



Today's Farm

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COMMENT



Mark Moore
Editor,
Today's Farm

Keeping your toes to the fire

My colleague Dr John McNamara, the Teagasc safety specialist, offers a great tip to avoid backsliding on resolutions. Make a pledge to yourself, preferably in writing, to make a €50 donation to your absolutely least favourite politician should you fail to deliver on your chosen goal(s).

Whether you choose weight loss, exercise, work-life balance, or production goals is up to you. These goals should be measurable, realistic, tied to a deadline, neither too easy nor too hard, and be entirely in your hands to achieve (otherwise you can't be held to account).

Safety also offers lots of scope: a head gate to restrain animals safely? A deadline to ensure all manhole covers are in place? A plan to avoid undue hurry? The choice is yours. And if you fail, honour your pledge.

Coinnigh tú féin i mbarr do réime

Tá leid iontach ag comhghleacaí de mo chuid, an Dr John McNamara, speisialtóir sábháilteachta de chuid Teagasc, a chabhróidh leat seasamh le do rún athbhliana. Tabhair gealltanais duit féin, i scríbhinn más féidir, go dtabharfaidh tú €50 don pholaiteoir is mó a bhfuil an ghráin agat air nó uirthi má theipeann ort cloí le do rún. Is fútsa atá sé cibé acu a roghnaíonn tú meáchan a chailleadh, cothro- maíocht níos fearr a bhaint amach idir an obair agus an saol, nó spriocanna táirgiúlachta a shocrú. Ba chóir do na spriocanna a bheith intomhaiste agus réalaíoch, gan a bheith ró-éasca ná ró-heacair, agus b'fhiú go mór spriocdháta a leagan síos lena n-aghaidh freisin. Ba cheart gur tusa amháin a bheidh freagrach as a mbaint amach (nó ní ortsa a bheidh an milleán!). Is iomaí ní a bhaineann leis an tsábháilteacht a d'fhéadfá a roghnú: Geata cinn le hainmhithe a shrianadh go slán sábháilte? Spriocdháta lena chinntiú go bhfuil gach clúdach dún-phoill in áit? Plean le deifir gan chúis a sheachaint? Is leatsa an rogha. Má theipeann ort, ná téigh siar ar do ghealltanais!

FINANCIAL PLANNING
Six steps to get your finances sorted
[»» 30-32](#)



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Cover | Lambing time again: Teagasc advisor Martina Harrington with Dominic and Paddy Walsh who farm near Ferns in Wexford. "Paddy scans ewes to establish the number of lambs they are projected to deliver," says Martina. "If you know where the ewe is starting from in terms of body condition score and how many lambs she is carrying you can estimate what she needs in terms of concentrates. "You want to give the ewe every chance," says Paddy. "From a practical point of view we find that grouping ewes with similar needs together makes feeding easier." See p10.

NATIONAL SHEEP CONFERENCES

Teagasc national sheep conferences will take place this month. The theme is addressing factors that impact your farming system. The conferences will be held in the Tullamore Court Hotel, Co Offaly, on Tuesday 29 January and the Clanree Hotel, Letterkenny, Co Donegal, on Thursday 31 January 2019.

Each of the conferences will follow a similar format: there will be four papers presented, highlighting areas of interest to Irish sheep farmers.

The conferences will begin at 6pm sharp. They are both Department of Agriculture KT-approved and you can sign in from 5.30pm.

Lowland sheep conference

The speakers for the 2019 lowland sheep conference are:

•**Dr Nigel Kendall, University of Nottingham:** Dr Kendall is a lecturer in the University of Nottingham where he specialises in animal nutrition and reproduction. He has worked extensively in the area of mineral nutrition for ruminant livestock. He has carried out detailed research on trace element status, deficiency/toxicity and supplementation method for ruminant animals. Nigel's paper at the sheep conference will deal specifically with mineral supplementation in sheep production systems, where he will discuss three areas:

A. How to determine whether or not your animals require mineral supplementation.

B. How best to supplement your animals if it is required.

C. How to assess whether or not mineral supplementation was effective on your farm.

•**Lesley Stubbings, sheep consultant, UK:** Lesley is a leading independent sheep consultant who works directly with farmers and industry bodies to address key issues affecting farm efficiency, nutrition and health issues. A lot of her on farm work has focused on improvements as a result of targeted nutrition and achieving optimum body condition score (BCS).

Lesley's paper will outline strategies for feeding the ewe with a particular focus on the late pregnancy period. In addition, she will discuss both the immediate and carryover effects on production performance from recording and monitoring the BCS of ewes in your flock.

•**Declan McEvoy, ifac:** Have you considered the opportunities and implications of passing on the farm to the next generation? Declan is the

head of tax in ifac and has over 30 years' experience advising agribusiness clients on tax-related affairs.

In his paper, Declan will give an overview of the opportunities and implications associated with succession and inheritance and outline the specific elements which are required prior to taking over the family farm.

•**Dr Tim Keady, Teagasc:** Dr Keady is the primary Irish researcher leading an international sheep research project, SheepNet (Sharing Expertise and Experience towards sheep Productivity through NETWORKING). SheepNet is an innovative thematic network which has brought together a wide range of stakeholders from the six main sheep producing countries in Europe (Ireland, France, Italy, Romania, Spain and the UK) and Turkey.

SheepNet is about practice-driven innovation to improve the productivity of meat sheep (the number of lambs reared per ewe joined) and milk sheep (the number of milking ewes per ewe joined). The aim is to improve flock productivity which will in turn improve farmers' income and therefore the sustainability and at-

tractiveness of sheep production.

The project team has made significant progress in the exchange of scientific and practical knowledge between researchers, advisors, farmers and veterinarians through a multi-actor and trans-disciplinary approach at national and international level.

Using a top-down bottom-up approach, SheepNet promotes the implementation and dissemination of innovative technologies and practices that impact ewe productivity under the following headings:

- Reproductive efficiency.
- Gestation efficiency.
- Increased lamb survivability.

This will deliver factual information relevant to all sheep producers and those working in the industry.

The event is free of charge and all are welcome.



NATIONAL HILL SHEEP CONFERENCE

Teagasc will host its annual national hill sheep conference on 19 February in the Glendalough Hotel, Co Wicklow.

Teagasc national sheep conferences will take place in January.



the basis for three separate panel/presenter discussions through the day.

In addition, there will be a series of five-minute snapshot presentations capturing a diverse range of research projects from integrated pest management through to more fundamental studies that enhance our understanding of plant-stress interactions.

Spring tillage seminar topics

- Crop planning and margins 2019.
- Spring cereal varieties and sowing rates.
- Crop nutrition to achieve savings.
- Integrated pest management (IPM).

Cork

22 January 2019.
Event time: 7:45pm.
Venue: Munster Arms, Bandon

Meath

22 January 2019.
Event time: 7:45pm
Venue: Teagasc office, Navan.

Wexford

23 January 2019
Event time 7.45pm.
Venue: Ferrycarrig Hotel, Wexford.

Carlow

24 January 2019.
Event time: 7.45pm.
Venue: Mount Wolsey Hotel, Tullow.

Waterford

24 January 2019.
Event time: 7.45pm.
Venue: Teagasc office, Dungarvan.

Kerry

29 January 2019.
Event time: 7.45pm
Venue: Ballyroe Heights Hotel, Tralee.

Louth

4 February 2019.
Event time: 7:45pm.
Venue: Teagasc office, Dundalk.



This year's national tillage conference will take place in the Lyrath Hotel, Kilkenny, on Wednesday 30 January.

Dublin

5 February 2019
Event time: 7.45pm.
Venue: Kettles Hotel, Swords.

Galway

5 February 2019.
Event time: 7:45pm.
Venue: Teagasc Office, Athenry.

Kilkenny

6 February 2019.
Event time: 7:45pm.
Venue: Teagasc office, Kilkenny.

Laois

6 February 2019.
Event time: 7:45pm.
Venue: Teagasc office, Portlaoise.

Wicklow

11 February 2019
Event time: 7:45pm.
Venue: Arklow Bay Hotel.

Offaly

13 February 2019.
Event time: 7.45pm.
Venue: Tullamore Court Hotel.

FORESTRY ADVISORY CLINICS

•21 January to 1 February

Teagasc will run a nationwide series of forestry advisory clinics between 21 January and 1 February promoting the establishment and management of forestry as a sustainable and rewarding land use on Irish farms.

These one-to-one clinics will be held in Teagasc offices around the country on specific dates, where a consultation with an experienced forestry advisor can be arranged by appointment.

ORGANIC DAIRY DEMO FARM WALK IN KILDARE

- 20 February 2019.
- Event time: 12pm.
- Venue: Peter and Jenny Young, Castlefarm, Narraghmore, Athy, Co Kildare

Teagasc, the Department of Agriculture, Food and the Marine and organic organisations invite all farmers and members of the public to see organic farming in practice and to meet and speak with the producers and sector's experts.

ONE FOR THE CALENDAR:

See dates for college open days in March on page 38.

NATIONAL TILLAGE CONFERENCE

- Date: 30 January 2019.
- Venue: Lyrath Kilkenny.

This year's national tillage conference will take place in the Lyrath Hotel, Kilkenny, on Wednesday 30 January. In "Responding to Future Challenges", the 2019 conference will highlight the most relevant research currently under way in response to the primary challenges facing the tillage sector. The conference will include presentations on:

- Crop protection strategies in to the future.
- The potential consequences of Brexit, from a farm gate and sectoral perspective.
- Grass weed control: utilising all the tools.
- The potential of genetic resistance to offset cereal diseases.

Audience engagement will be maximised using a live online conference tool to capture stakeholders' questions and concerns, which will form

dairying

How calf health helps to ease your workload

Stuart Childs

Dairy Specialist,
Teagasc Animal and Grassland
Research & Innovation Programme

Calf management consumes a significant amount of time in the busy spring months. If calf health becomes an issue, many additional hours will be spent treating and tending to sick animals. So calf health enhances the performance of the farmer as well as the young animal.

The race

When a newborn calf hits the ground, a race begins. Bacteria in the calving environment and colostrum are in direct competition for space along the lining of the calf's stomach.

The 1-2-3 rule of colostrum management was developed to help ensure that it's colostrum which fills the absorption sites along the intestinal lining, preventing bacteria getting into the bloodstream. If bacteria win the race, the potential for calf illness increases significantly.



1-2-3 rule

- 1 Use colostrum from the first milking for the first feed.
- 2 Give colostrum within two hours of the calf's birth.
- 3 Give at least three litres.

Hygiene before start of calving

Notwithstanding that it is nigh on impossible to keep calving and calf houses completely clean during calving, we must aim to start out with clean facilities.

If it has not already been done, power-wash and disinfect all sheds for calving and calves (steam wash if there were scour issues last season).

These areas should be disinfected again a few days before the start of calving. This will help to reduce/eliminate the bacterial loading in the sheds at the start of calving and get you off to a good start.

Hygiene during the calving period

Calving and calf pens should be cleaned out, limed/disinfected and bedded regularly to keep the bacterial loading as low as possible. This helps to reduce the need to deal with sick calves on an ongoing basis which is wearing and is expensive in terms of treatment costs and reduced performance.

Use plenty of straw to create a warm environment for young calves (less than three weeks old) in particular.

Keeping calves warm and dry is a vital part of keeping them healthy. They don't have the capacity to keep themselves warm and can suffer from cold stress, increasing their susceptibility to disease.

Hygiene at feeding

It is vital that feeding equipment is kept clean. It should be rinsed after every feeding and be fully washed and disinfected with hot water and detergent regularly. This will prevent milk scum accumulating.

Any scum present will act as a breeding ground for bacteria which will contaminate the fresh milk or milk replacer, essentially "feeding" harmful bacteria directly into the stomach of the calf.

Dry cow minerals

Feeding a good dry cow mineral at the right rate for six to eight weeks in advance of calving should result in normal calvings, assuming cows are in the right condition at calving.

Normal calvings should result in healthy, spritely calves that will be up and at it within a half hour of birth.

A good dry cow mineral coupled with a good plane of nutrition prior to calving should also result in good quality colostrum which is so vital for newborn calves.





Calf management consumes a significant amount of time in the busy spring months.

Facilities

Calves need at least 1.5m² floor space and 10m³ air space per head. Packing calves into sheds will only result in problems. If you are short of space, you will need to plan to have additional space available to cater for the number of calves you expect.

Alternatively, you will have to plan to export surplus calves at the earliest possible opportunity. Overfilling existing facilities will not end well.

Teagasc, in conjunction with Animal Health Ireland, are running a series of CalfCare events across the country focusing on calf health, welfare and housing this month. Confirm start time at your local Teagasc office.

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Act now to alleviate the dairy bottleneck

It's not too late to make changes that will reduce your spring workload

There are currently 1.4m dairy cows in Ireland, one-third more than in 2010. But taking into account new entrants and retirees we have virtually the same number of dairy farmers. This is an astonishing increase in productivity which comes at a cost. Many of these farmers will soon be working an unsustainably high number of hours during the busy spring period.

In a survey conducted by Teagasc researcher Marion Beecher, farmers estimated that in spring 2018 they worked 86 hours per week (12.4 hours per day) and took less than one day off during March. Farmers don't need to be reminded of this but what are they doing about it? The survey asked farmers to list what steps they have taken to reduce their workload in the critical calving period.

“ Every farm is unique and each farmer will need to identify where time savings can be made

Three-quarters of the farmers were contracting out slurry spreading, almost four in 10 were using contractors to spread fertiliser, just 6% were using contractors to feed their cows. About one in three had adopted once a day milking (for a short period) and a similar number were feeding calves once a day from 14 days old. One in seven had a dedicated night-time

calver.

