he sees 130 cows as the optimum number for his spring-calving herd on a milking platform of 38 ha. Milk solids sold was 549kg per cow in 2019.

There is a big emphasis on milk quality on the farm. Martin works with his milk processor's vet on herd health planning and vaccination programmes and uses an online facility which sends text reminders to him in advance of vaccinations.

Prior to 2017, cows on Martin's farm were blanket dried off using antibiotics and teat sealant. Figure 5 shows the bulk milk SCC levels on the farm since 2011.

"Before 2017, all cows got dry cow antibiotics at drying off," says Martin. The data in Figure 5 show that bulk milk

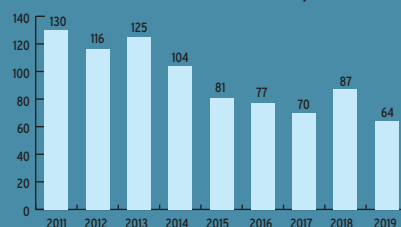
SCC levels have been maintained at a low level for the past nine years.

"We started reducing our use of dry cow tubes four years ago. In the first two years, we were very careful about the cows we chose to try it on. For the last two years, roughly half of the herd was dried off without antibiotics. We don't have a number in mind. The decision is based on the milk recording results and cows with a SCC under 100,000 are picked out to get a teat sealant only.

"You've got to be a lot more careful when drying off without antibiotics. It's like surgery. Before we start, we'll have clipped tails and trimmed udders a couple of days in advance. We do a maximum of two rows a day (24 cows).

"You need plenty of help. We use surgical spirits to thoroughly clean the udder, someone to restrain the cow, one

**Figure 5:** Annual bulk milk SCC (000 cells/ml) on Martin's farm for the 2011-2019 period



person with clean gloves administering the teat sealant and another to record and pass the tubes to me.

"It can take us up to two hours to dry off 24 cows. At the start of the drying off season, we put freshly dried off cows in a paddock away from the parlour. Later on, the cows are dried off and go directly into the cubicle shed. The beds are limed twice a day for a week until cows are fully dried."

# Seeing is believing

This Wexford farmer saw for himself the benefits of using PastureBase Ireland

**John Douglas, Grass10,**  
Teagasc Animal & Grassland  
Research and Innovation Programme

**S**eamus Sweeney is milking 110 dairy cows on a 36ha milking platform near Boolavogue, Ferns, Co Wexford. Last year, Seamus agreed to become the host farmer for the Wexford North Grass10 Course which met nine times on his farm in 2019. The course is co-facilitated by Martin Doyle, Teagasc adviser in Enniscorthy and myself, John Douglas, Grass10.

"While I was okay at estimating grass covers, I wanted to get more from grass," says Seamus. "I had seen other farmers getting good performance and asked myself why couldn't I do it?"

Seamus started measuring grass for the first time in 2019 through PastureBase Ireland and quickly learnt to use the weekly PastureBase reports to take the guesswork out of managing grass.

Last year, Seamus followed the cover/LU grazing targets (160-180kgDM/LU) from April onwards and removed surplus grass by making high-quality silage bales. Seamus says: "Every time the advice was given to take out a paddock it worked." By 1 July last year, Seamus had 300 bales of silage taken from the milking platform and cows were grazing the correct grass covers (1,400kgDM/ha) and milking better at grass.

"My theory around autumn grazing had always been to keep grazing the cows as they needed the grass until it was all gone," adds Seamus. "The ground would only get too wet and I wouldn't be able to graze it anyway. I usually struggled to stay out until 1 November."

As a result of being involved with the Grass10 course, Seamus said he

"Deliberately made the effort last year to build grass for the autumn." This would allow him to eat into this bank of grass and continue grazing for longer.

Last year, Seamus started closing up the farm in rotation from 6 October but still managed to keep cows out grazing until 15 November. This was an additional fortnight of grass in the diet even during challenging weather conditions.

Teagasc research shows that each additional day at grass in the autumn is worth €2/cow. When you do the calculation on Seamus's 110 cows, this equates to €3,300 in profit for the additional fortnight at grass. This profitability arises from the extra milk production from grass and cost savings from feed and machinery.

"It does reduce the workload around the yard a lot and with two weeks less slurry in the tanks, it eases the pressure to get slurry spread in the spring time," says Seamus.

Seamus starts calving around 20 January and tries to get cows out to grass as soon as they calve. "I was afraid that by grazing that late I wouldn't have grass available for the spring. But I found the real benefit came in the spring as I never ran tight on grass," he says. His average farm cover (AFC) on 1 February was 865kgDM/ha and he missed only seven days grazing during the first rotation this year due to difficult grazing conditions. This is important as each day at grass in the spring is worth €2.70/cow/day or nearly €300/day for Seamus's 110 cows.

"It has been a real eye-opener for me, seeing that it is possible to graze later and still have good grass supply on the farm in the spring. I am very happy with how it worked and will definitely be doing the same again this year," Seamus concludes.



John Douglas, Seamus Sweeney and his Teagasc advisor Martin Doyle.

## How did Seamus do it?

**1** Complete an autumn grass budget. PastureBase Ireland allows farmers to budget grass for spring and autumn, helping to grow more grass and keep grass in the diet for longer. The autumn budget should begin around 5 August and finish on 1 December. For each week you enter the area available for grazing, the number of cows and the amount of grass, meal and silage being fed (in KgDM). This generates the weekly demand on the farm.

Be sure to estimate and enter when silage or reseeded paddocks will be available. PastureBase uses past growth rates for your region to estimate the autumn grass growth. By setting demand against growth, the AFC can be increased or decreased. It is important to never run AFC below 500kgDM/ha and target a closing AFC 600-700kgDM/ha on 1 December. This ensures grass supply for the spring. The autumn grazing targets are summarised in Table 1.

**2** Walk the farm weekly. A grazing budget is a plan which must be monitored to make sure the end goal is achieved. Continuing to complete farm covers on PastureBase Ireland is the best way. This allows you to compare the estimated growth figures



**Table 1:** Influence of seed rates on the weight of seed to be sown

Stocking rate Date	2.5 LU/ha		3.0 LU/ha		3.5LU/ha		Rotation Length for all SR. (Days)
	AFC (KgDM/ha)	Cover/LU (KgDM/LU)	AFC (KgDM/ha)	Cover/LU (KgDM/LU)	AFC (KgDM/ha)	Cover/LU (KgDM/LU)	
Early Aug	500	200	540	180	600	170	20
Mid Aug	600	240	750	250	770	220	25
Early Sept	750	300	990	330	980	280	30
Mid Sept	1100*	450	1100*	370	1200*	340	35
Early Oct (start of closing)	1000	400	1150	380	1175	335	40-50
1st Nov	60% of Farm Closed		65% of Farm Closed		70% of Farm Closed		
Closing Farm Cover December 1st	550-600kgDM/ha		600-650kgDM/ha		650-700kgDM/ha		

used in the budget with actual growth on the farm. This is important as it will affect AFC. Remember the AFC is the level of grass on the farm and grass grows grass so building AFC early is critical.

**3** Stay on track. Walking the farm lets you see where the AFC should be and where it actually is. To stay on target, decisions need to be made to increase or decrease demand on the farm. Demand is affected by area available for grazing, number of cows and the amount of supplement fed.

For example, Seamus was behind target on 10 October and while he would usually have said he had plenty of grass, looking at the budget he knew he was behind. Seamus was already feeding 3kg meal so decided to supplement 6kgDM of silage per

cow, feeding three bales of silage for 110 cows. Seamus used the high-quality silage bales he had cut off the platform earlier in the year to fill this gap. This made sure he was on target to graze until mid-November.

**4** Fertiliser. Use fertiliser wisely by applying early. Fertiliser spread in August will give a response of 27:1. Spreading the same amount in September only gives a response of 19:1. Applying 30kg N/ha (24u N/ac) in August will give an extra 240kgDM/ha at a stocking rate of 3LU/ha. This is worth five days grazing.

**5** Close up the farm properly. Use the autumn rotation plan to close the farm up in rotation. The target is to graze and close 60% of the farm by 1 November and have the remainder closed by 1 December. An autumn

rotation planner can be completed on PastureBase Ireland and this syncs with the grass budget.

**6** Stop grazing on time. Walking the farm weekly allowed Seamus to stop grazing at the right time to ensure enough grass on the farm for spring. His AFC on 15 November was 550kgDM/ha and Seamus decided to house the cows to be at 600-650kgDM/ha by 1 December. Continuing to graze past this point would mean poor grass supply in the spring. The target closing AFC will depend on stocking rate and is shown in Table 1.

Leaving the final words with Seamus: "Two things stood to me from hosting the Grass10 course; taking out surplus bales and using them to build and stretch grass in the autumn."

# Why less can be more when it comes to lamb carcass weight



**Frank Campion & Michael Diskin,**  
Teagasc Animal & Grassland Research  
and Innovation Programme

Teagasc researchers are investigating the potential for finishing of hill lambs to carcass weights of 12-16kg.

Ireland produces about 250,000 Scottish Blackface male lambs annually, typically weighing 20-26kg when weaned. Historically, many of these lambs were slaughtered at light carcass weights for the Italian market. This market no longer exists.

Previous research carried out in Teagasc Athenry has shown the potential to finish hill-bred male lambs to carcass weights in excess of 18kg while meeting market conformation and fat score specifications satisfactorily; though the period of feeding is prolonged, particularly for lambs that are light at weaning.

These studies also demonstrated that hill-bred lambs were highly responsive to improved nutrition post-weaning. Recently, these studies were extended to finishing hill lambs to comparatively lighter carcass weights following short-term intensive feeding.

As with any intensive finishing system, this requires good flock management to keep mortality rates low and ensure lambs are drafted at the correct weight to avoid selling lambs that are too light or don't have sufficient muscle and fat cover to meet market specifications.

## Light lamb finishing

The studies were undertaken in Teagasc Athenry to ascertain if it was possible to finish light Scottish Blackface male lambs to produce carcasses of 12-16kg with a suitable covering of



**Picture 1.**

On the left a 14.6 R2 carcass slaughtered at 33.5kg liveweight and on the right a 15.7kg R2 carcass slaughtered at 34.5kg liveweight.



**Picture 2.**

It is important that lambs are the appropriate weight and have adequate muscle and fat cover to meet the specifications for the light lamb trade.

fat. The performance of these lambs on these studies is summarised in Table 1. Lambs were housed after weaning at an average liveweight of 25kg and slowly built up to ad-lib concentrate intake.

Both castrates (wethers) and ram lambs were used and were drafted for slaughter once they reached a minimum 30kg liveweight for wethers and 31kg liveweight for ram lambs and had a level of fat cover equivalents to fat score 2 post slaughter. Where lambs, particularly ram lambs, reached 36kg liveweight and were deemed "unfinished", then they were retained and fin-

ished to French market specification (greater than 18kg carcass weight).

Proper selection of lambs for slaughter is essential with this system and lambs must be weighed regularly to avoid lambs falling out of specification for the light lamb trade and still being under-finished for French specification markets.

Where lambs are too heavy for the light lamb market or reach the correct liveweight but have insufficient fat cover to market specifications then it is necessary to carry these lambs to a minimum of 42kg to finish for the French specification market.

In our studies, approximately 15% of the lambs initially housed to finish as light lambs were sent for French market specification, showing the importance of regular live weighing and handling of the lambs. In our studies it took approximately five to six weeks of intensive feeding for lambs to finish to the light lamb specification, during which time lambs consumed approximately 1.15kg DM of concentrates per head per day once offered a concentrate ration ad-lib.

## Research in practice

The results of this research have been positively received by hill farmers, with numerous groups visiting Teagasc Athenry to view the research, discuss the results and see how to correctly select lambs to meet the market specification.

One such group has established the Atlantic Hill Lamb brand which was started in recent years and is an initiative supported by the INHFA, Bord Bia and Kepak. This group is sourcing light lambs from hill farms that meet market specifications of 10-15kg carcass weight with a minimum carcass conformation of O and a minimum fat class of 2.

While still in its early stages, the initiative is being enthusiastically received by farmers, who see the potential to finish some of their own light lambs on farm rather than relying totally on the store lamb trade. Since its inception this producer group has supplied in the region of 35,000 lambs to this market and are hopeful this



Pictures: Ivan Kelly

## Farmer profile: Brendan Joyce, who farms four miles west of Maam Cross in Connemara

Brendan has a flock of 350 Connemara X Mayo Blackface ewes in a commonage based system on SAC/SPA land with lambing in April to make the most of the grass available. "In the past as hill farmers we



always had to sell lambs as stores," says Brendan.

"This system gives hill farmers the option to finish to a 10-15kg carcass and maybe increase their margin. Not every farmer can do it but it also has the potential to improve store prices.

"It's early days but the market feedback is very encouraging, the lambs make best use of the pasture available which means they are naturally slow growing and there's a taste benefit. It's very much a premium product."

**Table 1: Effect of lamb sex on lamb performance pre- and post-slaughter**

	Rams	Castrates
Housing liveweight (kg)	25.7	25.5
Slaughter liveweight (kg)	34.1	33.1
ADG from housing to sale (g/day)	233	181
Carcass weight (kg)	14.8	14.6
Carcass grade	2.3	2.4
Fat score	2.5	2.6
KO%	43.3	44.2
Days on intensive diet	36.1	42.0

can be expanded in the future.

All suppliers of lambs are now Bord Bia quality assured. Initially, all lambs were marketed through one processor, though currently three processors have developed markets for these lambs. The research undertaken by Teagasc in Athenry has provided the stimulus for the estab-

lishment of the producer group and blueprint for finishing these lambs has emerged from this research. It is estimated that such lambs return an extra margin of €15-20/head. The development of this outlet for hill lambs has also established an improved floor price for the remaining hill store lambs.

## CONCLUSION

There is potential to finish hill bred male lambs at lighter carcass weights while meeting market specifications for conformation and fat cover. However, markets are somewhat limited for these carcasses so it is important to have a contract for these type lambs and careful selection of lambs for slaughter is essential to ensure carcasses meet minimum specification for payment. Future research into finishing lighter hill lambs aims to look further into the effect of diet and breed type for these finishing systems.

# Virtual Beef Week 2020

## Save the dates: Monday to Friday, 6 to 10 July



**Pearse Kelly & Paul Crosson**  
Teagasc Animal & Grassland Research and Innovation Programme, Grange



Teagasc is holding a Virtual Beef Week from Monday to Friday, 6 to 10 July, to communicate the latest research results relevant to beef farmers. “Building a Sustainable Irish Beef Sector” is the theme for this virtual beef week, which will involve webinars and live discussions each day of the week.

There will also be a continuous stream of content through many different social media platforms. The Teagasc Virtual Beef Week is kindly sponsored by the FBD Trust and replaces the beef open day that had been planned for this year in Teagasc Grange.

### What will be covered?

Each day of the week, there will be a different topic relevant to beef farmers covered throughout the day. On Monday 6 July, we will be focussing on suckler beef production, covering the performance and the genetics of the Derrypatrick suckler herd, ani-

mal breeding and parasitology.

On Tuesday, we switch our attention to dairy calf-to-beef, outlining what has been happening with the new herd in Grange and also discussing the animal health issues associated with rearing calves.

Wednesday 8 July will be all about environmental sustainability and what steps beef farmers can take to reduce the environmental footprint of their cattle enterprises.

On Thursday 9 July the focus will be on both growing cattle over the first winter and showcasing how to grow and utilise more grass in the production of beef animals.

On the last day of the week, Friday 10 July, the grand challenges that are



facing the beef industry including profitability levels, sustainability and likely future policy will all be up for discussion.

### #BeefTalk and Live@Grange

Teagasc is teaming up with both the *Irish Farmers Journal* and Agriland so that we can stream the content of



The grand challenges that are facing the beef industry including profitability levels, sustainability and likely future policy will all be up for discussion.



The Teagasc Virtual Beef Week is kindly sponsored by the FBD Trust and replaces the beef open day that had been planned for this year in Teagasc Grange.

the virtual beef week to as wide an audience as possible. This will be an opportunity for farmers and the wider industry to access the latest beef research and knowledge through their mobile phone, laptop or tablet.

Each morning, there will be a #BeefTalk panel discussion for one hour starting at 12pm, facilitated by

the *Irish Farmers Journal*, where the latest research on the topic of the day will be discussed by researchers, advisors and farmers.

Each evening, starting at 7pm and again for one hour, there will be a #Live@Grange panel discussion coming from the Teagasc Animal and Grassland Research and Innovation

Centre, Grange, Co Meath. This panel discussion will be broadcast through both the Teagasc and Agriland online platforms. As this will be broadcast live, there will an opportunity for all those watching the discussion to ask questions of the researchers, advisors, farmers and industry personnel who are on the panel each evening.

## VIEW ONLINE

There will be a number of different places that you can view the #BeefTalk and the #Live@Grange discussions throughout the week.

The websites of Teagasc, the *Irish Farmers Journal* and Agriland will all have coverage of the event. If you are following the social media channels (such as Facebook and Twitter) of Teagasc and these

#virtualbeefweek

media outlets, they will also be carrying the event from Monday to Friday.

### #virtualbeefweek

While an online event can never fully replace a major beef open day, the Teagasc Virtual Beef Week running from 6 to 10 July will be an opportunity for everyone involved in beef production to get the newest and most up-to-date information on a huge range of topics relating to the business of beef farming.

It will be your chance to ask ques-

tions from experts across the industry in many different areas such as breeding, health, grassland, nutrition, environmental sustainability, economics and future policy. We would also like to hear your views and opinions on the topics that are being discussed each day.

To facilitate this, we are asking you to use the tag line #virtualbeefweek whenever you post something on the many different social media channels that will be covering the event.

This will allow others interested in the topics being covered to quickly see what is being posted from the wider farming public. While we won't get to meet you in person this year we certainly hope you can tune in to the Teagasc Virtual Beef Week starting on Monday 6 July.

## Virtual Beef Week 2020

Monday 6 July

## Lessons from the Derrypatrick herd

## Q&amp;A



With **Aidan Murray**, beef specialist, Teagasc Animal & Grassland Research and Innovation Programme with input from Paul Crosson, Bernadette Earley and Orla Keane

**How does the performance of the Derrypatrick herd compare with that of the average suckler producer?**

The Derrypatrick herd consists of 105 cows with a mix of breeds so it is considerably larger than the average suckler herd. When compared with the national average it is 35 days ahead in terms of calving interval. The percentage of heifers calving at 24 months is at 100% compared to 22% nationally. The six-week calving rate in Derrypatrick is 84% while the national average is 52%.

The herd uses 100% AI and selects proven sires based on the €uro-Star sub-index, giving access to top genetics for the herd, whether for terminal or replacement traits. At farm level, stock bulls form the basis for most of the progeny produced; only 16% of the suckler calf crop result from AI.

The Derrypatrick herd also has a very compact calving pattern of less than 12 weeks, which helps improve labour efficiency, animal health and marketing of stock. Animals have consistently demonstrated excellent weight-for-age from birth through to slaughter from what is a predominantly forage-based system.

**Rank the key contributors to financial performance**

The key factors driving performance on the Derrypatrick Herd are: excel-



lent grassland management, achieving reproductive performance targets and high liveweight gain per day of age. These factors are related to compact calving in the spring facilitating early turnout to pasture and long grazing seasons. This, in turn, supports high levels of liveweight performance from a predominantly grazed grass diet.

Spring-calving herds, in particular, must align calving with the onset of the grazing season. Compact calving with a median calving date close to the start of the grazing season is



essential. Median (when half of the cows have calved) and mean calving dates for the Derrypatrick Herd in 2020 were 3 March and 10 March.

This median calving date provides the best match between calving and turnout to pasture in spring at Teagasc Grange. The six- and nine-week calving rates were 84% and 95%. Average age of heifers at first calving in 2020 was 24.1 months of age. Including cows and heifers, the calving season was just over 11 weeks.

Grassland management revolves around a flexible rotational grazing system, with the objective of providing leafy swards of high digestibility. This entails grass budgeting with target farm covers and pre- and post-grazing herbage targets. A two-cut silage harvest system is operated with the aim to produce high nutritive value first-harvest grass silage for the progeny (>72% DMD) and moderate nutritive value silage for the cows (~66% DMD).

### Describe the health strategy for the Derrypatrick herd

Derrypatrick has quite an intensive, proactive, health programme which is carefully planned in advance with the local vet. Bovine respiratory disease (BRD) is the leading cause of morbidity and mortality in calves and older animals. Research in Teagasc Grange into BRD has influenced some of the preventative strategies used in the herd. Vaccination is a key component of this strategy.

Veterinary advice should be sought for a suitable BRD vaccination programme and the widest protection will be achieved where the programme covers the three most common respiratory viruses – respiratory syncytial virus (RSV), parainfluenza-3 (PI-3) virus, bovine herpes virus type 1 (BoHV-1) virus (infectious bovine rhinotracheitis IBR) and the bacterial pathogen *Mannheimia (pasteurella) haemolytica*.

Vaccinations help reduce the probability of disease but cannot be depended upon solely for prevention. The management system pre-weaning and post-weaning will assist the successful outcomes of a BRD vaccination programme. Efficacy of the vaccine is determined by many factors including the level of challenge presented to the animal, the proper functioning of the animal's immune system and the timing of vaccination relative to infection.

Calves in the Derrypatrick herd are vaccinated at two and six weeks old against BRD and they get a booster again pre-weaning in the autumn. Calves are also vaccinated against clostridial diseases in early summer. Male calves are castrated by the



Michael McManus, research technician on the Derrypatrick herd with bullocks from the herd.

“What Derrypatrick clearly demonstrates is all aspects of the jigsaw need to be well done

local vet in August, which is well in advance of weaning.

To minimise respiratory disease following weaning it is essential that stress is kept to a minimum. Castration should not be carried out for two or three weeks before, or four weeks after, weaning. Ideally, all calves should be provided with a concentrate creep prior to weaning.

Parasite control is a key component of the health strategy. Treatment of calves for gut worms is minimal. In most years only a single treatment, at housing, is given. For yearlings, treatment is on the basis of need as indicated by faecal egg count or failure to meet growth targets. We keep a close eye out for lungworm, with treatment based on clinical signs. Fluke is not a major challenge for Derrypatrick as the farm is relatively dry but we nonetheless examine the factory reports for any indication of fluke damage to livers.

Cows have a more broad spectrum vaccination programme to prevent IBR, Leptospirosis, BVD, salmonella and they are given a scour vaccine pre-calving.

### What is the one key thing that every suckler farmer should take from the Derrypatrick research at Teagasc Grange?

The key message that suckler farmers need to take from Derrypatrick is that

for any suckler enterprise to be profitable, you need to have a planned system that is target-focused and forage-based. These targets extend across all the vital disciplines in terms of weight for age, turnout dates, stocking rate, breeding efficiency, health planning, silage quality.