The survey conducted in collaboration with Teagasc advisors received 349 responses which were collected from 37 discussion groups in 12 counties.

The average number of dairy cows calved in spring on each farm was 160. The average area of land on the milking platform was 54ha.

Although the sample was not nationally representative (herds were larger herd than the national average), the results provided valuable insight into spring 2018. Only eight farmers had not implemented any labour-saving practices at all, whereas 341 (98%) farmers implemented one or more practice. What's stopping them doing more?

Labour-saving workshop

At a workshop on labour-saving held as part of the Teagasc national dairy conferences, Marion Beecher, Abigail Ryan and Pat Clarke of Teagasc facilitated a discussion around labour-saving initiatives with farmers.

According to Pat Clarke, the biggest challenge in outsourcing jobs such as slurry spreading to contractors can be getting your head around the idea of actually doing it. "Don't underestimate the challenge of changing the way you do things. But during the high-pressure springtime most farmers will be much better off time-wise if they get contractors to do jobs such as spreading slurry, spreading fertiliser, and even feeding their cows.

"The contractors will have larger, more capable, equipment which means they will do jobs faster and more efficiently. There is a financial cost attached to using a contractor but there can be a very substantial saving in hours worked for the farmer



and there is less wear and tear on his equipment. Using a contractor can eliminate the need to buy equipment."

In a worked example at the conference (and every situation will be slightly different) an example with 200 cows was able to save 200 hours by outsourcing feeding, fertiliser and slurry spreading, according to farmers at the workshop. "This will be money well spent if the farmer can reduce workload at this time of year."

Marion Beecher pointed out the importance of planning and measuring whether you are actually reducing your hours worked. "It's important to start with your end goal in mind and work back," she says. "If you target finishing at 6pm and it takes two hours to milk then you will need to start milking at 4pm.



Dr Marion Beecher of Teagasc Moorepark 'brainstorming' labour saving initiatives at the Teagasc National Dairy Conference.

Marion points out that while milking once a day will reduce solids produced, it can save a significant amount of time each day.

"The point about labour-saving steps is that they are cumulative. They might help you to get your workload down to an acceptable level but they might also make the difference between having to employ a person or not."

Calf management is another area where simple changes can save time (see the article by Stuart Childs).

"Getting away from single-calf pens to adequately-sized group calf sheds, having the calf shed close to milking parlour, and selling calves at 14 days will all reduce workload in the spring," according to the farmers.

Abigail Ryan described more of the types of initiatives which can help

reduce workload: "Every dairy farm is unique and each farmer will need to identify where time savings can be made on their farm but milking always accounts for at least one-third of the entire annual workload so that has to be as efficient as possible. Having an adequate number of milking units is essential as is a good drafting system to manage individual animals.

"Contract rearing of heifer calves is an area more farmers should investigate if they are finding this a high-pressure zone on the farm along with selling male calves.

"There is always a range of possibilities, you can spend almost anything you like on facilities but your local Teagasc dairy advisor will be able to talk through the options. Some initiatives can still be taken before calving starts, others can be discussed later

in the year. The key point is that investing in facilities will help ease your workload.

"Pat and Marion are absolutely right that the greatest challenge is sometimes in your own head," concludes Abigail. "Using contractors for an increasing number of jobs, for example, might feel uncomfortable at first but find someone you can trust to do good work, at the right time and for a fair price, and everyone wins."

•For further details of the survey findings see article entitled *Labour and Stress Issues on farms* by Marion Beecher and Paidi Kelly in the winter 2018 edition of the Teagasc publication TResearch available on the Teagasc website.

Feeding ewes in the run up to lambing

To give birth to healthy, live lambs and rear them to weaning, a ewe needs adequate nutrition in the two months before lambing and have sufficient body reserves to meet her nutritional requirements in early lactation

Frank Campion
Teagasc Animal and Grassland Research & Innovation Programme, Athenry

The performance of the flock at lambing time has a major bearing on the subsequent performance of both the ewe and the lamb up to weaning. Three key areas that will affect the lambing performance of the flock are: ewe body condition score, late pregnancy nutrition and colostrum production.

Producers often judge lambing performance by lamb birth weight but the volume of colostrum produced and lamb mortality rates are equally important.

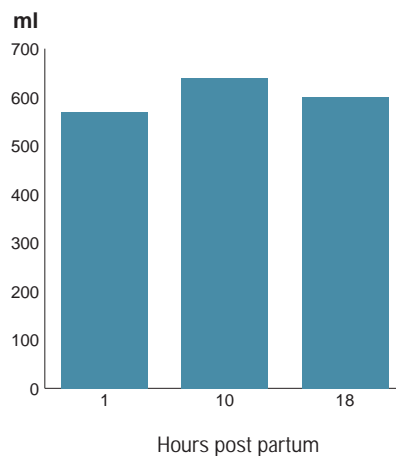
Ewe body condition score

Although the "absolute BCS" of ewes tends to get a lot of focus, practically speaking it's the change in BCS from one part of the year to another that's most important.

Changes in ewe BCS reflect that the ewe is storing excess energy or drawing down energy depending on intake. This has led to some nutrient requirement recommendations being based on the amount of body reserve mobilisation taking place.

During the period from immediately post-lambing to approximately four weeks into lactation, the ewe's energy and protein demands are at their highest of the entire production cycle. But her feed intake potential does not peak until approximately six weeks after lambing.

Figure 1
Typical colostrum volume at 1, 10 and 18 hours post-partum (Campion, 2016)



As a result, she needs to be able to mobilise body reserves, to ensure milk production is sufficient to maintain high lamb growth rates.

Ewe BCS should be assessed each time they pass through the race or footbath. This can be done simply by assessing the ewe's muscle and fat cover along the spine and transverse process (short ribs) between the last rib bone and the hip bone.

Ewes that are below target BCS at lambing are more likely to suffer pregnancy toxemia in the hours post-lambing, have a reduced rate of colostrum production, and be less attentive mothers. To this end, it is important that thin ewes are identified early and separated for additional



feeding. For most producers, this involves putting thin twin-bearing ewes in with triplet bearing ewes for feeding etc.

Late pregnancy nutrition

Nutrition during late gestation influences ewe body reserve mobilisation, colostrum production, lamb birth weight, lamb vigour and lamb



Caption

Table 1: Net energy requirements of ewes during late gestation given as UFL units

Ewe liveweight (kg)	Litter weight (kg)	Litter size	Wk 1-6 and -5	Wk 1-4 and -3	Wk 1-2 and -1
70	5	1	0.88	1.02	1.22
70	9	2	0.93	1.14	1.50
70	11	3	0.96	1.24	1.63

1 Weeks before giving birth (parturition)

Energy requirements

The first limiting nutrient to the ewe during late pregnancy is energy, with requirements increasing above maintenance from eight weeks pre-lambing. The need for energy will be influenced by ewe live weight, scanned litter size, target litter weight and predicted lambing date.

Energy requirements for the pregnant ewe are determined by first calculating the ewe's own maintenance energy requirement, which is the energy she requires just to maintain her own body weight. The larger she is, the more energy she will need. For every 5kg increase in liveweight above 70kg, the maintenance energy requirement of the ewe increases by 0.04 UFL.

Table 1 shows how the total energy requirement of the ewe increases rapidly during the final six weeks pre-lambing. Typically, ewe energy requirements are discussed in terms of either metabolisable or net energy requirements. In the net energy system, energy is described in terms of UFLs, where one UFL is the equivalent of the energy content found in one kg of standard air dried barley with all other energy values given relative to this.

Protein requirements

For the final two to three weeks of pregnancy rumen undegradable protein, or by-pass protein, is particularly important. It supports mammary gland development and the process of colostrum production. Soya bean meal is an excellent source of rumen undegradable protein and has been shown in the past to improve subsequent lamb performance.

It is important that rations offered during this time contain a high percentage of soya bean meal or that additional soya bean meal is offered with the ration if inclusion rates are low. A useful guideline is that the ewes should be consuming 100g of soya per scanned lamb in the final two to three weeks before lambing.

Colostrum production

The newborn lamb requires colostrum during the first hours of life for nutrients and immunity against disease. Colostrum contains high levels of fat which provides the lamb with energy to hold off hypothermia in the first hours of life.

“ Changes in ewe BCS reflect that the ewe is storing excess energy or drawing down energy depending on intake.

Newborn lambs have virtually no immunity to disease and infection but gain passive immunity from colostrum. Colostrum requirements for lambs born indoors, over the first 24 hours of life are in the range of 143ml/kg to 175ml/kg birth weight or 50ml/kg birth weight in the first 18 hours of life. Where lambs are born outdoors, or in colder air temperatures, the energy requirement of the lamb increases with colostrum requirement increasing as a result.

Conclusion

In order to maximise flock performance, particular care is needed to ensure ewes are lambing down in correct BCS. This will only happen if they have had an appropriate late gestation nutrition plan to ensure adequate quantities of colostrum are available to the lamb.

Where ewe BCS is below target or colostrum supply is below requirement after lambing, urgent action should be taken to ensure flock performance is not negatively affected.

survival. Late pregnancy is typically defined as the last six to eight weeks pre-lambing, during which time approximately 80% of foetal growth takes place.

Formulating diets during this time is challenging as the rapid growth of the foetus reduces feed intake, potential leading to the need for concentrate supplementation.

Paddocks equal profit

Fertiliser is a key investment on any sheep farm. By far the best returns are achieved from rotational grazing systems

Philip Creighton

Teagasc, Animal and Grassland Research and Innovation Programme, Athenry, Co Galway

The average sheep farm in Ireland utilises 5.6t of grass dry matter/ha/year. Results from recent grassland systems research at Teagasc Athenry show that each tonne of grass DM grown will support a ewe plus her lambs for a year including their winter feed.

Ireland's strength in sheep production lies in our ability to produce meat from an almost entirely grass-based diet giving us a competitive advantage over many of our EU competitors. The main challenge for pasture-based systems of sheep production is to improve the growth and utilisation of pasture and increase the output of lamb from grassland.

With grass making up 90% to 95% of the annual energy requirements of sheep any improvement in the efficiency of production and utilisation greatly increase profitability. Each additional tonne of grass DM/ha utilised will increase profit by €105/ha. Data from Teagasc Athenry and commercial sheep farms participating in the Teagasc BETTER sheep farm programme indicate that there is room for significant increases in the level of grass grown and utilised on Irish sheep farms.

Some of the key areas to focus on are:

- Soil fertility
- Field divisions/grazing groups.
- Measurement/budgeting.

Soil fertility

Pastures simply will not perform to their potential if the soil fertility is not correct. The soil's ability to provide the optimum quantity of nutrients for grass growth determines the productivity of a field. Soil fertil-



Data from Teagasc Athenry and commercial sheep farms participating in the Teagasc BETTER sheep farm programme indicate that there is room for significant increases in the level of grass grown and utilised on Irish sheep farms.

ity should be foremost in the mind of anyone who wishes to maximise the financial return from grazed grass.

Fertiliser accounts for up to one-fifth of the total variable costs on sheep farms, so effective management of fertiliser will save you money. The exact quantities of lime and fertilisers needed can be determined with a soil test which should be carried out every three to five years. The results are the foundations for a fertiliser and lime plan. Your Teagasc advisor or a private company can organise the test and take the samples if you prefer.

A liming programme should be in place on all farms in order to have soil pH at its optimum year on year. This will prevent soil pH from dropping to such an extent that the response to applied fertiliser is compromised.

Field division/grazing groups

Set stocking/continuous grazing systems are still common on Irish sheep farms. In these systems, sheep graze the same grassland area throughout

Measurement and budgeting

With the basic building blocks of soil fertility and infrastructure in place, the next step to getting more from grass is to develop grass measurement and budgeting skills. Grass measurement and budgeting does not have to be complicated or expensive as is often the perception.

There are a number of methods that can be used to measure grass supply (grass covers) on farms. Sward sticks, rising plate meters and the quadrant and shears method are all common.

What method you use is irrelevant, the important thing is that some form of measurement is carried out on a regular basis to aid management decisions.

Table 1: Grass days-ahead guidelines for sheep farms

Month	Days ahead
March	25
April	18-21
May-July	12-14
August	15-20
September	25-30
Oct-Nov	30-40

PastureBase Ireland is an online grassland management programme that enables the farmer to keep track of grass growth per paddock, the number of grazings per paddock and the quantity of grass being consumed at each grazing. This highlights poor performing paddocks and deficiencies in grazing management.

This programme allows you to input grassland measurements and information on stock numbers. Using this information, grassland management advice is generated based on your current grass supply and demand status to aid decision making on your farm.

Table 1 shows an example of grassland 'days ahead' targets developed through grazing trials on the Teagasc research demonstration farm in Athenry that can be used to more accurately manage grass during the main grazing season to improve the management, utilisation and quality of swards offered.

If you are still using a set-stocking system you have scope to vastly increase your grass output by establishing a paddock system and using these tools. Why not give it a go?



the grazing season. Grazing systems where sheep are moved in rotation through a series of paddocks offer greater flexibility in grassland management by allowing increased control over sward structure, grazing severity, regrowth periods and overall pasture supply.

Rotational grazing involves dividing the overall grassland area into a number of paddocks. These paddocks are grazed, fertilised and rested in turn and allow greater levels of herbage utilisation to be achieved.

On the Teagasc sheep research demonstration farm in Athenry, a simple five-paddock rotational grazing system is used. This can also be split temporarily, as needed, to give up to 10 grazing divisions per group.

Average residency time (how long the sheep spend) in paddocks in April, May and June is five days (2.5 days per division).

Post-weaning, a leader follower system is used. Lambs have first access to fresh regrowth, grazing it down to around 6cm, with the dry ewes then grazing the paddocks down to 4cm to

ensure quality leafy grass in the following rotation.

By controlling grass quality this form of grassland management maximizes grass growth and utilisation while maintaining animal performance.

A general recommendation with regard to paddock size taking an example of a farm with a flock of 100 ewes stocked at 10 ewes/ha would be a minimum of five paddocks of 2ha (5ac) each per grazing group. This can be further divided using temporary fencing as required.

Using all the grassland production and utilisation information gathered from the grazing trials on the Teagasc research demo farm over the past number of years there may be scope to increase grass production and utilisation even further by employing a six paddock rotational grazing system with each paddock 1.6ha (4ac) in size.

From analysis of our data, this would show a possible additional increase in grass production and utilisation per hectare of approximately 15%.

Reducing lamb mortality on sheep farms

Michael Gottstein,
Head of sheep KT Teagasc Animal
and Grassland Research & Innovation
Programme.

The fact is that only 85% of all lambs conceived are alive at weaning time. Lamb mortality is a drag on output. It is possible to significantly increase lamb survival rates.

Causes of mortality

We can divide these into the following categories:

- 1. Lambs lost during pregnancy where there are no obvious signs of this loss and ewes end up empty at lambing time.
- 2. Late pregnancy losses, generally abortions where the ewe is seen lambing a premature foetus.
- 3. Still births: lambs that are born full term but are born dead.
- 4. Lambs born alive but die within 48 hours of birth.
- 5. Lamb mortality in lambs two days old and older.

A study on UK farms showed that 79% of lamb losses occurred between scanning and the first 48 hours of the lamb's life. See Figure 1.

It is possible for every sheep farmer to establish the facts relating to his/her flock. This will form the basis for a plan to reduce mortality on the individual's farm. Identifying when the mortality happens is important when trying to reduce it in subsequent years.

Reducing losses

Between scanning and lambing:

Losses between scanning and lambing will mostly be associated with abortions.

There are lots of reasons or causes for ewes to abort their foetuses, some of which are simply natural causes about which very little can be done. However, where this number is large (>2%), then there is generally an infectious agent causing the ewes to abort.

It is surprising how few aborted lambs and placentas are submitted

to Regional Veterinary Laboratories each year to establish the cause of abortions.

For most infections that cause abortions, there are steps that can be taken to prevent or reduce the incidence of abortions in subsequent years.

However, these steps can only be taken where a diagnosis has been confirmed by laboratory tests.

Losses in the first 48 hours

In the UK study, this category accounted for almost half of all lamb losses (49%). These are lambs that are born alive, but for one reason or another die within the first 48 hours of birth.

With better attention to detail, improvements are possible on most sheep farms:

- **Birth weight** – lambs that are too heavy or too light have higher mortality rates. The ideal birth weight of a lamb will vary somewhat by breed and litter size. Where birth weights are either too low or too high for a significant proportion of the lambs, then pre-lambing nutrition needs to be changed. The following are useful birth weight parameters to aim for:
 - Single born 4.5kg-6.5kg.
 - Twin born 4kg-5.5kg.
 - Triplet born 3.5kg-4.5kg.

- **Infections** – lambs are born with virtually no immune system. Consequently, they are very susceptible to challenge from bugs in the environment. Hygiene is very important around lambing time. Plenty of straw, lime to disinfect the pens and clean gloves when handling ewes are essential.

Make sure that any utensils that are being used to assist in the lambing process (ropes and lamb pullers) are cleaned and disinfected between uses.

Bottles and stomach tubes that are used to feed lambs should be thoroughly cleaned and disinfected between use to avoid transferring harmful bugs between newborn lambs.

- **Starvation** – this occurs where a ewe has insufficient milk or where lambs are unable to suck. Making sure that each lamb gets 5% of its body weight

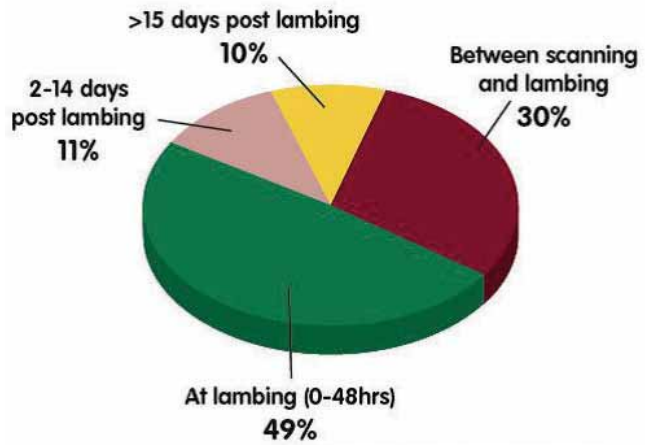


Aborted / dead lambs and afterbirths should be submitted to the Veterinary Laboratory to try to identify the cause of mortality.
Source: MSD.



Figure 1

When lamb losses occur (% of total losses)



Source: HCC lambing project 2010/11

of ewe's colostrum in the first four hours of life is critical to getting the lamb off to a good start.

For most lambs, 5% of bodyweight is between 200ml and 300ml of colostrum. Most farmers probably give two or three 60ml syringes per lamb, which is totally inadequate for all but the smallest of lambs.

• **Exposure** – lambs succumb to hypothermia due to exposure to inclement weather or insufficient colostrum. Even when indoors, small or weak lambs may need an artificial heat source to prevent hypothermia until they are up and running properly.

• **Misadventure** – where lambs are accidentally killed by drowning, being crushed or mismothering. Having enough individual lambing pens (8/100 ewes), fostering pens (1/50 ewes) and group pens to allow for supervision and mothering up of lambs prior to turnout to grass will help to reduce mortality in this area.

Conclusion

While it is not possible to save every single lamb, on most farms there is huge scope to reduce mortality levels. Look at the critical areas such as hygiene, nutrition, and work organisation in advance of this year's lambing. Extra lambs surviving = extra sales/profit. Teagasc has published a number of videos on lambing management, you'll find these on the Teagasc website.

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Derrypatrick spring 2019

Clare Guy, Michael McManus
Teagasc Animal and Grassland
Research & Innovation Programme

The Derrypatrick Herd is a suckler calf-to-beef research demonstration herd situated in Teagasc Grange, Co Meath. The herd consists of Limousin × Friesian and three quarter beef-bred animals.

The land area dedicated for the Derrypatrick Herd in Grange is 65ha (162 acres) on variable soil types, ranging from dry to heavy areas on the farm.

In the past, progeny were finished as 16-month bulls, 20-month heifers and 24-month steers. Since 2018, to coincide with the new breeding strategy and production system all male progeny are slaughtered as steers which will result in a higher stocking rate (2.8 LU/ha).

Due to the difficult spring in 2018, management targets had to be readjusted accordingly. This year, the good conditions in autumn 2018 allowed us to extend the grazing season and set up paddocks for grazing in spring 2019 using the autumn rotation planner. Spring grass is the ideal feedstuff for cattle as it is highly digestible and high in protein. It reduces the need for expensive concentrates. We plan to begin turning stock out from the beginning of February, ground conditions permitting.

At the same time, we will be budgeting so that there is enough grass until the start of the second grazing rotation. This budgeting will be done using the spring rotation planner. Under ideal grass growing conditions and on heavier soils, the start of the second rotation will occur in mid-April; farms on drier soils will reach



Derrypatrick planner

- The remaining 2017 bullocks and heifers will be slaughtered in the next coming weeks.
- We will be aiming to let out replacement heifers in the first week of February (weather depending).
- Cows were vaccinated with Rotavec Corona pre-calving to reduce scour.
- The calving facilities will be prepared over the next few weeks.

this in early April.

First rotation spring-grazing should start in February/March and continue until early April or mid-April, depending on soil type on the farm. If turnout is too late on the Derrypatrick farm, or any farm, and the first rotation is too long, pre-grazing yields will be too high, grass quality will deteriorate and achieving a post-grazing height of 4cm will be difficult and utilisation will be reduced. Animals were let out on 18 April in spring 2018.

Advantages of finishing the first rotation on time include:

- The first paddock grazed in the second rotation will have an adequate cover, i.e. 8cm to 9cm (1,000kg to 1,200kg DM/ha), and we'll have the recommended 18 to 21 days of grass on the grazing area.
- A wedge of grass will be created, the highest covers will be on paddocks grazed early in the spring with lower covers on paddocks grazed last in the rotation.
- Early spring-grazing increases grass quality in the subsequent grazing rotations.



How we'll ensure optimum spring grazing management

- Farm cover at turnout should be 600kg to 700kg DM/ha.
- Silage paddocks will be grazed by early April.
- Follow the spring rotation planner for heavy farms: graze 40% of farm by 31 March, 100% by 20 April.
- Target a post-grazing sward height of 3.5cm to 4cm during the first rotation to ensure good grass utilisation and good grass quality for subsequent rotations.

Table 1: The sires selected for breeding 2018

Replacement sires				Terminal sires				
Breed	AI code	Name	Replacement index €*	Term. index €	AI code	Name	Replacement index €*	Terminal index €
CH	VMO	Voimo	132	132	FSZ	Fiston	110	156
CH	CH2218	Bivouac	175	182	SNZ	Sylvaner	82	150
LM	JSS	Usse	165	134	LM4050	Wilodge Goldcard	73	131
LM	CWI	Castleview Casino	129	121	LM4093	Mullary Intrepid	93	144
SI	QCD	Cloondroon Calling	165	96	RWW	Raceview Van Halen	82	97
SI	SI2152	Curahen Earp	140	103	COA	Curahen Vio	125	115
AA	ZLL	Lanigan Red Deep Canyon ET	155	92	ZEP	Hawkley Red Zeppelin	106	82
AA	RGZ	Tubridmore Gizmo ET	130	63	GJB	Goulding Jumbo King K436 ET	93	53



Michael McManus
and Clare Guy.

Pre-calving management

COWS

Nutrition

- Pre-calving nutrition: cows are currently on good-quality silage and were body condition score of 3.0 when last measured in early January. Cows are receiving a pre-calving mineral.
- Post-calving nutrition: cows in good condition at calving and going to grass after calving will suffice on moderate quality silage with no concentrates.
- Any cows that are in poor condition after calving will be supplemented with 2kg to 3kg concentrates until turnout. Going on current body condition scores, this should not be necessary with the Derrypatrick herd.

Health

Cows received their vaccination for scour (Rotavec Corona) four to 12 weeks prior to calving, and IBR vaccination in January. The herd were treated for lice in early January. This is in addition to their backs being shaved at housing.

Calving

Calving will start on 10 February with 106 animals to calve over a 12-week period. Projected mean calving date for spring is 16 March.

In preparation for calving, the basic calving equipment will include:

- Calving gate (make sure it is working).
- Calving jack.

- Two sets of clean soft nylon ropes.
- Disinfectant.
- Lubricant.
- Stomach tubes (one for sick calves and one for colostrum management).
- Powdered colostrum.
- Iodine.
- Electrolytes.
- Arm-length gloves.
- Rubber gloves.
- Access to warm water.
- Vet contact details.

Calving pens will be cleaned and disinfected prior to start of calving. Straw will be allocated to calving pens to keep young and newborn calves clean and warm. Cows will be moved to the calving shed prior to their due date. Each calving pen will be cleaned after each cow is removed to help prevent the buildup of bacteria and the spread of infection.

Careful monitoring of the calves to ensure they are sucking and getting adequate quantity of colostrum (13% to 15% of the calf birth weight) will be very important. Any calf that appears off-form will have their temperature checked and treated accordingly. Calves will be disbudded and vaccinated for respiratory diseases (pneumonia, IBR) at two weeks of age.

YEARLINGS

Nutrition

Yearlings are currently on very good quality silage (75% DMD) and 1.5kg of concentrates. Yearling steers are 388 kg and yearling heifers are 360 kg.

- Lighter stock, e.g. weanlings, do less damage in more challenging weather.
- Aim to finish the first rotation by 20 April (or "magic day" – when grass growth equals grass demand).
- Avoid poaching fields.

Fertiliser

In order to prepare for early spring grass, 30kg N/ha half a bag of urea per acre (46% N) will be applied to paddocks when soil temperatures rise to 5°C to 6°C and once ground conditions allow. Slurry will be targeted to paddocks that are low in P and K (as indicated by a soil test) and where grass covers are low.

Reseeding 2018

In autumn 2018, four low-performing paddocks in the Derrypatrick were identified for reseeding. The area for reseeding was sprayed on 22 August. The variety chosen for reseeding of these paddocks was Oakpark, a late-heading diploid variety; this was sown at 30kg/ha. Two of the

four paddocks also had 2.5kg/ha of medium-leaved white clover cultivars Chieftain and Aberherald included in the mix.

Breeding

The sires used on the Derrypatrick herd are a mixture Charolais, Limousin, Simmental (used on cows) and Aberdeen Angus (used on heifers). The first year of a new breeding strategy began in 2017; calves that were born in spring 2018 are the first progeny of this new breeding strategy. The calves from these sires will be managed to slaughter in a 20-month heifer or 24-month steer production system.

Within the replacement index, sires were selected on the following (maternal) traits: milk yield, calving interval, cow contribution to the replacement index, calving difficulty, while maintaining a balanced terminal index. Within the terminal index, sires were selected on carcass weight, overall terminal index and calving difficulty. Additionally, it was ensured

that breeding value reliability was high. Maximum sire calving difficulty used on the cow herd was 8%. All heifers were bred to Angus sires using high replacement and high terminal index for that breed.