What Derrypatrick clearly demonstrates is all aspects of the jigsaw need to be well done. Having an interest in breeding for example to produce top-quality weanlings may improve value per kilogram but if your grassland management is below par then this advantage may be eroded due to increased costs. Likewise, all your hard work could be undone if you fall short with your health programme.

### What are the challenges in applying these lessons to a small herd?

The average herd size in Ireland is just 17-18 cows. Consequently many farmers are part-time and have to fit their farming around work commitments.

Derrypatrick is essentially in one block while many farms are fragmented which adds to the costs and impacts how they can optimise grassland management, their ability to use AI in their herd etc. Another significant challenge is that many commercial farms have low output and therefore low incomes with a very uneven cashflow. Their ability to invest and take up many of the technologies is therefore limited.

Finally, we are all unclear about what lies ahead with regard to CAP reform, COVID-19, Brexit and the environment. The key message is to address what you can control and virtually every farm has scope to improve its technical and financial performance by adopting at least some of the lessons from the Derrypatrick herd.

# Virtual Beef Week 2020

## Tuesday 7 July

# How to achieve high performance



**Nicky Byrne & Alan Dillon**  
Teagasc Animal & Grassland Research and Innovation Programme

**W**ith the expansion of the Irish dairy herd over recent years more dairy-origin calves are available for beef production, but considerable scope exists for integration of beef and dairy farmers' needs.

### » Components of a high-performance calf-to-beef system

The dairy-beef unit at Teagasc Grange consists of 37.5ha (93ac) and buys in 120 calves annually to be produced from a grass-based under 24-month steer system. The current focus is on comparing the performance of three dairy-beef genetic groups, which consist of male Holstein Friesian (HF) and two Angus (AAX) groups, representing the main calf breeds coming from the dairy herd.

The HF group are the progeny of the top four EBI sires, while the two AAX groups are the progeny of AA sires divergent in genetic merit for carcase weight and conformation. Both have similar breeding values for ease of calving.

With the first year of this study now complete, HF steers were slaughtered at 23 months after a finishing period of 81 days. The animals each consumed a total of 740kg of concentrate over their lifetime. These steers had an average carcase weight of 305kg, grading O- with a fat score of 3+, generating a carcase output of 976kg/ha.

The AAX steers were slaughtered at 22 months after a finishing period of 61 days and a lifetime concentrate consumption of 638kg. Carcase weight was 297kg, grading O= with a fat score of 3+, giving a carcase output of 949kg/ha. Each of these systems has achieved exceptional performance due to particular attention to three key areas: calf health, calf rearing/nutrition and grassland management.

#### Calf health

Calves arrive on-farm at 21 days old from as many as 35 sources, hence the need to implement a strict herd health plan to minimise risk. Vac-



ination, monitoring and enhancing welfare have helped maintain low mortality levels (1-2%) within the calf-to-beef unit at Teagasc Grange.

Bovine respiratory disease (BRD) is the major health challenge. Calves are vaccinated at three weeks (24 hours post-arrival) and seven weeks old against RSV, PI-3 and IBR and receive booster vaccinations six months later in the autumn before housing.

Calf liveweight performance is monitored weekly during the rearing phase and fortnightly during the grazing season which, in conjunction with faecal egg counts, plays an important role in managing parasites.

#### Calf rearing/nutrition

The effect of early calf nutrition on lifetime performance is evaluated, with half of the three groups reared on either 4l or 8l of milk replacer/day. From the first year's results, the calves on 4l per day consumed 20kg less milk replacer during the rearing phase and consumed 25kg more concentrates during that period, with no significant effect on carcase

performance.

The transition phase occurs between weeks four and eight, when calves move from pre-ruminant to ruminant, with the rumen taking over the main responsibility for feed digestion. The objective during this period is to encourage young calves to increase their intake of solid feed, to enhance rumen development and increase performance.

To achieve this, ad-lib concentrates are offered to calves, along with a high-quality fibre source (straw). A successful transition phase will minimise stress and maintain performance of calves when weaned from a liquid milk replacer diet, as well as enhancing their ability to utilise grazed grass during the grazing season.

#### Grassland management

The calf-to-beef system at Teagasc Grange is built around the efficient use of grazed and conserved grass (silage). In 2019, the dairy-beef unit grew 14.5t DM/ha and achieved a 292 day grazing season. The supply and

# in a dairy calf-to-beef system



Nicky Byrne and Donall Fahy.



quality of grass was controlled by completing a weekly farm walk and feed budget.

During the mid-season, there is always 12-14 days of grass ahead, and yearling steers are allocated pre-grazing covers of 1,300-1,600kg DM/ha every 48-hours, grazing to a residual height of 4cm. Calves are offered the cleanest and most palatable swards, generally following the removal of surplus bales or first-cut silage.

High-quality silage plays an important role in developing weanlings over the winter and achieving high performance during the finishing period. Due to the low spring demand experienced in calf-to-beef systems, there is an opportunity to make high-quality silage in early to mid May. The after-grass offers high-quality swards for calves.

## » Achieving targets on Teagasc Green Acres farms

Phase 2 of the Teagasc Green Acres Programme began in 2019 and consists of 12 farms around the

country, varying in size, soil type and representing a mix of full-time and part-time farmers. The objective of the programme is to implement best practice as demonstrated on the Teagasc dairy calf-to-beef research unit at Grange and thereby increase the profitability of these farms.

## Aiming to improve calf performance

During Virtual Beef Week 2020, Martin Connolly, who farms in Castleplunkett in Co Roscommon, will outline how he has improved his calf rearing practices through a vaccination programme. Martin rears 120 Friesian bull calves, sourced from three local dairy farms and finishes them in a bull beef system.

Prior to joining the Teagasc Green Acres programme, there was no plan with regard to the vaccination of calves against respiratory and clostridial diseases. As a result, antibiotic usage was very high, with around 50% of calves requiring treatment over the course of their first year.

Since then, a well devised vaccination plan has been put in place, vaccinating against pneumonia, IBR and clostridial diseases.

The levels of antibiotic usage on the farm have reduced substantially, with improvements in calf vigour and thrive also noted.

## Improving calf quality

With sibling advantage on their side, the Long brothers – Richard, Michael and Liam – who operate independent beef and dairy operations, have come together to develop a breeding plan that works for both operations, by producing a better-quality calf for Richard and minimising the risk of reduced milk production performance for Michael and Liam.

This arrangement means that Richard is supplied with a calf that has superior beef production characteristics, while the brothers have a guaranteed route to market for their calves.

By matching the bull to the cow, the dairy farming brothers have been able to use beef genetics from a number of breeds.

These include Limousin, Belgian Blue, Charolais, Hereford and Aubrac.

With the longer-gestation sires aimed at earlier-calving cows and the more difficult calving bulls targeted at mature cows with no history of calving difficulty, the breeding programme is creating a win-win scenario for both farms.

With the introduction of this breeding policy in 2019, Richard has seen the Terminal Index values of his 2020-born male beef calves improve from €13 in spring 2019 to €41 this spring.

# Virtual Beef Week 2020

Wednesday 8 July

# Beef farming and the environment



**Martina Harrington & Sinead Waters**  
Teagasc Animal & Grassland  
Research and Innovation Programme



**F**armers are the custodians of the countryside and farming over many generations has shaped the landscapes that we see today. Protecting these ecosystems and how we face the challenges of improving water quality, reducing greenhouse gas emissions and maintaining and enhancing biodiversity will heavily influence the future of the beef industry, as can be seen in emerging Irish and EU policy.

On Wednesday 8 July, Teagasc, as part of the Virtual Beef Week, will lay out the main environmental issues and focus on some of the key technologies available to reduce beef farming's impact on the environment, while on Friday 10 July a panel of experts will discuss future policies that are likely to affect day-to-day beef farming. Topics addressed will include the following:

## METHANE

Agriculture is the single largest contributor (~30%) to overall greenhouse gas (GHG) emissions in Ireland. Livestock production, in particular, faces challenges in reducing GHG emissions. Methane, a GHG 28 times more potent than carbon dioxide, is released as a byproduct of rumen microbial fermentation and from stored manure and slurry on farm. Under EU legislation, Ireland has committed to reduce GHG emissions of 40% by 2030, compared to its 2005 levels.

On Wednesday we will discuss the ongoing research in Teagasc focusing on reducing methane emissions from beef production which include the development of farm-ready technologies to reduce methane emissions from animals digesting their feed including a number of feed supplements (including 3-NOP, halides, seaweeds and oils), and from stored

manure and slurry. We will also discuss the strategies being developed with ICBF to breed cattle with a lower environmental footprint, ultimately improving beef sustainability. – **Sinead Waters**

## Gaseous nitrogen losses

Other gaseous losses produced in agriculture are nitrous oxide and ammonia. Both are produced as a result of the application of organic manures, synthetic fertilisers and excreta from grazing cattle. Nitrous Oxide is a GHG with a warming potential 265 times higher than carbon dioxide.

Ammonia, also a gas, is not a GHG and therefore not associated



with climate change, however it is a harmful air pollutant. In addition to the GHG emission reduction targets, we are required to reduce ammonia emissions by 1% from now until 2029. This is challenging as 99% of ammonia is produced by agriculture and we have been breaching our target since 2016. As a sector it is crucial we acknowledge the issue and adopt what technologies become available to lessen our contribution.

Teagasc research has shown measures that improve nitrogen use efficiency such as low-emission slurry spreading (LESS), protected urea, liming and clover, reduce our ammonia emissions. On Wednesday we will detail how new technologies can help reduce losses.

– **Dominika Krol**

## SOIL CARBON SEQUESTRATION

Soil carbon sequestration is the process of capturing carbon dioxide (CO<sub>2</sub>) from the atmosphere and storing it in plant material or soil. Increasing carbon sequestration can offset the emissions and reduce the carbon footprint associated with livestock production. Increasing soil organic carbon also improves soil workability, water holding capacity, and nutrient availability.

The principal ways to increase sequestration are:

- Improve soil nutrient status: Optimal pH and soil N and P status will improve grass productivity which in turn will enhance soil carbon by increasing C inputs into soil.
- Let existing hedges and trees grow wider and taller, while also planting new hedges and trees can increase sequestration and biodiversity.
- Sowing clover and deep-rooting species, such as plantain can increase soil carbon by increasing root biomass.
- Paddock-based, moderate grazing intensity (1.5 LU/ha) can increase soil carbon by increasing litter incorporation in soil and stimulating shallow root growth.
- These steps have the potential to increase output while reducing costs,



Stuart Kirwan (opposite page) and Paul Smith at Teagasc Grange are working to optimise rumen productivity to reduce the emission of harmful greenhouse gases, such as methane, from beef cattle.

eg through improved soil nutrient status, clover etc. Using the average National Farm Survey suckler beef farm (stocking rate = 1.35 LU/ha), preliminary analysis indicates that carbon sequestration could offset 46% of on-farm emissions.

– Gary Lanigan

## BIODIVERSITY

Conservation and protection of farmland wildlife and habitats is an important dimension of environmental sustainability. It features prominently in emerging Irish and European policy. The recent Farm to Fork Strategy includes the need for effective methods for biodiversity conservation as part of the development of sustainable production systems, while the recent EU Biodiversity Strategy for 2030 has indicated that at least 10% of agricultural area should be dedicated to high-diversity landscape features. On Wednesday we will discuss management of farmland habitats, with a focus on retain, enhance and create.

It's hard to overstate the importance of retaining existing wildlife areas, as these habitats (eg hedges, buffer strips, and ponds) have the highest value for farmland wildlife. It is usually more effective to retain existing habitats than to establish

new ones. Once existing habitats have been retained, we will discuss how they can be managed to maintain and enhance their quality, ensuring the delivery of multiple ecosystem services (biodiversity, carbon storage, water quality).

Finally, where there is a lack of existing habitats, we will discuss how newly created wildlife habitats play an important role. We will highlight how new measures could be targeted to less productive areas of the farm (eg wider field margins or awkward field corners), but without replacing existing habitats. – Daire Ó hUal-lacháin and John Finn

## WATER QUALITY

I often get asked what the water quality is like in a river and have to ask myself, what does that person mean by “Water Quality”? Is it safe to drink? Has there been a fish kill? What are the nutrient levels? (N and/or P). Is there chemical contamination? Is there good ecology (life) in the river bed?

Recent reports from the EPA have described a falling trend in the “quality” of water bodies in Ireland and farming has been identified as a major contributing factor. This does not correspond with the longer-term

reduction of polluting instances from farmyard point sources and lower number of badly polluted waterbodies.

The current trend of falling water quality is mostly attributed to nutrient enrichment of our water bodies, leading to excessive algae growth, which in turn lowers the amount of dissolved oxygen in the water. This process is called eutrophication and has a direct impact on the life in our river beds.

Nutrient enrichment can be caused by Nitrogen (impacting on our estuaries and the sea) or Phosphorous (affecting streams, rivers and lakes). Potash (K) does not cause a problem. The locations where N is problematic (free draining soils with lower rainfall) usually contrast with where P is the issue (heavy and wet soils). However, good nutrient management is applicable to all soil types and farming systems. It benefits water quality in addition to reducing fertiliser cost. Good nutrient management is not just about limiting the amount of N, P, K. Fertiliser timing, source, placement and rate are all important, for both water quality and farm profitability. This is often called the 4R's: Right fertilizer source at the Right rate, at the Right time and in the Right place.

– Eddie Burgess.

# Virtual Beef Week 2020

Thursday 9 July

## How grass builds resilience

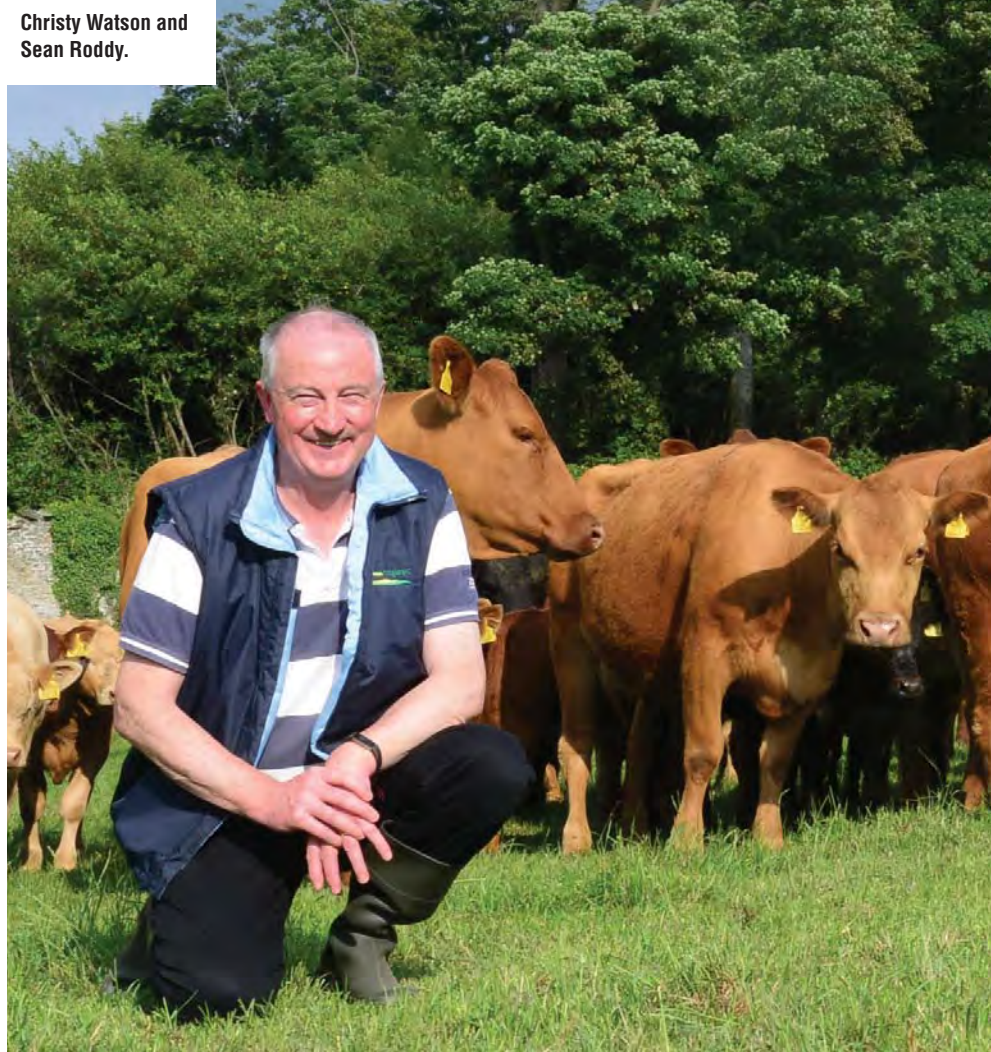
**Catherine Egan**  
Teagasc Animal & Grassland  
Research and Innovation  
Programme



**Mark McGee**  
Teagasc Animal & Grassland  
Research and Innovation  
Programme, Grange



**Christy Watson and  
Sean Roddy.**



**F**eed is the single largest direct expense in beef production, accounting for approximately three-quarters of total costs. Due to the considerably lower comparative cost of grazed grass as a feedstuff, beef production systems should aim to increase animal output from grazed pasture.

However, an indoor 'winter' period of varying duration is unavoidable on all Irish farms. The main feed costs on grass-based beef systems during this period relate to feeding grass silage and concentrates.

Regardless, whether it is a suckling-to-finishing or a dairy calf-to-beef production system, the key principles for 'first' winter and 'second' grazing season management are similar. These are two phases where significant practical improvements can be made within the farm gate.

### First winter management

To minimise feed costs and make the most of subsequent compensatory ("catch-up") growth at pasture during the following grazing season, live-weight gains of 0.5-0.6kg/day through the first winter are acceptable for steers, heifers and suckler bulls destined to return to pasture in spring.

Research at Teagasc Grange has shown that there is little point in over-feeding weanlings in winter, as during the subsequent grazing season, cattle that gained less over the winter had the highest liveweight

gain at pasture. Most of the winter weight advantage gained by 'over-fed' animals over winter had 'disappeared' by the end of the grazing season.

However, cattle who grow too slowly during winter (gaining less than 0.5kg/day) will not be able to compensate sufficiently at pasture, and consequently, will not reach target weights later in life.

Target animal growth rates during the first winter can be achieved on grass silage, supplemented with concentrates as outlined in Table 1. Dry matter digestibility (DMD) is the primary factor influencing the nutritive value of grass silage and conse-

quently, the performance of cattle.

Low DMD silage means you have to feed higher levels of concentrate supplementation to achieve the same growth rates, highlighting the importance of silage quality for growing cattle.

### The second grazing season

According to Grassland Farmer of the Year 2018 John Watchorn: "The more grass I can grow, the more cattle I can graze, the more weight I can put on them.

The more cattle, the more weight, the more money".

This statement summarises key objectives in relation to grassland



**Table 1:** Concentrate supplementation necessary for weanlings to grow at ~0.5kg liveweight/day when offered grass silage of varying dry matter digestibility (DMD) to appetite.

Grass Silage DMD (%)	~60	~65	~70	~75
Concentrate supplementation (kg/day)	2.0-3.0	1.5-2.0	1.0-1.5	0-1.0

# into your beef system



On July 9, tune in online to see how store-to-finish beef farmer John Watchorn, Co Wexford, and suckler farmer Sean Roddy, Co Kildare, manage their grassland in practice.

In the morning 'Beef Talk', John will provide an overview of his grass-based beef system and will discuss key ways to build resilience on your farm, including winter-feeding and grazing management.

During the day, technical updates on various aspects of cattle management, and videos with a selection of farmers around the country discussing how they manage grass on their farms, will be provided.

In an evening live panel discussion entitled: 'How can my farm grow more grass?' Sean will be available for questions, facilitated by Aidan Murray. He will be joined on the panel by his Teagasc advisor Christy Watson and Edward O'Riordan, Teagasc Grange.

yield and utilisation attained. This, in turn, delivers more animal liveweight from grass.

Suckler farm manager in Lyons Demense farm, Co Kildare, Sean Roddy manages a suckling herd with all stock brought to finish at 18-20 months. The herd was established in 2018.

Last spring, he calved 90 Stabiliser cows. Sean says: "The farm is a mix of light and heavy land. By measuring grass on a weekly basis, it allows me to utilise grass better. My main aim is to finish all progeny off grass with little or no concentrates. In order to minimise costs and reduce concentrates usage, I out-wintered the weanlings on redstart." Weanlings were supplemented with red clover silage.

Sward quality is very important to Sean: "Over the past two years, I have reseeded 70 % of the farm. I had really poor performing paddocks and now the swards are performing, are better quality and easier managed.

"This is especially true now during the drought conditions. Reseeded paddocks are coming back and holding better and I see the difference in quality. By incorporating clover in the reseed, I am also reducing my nitrogen usage."

Sean's excellent grazing management on the farm is evident in the high animal weight gain he can achieve from grass.

management during the second grazing season in one sentence. By focusing on the four main areas – grazing infrastructure, soil fertility, grassland management and reseeding – John has made big improvements on his farm.

The key to mid-season or summer grazing is to ensure there is a constant supply of high-quality grass ahead of the animals. A target live-weight gain of 1kg/day throughout the second grazing season should be attainable without meal supplementation – however, this is often not the outcome.

Improved grassland management is an area where weight gain can be achieved at low cost. High weight gains can be achieved from a grass-only diet, once the correct pre-grazing yield is offered and high levels of utilisation are continuously reached. Targeting grazing covers of 8-10cm (1,400kg/DM/ha) and allowing 18 to

21 days recovery and re-growth is essential.

Allowing pre-grazing yield to exceed recommended levels leads to a decline in grass quality and poor bodyweight gain. Finishing the first rotation on time is critical for mid-season grass supply and quality. It will ensure that grass will be more easily managed in subsequent grazing rotations.

John farms in Newbawn, Co Wexford with his wife Shirley. They run a store-to-beef system purchasing cattle in spring and bringing them through to slaughter the following year. This is a high output grass-based farm. They developed an excellent paddock grazing infrastructure; paddocks are grazed for 36 hours before moving to the next one in the rotation.

There is a strong relationship between the number of paddocks on the farm and number of grazings achieved. The more grazings achieved per paddock, the higher the grass

# Virtual Beef Week 2020

## Friday 10 July

# Building a sustainable beef sector – the grand challenges



**Paul Crosson and Pearse Kelly**  
Teagasc Animal and Grassland  
Research & Innovation Programme

**O**n the final day of the Teagasc Virtual Beef Week, we will address the challenges facing the beef sector. A panel of speakers from key industry partners will discuss the current state of play and potential changes in wider policy, sustainability and consumer environment from the point of view of their impacts on the Irish beef farming sector.