The 2018 breeding season started on 2 May and finished on 25 July and consisted of 12 weeks of 100% AI. Breeding was implemented using the AM:PM rule, where cows observed in heat in the morning were inseminated in the afternoon, and cows observed in heat in the afternoon were inseminated the next morning.

Aids for heat detection included:

- Teaser bulls with chin-ball.
- Tail paint.
- Visual observation four times daily.

A pregnancy scan took place on 20 September. Of the 122 animals in the breeding herd scanned, 110 were scanned as being in-calf. This gave us a 90% in-calf rate. Included in the 122 were 29 replacement heifers; 26 of these 29 were scanned in-calf (90% in-calf rate).

Responsible use of antimicrobials in farm animals

John F Mee and Bernadette Earley
Teagasc Animal and Grassland
Research & Innovation Programme

Prudent use of antimicrobials ensures that farmers, and their veterinary practitioners, will have continued access to these powerful drugs in the future. However, because of potential threats to human and animal health from antimicrobial resistance (AMR), the use of certain antimicrobials will have to be restricted.

Antimicrobial resistance occurs when bacteria become resistant to antimicrobials, e.g. antibiotics.

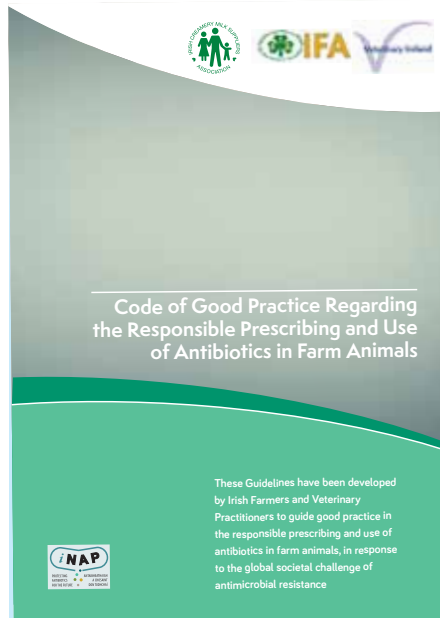
Resistant bacteria can spread between animals and humans so AMR is a problem for both animals and, more importantly, humans. So, farmers need to act now to preserve their access to the use of these drugs in the

“ The risk of AMR is increased if antimicrobials are used inappropriately – used when there is no need to use them, for example

future by spearheading the antimicrobial resistance campaign.

The risk of AMR is increased if antimicrobials are used inappropriately, e.g. used when there is no need to use them; used when the bacteria responsible for the illness are not susceptible to the antimicrobial administered; used when the illness is not caused by bacteria but, for example, by a virus/ es and under-dosing the antimicrobial administered. So, what can you do to reduce the risk of AMR in your stock and still maintain good animal health and welfare?

- Only use antimicrobials after your local vet has examined the animal/s.
- Don't use antimicrobials to replace good hygiene, good stockmanship,



The Code of Good Practice developed by the industry is available on the DAFM website, www.agriculture.gov.ie.

HIGHEST PRIORITY CRITICALLY IMPORTANT ANTIMICROBIALS LICENSED AND SOLD IN IRELAND FOR USE IN ANIMALS 2016			
Antimicrobial class	HP-CIA category	Active substance	Examples of products
3rd & 4th generation cephalosporins	Category 2	cefotaxim cefotaxime	Conventa Alfacel, Cefaveo, Cefril, Cefokel, Cefocyl, Cefmag, Cefamej, Curacet, Efox, Efoxone, Naxcel Ceflect, Cefimam, Cefasunome, Cephalomed Colobactin, Plank, Qvifan
Phenoxymethylpenicillins	Category 2	erythromycin marbofloxacin pradofloxacin	Bayfil, Digaflox, Enoxibactin, Enoxone, Enoxone-K, Enoxibactin Kwik, Enox-K, Avolon, Boflex, Enox-Foxyl, Kelanyl, Marbam, Marboxone, Marbofyt, Venothib
Polymyxin	Category 2	colistin	Colifex, Colicostat, Coligan APSA, Hydrosol, Sogocel
Macrolides	Category 1	erythromycin gamithromycin haloprogresin tilmicosin tulathromycin tylosin tylvalosin	Erythrocin Zachran Zurevo Hymatit, Micotit, Mibofyt, Pulmotit, Pulmotiq, Tilmotit, Tilmotvet Dracon Biloon, Bilovet, Pharnason, Tyfan, Tylo, Tylosin, Tylovet, Tylosyl, Avikolis



good management and good biosecurity.

- Adhere to the correct dosage schedule regarding dose rate, number of doses and withdrawal period.
- Use lab tests where possible to guide choice of the most appropriate antimicrobial.
- Never use antimicrobials as a 'blanket treatment' of a group of animals

Adopting these new guidelines may involve a change in the way you cur-

rently use antimicrobials. However, studies have shown that it is possible to significantly reduce the use of antimicrobials in farm animals and still maintain animal health and welfare.

Just because you have always treated sick animals in a certain way with a certain antimicrobial does not mean that you should continue to do so now that we are facing the real risks of AMR to both our animals and human health.

GUIDELINES

The following guidelines are recommended to maintain acceptable levels of antimicrobial usage on beef and dairy farms:

- Develop a herd health plan in consultation with your veterinarian and Teagasc advisor.
- Pay attention to colostrum feeding, animal nutrition and animal purchasing policies.
- Vaccinate animals to reduce the

need for antimicrobials, and use alternatives to antimicrobials when available.

- As already stated, but it's worth reinforcing, only give antimicrobials to animals under veterinary supervision.
- Do not use antimicrobials for growth promotion or to 'prevent' diseases in healthy animals.
- Improve biosecurity on farms, and prevent infections through improved hygiene and animal welfare.



**ANTIMICROBIALS ARE
ESSENTIAL MEDICINES**



**HELP PROTECT THEIR
ABILITY TO FIGHT INFECTION**

FOLLOW THE FIVE 'ONLY' RULES

1



Only use antimicrobials **when prescribed by a veterinarian**

2

Only use when needed, **antimicrobials do not cure every infection**



3



Only use the **dosage and follow length of treatment** and withdrawal period as prescribed

4

Only obtain antimicrobials **from authorised sources**



5



Only use when associated with **good animal husbandry, vaccination and hygiene practices**



WE ALL HAVE A ROLE TO PLAY, AND YOU, AS ANTIMICROBIAL USERS, CAN HELP

Sustainable spring

Carefully consider soil and weather conditions before applying N early in the growing season

Patrick Forrester¹, Mark Plunkett¹, Cathal Somers² and David Wall¹
¹Teagasc Crops Environment and Land Use Programme, Johnstown Castle, Co. Wexford.
²Teagasc Agricultural Sustainability Support and Advisory Programme (ASSAP)

Early grass growth (January/February) is variable and response to early nitrogen (N) is often very low, leading to poor recovery of applied N.

Early nitrogen application and grass yield response
 With 1kg of grass grown worth approximately €0.18, it will take ~4-5 kg of additional grass growth per kg N applied to pay for early applications of urea or CAN fertiliser. Therefore, apply early N based on the decision table below to maximise the response to early applied N.

Sources of early N

- Ammonium or ammonium forming fertilisers such as slurry, protected urea or urea are safer from nitrate loss through leaching (Impacting water quality) and denitrification (releasing greenhouse gases).
- Where tanks must be emptied, use slurry as your early N on the driest fields but keep away from water courses. Low emission spreading of 22m³/ha (2,000 gal/ac) will supply 23kg available N/ha (18 units N/ac) which is adequate to support up to 250 to 500kg grass dry matter (DM) under good spring grass growing conditions.

Protected urea
 Protected urea has the potential to help Irish agriculture reduce national greenhouse gas and ammonia emissions.

- Using CAN – switch to protected urea (GHG saving).
- Yield and N efficiency effect? Same yield and N efficiency.



Focus on being ready for spring application of slurry just in advance of the rapid increase in growth rates, which typically occurs in March

Slurry spreading method

Teagasc recommends use of trailing shoe or band spreader to retain N for grass growth, limit sward contamination and because of the new national commitments to reduce national ammonia loss.

Slurry timing

Focus on being ready for spring application of slurry just in advance of the rapid increase in growth rates, which typically occurs in March.

Consider getting an agricultural contractor with low-emission spreading equipment:

- Saving time on the farm for other key tasks.
- Retaining more N where a low-emission spreader is not available on the farm.
- Benefiting soil structure and subsequent yields if an umbilical system is chosen.

nutrient management

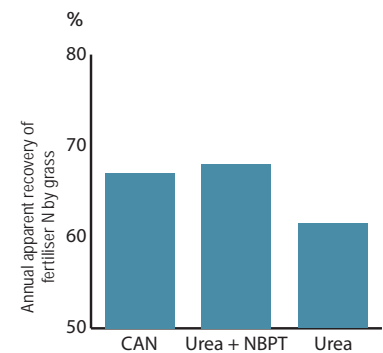


This group of farmers from north Tipperary attended a one-day nutrient management seminar delivered by Claire Mooney and Michael Hogan at the Teagasc office in Nenagh. The seminar (and others delivered across the country) was a requirement for farmers who applied to avail of a derogation to apply extra P on soils that were proven to be low in the element. Stephen Grace, who hosted the practical part of the seminar on his dairy farm near Toomevara, said: "Making best use of bagged and slurry fertiliser is vitally important to maximise grass production while protecting the environment".



Michael Hogan and Stephen Grace.

Figure 1
Fertiliser N source



Adapted from Forrestal et al (2016)

- More even spread of nutrients across the spread width.

Fertiliser planning

Prepare a fertiliser plan based on recent soil test results. A fertiliser plan will:

- Show fields that require lime over the next four years.
- Deliver a field by field plan for the application of farm manures (cattle slurry/FYM).
- Show detailed soil fertility maps for each field.
- Identify fields that need extra P and K to build soil fertility.
- Provide field specific advice for N, P and K for your farm.
- Include a list of fertilisers (shopping list) suitable for the soils on your farm.
- Ensure compliance with farm maximum limits as per new national action programme (nitrates).

Table 1: Decision support guidance for early N decision-making on your farm

Check	Consider	Where to check
Soil temperature Soil moisture conditions	No growth below 5.5°C When conditions allow, prioritise dry soils for early spreading. If soils are saturated or near saturated (SMD -10 to 0) soil structure damage from machinery is.	Met Éireann Met Eireann website
Forecast	Predicted forecast for cold weather (air temp <4°C) – little growth. Forecast for wet weather – N loss likely	Met Éireann
Grass growth rate	Grass growth rates/ expected grass response to N fertiliser ≤ 5kg dry matter/ha will not cover the cost of N fertiliser	On-farm measurement or PastureBase Ireland
Rate	Economic response is more likely at lower N rates	No more than 30kg/ha
Current sward	1) Higher sward grass cover will have higher N uptake rate compared with low or bare swards 2) Swards reseeded in last three to five years will give better N utilisation	1) Farmer knowledge 2) Minimum cover of 300kg to 400kg 3) Cattle slurry to bare swards 4) Recently reseeded fields
Choosing area of farm	Start with the kind, sheltered fields, avoid watercourses	Farmer knowledge

Assessing winter oilseed rape nitrogen requirements

Mark Plunkett, Shay Phelan, Ciaran Collins
Teagasc Crop, Environment and Land Use Programme

Stephen Collins
Teagasc Portlaoise

Oilseed rape crops have produced large canopies due to early sowing and good crop establishment. At the time of writing, there has been little crop grazing by pigeons. These crops have taken up nitrogen over the winter period which may reduce the crops' overall fertiliser N requirements. As a result, there may be scope for you to reduce nitrogen fertiliser rates.



In early February, assess canopy size by taking a measure of the crops' Green Leaf Area Index (GAI). You, or your advisor, can do this by taking a picture of the crop and entering it into a smartphone GAI Index App (for example www.totaloilseedcare.co.uk).

The optimum canopy size at flowering has a GAI of 3.5. This GAI is needed to maximise the seed number produced by the crop, which in turn is required to achieve high yields. Incorrect nitrogen management at this stage (February) will result in oversized canopies, reducing seed production and increasing crop lodging risk.

Measuring the crop's GAI now will help determine crop nitrogen uptake over the winter. For example, each crop GAI is equal to 50 kg N/ha. At flowering, we aim for a crop GAI of 3.5 which is equal to a crop N uptake 175kg N/ha. This will deliver a crop yield of 3.5t/ha. To calculate the remaining level of chemical N now required follow steps one to four:

- Measured crop GAI (using a phone app).
- Estimate soil N supply (10kg to 50kg N/ha).
- Calculate required applied N (efficiency of applied chemical N is 60%).
- Additional N for higher crop yields (60kg for each extra 1t).

Calculated example for Figure 1 – a crop of oilseed rape with a GAI 2.6 in February with an expected seed yield of 5t/ha.

1. Measured crop GAI: this crop has 130kg N/ha in its canopy. ($2.6 \times 50 = 130\text{kg N/ha}$).

2. Soil N supply is estimated to be 30kg N/ha, which is used at a 100% use efficiency by the crop.

3. Required applied N: the crop and soil have $130 + 30 = 160\text{kg N/ha}$ available. This crop requires an extra 15kg N/ha ($160 - 175 = 15$) to reach target GAI 3.5.

Chemical N is used at 60% efficiency by the crop. Therefore, the crop requires 25kgN/ha as bag fertiliser ($15 \div 0.6 = 25$).

4. Additional N for higher crop yields: each additional tonne of seed yield above 3.5t/ha requires an extra 60kg N per tonne. 1.5t/ha above (3.5t/ha) therefore add an additional 90kg N/ha. Crop N requirement is $25 + 90 = 115\text{kg N/ha}$.

Fertiliser programme for our example crop

- First split – 0kg/ha.
- Second split – 55kg/ha (mid-March).
- Third split – 60kg/ha (yellow bud to mid-flowering) (mid to late April).

Sulphur (S)

Oilseed crops generally require 25kg S/ha. Where crops have large canopies (GAI 2.5 or greater) their S requirements will be lower. Therefore, apply 50% of the crop's S requirements to these crops as they will have taken the S up over the winter period.



 Tips

Farmer profile

Eddie Fitzpatrick, pictured left with Stephen Collins, farms near Stradbally in Co Laois. He grows a mixture of spring and winter crops including winter oilseed rape (WOSR) which he finds a very useful break crop. "We generally fit the WOSR into the rotation after spring barley and before winter wheat," says Eddie.

"As a result of breaking the continuous cereal cycle we have noticed a definite increase in the yield of the following wheat crop."

The variety of OSR is SY Harnas which was sown on 23 August. Like a lot of oilseed rape crops sown last August, the higher than normal soil temperatures combined with high levels of residual nitrogen allowed crops to grow on very well during the autumn.

In fact some of the crop was almost "too advanced", according to Eddie. Another noticeable aspect of the crop this year is the yellowing of plant leaves mainly where volunteer cereals grew especially under the rows of straw. The yellowing is possibly caused due to the competition for nitrogen between the WOSR and the breakdown of cereal straw chaff.

The GAI was assessed in early December resulting in a GAI of 2.6. "The GAI of the crop will be assessed again in February as pigeons have been a problem in the past in this area," according to local tillage advisor Teagasc Stephen Collins.

Stephen uses the GAI app on his smartphone which gives a good guide when planning nitrogen requirements and timings.

"The GAI of oilseed rape crops has often dropped from 2.0 to 0.5 due to grazing which has a significant effect on the amount of nitrogen required for the crop during the spring.

"The plan for the crop if the GAI remains above 1.5, is to delay the first application of nitrogen (N) plus sulphur (S) until early March as the leaves will have enough nitrogen stored in them to keep the crop growing," according to Stephen.

"However, if the crop is heavily grazed and the GAI drops below 1.0 for example, then approximately 50kg to 70kg/ha of N and S will be applied before the end of February.

"The target is only to apply as much N as the crop requires," concludes Eddie Fitzpatrick. "Too much can cause problems such as lodging and increased costs."

- Measure crop GAI now to estimate canopy crop N.
- Target crop GAI for early February of 1.0 to 1.5 units.
- Where GAI is greater than 1.5, delay first N split until early March.
- Each GAI = 50kg N/ha. Use GAI measurement to determine crop N requirements.
- Aim for canopy GAI of 3.5 at flowering.
- Apply additional 60kg N/tonne for seed yields greater than 3.5t/ha.



Planning N, P and K for winter cereals

Mark Plunkett
Teagasc Crops Environment and Land Use Programme.

Cereal crops have come through the winter well, with good plant populations. These crops require an application of N, P and K over the coming weeks.

First N split

Winter barley should receive its first N application (25% to 30% of the total N) in late February to mid-March when the crop is at late tillering. Winter wheat on the other hand should receive the first split of N at late tillering to GS 30 (mid-March), delivering 25% of its total N.

Cereal P and K

Due to their higher yield, winter cereals need more P and K than spring crops. Research shows that as soil fertility increases, grain yield potential increases. A recent winter wheat trial conducted at Teagasc Oak Park showed that the crop achieved 1.5t/ha more grain on a P Index 3 soil, than on a P index 1 soil, all other things being equal.

Building and maintaining optimum soil fertility is key to achieving consistently high grain yields year after year. Maintaining optimum soil pH 6.5 is the first step to good soil fertility and, more importantly, for the efficient use of applied N-P-K.

P and K requirements

Soil test results will accurately determine the soil P and K fertility on your farm. Table 1 shows the P and K index system and soil nutrient supply at each index.

Soils at index 1 have a very low P and K supply and will require higher rates of P and K (buildup and maintenance) – Table 2. Early application of P and K will be needed on low fertility (Index 1 and 2) soils to drive root and tiller development.

On index 3 soils P and K application aims to replace nutrients removed in grain and straw so rates should reflect grain yields. Table 2 shows the P and K requirements for a crop of winter wheat and barley yielding 10t/ha and suggested fertiliser types and rates.

Table 1: Soil P and K index system

Soil index	Soil P (mg/l)	Soil K (mg/l)	Soil Supply
1	0 – 3.0	0 - 50	Very Low
2	3.1 – 6.0	51 - 100	Low
3	6.1 to 10	101 - 150	Optimum
4	>10	>150	High

Table 2: P & K Advice for 10t/ha* winter wheat or barley and suggest fertiliser programmes

Soil index	P kg/ha (units/ac)	K kg/ha (units/ac)	Bags/ac
1	58 (46)	130 (104)	4.5 bags 10-10-20
2	48 (38)	115 (92)	4.5 bags 12-8-20
3	38 (30)	100 (80)	4.25 bags 10-7-20
4	0	0	---

*Adjust P by 3.8kg/t, K by 10kg/t for lower or higher grain yields

Table 3: N-P-K advice for 9t/ha winter oats and suggest fertiliser programmes

Soil index	P kg/ha (units/ac)	K kg/ha (units/ac)	Bags/ac
1	54 (43)	160 (130)	4.0 bags 10-10-20 + 1 bag 50% K
2	44 (35)	145 (116)	3.5 bags 10-10-20 + 1 bag 50% K
3	34 (27)	130 (104)	2.5 bags 10-10-20 + 1 bag 50% K
4	0	0	---

*Adjust P by 3.8kg/t, K by 15kg/t for lower or higher grain yields

Table 3 shows P and K advice for a 9t/ha crop of winter oats. Oats have a large demand for K due to high K levels removed at harvest time in oaten straw. Additional K can be supplied as muriate of potash (50%K) which can be applied at any time of the year to replenish and maintain soil K levels.

Where organic manures have been applied the figures in Table 2 and 3 will need to be adjusted. For example, 1,000 gallons of cattle or pig slurry is equal to a 50kg bag of 6-5-32 or 19-7-20, respectively.

Fertiliser planning

To prepare a fertiliser plan, you need up-to-date soil test results, cropping plan, field areas and previous crop yields (for at least the last three years). Teagasc has developed a new online fertiliser planning tool (NMP online), which will produce a farm fertiliser plan on a crop-by-crop basis

and soil fertility maps for your farm. Contact your local advisor/consultant to prepare a fertiliser plan for 2019.

For further information on N, P and K rates for cereals log on to <https://www.teagasc.ie/crops/soil-soil-fertility/crop-n-p-k-advice/winter-cereals/>

Key messages

- Update your farm fertiliser plan for 2019.
- Adjust P and K rates based on soil tests and previous crop yields.
- Select suitable compound fertilisers to deliver the correct P and K requirements in a single application.
- Prepare a farm fertiliser shopping list now.
- Apply P and K to winter cereals over the coming weeks.

Time for lime?

Where soil pH is low, lime is your best investment

Aidan Fleming
Teagasc B&T Drystock Advisor,
Navan, Co. Meath

Why apply lime? Maintaining a soil pH range of 6.3 to 7, increases the availability of soil nitrogen (N), phosphorus (P) and potassium (K) as well as increasing the response to applied N, P and K.

- Bringing soil pH from 5.2 to 6.3 increased grass production by 1.0t DM/ha, worth €181.
- Applying 5t/ha of ground limestone on a low pH soil (< 5.5) produced similar yields of grass when compared with the application of 40kg/ha of P alone.
- Adding lime, plus P, produced a grass yield of 1.5t grass dry matter than the control in the season of application.
- Lime neutralises the acids from the use of artificial N fertiliser and from rainfall.
- Using lime alone will release up to 80kg nitrogen/ha/year from the soil for use by grass.
- Research shows that an investment of €25/ha to maintain soil pH in the optimum range returns €181/ha. This represents a return of €700 in extra grass production for every €100 spent on lime.

Which type of lime should you use?

- Calcium ground limestone is widely available, fast acting and will give a rapid pH adjustment.
- Magnesium ground limestone is slower to act but has higher overall liming value. It should be used on high Molybdenum (Mo) soils where liming can lead to increased availability of Mo. This can reduce copper uptake in the rumen of grazing live-



David Gilsenan and Aidan Fleming.

FARMER FOCUS

David Gilsenan farms near Crossakiel, Kells, Co Meath. He finishes young bulls and heifers. David places a lot of emphasis on producing the maximum amount of top-quality grass from his farm.

"In recent years, I have soil sampled the entire farm and spread lime on areas where it was required. There's been a notable increase in grass growth, when combined with good fertiliser and

slurry management."

David has also noted improvements in soil structure and drainage when lime was applied where required and at the correct rates. "I've also noted that we were able to reduce chemical fertiliser use on land where soil pH was brought to the optimum level."

Ongoing and regular soil sampling forms part of the fertiliser management planning on his farm and David concludes that "achieving optimum soil pH with lime is the cornerstone to good soil fertility".

stock. Maintain a pH of less than 6.2 on these high Mo risk soils. And/or provide a copper supplement, while continuing to target soil pH 6.3.

- Granulated (bagged) limes are finer and more reactive. They are expensive but may have a role on smaller areas – one or two paddocks for example.

How much lime to spread?

This will be determined by doing a soil test, every three to five years. A typical lime maintenance level would be 3t/ha to 5 t/ha once every five years. Wet areas may need more as heavy rain leaches lime.

Don't exceed 7.5 t/ha in any single application. If necessary, split. Applying half and the balance in two years.

Liming and slurry/urea

The type of N in slurry and urea is prone to loss if applied to freshly limed soils.

- If urea/slurry is applied first, wait days before applying lime.
- If lime is applied first, wait three months before applying urea or slurry.

When to spread?

Lime can be applied at any time of the year. Traditionally, lime was applied in the autumn when the grazing season had finished, but it can be safely applied for example on silage ground after cutting in summer (if a second cut is not being taken from this area).

For silage ground, don't apply lime in the spring as there is a risk of some lime being taken up in the crop which could affect preservation.

Beans – a viable

Ciaran Collins
Tillage specialist, Teagasc Crops,
Environment and Land Use Programme

Eamonn Lynch
Tillage advisor, Midleton

Mother Nature threw tillage farmers a curve ball in 2018 when a non-existent spring was followed by a summer drought. All crops suffered to some extent but spring beans suffered most. Many spring beans crops struggled to surpass 2.5t/ha in 2018 due to late planting in the spring and the drought that followed in the summer. This yield was on a reduced area due to the lateness of the spring and was in some ways compensated for by the higher protein payment of €350/ha, which is up from €215/ha in 2017.

At current grain and straw prices the question for tillage farmers is: are beans a viable option for 2019?

To answer that question, we need to look at three key areas:

- What benefits can beans bring to my farm?
- What is the five-year average yield nationally, locally, and on my farm?
- At my average yield, are beans financially viable at current grain and straw prices in 2019?

Benefits of growing beans

- They provide a good break crop in rotations, allowing first-crop wheat production to be increased.
- The ability of beans to fix nitrogen reduces applied fertiliser requirement in the following crops.
- They are a combinable crop – no additional equipment is needed on farms.
- Beans are an additional option to fulfil the three-crop rule requirements.
- Growing beans means you have an alternative mode of action to control grass weeds.

Average bean yields

Long-term average yield on your own farm is the best guide to expected production in 2019. Teagasc "harvest report recorded yield" shows a linear increase in yields from 2009 to 2017 with a five-year (2013 to 2017) average of 6.01t/ha. This is without the exceptional circumstances of 2018 where yields dipped to 2.5t/ha (on a reduced area, due to an exceptionally late

Figure 1
Spring beans: 10-year yield

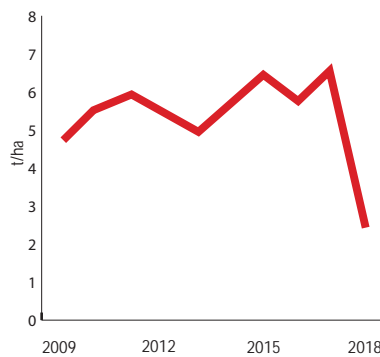


Table 1: Margin comparison 2019

	Spring beans	Spring barley
Grain price €/t	190	160
Cost of production* €/ha	919	1,014
Straw/protein payment €/ha	250	250
Grain yield** required to break even t/ha	4.8	6.3
Average yield (2013 – 2017) t/ha	6.01	7.52
Margin at average yield €/ha	473	439

*Teagasc costs & returns 2019 (provisional). **CSO

spring). Teagasc research shows a significant yield reduction once planting moves into April so the advice is not to plant if the season goes late.

Will beans be financially viable in 2019?

Indicative prices of barley €160/t and beans €190/t are used to assess whether beans will stand up financially in 2019. Based on the costs from the provisional Teagasc costs and returns for 2019, beans can deliver a slight increase in margin of €34/ha over spring barley – and that's without taking the rotational benefits into account.

The DAFM has confirmed that it intends to have a protein payment for 2019 and the payment per ha may be +/- €250/ha depending on the total protein area. The value of straw may increase or decrease from the table above depending on local markets.

This margin is similar to the average net margin (excluding land rental) from the most recent Teagasc



Profit Monitor results for 2017 where the margin from spring beans was €482/ha compared with €456/ha for spring feed barley.

Farmer profile

Craig Hill farms 144ha of mainly arable crops in Conna, Co Cork, and for over 15 years beans have been part of the rotation on his farm. "We've gained valuable experience growing beans and now beans are one of our most profitable crops before the additional benefits of rotation, soil structure benefits and nitrogen for the next crop are taken into account," says Craig.