### Policy and trade developments

Direct payments from the Common Agricultural Policy (CAP) account for over 100% of farm income on beef cattle farms. Therefore, changes in CAP could have profound impacts on the future shape of the beef sector. Recent policy has seen a move towards a flattening of historical payments, so that all payments gradually converge closer to the national average.

This means that farms receiving very large payments have seen them decrease (in some cases, quite substantially) and farms that received payments below the national average have seen their payments increase. At the same time, funding has shifted towards environmental payments – one example of this is GLAS, which is co-funded by the EU and the Irish exchequer.

Although CAP discussions are ongoing, we have a very good indication of the direction of change, with the recent launch of the “Farm to Fork” and Biodiversity strategies by the European Commission. These strategies are underpinned by the European “Green Deal”, an overarching set of proposals for developing a sustainable European economy.

The implications of these poli-

cies will be far-reaching for cattle farming. Reductions are flagged for fertiliser application, anti-microbials and chemical usage, all of which play a key role in current cattle farming systems. Therefore, new approaches and management practices will need to be adopted to maintain productivity in the context of these constraints.



Further influencing beef farming into the future – specifically beef prices – are the ongoing trade negotiations. The Mercosur deal has received the most attention from a beef trade perspective, given the increased access this could provide for the major beef-producing countries of South America to the European market.

The ongoing Brexit negotiations are a more immediate concern, with almost every second beef animal produced in Ireland ending up in the UK market. The consequences of increased tariffs and/or a more open trading regime between the UK and the rest of the world could be significant from an Irish beef price perspective.

### Societal expectations

Sustainable food production systems are now a key requirement of consumers and society in general. Although sustainability can mean different things depending on one's perspective, it is most commonly con-



sidered in terms of the environmental impact of food production.

In relation to beef production, greenhouse gas emissions, water quality and biodiversity have received the most attention. Ireland is unique within Europe, in that one-third of national emissions derive from the agricultural sector. This is due to the lack of heavy industry and high ratio of cows and sheep to humans in Ireland, when compared to most other western countries.

However, when viewed in terms of greenhouse gas emissions generated per unit of beef (also known as the carbon footprint), international comparators are extremely favourable, with Ireland having one of the lowest greenhouse gas emissions per kilogram of beef in the world. The role of pasture-based systems in maintaining and increasing the store of carbon in the soil is also essential.

The recent EU “Farm to Fork” strategy outlines the need to reward farmers for practices that remove carbon from the atmosphere. Essentially, this means rewarding farmers for increas-



# ty's Family Butchers



Family beef producers and butchers Pat, Mark and Margaret Geraghty in Mountbellew.

ing the rate of carbon sequestration in soils and above-ground biomass, such as hedges and trees.

Irish farms support a rich diversity of farmland habitats, such as hedgerows, field margins, ponds and streams, native woodland, bogs and species-rich meadows and pastures.



The generally extensive nature of Irish beef farming makes it particularly suitable for supporting such habitats – even more so when one con-

siders the low level of chemical and artificial fertilizer used on beef farms here. The latter also lends itself to low levels of nutrient surpluses on beef farms, which is important from a water quality perspective.

In addition to environmental considerations, animal welfare is also of concern to wider society. Again, Irish beef cattle production systems are well placed to meet these expectations. The pasture-based nature of beef production in Ireland, with cattle remaining at grass for seven to eight months, has very positive associations from an animal welfare perspective.

Nevertheless, it is important to keep in mind the continued focus on this aspect of beef farming. Management practices and guidelines around critical periods in the animal's lifetime such as disbudding, castration, weaning and housing, have all been developed to ensure the highest levels of animals welfare are maintained.

Beef meat makes an important contribution to global food security, as a source of high-quality protein

food. In this context, the nature of Irish beef systems, whereby land that is not otherwise suitable for human food production converts grass and grass silage into beef, plays an important role.

It is clear that many challenges lie ahead for the Irish beef industry. It is an industry that has shown considerable resilience in the past and a willingness to adapt to changing external factors. These strengths and a willingness to further innovate will be essential into the future. The challenge with low levels of profitability remains paramount.

The importance of farm support payments underlines the difficulty for most farms to generate a sustainable margin from cattle farming activities. Therefore, the current CAP reform discussions are of great interest.

In particular, the possibility of providing greater financial supports for environmental measures and management practices may provide opportunities for beef farming in Ireland to increase focus in this aspect of production systems.

buildings

# Maintenance in farmyards – for an easier life

**Tom Fallon**  
 Farm Buildings & Infrastructure Specialist,  
 Teagasc Rural Economy Development Programme



**A**re there maintenance jobs or improvements that could be made around your farmyard to make life easier next winter or spring?

The cost of doing small jobs can mount up, so we recommend that you do a budget for the rest of the year given the current low prices for farm produce.

It might be helpful to think of things that have gone wrong or problems noticed in previous winters or perhaps near misses: did a cow go down because a concrete surface had become too smooth?

A good starting point would be making a list of what's wrong or needing improvement. It might be helpful to think in terms of what frustrates you or others working in the farmyard. What do other family members, fellow discussion group members, your vet or Teagasc adviser think? It may be as



**Cows struggling to reach feed as the neck rail is too low at 1.12m above cow standing level.**

simple as having more hanging gates or barriers so that stock can be moved efficiently around the yard. Think also in terms of reducing stress and injury to animals.

Apart from reducing stress, doing regular maintenance and improvement to the farmyard will also improve profitability. Buildings are expensive assets and they will have a greatly reduced lifespan if not properly maintained. This will involve minimising the contact between muck and steel to reduce corrosion.

Many farmers have found that overcrowding and inadequate facilities have a big impact on animal performance and profitability. There is a realisation that more can be made with less – keeping less stock can increase profitability.

Many neck rails and feed barriers on farms need adjustment. They can often be bent and need repair. The boards under feed barriers may also need to be repaired or replaced.

Fixing the problem is not enough. You must determine the cause and



**Stanchion showing corrosion. Painting the base of stanchions and cubicles will prolong their life.**



see whether it can be prevented from happening again.

Beware of anything that can cause injury to animals such as protruding gates, as shown below. The photo shows a gate that closes off a cubicle cross over but it can become a hazard when open. An extendable gate or a gate that slides up and down may work well here.



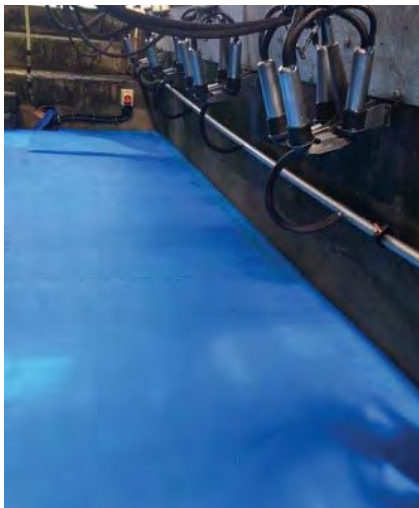
**Protruding gates can cause injury to animals.**

### Time to check slats

The design lifespan of most shed components done to grant specification is at least 20 years. Intensive use, slurry reaching the slats in most years, stocking with bulls, etc, will shorten the lifespan of slats.

On the other hand, slats in open yards (where corrosive gases can more readily escape) can last longer. Slats and manhole covers need to be replaced before they fail. It is important that they are checked each year. Manhole covers need to be checked after every use: check for any damage, and that they are lying down or have been put back properly.

Power hose out the slatted shed completely and use the hose to clean the



**The mat in this eight-unit parlour cost €400 plus VAT (€25/m<sup>2</sup>). The farmer is very happy with the extra comfort. It is soft under foot and insulating for the feet in cold weather.**

# 5 TIPS ON BUILDING MAINTENANCE

- 1 Clean out all buildings.
- 2 Paint/oil all steel work subject to corrosion.
- 3 Fix leaks in drinking water systems and install cut off valves to reduce impact of frost, etc.
- 4 Repair or improve yard surfaces and livestock feed barriers.
- 5 Clean out all gutters and repair or replace damaged gutters and downpipes.

Small improvements to farm buildings and around the farmyard can help to make life easier next winter and spring.

sides of the slats as far as possible.

Examine the entire floor (but especially the centre of the slats) for sagging, cracking, rust staining and spalling of concrete (breaking of layers or pieces of concrete from the surface edges). The placing of a straight edge across the centre of the slats will indicate which slats have sagged. Check for longitudinal cracks along the sides of the slats (about 4cm to 5cm up from the bottom of the slat). If present, use a fork to push at the crack to see if the concrete at the bottom of the slat comes away.

It will be easier to see this if the slurry is about a metre from the top. If any concrete comes away from the bottom of any slats they all need to be replaced.

Farmers might be tempted to get an extra year or two out of the slats but this would be foolish. Grant aid is available under TAMS II to replace slats. It will be necessary to have external agitation to qualify for the grant but extending the tank to provide this, is also covered under TAMS II.

When replacing slats or extending tanks it is wise to take the opportunity to remove the inevitable silt build up at the bottom of tanks. See Department of Agriculture, Food and the Marine Specification S123S (available on [www.agriculture.gov.ie](http://www.agriculture.gov.ie)).

It is not practical to lift gang slats for checking. Teagasc does not recommend any farmer entering a slatted tank. There are specialist companies that use a breathing apparatus or an external fresh air supply to enter

tanks and check slats.

An endoscope-type attachment for a mobile phone/camera (as shown, right) could be very useful to check the underside of slats. The cost is about €30.



## Smooth yards and slats

Slipping can cause serious injuries to animals. Pay particular attention to the condition of surfaces in collecting yards, holding and feeding areas. Here, animals crowd and push each other as they cannot get out of the way. Smooth surfaces and broken edges can lead to falls or damaged hooves.

Slippery surfaces will potentially reduce thrive/milk yield and increase stress levels. Concrete grooving, sand blasting or overlaying with slat mats are all ways to sort the problem.

Grooving should be done along the length of slats and not across the width. Grooving across slats tends to break off the edges, which increases the risk of lameness.

Grooving can improve worn but otherwise structurally sound concrete surfaces. Grooves 6mm to 10mm deep and 10mm wide, which are cut 40mm apart at right angles to the direction of cow traffic can provide good results.

## Grooved concrete

Initially, the farmer grooved the end of the passageway but then the complete passageway after he found

a cow had dragged herself a considerable distance so she could get up in the grooved section. Cows are resourceful!

## Warning for new concrete floors

Beware of ending up with a “cobblestone”-like finish. These are difficult to scrape clean and are uncomfortable for cows because the concrete surface is not level.

One installer of automatic scrapers found passageway surfaces to be too rough following grooving using plastic concrete rollers.

## Other areas that could be addressed:

Cleaning lamps/lights and replacing tubes; replacing translucent roof lights with new sheets that have safety grids; securing mats and ensuring that sliding doors are moving freely and are securely attached.

Please always prepare a safety plan before undertaking specific projects. Too many farmers have fallen from heights or had mishaps around welders, etc.

Do a written risk assessment on all these tasks before any work commences. Think about dangers involved especially the foreseeable, more risky and more likely ones. Write down the risks and hazards and make sure everyone involved is made aware.

Use the right equipment and wear appropriate PPE. As some of this type of work is not the normal day-to-day work on a farm it may be safer to employ someone competent in this area instead.

# Stopping grass weeds in their tracks

**Jimmy Staples**  
Teagasc Crops, Environment and Land Use Programme



**K**now your enemy. Early identification and a good understanding of weed biology are critical to early and effective control. The adoption of an Integrated Pest Management (IPM) strategy that targets the weaknesses in a plants life cycle, combined with the use of targeted herbicide applications, will give you the best chance of effective control.