Craig missed the dreadful season of 2018. "I didn't have any beans last year but that was more by accident

option for 2019?



ABOVE: Eamonn Lynch examines crow damage.
LEFT: Ciaran Collins in a crop of winter beans with farmer Craig Hill.

profitable as winter wheat and winter barley and were more profitable than spring barley.

Craig emphasises two key areas that influence the profitability of spring beans, "Sowing date is critical to achieving a good yield, I always try to plant my spring beans in early March. Secondly, beans can be grown successfully on a tight budget.

"We don't apply any phosphorus or potassium when planting beans instead we use pig slurry and adjust the rate depending on soil test results. Applying glyphosate prior to planting is really helpful with weed control. Chocolate spot hasn't been a big issue in recent seasons and as a result we have been able to trim spending on fungicides."

One final piece of advice Craig has for prospective bean growers this year is to be patient when it comes to harvesting beans. "I haven't had any major problems harvesting beans but you have to be patient when it comes to the harvest and wait for the crop to be fully mature before you bring in the combine."

In conclusion, before you decide to plant beans consider historic yields, the availability of a local purchaser and the price on offer. Spring beans can return similar margins to spring barley with additional benefits for the soil and succeeding crops.

rather than design as I didn't have suitable land available last year so I was lucky.

"Up to 2017, I'd always grown spring beans but I've planted winter beans this year to try to increase yields."

Craig planted 11ha of Wizard winter beans on 25 October. "I decided to hire in a contractor with a strip till drill this year because it would be better able to sow the seeds deeper than my own drill and I needed to get them down as deep as possible to keep them away from the crows."

This has been a success as the beans are down four inches and the crows haven't done too much damage but Craig admits he has invested a large amount of his time minding them.

Part of the successful establishment this year was due to Craig's keen eye

for detail. After rolling the crop, he wasn't satisfied that the slots created by the drill while sowing were sufficiently closed so he rolled the field a second time across the sowing using a light touch of the paddles on the roller, creating a firmer seed bed.

Every year, Craig completes a Profit Monitor with his Teagasc advisor Eamonn Lynch to keep track of the profitability of individual crops and beans compete very well with the farm's winter wheat, winter barley and spring barley crops. Beans were the most profitable crop on the farm in 2016 leaving a common profit of €605/ha from a yield of 6.5t/ha.

Common profit is the profit that is common to all growers as it excludes land rent, labour and interest. In 2017, beans with a yield of 7.0t/ha were as

Pioneering projects predict CAP post-2020

Lessons learned here show how environmental initiatives can be designed to work for both farmers and the environment

Andy Boland

Teagasc Crops, Environment, and Land Use Programme

At the Teagasc environment conference in December, Dr James Moran of GMIT said proposals for the Common Agricultural Policy post-2020 include the potential for increased flexibility to facilitate the development of more locally adapted and targeted environmental policies.

Ireland has already played a key role in relation to the innovative design of agri-environment schemes like the Burren programmes and more recently through the innovative delivery model of European Innovation Partnerships (EIPs).

"Ireland has a unique opportunity to realise a truly locally-adapted results-orientated agri-environment programme to meet the enhanced ambitions of the CAP post-2020," he concluded.

Ger Shortle (then at the European Commission and now a Teagasc regional manager) said that the new CAP has greater ambitions for climate action and environmental care.

"There is a strong emphasis on subsidiarity and simplification, that means more autonomy for member states in developing their own

approach to implementing the CAP while making the whole process simpler for farmers."

Jack Nolan from the DAFM said sustainable agriculture can continue to protect and improve our environment while facilitating the growth of the agricultural sector. He explained that Ireland's EIP programme is among the most ambitious of any member state. The Hen Harrier Scheme, together with the Fresh Water Pearl Mussel Scheme, will have a combined budget of €35m.

A total of 22 smaller EIPs have now been selected with a total budget of €24m with the support of the EU Rural Development Programme 2014-2020. The projects focus on the environmental priorities of biodiversity, climate change and water quality.

This type of funding had been requested for many years and the challenge now is to get these projects through from startup to deliver real benefits to the environment, local communities and farmers working in these areas. The Teagasc environment conference heard from a number of speakers with practical experience in making their locally led projects a success.

Burren

Burren farmer and local advocate Michael Davoren described what the Burren means to people who live and work there and how important it is to preserve the heritage, tradition and way of farming there.

Dr Bendan Dunford who has worked on the Burren Programme almost from its inception says that the programme was the brainchild of the Burren IFA group who negotiated a Burren REPS agreement in the mid-90s, which followed by a Teagasc Walsh Fellowship project from 1998 to 2001.



The Burren Life project carried through from 2005 to 2010, during which farmers and researchers came up with practical solutions to issues such as scrub encroachment, feeding silage on winterages and water provision.

The success of Burren Life led to DAFM allocating €1m per annum to Burren farmers for six years.

A new results-based measure was introduced to compliment the action-based approach of Burren Life. This hybrid programme adopted a very farmer centred approach and its success led to the further expansion of the Burren Programme in 2016 through Pillar II of the RDP.

It currently includes 330 farmers managing in excess of 22,000ha of land. Brendan Dunford emphasised a number of lessons which have been learned:

- The need to be much better at understanding and engaging with farmers: for example by having a more equitable reward system; allowing more freedom to farm; providing local support; requiring less bureaucracy; celebrating success and not penalising failure.



ABOVE: Female hen harrier. Picture by Barry O'Donoghue

LEFT: Pat Cassidy, farmer participant in Burren Programme, with Martin Feerick Teagasc Burren programme planner.

- Move beyond compensating farmers for stopping negative practices; instead incentivise positive management by paying for the delivery of clearly defined and measurable environmental outputs and results.

Aran Life

Patrick McGurn spoke about the development of Aran Life and the subsequent creation of Caomhnú Ár-ran EIP. With up to 75% of the Aran Islands designated under the EU Habitats Regulation, implementing generic agri-environment measures did not always meet the needs of the farmers or indeed maintain, or enhance, the habitat.

This led to the formation of the Aran Life project (2014-2018). This project worked with 67 farmers on three islands to combat poor access to fields, fields with high levels of scrub limiting grazing, and insufficient water infrastructure and mineral deficiencies in livestock.

The project also looked at the link between agriculture and tourism by conducting surveys of tourists and farmers. The surveys showed a strong correlation between tourism and the

landscape that is maintained by the farming system, highlighting services which were supplied by agriculture but were not rewarded through the marketplace.

Aran Life was a targeted project with specific objectives that reflected the requirements of the habitats involved. It recognised that further actions were necessary as the economics of farming were not favourable to maintaining the condition of the habitats.

It was from this that Caomhnú Aránn was developed and it will try to make innovative application of technology to reduce the administrative cost of the project. The main tools will be an outcome-based, simplified priority habitat scoring system associated with capital actions for habitat improvement.

The scoring system will be linked to remote sensing using drone technology to reduce the administrative cost of the project, increase the quantity and uniformity of habitat assessments and increase farmer involvement.

They will also examine non-subsidy methods of improving farm income

for example by developing innovative ways to deliver mineral supplementation targeted to most at-risk cattle to improve animal performance.

They also plan to 'monetise' the value of species rich grasslands by developing them as a source of seed for regeneration and remediation of degraded habitats in other areas.

Hen harriers

Fergal Monaghan from the Hen Harrier Project spoke about the challenges of establishing the largest EIP in the country with a budget of €25m, 3,760 farmers on 55,000ha of land stretching from the Galway/Clare border to Tipperary through to west Limerick, north Kerry and north Cork. Measures to halt the decline in bird populations including the moratorium on new forestry have been contentious and are seen by many as devaluing their land.

The programme in the Hen Harrier SPAs was planned to supplement the support available through the GLAS scheme. The initial development stage is at an end. "The next stage is building a programme that goes beyond a scheme and that works for, and with, communities across the country to take charge of a sustainable farming for nature approach," concludes Fergal.

As environmental protection and climate change initiatives become ever more important it is encouraging that initiatives are placing greater importance on working with farmers and rural communities.

Six steps to get your finances sorted

January is the time to review your business and personal finances

Kevin Connolly, finance specialist, Teagasc Rural Economy Development Programme.

1 Get organised

The amount of office work is growing steadily, as there is an ever-increasing amount of administration involved in running a farm. In the past, a temporary space in the corner of a living room would often have been adequate, but this is no longer the case.

Set up a dedicated room in the house or farm buildings, the farm office, where you can leave work undisturbed. As a minimum, you need a desk, a fixed place to set up your computer and printer where it is easy to turn on and use. You also need a filing cabinet, a notice board, and an in/out tray.

The in tray is for paperwork that requires attention and the out tray is for paperwork that has been dealt with and can be filed. Post should be opened the day it arrives and be binned, dealt with

straight away and either filed or put in the out tray for filing, or be kept in the in tray for further attention.

Once a week, go through both trays and clear them – dealing with all the outstanding paperwork in the in tray and filing all the paperwork in the out tray. It might be time to gear yourself up to use your computer to help with these admin tasks.

There are some excellent computer tools available to help you with financial records, grassland management, farm compliance tasks and livestock fertility management.

Ask others what they find useful and make a point of learning how to use them during the long evenings so that you are up to speed when the working day starts to lengthen.

2



Build your financial understanding

Review your farm's performance in 2018, a difficult and expensive year for many. The aim is to build your understanding of how the farm's finances reacted to it. The Teagasc Profit Monitor service can help you to look at the key components of what drove the farm's financial performance last year and previous years.

There have been some new reporting updates added to the Teagasc Profit Monitor – see figure in point three – which should help in getting an appreciation of the figures. Comparing last year's financial performance with the previous year can indicate how the farm

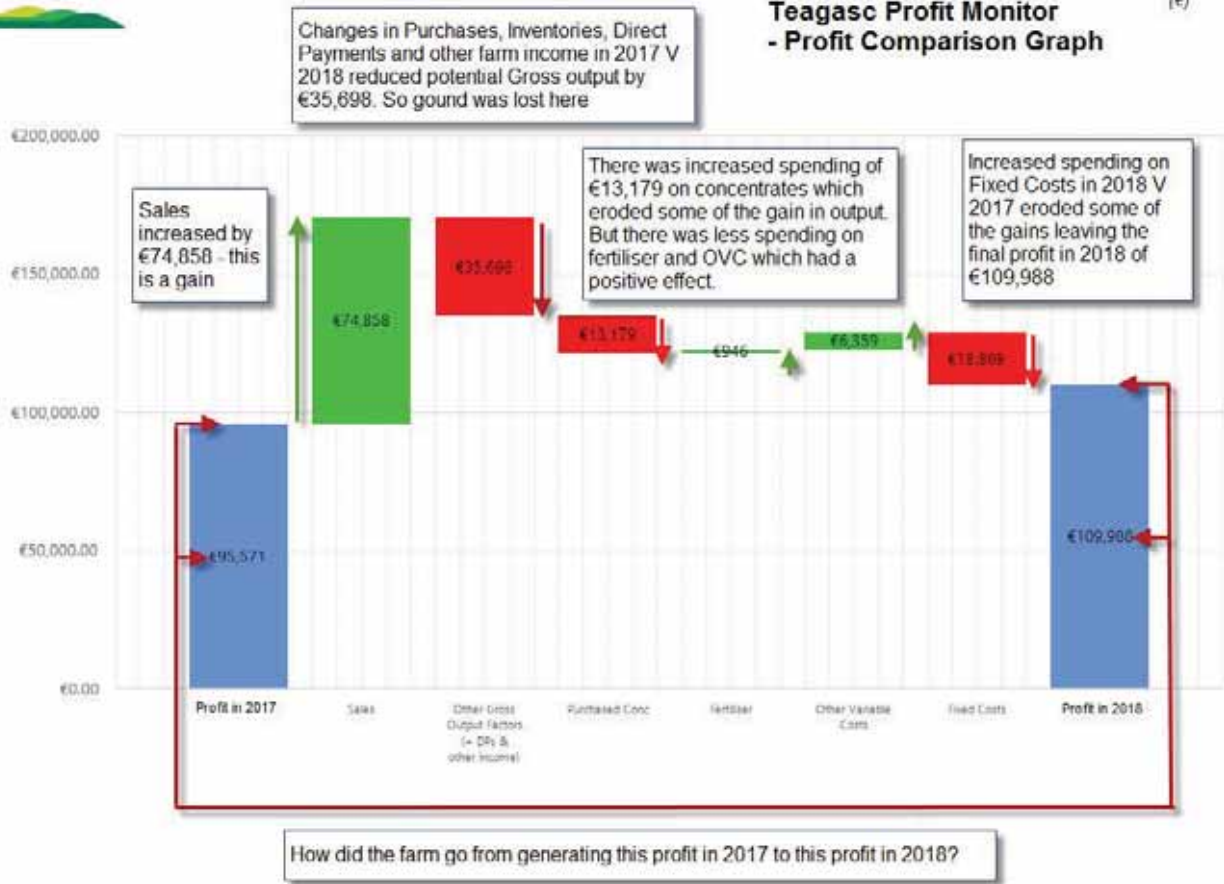
coped with the financial pressures and highlight changes that could help you handle difficult years more effectively.

It is important to look at the trends in income and spending over a number of years. Are the trends in income and spending varying much or is there a pattern? Can you explain why certain years don't follow the general trend for your farm? 2018 might be one of those years where there are a lot of unusual figures showing on your Profit Monitor. Satisfying yourself that these figures are explained by the irregular circumstances last year will give you confidence for the year ahead.