This approach should be maintained over the full length of a rotation. Unfortunately, this isn't always possible and we have found that, particularly in the case of black-grass, populations are already exceptionally high before the problem is correctly diagnosed.

Experience in the UK suggests that 95% to 100% control is required to prevent populations of black-grass increasing year-on-year. It is not uncommon for black-grass populations to increase 30-fold in a single year, where no control has been achieved.

One single black-grass head can contain approximately 100 seeds and with typically 10 heads per plant, that's 1,000 seeds. A black-grass population of one plant/m<sup>2</sup> per hectare will produce 10m seeds per hectare in one season. As well as this fecundity, you have the high level of resistance present in black-grass populations, which further exacerbates the problem.

The situation is not hopeless.

Blackgrass seed has a relatively short persistency within the soil. Average seed decline in the soil is between 70% and 80% per year. As a result, if seed return is prevented, a 90% reduction in the seed bank is possible after two seasons. Preventing seed return is one of the most effective ways of controlling black-grass and preventing seed return should also help to minimise the evolution of resistance within a population.

Timing is key to effectively prevent seed return. Autumn-germinating black-grass will usually begin to flower towards the end of April and seed will start to set in the head towards the end of May. From mid-June onwards, seeds will start to shed. By knowing these important timings, you can make an informed decision about what course of action is needed.

There are a number of actions you can take to prevent weed seed return. Roguing where populations are low enough to make it practical is one option. This will more than likely take a number of visits to the crops, as late-germinating plants may appear above the crop later in the season.

Where you have a heavier infestation, there are a couple of options available. Mowing and baling, or whole-cropping, is one. This should only be considered where you are confident that the crop will be removed before seeds start to shed. The other option where heavy infestations are concerned is crop destruction.

This means spraying out a patch with glyphosate, ideally before the

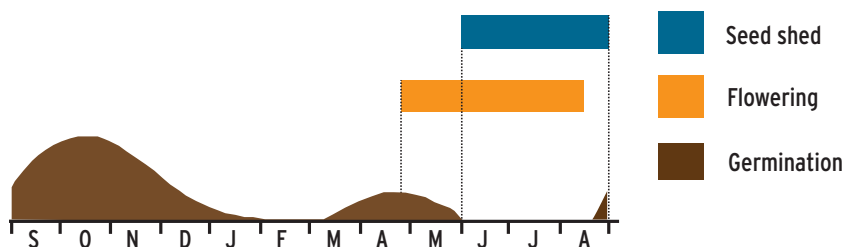


end of May. This may sound drastic, but a zero tolerance approach to black-grass has to be taken in order to ensure that it doesn't become a major problem in the years ahead. The alternative is to take the field out of arable production and put it into grass for a minimum of five years.

Conor's experience is typical of what we are encountering where black-grass has been identified. In most cases, it is not identified in the first or even second year, but only after there is a significant population that is beginning to reduce crop yields. As mentioned, early and accurate identification gives the best chance at achieving effective control at the least cost.

Crop destruction or taking fields out of production are options that people may have to consider, but every farm is different and whatever control options need to be undertaken should be tailored to the circumstances of the specific farm.

**Figure 1:** Black-grass life cycle (Source AHDB).



## Advisor Experience

**Conor O'Callaghan, Teagasc Crops Advisor, North Dublin**

During a routine walk in a crop of winter oats, I spotted a long, slender, dark-coloured grassweed head just peeping out from below the crop canopy. After examining the plant, I could confirm that it was black-grass. It had emerged along one strip in the field parallel to the boundary hedge and, after walking the entire farm, I couldn't find it anywhere else on the 400ac farm.

The farmer was amazed and shocked at the discovery and could not work out where the black grass had come from. The usual causes were considered – the first potential culprit was a combine that was bought from the UK a few years ago, but this was ruled out after walking the fields the combine harvested on the farm in its first year.

The baler was also ruled out, as the infected area was half way down the field. Other possible causes, such as seed, grain and bale trailers along with the neighbouring farm, were also eliminated.

Regardless of the still-unidentified source of infection, we had to come up with a plan to try to control and eradicate the black grass. Firstly, we estimated the area of black grass – a patch of 4ac was infected with 700-800 heads per metre square. The best and most effective course of action in this case was crop destruction.

The following morning, the farmer applied glyphosate to prevent seed return, as the seeds were not yet viable.

He continued to monitor the rest of the farm and hand rogue any remaining black-grass before destroying it to eliminate seed return or contamination of other parts of the farm.

Going forward from here, a control and eradication strategy begins with building a resistance profile for the black-grass. This involves sending samples to Teagasc Oak Park to be tested for levels of resistance to herbicides and then forming a rotation around the results, which are due back early next year.

For the remainder of the year, the farmer will use stale seedbeds to try and reduce the seed bank as much as possible, in addition to increased machinery hygiene around field work and harvest.



Conor O'Callaghan.



Crop destruction with glyphosate, where a heavy population of black-grass was identified.

## tillage

# Challenges and opportunities for potato growers: a Donegal perspective

**Martin McCullough**  
Teagasc Drystock and Tillage Advisor, Carndonagh, Co Donegal



**Shay Phelan**  
Tillage specialist, Teagasc Crops, Environment and Land Use Programme



**G**rowing a commercial potato crop is not for the faint-hearted with 2020 production and storage costs in the region of €3,800 per acre (€9,390 per hectare) excluding land rental. On top of that, potato growers have to contend with other significant challenges annually including:

- Weather conditions from planting through to harvest.
- Market and price volatility.
- Blight control.
- Loss of pesticides.

“Unknowns such as the long-term effects of COVID-19 and a deal or no-deal Brexit will bring additional challenges and/or opportunities to the industry in 2020 and beyond

Other unknowns such as the long-term effects of COVID-19 and a deal or no-deal Brexit will bring additional challenges and/or opportunities to the industry in 2020 and beyond. This article will focus on these challenges and opportunities with Donegal growers William Monagle, Charlie Doherty and Jamie Rankin.

As their farms are within a few kilometres of Co Derry they also have a unique insight into the practical consequences of Brexit.

## Challenges

### Weather:

The only predictable thing about the weather in Donegal is its unpredictability. We had 210mm of rain in February alone followed by just 137mm from March to the end of May. This made for excellent planting conditions with the majority of crops in by the end of April. Then we had a significant frost on 14 May which badly affected a number of potato crops in the county. Most have recovered but any advantage they had from early planting has been lost.

### Market and price volatility: COVID-19 and Brexit

Unlike meat and dairy products, there is no significant export market for Irish potatoes so local demand drives the market. Imports of salad and chipping potatoes come mainly from the UK. COVID-19 has had, and continues to have, a significant effect on the demand for potatoes.

In the initial stages of the lockdown demand increased dramatically for top-quality potatoes for the bagging trade. However, with all fast-food outlets; restaurants and hotels closed the demand for “peeling” potatoes has been decimated. Any recovery in this “peeling” market will be driven by the level of demand from restaurants and hotels once they exit the COVID-19 lockdown. But there could also be strong competition in this market from UK imports.

Whether we end up with deal or no-deal Brexit is another potential challenge and/or opportunity. Donegal has a 140km land border of which only 9km are with the other 25 counties of the ROI via Leitrim. The other 131km borders counties Derry, Tyrone and Fermanagh. As a result, farmers in the county are acutely aware of the potential impact of a no-deal Brexit.

The social and economic impact will depend on whether there is a



land “border” and/or some system of regulatory checks on the island or, as previously agreed, this border is in the Irish Sea. The impact of the former would be huge but if the “border” is along the Irish Sea there could be minimal impact to trade and movement.

Unlike other food commodities potatoes could potentially see a positive impact from a no-deal Brexit scenario. For example the UK will be viewed as a third country and the importation of seed potatoes from Scotland would stop immediately. This could provide an opportunity for the return of a significant seed industry in Ireland. Any tariffs would also make the importation of cheap UK potatoes less attractive.

### Potato blight

More than 175 years since the famine, blight remains the main disease threat to potato crops in Ireland. Blight strains are constantly mutating and building up fungicide resistance. For example Euroblight detected an increase overall in the population of the blight clones 37 A2, 36 A2 and 41 A2 from 10% to 40%



While a combination of Brexit, EU legislation and climate change will bring many challenges to Irish potato growers in the short- to medium-term it will also bring opportunities.

across the continent in 2019.

Strains belonging to the clone 37 A2 have reduced sensitivity to Fluazinam (Shirlan/Volley/Tizca) and were detected primarily in Northern Ireland in 2019. Not surprisingly, given our location, some strains were also detected in Donegal.

Potato growers are well aware of the importance of Integrated Pest Management (IPM) principles for blight control.

These include alternating active ingredients as well as managing spray intervals to keep crops healthy. Although most blight fungicides give seven to 10 days protection it can often be difficult to get suitable spraying conditions during this window. As a result, a seven- to eight-day spray interval is common in case conditions are totally unsuitable on days 10, 11 or 12.

### Pesticides

All tillage growers are facing the challenge of a reduced arsenal of pesticides to combat pests and diseases. Potato growers face a major challenge in 2020. As of 4 February 2020, Diquat was no longer available for “burning-

off” or desiccating crops before harvest.

This is a major issue for potato growers in Ireland and especially in Donegal. The only alternative chemical desiccant available is a Carfentrazone-based product which does burn off crops but at a significantly slower rate than Diquat. The efficacy of Carfentrazone also improves dramatically with sunlight which unfortunately is in short supply in Donegal in September.

Another recommended option is to physically “flail or swath” the crop to remove leaves from the crop canopy and then apply Carfentrazone on the stems to complete desiccation. Swathing needs dry conditions to be effective. When carried out in wet conditions, it can facilitate the spread of tuber blight and bird damage.

Reducing the levels of N applied to crops at planting is another approach as the crop canopy naturally senesces in the autumn. This can be a guessing game as it is hard to predict how much soil N is available to the crop; weather conditions throughout the growing season will also affect N uptake.

## Opportunities

After many years of declining market share, potatoes are now holding their own against imported carbohydrates such as rice and pasta. This was due in part to a Bord Bia advertising campaign promoting the many health benefits of potatoes. This campaign was funded by the DAFM; the National Potato Council and growers themselves.

While a combination of Brexit, EU legislation and climate change will bring many challenges to Irish potato growers in the short- to medium-term it will also bring opportunities, as follows:

- Seed potatoes: the uncertainty around the importation of seed from Scotland post-Brexit could offer opportunities for increasing the seed area grown in Ireland
- Salad and chipping potatoes: the majority of these markets are filled with imported potatoes. Is there an opportunity there for Irish growers?



Continued on p32

# Grower profiles

» From page 31

## John and Jamie Rankin

Jamie and his father John harvest approximately 120ha (300 acres) of potatoes annually.

Ten per cent of the area planted is for "salad potatoes" and the remainder are ware potatoes packed for supermarkets.

Jamie sees "salads" as a growing market in their own right as produce can be sold without any effect on the trade for "packing" potatoes.

He is happy with 10% area devoted to salads as: "They are a high-risk crop in that they are difficult to grow; you need to pick your fields carefully; they need irrigation and there is no market for them if it all goes wrong."

On the plus side they are harvested early which is an advantage for the grower and the land owner.

Also, varieties such as Gemson and Jester have performed well in Donegal. Salads help spread the workload as "they can be the last crop planted and the first to be harvested".

As Jamie and John's farmyard and potato stores are 3km from the border Jamie believes a no-deal Brexit with a physical border and/or regulatory checks between Donegal and Northern Ireland "would be the worst thing and a major threat" to his business.

As the area available for planting in Donegal is limited many growers plant crops on both sides of the border. Machinery and inputs can also be



purchased in Northern Ireland so a no-deal scenario has the potential to stop this trade and movement immediately.

He also believes that the loss of Diquat in 2020 is a major issue for potato growers and particularly in Donegal where the weather in September/October is not ideal for alternative desiccation strategies such as flailing or swathing and/or Carfentrazone.

Jamie was to take part in flailing desiccation trials in 2019 but "couldn't get into the fields in August and September because they were too wet".

## William Monagle

William and his son-in-law John Sharkey harvest approximately 40ha (100 acres) of potatoes annually. All potatoes are sold for packing for shops and supermarkets.

William's farmyard and potato stores are 800m from the border. "I believe the outcome of the Brexit negotiations will have little

or no effect on the potato industry if the border and/or regulatory checks are in the Irish Sea," says William.

"On the other hand, if there is a no-deal crash out and the border ends up on the island of Ireland and specifically between Donegal and Northern Ireland (NI) it will have a huge impact almost immediately. In that scenario, Donegal growers who traditionally grow on both sides of the border will no longer be able to do so. Also the "curtain will come down immediately" on the supply of seed from Scotland if this turns out to be the case."



## Charlie Doherty

Charlie harvests approximately 55ha (135 acres) of potatoes annually. He bags and sells his potatoes directly to shops and supermarkets.

He also grows Kerr's Pinks, Queens, Golden Wonder and Maris Piper for seed.

Charlie's farmyard and potato stores are 2.5km from the NI border. He believes a no-deal Brexit with a physical border and/or regulatory checks "will have some positive impacts on the potato industry as cheap UK imports are a problem at present".

As a seed grower, he also sees opportunities to rejuvenate the Irish seed industry if seed imports from Scotland



are restricted or stopped altogether in the event of a UK no-deal exit.

### Harvest

"The loss of Diquat in 2020 is a major issue for all Irish potato growers and Donegal growers in particular as "potato growing has a tight season anyway and we need every good day as it is and alternative desiccation strategies will only push the harvest out even further," he said.

"Ireland does not have the weather for flailing or swathing (or scutching as it's called in Donegal) to be a viable alternative."



# Surge in diversification – register now for an Options workshop

**Mary Ryan, David Meredith,  
Barry Caslin,**  
Teagasc Rural Economy  
Development Programme  
**Anne O'Malley,** Teagasc Mayo

**S**hocks like COVID-19, Brexit uncertainty and falling farm-gate prices force us to think about long-term resilience, so it's not a coincidence that there has been a recent steady increase in enquiries about future-proofing farm businesses through diversification; big farms, tiny farms, all looking for ways to do things differently and supplement family income.

Farm diversification involves adding further or different products and services to your existing produce. The best diversifications complement the existing farm business by improving cashflow and reducing income volatility.

Before progressing a diversification idea, rural families need to examine all aspects of their existing business, such as:

- What resources are available in relation to land, finances, labour, buildings and family skills?
- Does a diversification idea fit in with long-term plans in terms of education or succession?
- Is your farm suitable in terms of location, access, distance to markets and broadband?
- Are there other locally based enterprises that you could work with?
- Is your idea seasonal? Does it complement your existing enterprise or is it totally new?
- Look at similar enterprises, or products online – think like a customer!

The key is to think ahead and look at every aspect of the project before making a commitment – and seek advice.

Each autumn, Teagasc Options workshops are held regionally to explore potential to generate additional income streams both inside and outside the farm gate.

Farmers who have taken the plunge explain why and how they diversified their farm businesses, while Teagasc



specialists provide information on organics, renewable energy/energy-saving, equine enterprises, tourism, forestry and artisan food.

Visits to farms with successfully diversified farm enterprises are usually a key aspect of the workshops.

Participants also have the opportunity to network with local development and training agencies such as the Local Enterprise Office (LEO), Local Development (LEADER) Companies, Education and Training Boards (ETB) and Intreo.

Options workshops provide an opportunity to meet like-minded people and mentors who can answer questions about grants, legal, finance and insurance issues. Options workshops cover a wide range of topics; click to view the short Options video made by Brendan Garry at Teagasc Mayo or go to [www.teagasc.ie/ruraldev](http://www.teagasc.ie/ruraldev).

Rural tourism is one of the most

**Before progressing a diversification idea, rural families need to examine all aspects of their existing business.**



Farmers who have taken the plunge explain why and how they diversified their farm businesses

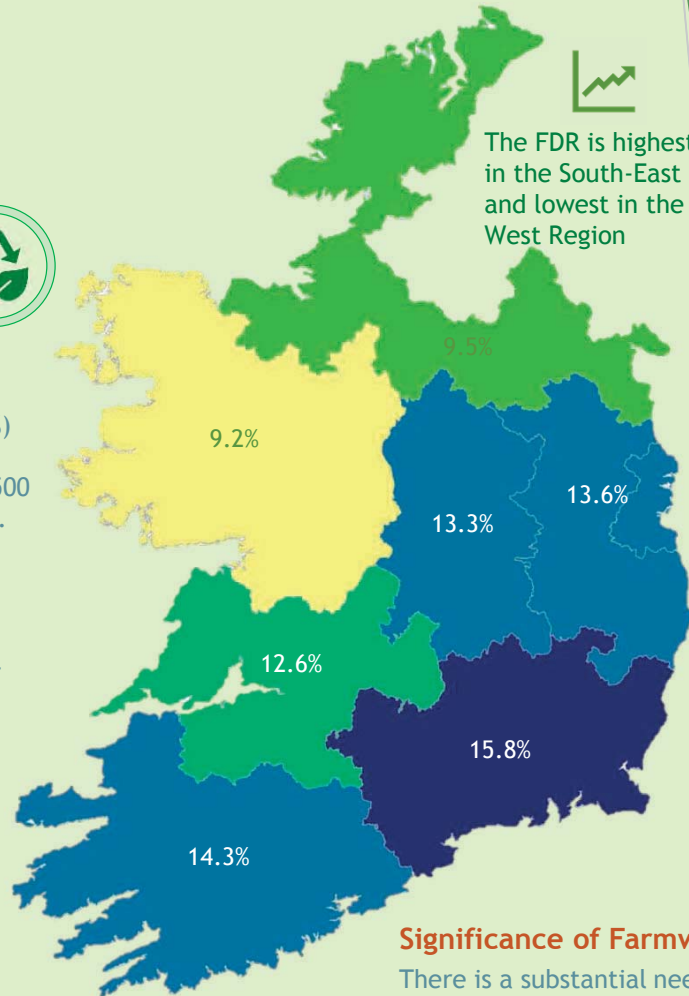
## Farm Diversification



www.teagasc.ie/ruraldev



### Regional Farm Diversification Rate (FDR)



The FDR is highest in the South-East and lowest in the West Region

Of the 137,000 farms in Ireland in 2016, 11,500 (12%) had at least one diversified enterprise. There were 19,500 diversified farm enterprises.

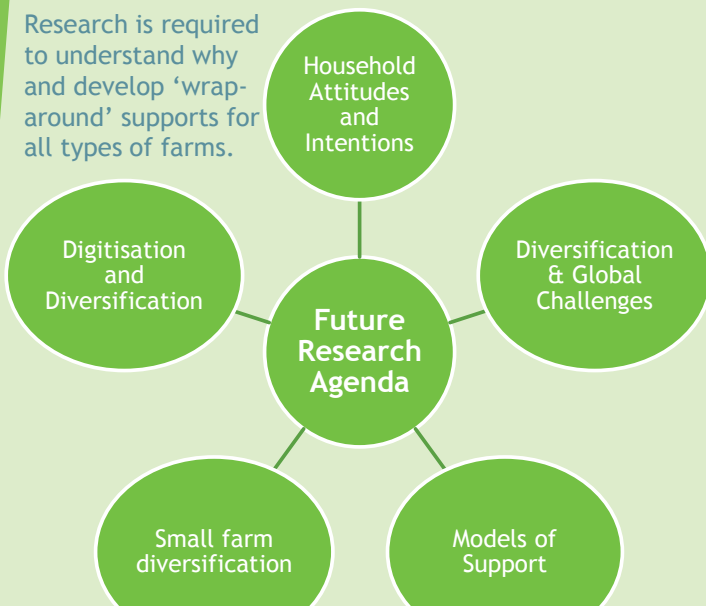
The most common types of diversified enterprises are forestry and contracting. These account for 76% of all diversified enterprises

There are a variety of other types of diversified enterprises including tourism related businesses, food processing, home crafts and renewable energy production.

### Supporting Sustainable Farm Livelihoods

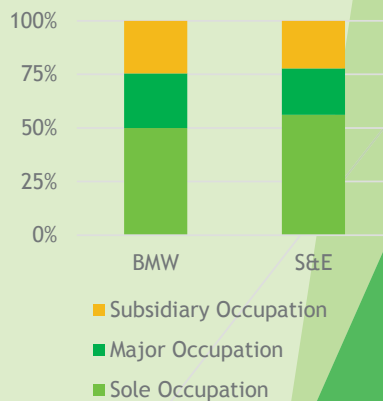
Compared to other EU countries, the diversification rate in Ireland remains low.

Research is required to understand why and develop 'wrap-around' supports for all types of farms.



### Significance of Farmwork

There is a substantial need for additional farm household income. 50% of farms in the BMW region do not generate sufficient income to meet their needs.



David Meredith, Teagasc, 2020. Data: CSO, Farm Structures Survey 2016

popular diversification workshops each year and resulted in the publication of the Teagasc Rural Tourism Booklet which is a “how-to” guide to rural and agri-tourism opportunities.

From mid-2021, the BIA Innovator Campus under construction at Teagasc, Athenry, will provide training and supports for a wide range of artisan food, food tourism products and food business development, where food producers can also benefit from access to Teagasc Food Research Centres in Ashtown and Moorepark, through on-site and remote training and advice.

To express an interest in a Teagasc Options workshop in your region, please register on [www.opt-in.ie/options](http://www.opt-in.ie/options) to receive information regarding upcoming Options workshops.

Workshops are generally free of charge but prior booking is essential. Due to COVID-19 restrictions, some elements of Options 2020 workshops may take place online.

Visit [www.teagasc.ie/ruraldev](http://www.teagasc.ie/ruraldev) for more information and for the web-links in this article. You can also register with [www.Opt-In.ie](http://www.Opt-In.ie) to view training opportunities with national and local agencies and receive notifications of training opportunities in your area.



From mid-2021, the BIA Innovator Campus will provide training and supports for a wide range of artisan food and food business development.