Teagasc Profit Monitor - Profit Comparison Graph

Total (€)



3 Avail of the new Teagasc Profit Monitor benefits

For 2019, Teagasc has introduced a new feature called the multi-year report. This report addresses the need to know whether this year was better or worse than last year and by how much.

The report stacks together the data entered in the system from the last five years and allows breakdown of the figures by selected measures – per hectare of land, per head of suckler cow/

dairy cow/ewe, litre of milk, tonne of crop sold – for each given year. This is similar to the dairy, cattle, sheep, tillage and pig detailed reports which users of the Profit Monitor are familiar with.

Key measures can be shown in bar charts to make it easier to spot trends. The new profit comparison graph helps to trace through the main changes in the factors that determine the farm profit.

4 Think about your succession plans

4

Thoughts about succession might seem premature if you see yourself as a young farmer, but the years fly by. Part of your planning process should be to prepare for an alternative income in retirement and to secure your estate in the event of your untimely passing.

One of the ways you can prepare is to contribute to a pension plan during your working years.

The less you need from the farm, the more freedom your successor will have to invest in the business.

As a minimum, every owner of assets of any kind should have a will in place

outlining how they want their estate to be distributed on their death. Everyone knows about the importance of wills, but a high proportion of people don't have them in place on their passing.

If you haven't made a will, intestacy rules (meaning no will in place) kick in and rule how the deceased person's assets are to be divided.

Making a will involves some thinking and a visit to the solicitor, but it is a fairly straightforward process. If you haven't already done this, regardless of your age, do it now – your dependents will thank you for it.



Continued on p32

Become more familiar with the features and benefits of online banking

Most of us are now accessing information on our bank accounts online. The banks have put a significant effort into their online systems to make getting access to our accounts, safely, a little bit easier, although there are still some login and security password hurdles.

One of the main reasons for the level of security around online banking at the moment is that the scope of what can be done online is increasing beyond balance checking and viewing transactions online.

You can transfer money between your own accounts and to external accounts, you can set up regular transfers (also called standing orders) between accounts, you can schedule future transfers of funds from your accounts on a specific date and with some banks you can now set up additional new saving accounts, and in some cases basic current accounts, using their online systems.

It is important to check on the fees and charges applying to bank services with your own bank, but the ability to easily set up a savings account and quickly move money between accounts can be a useful financial management tool. An emergency reserve fund that can be used as a safety net for the business when cashflow comes under pressure is a useful thing to have.

Using online banking to access and manage these accounts helps greatly in cashflow management – keeping excess cash filtered out of your work-



ing current account and into a reserve account using a banking app or your PC desktop interface can be done in minutes.

Many people now use stocking loans or credit lines as a source of short-term credit during the year. These accounts require that funds are transferred to a current account when required and also that money is transferred back to pay down the debt balance and to ensure the general 30 days in credit rule is adhered to. Online banking using a computer or your mobile phone provides a quick way of doing this, which reduces the interest costs and gives a feeling of better control over the bank credit you use.

One other useful feature of most online banking systems is the ability to look at the sources and uses of cash flowing through your accounts.

These systems now allow you to look at money flows by income or expense category using the information picked up by the bank when the transaction is registered.

A word of caution here – where cheques are used as the main method for paying bills, then there will be no information captured electronically relating to the payment.

Where a bank debit card is used, then the name of the payee is picked up and the main area of business of the payee is attached to the transaction. Try to use the debit card issued with your current account whenever you can – not only will it give you more information on your transactions which you can see on the statements, but it will also cost you less than using cheques, as the bank charges are lower.

6

Get a financial review

If you haven't taken a serious look at your personal finances for a while, make an appointment with a financial advisor to do this early in 2019. Locating an independent advisor can be difficult, but should ensure that you get the most impartial advice on all the possible options available.

Before any meeting, gather details of savings accounts, insurance policies, pension plans, life assurance and illness cover policies you and your spouse are contributing to.

Get up-to-date balances of all the debts you owe – mortgage, credit card, car loans and finance commitments – make sure to note down the remaining years left and the interest rate being charged on each.



Pulling together this information could be an eye-opener in itself.

Try not to forget anything – check your bank statement (using online banking – see above) for any direct debits that are going out of your account towards these various commitments.

You will also need to put some thought into what you are looking to achieve as regards wealth creation or wealth security over the next number of years in the short term and longer into your retirement years.

This may centre around providing for children's education needs or being mortgage-free by a certain age or other targets. Being clear about what you want to achieve will help your adviser find the best options for you.

Why WhatsApp should be a done deal for your discussion group

Adopting this communication tool will greatly benefit your group's effectiveness

Mark Moore

It used to be that an application was something you sent to the guards, for a job perhaps, or a gun licence. Now the word in its shortened form "app" is everywhere. Thousands of apps are published every day. Some are free, many are not. They are generally easy to use with a bit of practice and some are extremely useful on farms. Those of you less enchanted by smartphones and computers may be reaching for that twelve bore, but bear with me.

The Teagasc PastureBase Ireland app for example is a great tool for grass management but let's look at the WhatsApp communication app in particular. It's easier to describe what WhatsApp lets you do than to explain how it works. In short, it allows you to send texts, pictures, videos, etc, free of charge to other people who also have the app on their phones. Many schools and GAA clubs use it.

As part of his Walsh Fellows masters degree, Teagasc colleague Fergus Bogue completed a survey of how dairy farmers were using WhatsApp within their discussion groups.

"One farmer described using WhatsApp as having a huge store of knowledge at your fingertips," says Fergus. "He said that WhatsApp allowed him to contact his Teagasc advisor and his discussion group colleagues instantly and get their opinion on a challenge he might be facing on his/her farm. More than half of the farmers using WhatsApp said they had learned technical information through interaction in their WhatsApp groups.

If all the members of a discussion group have WhatsApp on their phones they are in a position to create a WhatsApp group which can be restricted to people they choose to give access to.

"A lot of the negativity associated with social media such as Facebook or Twitter comes from the fact that strangers can write negative or malicious comments while remain-



ing anonymous. With WhatsApp, you don't have that risk," says Fergus.

WhatsApp is another way of reducing the challenge which isolation poses for farmers. Farmers can see that others face the same challenges they do and can compare notes on solutions, which was particularly useful during the difficult spring and drought in 2018. As with any communication tool, etiquette is required in how you use it. You wouldn't ring someone for a chat about football at 5am, for example.

Farmers in the survey said they like to have a set of rules, written or not, about how members will use the WhatsApp group.

A key point is that the members of the discussion group should be the drivers of whether they have a WhatsApp group and how it should be used. "The farmers should decide what they want to do and how they want to use the tool," says Fergus Bogue. "Any group intending to use WhatsApp should have a meeting set up with their facilitator and chair to set goals and establish a few simple rules. This might include what

their expectations are of each other such as response times and levels of engagement – if all members don't actively participate the benefits are greatly reduced."

“ If all the members of a discussion group have WhatsApp on their phones they are in a position to create a WhatsApp group which can be restricted to people they choose to give access to

WhatsApp is easy to pick up but group members require a basic level of expertise. This can often be shared by more experienced members. Nearly all farmers have a wealth and knowledge and experience that can positively influence discussion groups on WhatsApp. You wouldn't expect to shoot well without spending some time honing your skill.

Breeding future stars

Alan Hurley equine specialist
Teagasc Rural Economy Development Programme

Jimmy Ryan hails from Kilnamack, Clonmel, Co Tipperary, and is a modest-scale but very successful horse breeder. Recently retired as principal at St Mary's National School, Jimmy has always had an interest in horses and started breeding over 30 years ago.

"I got my first mare from the late Ted Keane in Cloneen, a brilliant horseman. My foundation mares were by Clover Hill which were crossed with either Cruising or Cavalier Royale and kept the resulting fillies which gave me an excellent genetic base," says Jimmy.

A modest man, Jimmy Ryan has bred horses of the highest quality including Electric Cruise who competed at the London Olympics in 2012. He bred the mother, grandmother and great-grandmother of Electric Cruise.

The offspring from his Kilnamack broodmares have qualified for the RDS Dublin Horse Show on numerous occasions. When asked which mare has done the most for him as a breeder? Jimmy smiles and, without hesitation, says: "Kilnmac Sally (pictured), the mare that bred Electric Cruise and several other high-class winners. She is rising 23 this year and her progeny now forms a large part of my foundation stock today."

At its most fundamental level genetics involves the passing of genes (both favourable and unfavourable) from parents to offspring, and unlike



Jimmy Ryan.

management (i.e., nutrition, exercise, and health) genetic selection is permanent and cumulative. Therefore, genetic selection and optimum management when used together generate the best opportunity for improvement and enduring benefits over time.

This means that if a breeder introduces good genetics for traits such as soundness, performance and athleticism they can be improved every generation. This is fundamental to Jimmy's breeding. He says that he tries to "breed horses that are of higher genetic merit than the previous generation".

Nonetheless, if genetic selection mistakes are made then it can take several generations to undo those mistakes.

Fundamental to any breeding programme is a clearly defined breeding goal. A breeding goal should focus on quality over quantity using only proven mares and stallions with good genetics for soundness, temperament and performance traits so the resulting foals are meeting an industry demand.

Jimmy states that his goal is to "to produce a horse of international fame who will potentially jump 1.50m or go to 3* eventing". From talking with Jimmy, it is clear he has a passion and a focus on breeding the correct type of individual that meets a market requirement.

So what advice would you give to a young breeder? I asked. "Start with the very best mare you can afford and then objectively look at her faults and failings.

Then select a stallion that will complement her; the mare and the stallion's progeny should also be consistent performers.

"You need to be realistic of what the mare is capable of producing.

"I go to Lanaken every three years and enjoy watching the jumping but in particular I study the catalogue and look to see if there are any stallions that are a little bit



more prominent in producing show jumpers. I also attend the RDS young horse qualifiers every year and mark any notable stallions with several offspring as well as paying close attention to the dam lines.

"There are several young stallions that are proven to jump which I would love to use but they are not proven as sires and when you are in the market of selling foals you need to have a



LEFT: Jimmy Ryan with Kilnamac Sally one of his most successful broodmares.
 ABOVE: Electric Cruise ridden by Joseph Murphy.

 Key messages

- You must define a clear breeding goal.
- A successful breeding programme needs to be based primarily on genetic selection in addition to phenotypic selection.
- Focus on breeding from mares that meet strict criteria such as soundness, pedigree, performance, athleticism, and temperament.
- Don't expect the stallion to compensate for too many faults on the part of the mare.
- Learn from your mistakes and, more importantly, learn from the mistakes of others.

Waterford sport horse breeders

In 2013, Jimmy joined the Waterford Sport Horse Breeders' discussion group. There are over 30 members across east Cork, south Tipperary and Waterford.

"It's invaluable because if I have a problem there is someone else who has also encountered the same issue. I can bounce ideas off other members to solve issues quickly and effectively and it also gives you a different perspective on things," says Jimmy.

"The group is very passionate and we all have a strong desire to learn from each other's production systems and improve our business. Everyone has something of interest to contribute. This year as a group we took professional footage of all foals. The footage was subsequently uploaded on to Facebook and Irish Horse Gateway." This proved to be a successful sales tool as he has already sold two foals using these platforms.

proven pedigree," Jimmy says.

When picking a stallion Jimmy looks for four criteria: "Pedigree, conformation, stallion performance record, and the success of his progeny. Most of the stallions on the continent will tick all those criteria; similarly, those four criteria also apply when selecting your breeding mare," says Jimmy.

When it comes to selling foals, he

says: "It is essential you sell into a yard where you know the foal will be produced to reach its true potential." And what of Jimmy's breeding plans? "To continue to breed horses of international standard using the top-ranked sires listed on the World Breeding Federation for Sport Horses. Now that I'm retired, I will consider keeping a few foals until they are three and see if they have a jump."

Kilkenny dairy farm yields a welcome dividend

Tom Houlihan, Michel Somers and Richard Walsh
Teagasc Forestry Development Department, Teagasc Crops Environment and Land Use Programme

Michael Owens farms near Castlecomer/Clough in north Kilkenny, a strong hurling country. A land-use decision taken by Michael's late father, Denis, in 1989 has yielded a welcome dividend.

"Myself and my brother Martin run a spring-calving dairy herd along with some beef cattle," says Michael. The brothers milk 125 cows on a holding of almost 80ha. Michael is keen on grassland management and uses Norwegian Red straws to achieve hybrid vigour in the herd.

"We want to do the job well and move forward but we don't believe in trying to maximise cow numbers for the sake of it. We try to do our best with our resources and there is certainly a role for forestry. With all the talk of carbon emissions, forestry will probably become even more important."

Michael and Martin recently installed a DeLaval robotic system with two milking units side by side. Adjustment to this new automation has been fairly seamless. "It has brought a balance to the farm workload and has made running the farm more manageable," says Michael. A complex system of chutes and gates makes managing individual cows straightforward and once milked animals are directed back to the right paddock during the grazing season.

Having trained in forestry, Michael's late father Denis planted 2.5ha of mainly spruce in conjunction with some broadleaf species in 1989. At the time, forests were a new enterprise and he felt there was merit in it, having received positive insights

from his training. "There was a little controversy at the time," says Michael, "particularly as the fields had some road frontage. But my father had great foresight and having overseen thinning operations followed by the final harvest of the timber in October 2018 it was a great decision."

The farm forest matured rapidly following two profitable thinnings in 2010 and 2014. The net productive area was 2.2ha. According to Michael, "Our experience is that it has only added to the place."

Michael continues: "We are very happy with the way the harvesting worked out. The whole job was done in three days, it has delivered over 750t (which converted to 820m³ freshly cut) and the price we will receive is about €55/t, perhaps even a bit more. We are lucky timber prices are strong at the moment. It will cost just over 10% of the money we receive to replant and put it back."

Strong demand

With strong demand for timber at present, farm forest owners have a valuable crop on their land. "I was impressed with the timber and return from the forest," says Michael. "It yielded pretty well, it was fairly straight and the product breakdown was 45% sawlog, 37% pallet wood and the remainder going to pulp. That's a pretty decent forestry yield."

Timber prices can vary over time and according to a range of factors such as tree quality, forest type, woodlot size, quality of access and



Kilkenny dairy farmer Michael Owens.

distance to market. Timber returns from managed forests are exempt from income tax but subject to relevant USC and PRSI charges.

Michael is also very aware of the need for protection and enhancement of his farm environment. He describes how during the harvest "number one, the weather was super, the ground was bone dry, there wasn't a mark on the ground, but the brash was piled up in rows along the site and the forwarder (collecting the timber) travelled along these.

"Basically, it doesn't touch the ground and didn't impact with the soil in any way."

The existing broadleaf trees in the



Teagasc forestry clinics in 2019

Why should we focus on growing and utilising more grass?

Teagasc will run a nationwide series of forestry advisory clinics between 21 January and 1 February, promoting the establishment and management of forestry as a sustainable and rewarding land use on Irish farms.

These one-to-one clinics will be held in Teagasc offices around the country on specific dates, where a private individual consultation with an experienced forestry advisor can be arranged by appointment. The Forestry Programme offers landowners many options in relation to forest establishment, with a range of attractive grants and annual premium categories available.

A land use change to forestry, like any new farm enterprise, will raise many questions. A consultation with your Teagasc forestry advisor will provide independent and objective advice, empowering you to make informed decisions on many relevant issues including the following:

- Opportunities for farmers and other landowners to diversify farm enterprises and make marginal land work for them.
- Interaction with other farm schemes, e.g. Basic Payment Scheme (BPS), Green Low-carbon Agri-environment Scheme (GLAS).
- Available funding streams.
- How forestry can improve farm income and the environment.
- How to apply and get the job done right first time.
- Managing the harvest and timber sales.

Although the emphasis for the upcoming clinics is on new planting, existing forest owners, regardless of what stage their forest is at, can also avail of this opportunity to pick up valuable management tips. Prior booking of a one-to-one forestry consultation is essential. Please bring maps and other relevant information on the day to optimise the advisory experience and outcome.

A total of 39 clinics are scheduled around the county. For details of a clinic taking place close to you, log on to: <https://www.teagasc.ie/crops/forestry/news/2019/forestry-clinics-january-2019.php> or contact your local Teagasc forestry staff.

These clinics provide an ideal opportunity to get answers to your forestry questions – don't miss out.



forest were retained and Michael will replant a further 10% through the site for environmental and aesthetic reasons.

Michael can now make plans for his forestry returns. "When you are farming you have a lot of options for what you are going to do with money. I have four children and hopefully they might go to college."

Many farmers like Michael have the potential to diversify their on-farm resource and future potential income streams. At the same, a growing forest can efficiently sequester carbon and can help in efforts to offset greenhouse gas (GHG) emissions.

Through whole-farm planning, forests can be integrated into existing farms and provide options on

appropriate land parcels. Forestry premiums, combined with retained basic payments and tax-free returns generated from timber production, can diversify income streams and enhance family farm income.

Mortgage

For a younger farmer, forestry may provide an ideal way to help with the mortgage on a new family home or help towards sustainable farm investments. And for maturing farmers a forest can make an ideal pension pot.

Michael is now looking forward to getting the forest planted again and seeing the next forest establish and rapidly grow, adding with a smile: "Hopefully when I am about 70 I will get some retirement money out of it!"

New education options on the way

John Mulhern

Principal at the Teagasc College at the National Botanic Gardens

Teagasc is a leader in land-based training and the numbers progressing through our courses in colleges and regional management units are a testament to that.

Achieving a Green Cert to avail of young farmer advantages in EU and DAFM schemes is usually goal for new entrants to farming or horticulture.

Green certs can be achieved by following a two-year programme in agriculture in your local agricultural college or through the Teagasc regional office education structure. In March, all the Teagasc colleges will host open careers events (see panel with dates) where students and parents can see and learn about what courses are on offer.

Many young school leavers from commercial horticulture backgrounds in the Leinster area enrol to do a two-year programme in horticulture. The Teagasc college at the National Botanic Gardens offers full- and part-time courses in horticulture that can qualify a person with a Green Cert.

The college offers a one-year Level 5 certificate in horticulture leading to a one-year Level 6 advanced certificate in horticulture, which is a recognised Green Cert qualification. For individuals who want to learn about horticulture, this route is undoubtedly the one they should follow.

This course also allows progression to a degree programme in horticulture that is Level 7 accredited and would undoubtedly enhance employability. The demand for staff to work in horticulture currently outstrips supply. Companies involved in landscaping, garden maintenance, sportsturf are all actively looking for keen horticulturalists who have a strong work ethic and want to work in the outdoor space. We are inundated with requests weekly from companies who wish to hire our graduates into the amenity horticultural sector.

On the commercial horticulture



Graduates of horticultural courses currently enjoy excellent job prospects.

front the Level 6 stream on food production can be followed which also delivers a Green Cert to successful candidates. People from commercial vegetable production backgrounds would be suited to this stream. This two-year programme is available in both Teagasc horticultural colleges (National Botanic Gardens and Kildalton).

Apprenticeships

This year, Teagasc with stakeholders is pursuing a new initiative, the apprenticeship model. Work is ongoing in the development of five land-based apprenticeships across the areas of horticulture, agriculture and equine studies. Teagasc is working with SOLAS (the Further Education and Training Authority) to make this happen in 2019.

In horticulture, the Teagasc College at the National Botanic Gardens, in

collaboration with Teagasc Kildalton College, is building two apprenticeships with relevant stakeholders in turfgrass and in general horticulture. We envisage a two-year apprenticeship that will be equivalent to the current Level 6 in Horticulture that is available in both colleges.

The apprenticeship format will be work-based with apprentices trained through the employer for the majority of the duration, with the college delivering targeted academic training.

This format differs from the existing Level 6 route in that apprentices are directly employed by the company under contracts of employment and are bound by employment law. They are then released for academic courses in the college. This timeframe will follow an 80/20 work/college format. This route will also result in a Green Cert.

The apprenticeship model is a positive step in facilitating more people into work-based training in horticulture. Participants will have active employment with a designated trainer who will guide the development of the individual in the craft of horticulture. More information on apprenticeships will become available over the next six months so keep an eye on Teagasc website or contact me directly in the College of Amenity Horticulture in Glasnevin.

• **Friday 1 March 2019:** College Open Day, Teagasc, Kildalton Agricultural & Horticultural College, Piltown, Co Kilkenny, 10am and 11am.

• **Wednesday 6 March 2019:** College Open Day, Mountbellew Agricultural College, Mountbellew, Co Galway, 9.30am, 10.30am and 11.30am.

• **Thursday 7 March 2019:** College Open Day, Botanic Gardens, Teagasc College of Horticulture, National Botanic Gardens, Glasnevin, Dublin 9, 2pm to 4pm.

• **Friday 8 March 2019:** College Open Day, Ballyhaise Agricultural College, Ballyhaise, Co Cavan, 10am to 1pm; college Open Day, Teagasc, Clonakilty Agricultural College, Darrara, Clonakilty, Co Cork, 11am and 12pm.

• **Wednesday, 13 March 2019:** College Open Day, Gurteen College, Ballingarry, Roscrea, Co Tipperary, 10.30am to 12.30pm.

TEAGASC DAIRY MANUAL

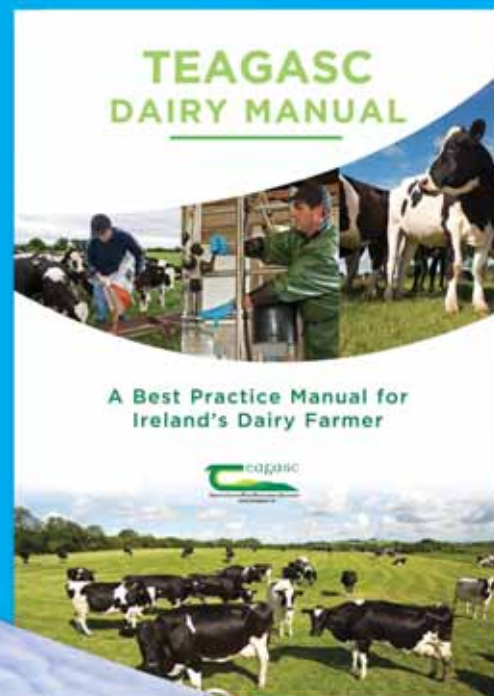
A comprehensive source
of practical advice
for any dairy business.

- Why dairy farming?
- Business management
- Dairy facilities
- Dairy farming and the environment
- Milk quality
- Feeding dairy animals
- Dairy breeding
- Dairy animal health

These sections are further divided into a total of 49 chapters with titles such as: Creating a Business Plan, Winter Facilities, Feeding the Dairy Cow, Managing Your Grass, Replacement Heifer Management etc.

The information within each chapter is built on feedback from farmers and is laid out as Questions and Answers, How-to's, Key Performance Indicators, Key risks, etc. making the Manual extremely easy to read and use. The Manual will be of particular interest to anyone planning to expand over coming years.

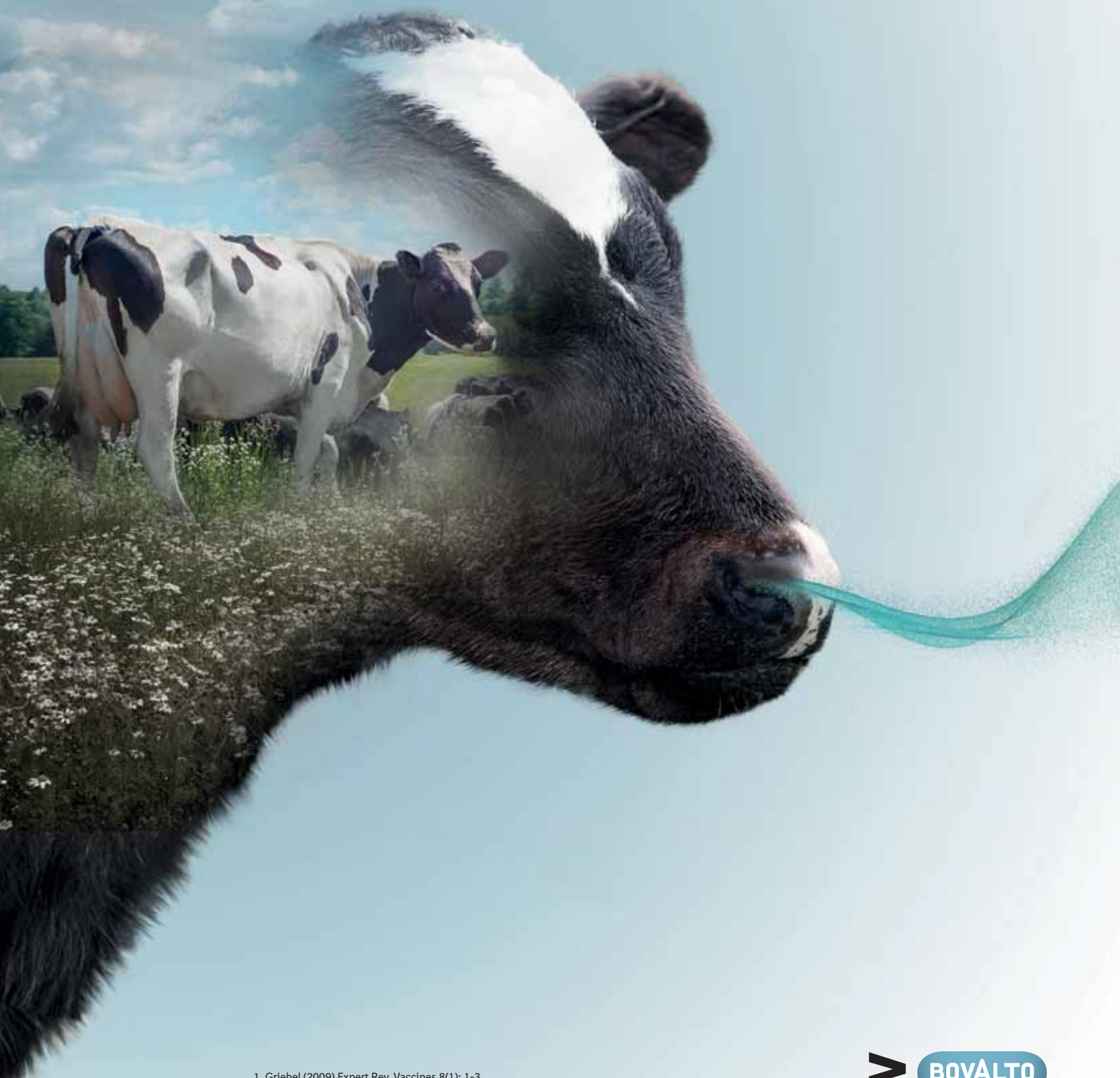
A must for anyone with an interest in dairy farming the 310-page Manual is produced using tear-proof, water-proof paper for real world conditions.



The Teagasc Dairy Manual is available from your local Teagasc office (clients €25, non-clients €50). Alternatively contact **Therese Dempsey (059 9183422)** who will send you a copy by post (p&p €7.50 extra)

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