## Options 2020

think • plan • act

Improve your Farm Income with Teagasc Options for Farm Families Workshops

### A Teagasc Options workshop will:

- Provide you with new thinking
- Generate new ideas
- Generate additional income on and off farm

### The specific aims of this workshop are to:

- Build ambition for growth and change
- Build belief that: 'it is possible'
- Build an understanding that there are lots of existing supports available to do this
- Remove common barriers to diversification such as: Fear of the unknown; Fear of failure; Fear of change

### Some of the topics covered will be:

- Assessing your enterprise
- Developing your idea
- Food enterprise possibilities
- Energy crops
- Forestry
- Renewables
- Organic opportunities
- Rural Tourism
- Marketing and direct selling
- A business plan - the basics
- Applying for grant aid
- Family farm finance
- Business supports
- Succession

### Network with local agencies such as:

- Local Enterprise Offices
- Local Development Companies (LEADER)
- Education and Training Boards (ETB)



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[www.teagasc.ie/ruraldev](http://www.teagasc.ie/ruraldev)



## Options 2020

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### Examples of Enterprises which could be supported through Options:

- RENEWABLE ENERGY
- RURAL TOURISM
- POULTRY
- CONTRACT REARING
- ORGANIC FARMING
- EQUINE
- FORESTRY
- HORTICULTURE
- CONSULTANCY
- FARM CONTRACTING
- FOOD PRODUCTION
- BEE KEEPING

Contact your local Teagasc office or the numbers below to hear about option courses in your area.  
Express your interest on [www.opt-in.ie/options](http://www.opt-in.ie/options)

Clare	Martina Enright	(076) 1114132
	Mary Grogan	(065) 6828676
Kildare/ Laois/ Meath/ Dublin/Louth	Veronica Nyhan	(087) 7935409
	Rachel Taylor	(045) 843648
Kerry/ Limerick	David Trant	(076) 1114385
	Padraig Fitzgerald	(076) 1114307
	Louise Keane	(066) 7195464
Kilkenny/ Waterford	Sinead Barrow	(056) 7789354
	Hugh MacEneaney	(051) 898137
Galway	Bernie Leahy	(076) 1113831
Leitrim	Cian Condon	(071) 9855203
Mallow (Cork)	Catriona Twohig	(022) 21936
	James Fleming	(022) 52362
Mayo	Anne O'Malley	(096) 22077
	Bernadette Lynn	(096) 22077
Roscommon / Longford	Donal McCabe	(043) 3341021
	Deirdre Glennon	(043) 3341021
Macroom (Cork)	Seamus Lordan	(076) 1114437
	Aine Galvin	(076) 1114432
Sligo & Donegal	Paul Rigney	(076) 1113896
	Teagasc Ballymote	(071) 918 3369
Tipperary	Sean Cooney	(0504) 21747
	Paula Ryan	(0504) 21777
Wicklow/ Carlow/ Wexford	Marianne Mulhall	(059) 9183555
Westmeath/ Offaly/ Cavan/ Monaghan	Bernard Doorley	(057) 9321405
	Roslyn Fay	(049) 4338300

# Forest harvesting and timber sales – five key steps

Forests and woodlands are a sustainable and potentially lucrative farm resource. Careful planning of timber harvesting and sale is absolutely essential to reap the full rewards

**Michael Somers**  
Forestry Development  
Officer, Teagasc Nenagh



**1** Know your forest: sustainable management enhances forest productivity, profitability and environmental benefits. Your forest should be assessed for the following:

- Age, growth rate, and productivity.
- Forest stability (e.g. soil type, drainage conditions, exposure levels and tree heights).
- Suitability for harvest/appropriate harvest type/timing of harvest.
- The amount of timber present and to be removed, if appropriate.
- Environmental/archaeological features and appropriate protection measures.
- Options to certify timber.

Inspection paths are essential in young conifer forests when trees close in. They facilitate forest inspection, assessment (e.g. of species, timber quality, productive area and environmental features) and timber volume estimation. As your forest grows and increases in value, appropriate pre-harvest knowledge of what is in your forest becomes increasingly important. Informed decisions

can then be made on thinning and harvesting.

**2** **Preparing for harvest:** planning for the harvest should commence one to two years in advance depending on criteria such as the forest location, environmental sensitivities, forest area and harvest type (e.g. first or subsequent thinning or final harvest). Allow yourself time to seek assistance, as required, for:

- Health and safety/risk assessment.
- Harvest planning.
- Felling licence application and approval.
- Forest road or loading bay requirements (allow time for potential grant application/ approval, road construction and settlement).
- Possible co-ordination of sales with adjoining forestry owners

A harvest plan should be drawn up based on a detailed survey of the forest. The plan and associated maps should state and illustrate the harvesting and, where applicable, reforestation operations that are planned. It should also detail measures to protect social and environmental features (e.g. water, biodiversity and archaeology).

The Standards for Felling and Reforestation



estation (Department of Agriculture Food and Marine) sets out the universal standards that apply to all felling activity, undertaken under a felling licence under the Forestry Regulations 2017. These standards are contingent on health and safety considerations as set out in the Health & Safety Authority's Code of Practice for Managing Safety & Health in Forest Operations ([www.hsa.ie](http://www.hsa.ie)).

**3** **Manage the timber sale:**  
*(a) The value of your resource* – before marketing timber, owners should familiarise themselves with timber value, how it appreciates through thinning operations and the major potential value in the final harvest. Forest owners should engage with other owners/forestry professionals/owner producer organisations, attend field days and timber marketing events (e.g. Talking Timber), co-ordinated by Teagasc. It is also very beneficial to become familiar with factors that can influence timber prices.

*(b) Selling/marketing options:* Timber can be sold in a number of ways. These include standing sales (where you sell the standing trees) and harvested sale (roadside sale or delivered sale to sawmill). While forest owners may have more control with harvested sales, expertise is required to manage production of log products. Whichever option is chosen,

**Virtual Talking Timber**  
Thinning conifers - Adding values; controlling the outcomes  
Tuesday, 14<sup>th</sup> July | 7pm  
Register online at:  
[www.teagasc.ie/talkingtimber2020](http://www.teagasc.ie/talkingtimber2020)



This year's Talking Timber will concentrate on thinning conifer and sales of timber.

- Have an appropriate system in place to monitor the removal of all timber loads from the forest. The ITGA Model Timber Sales Dispatch System (<https://www.itga.ie/images/pdf/MTSSApril2010.pdf>) provides a widely accepted template for managing secure timber sales in private forests.
- Discrete, temporary, cameras (along with appropriate signage) may be considered at strategic locations in the forest.
- Ensure prompt collection and removal of timber from the forest as agreed within the sales contract. This will also minimise drying of timber, which is particularly important where timber is sold on a weight basis.
- Web-based/remote timber tracking and measurement systems may be an option for forest owners in the future.

### Virtual Talking Timber

This year's Talking Timber will concentrate on thinning conifer and sales of timber. Because of COVID-19, this year's event is a virtual event, and will take place on Tuesday 14 July from 7pm to 8pm.

With more and more private forests reaching the thinning stage there are both challenges and opportunities to successfully bring this rapidly expanding timber resource to market. Forest owners must ask the right questions and make the right decisions to maximise their forests' potential quality and value.

Questions may include:

- Is my forest ready for thinning?
- What is the best way to thin?
- How can I retain control to ensure the best outcome?

The format for Virtual Talking Timber will comprise a series of short, on-site videos followed by a live panel discussion and an opportunity for you to have your questions answered in a live Q&A session. You are encouraged to ask questions and comment during the virtual event.

Foresters from Teagasc and the Forestry Division of the Department of Agriculture, Food and the Marine (DAFM), together with a forest owner and a sawmiller, will discuss preparing for thinning conifers with a particular focus on second thinning and the market requirements for quality timber.

it is imperative that a contract is in place with a registered contractor prior to commencing any work.

When seeking timber prices, a range of timber markets should be consulted. Only work with experienced and reputable timber buyers and harvesting contractors. Talking in advance to owners who have already harvested will help you make informed decisions. Seek several references for any contractor.

#### (c) The importance of a good sales contract

When agreeing with your forester/timber buyer the negotiated price for your timber, ensure you have clarity on all costs involved and an indication of the net return per hectare that will be available to you as the owner. An appropriate timber sales contract between the forest owner and the forester/timber buyer is essential. It provides you with a framework for a shared agreement and a clear understanding of the responsibilities of all parties.

### 4 Monitor the harvest:

Monitoring the harvest is key. The forest owner and/or his/her agent should inspect the harvest operation from the start and review it regularly to ensure that all procedures that were pre-agreed are being followed. Professional assistance in monitoring harvest operations is worth considering and, given the

value of forests and timber products, will generally be money well spent.

Thinning control plots are used to regulate thinning practice and intensity. Modern timber harvesters are equipped with a computerised measurement system (note: regular calibration of this system is essential). The resulting computerised printouts will provide indicative information on the number and size of trees cut over a specified time period.

This data should be sought and made available to forest owners on a regular basis during operations. Stack measurement is also a simple and useful method to estimate timber volumes on site.

### 5 Secure your timber:

Following harvest, it is important to ensure your timber is protected against theft.

- Install a physical barrier at the entrance to your forest.
- Where possible, have a presence on site during timber haulage periods.

### Virtual Talking Timber programme schedule

7pm	Introduction
7pm to 7.45pm	Short videos followed by live panel discussion
7.45pm to 8pm	Live public Q&A

To attend Virtual Talking Timber - please register in advance at [www.teagasc.ie/talkingtimber2020](http://www.teagasc.ie/talkingtimber2020). We hope that you can join us. Talking Timber is organised by Teagasc with the co-operation of Forest Industry Ireland and DAFM.

## botanic gardens

# How horticulture is evolving with precision technology

Every day, horticultural workers engage with measuring technology, be it landscapers using laser levels to create a fall on a patio, or growers engaging with Global Positioning Systems for field operations. Teagasc students get to experience these technologies first-hand

**Darren White**  
College Technician with the Teagasc College of Amenity Horticulture at the Botanic Gardens



Many readers will be able to relate to a construction project which required the marking out of levels and falls. This work requires pinpoint accuracy. Laser levels are used to create gradients when carrying out drainage works or general ground work and can now be found on many farms and work places.

“Total” stations determine angles and distances with ease, and to a very high degree of accuracy. The latest Total stations have a built-in GPS receiver to quickly and easily measure coordinates for the layout of areas such as farmyards and other construction projects. This piece of equipment is relatively user-friendly and can really aid in the accuracy and speed of marking out foundations, landscaped gardens, golf courses, etc.

## Machine Control

Excavators are used on many horticultural and agricultural jobs. Excavators are readily available to hire, with the latest models including the added feature of Machine Control, a technology already commonly used in drainage and construction work.

With machine control, a screen is used in conjunction with sensors and GPS antennas to provide the operator with images of the area he or she is focusing on. This aids the operator to accurately dig, shape and grade the area without over-excavating.

The addition of Machine Control to plant equipment can increase output by 30% and provides the user with a greater level of accuracy and reduced costs. In the future, Machine Control technology will most likely be a standard feature on hired equipment.



First-year students from our Level 7 degree programme can be seen here checking levels and falls while constructing a capillary bed on the campus in Teagasc Ashtown. This is part of the landscape construction module which is in conjunction with Waterford Institute of Technology.



A student operating a 3t excavator. We hope to encourage more use of these machines in the new college year. Courses are available in the Botanic Gardens. These range from QQI accredited level five and six courses along with our level 7 degree course which is delivered in conjunction with Waterford Institute of Technology.

## GPS

In recent years, there has been a number of trials carried out on GPS-based auto-steer systems in conjunction with fairway mowers on golf courses. If these systems become freely available it will have a positive impact as many of the problems that occur in the turfgrass sector are due to compaction and nutrient deficiencies.

## Mobile phone apps

There are now numerous apps which provide the capability to calculate areas of fields and gardens which can

be useful for calibration and pricing of work. Weather apps provide us with up-to-date reports on the move, essential in a country where we can experience all the seasons in one day.

## Conclusion

Teagasc aims to provide its students with the opportunity to learn about and experience the most up-to-date and relevant material.

This includes hands-on experience of state-of-the-art technologies which are being used for common industry tasks.



# Teagasc Podcasts

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



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



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



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



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



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



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



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