



Today's Farm

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COMMENT



Mark Moore
Editor,
Today's Farm

New Teagasc Director, new challenges

In this edition of *Today's Farm*, we have taken the opportunity to introduce Teagasc Director Professor Frank O'Mara to you. Frank is taking over at a time when prices for virtually all farm outputs are buoyant, but there are serious challenges on the horizon.

"It's no exaggeration to say that climate change is the biggest challenge facing not only farmers, but all of human society," says the new Director.

"Teagasc has a huge role to play in creating a pathway which includes finding new technologies and supporting their conversion into farm practices, which will enable farmers to reach climate neutrality while maintaining food production and farm incomes."

As we go to press, Ukraine 'the breadbasket of Europe' has been invaded. As well as the tragedy of seeing war break out, this brings great uncertainty to markets, farmers and consumers everywhere. It also places our day-to-day challenges in context.

Stiúrthóir nua, dúshláin nua

San eagrán seo *d'Fheirm an Lae Inniu*, tá an deis tapaithe againn stiúrthóir nua Teagasc, an tOllamh Frank O'Mara, a chur in aithne duit. Tá Frank ag teacht i gceannas mar an stiúrthóir tráth a bhfuil na praghsanna ar bheagnach gach aschur feirme buacach, ach ní hin le rá nach bhfuil dúshláin shuntasacha amach romhainn.

"Ní haon áibhéil é a rá gurb é an t-athrú aeráide an dúshlán is mó atá le sárú, ní hamháin ag feirmeoirí ach ag an tsochaí i gcoitinne," arsa an stiúrthóir nua.

"Tá ról rithabhachtach ag Teagasc maidir le conair a chruthú, lena n-áirítear teacht ar theicneolaíochtaí nua agus tacú lena gcur chun feidhme i gcleachtais feirme, i dtreo cur ar chumas feirmeoirí neodracht ó thaobh aeráide de a bhaint amach gan cur isteach ar tháirgeadh an bhia ná ar na hioncain feirme."



Teagasc advisor Tom Coll and Sligo sheep farmer Francis Gonly.

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COVER: Professor Frank O'Mara has become Teagasc Director at a time when challenges to farmers and the whole food chain are growing, read his views in our interview on pages 29-31. \ Mark Moore

Forest establishment walks

Teagasc, in association with the Department of Agriculture, Food and the Marine (DAFM), will hold a series of forest walks from 21 March to 1 April. At each event, forestry experts from Teagasc and the Department will focus, in particular, on forest establishment and early management. All events commence at 2pm.

Registration is necessary at www.teagasc.ie/forestwalks2022.

County	Nearest town	Date	Woodland type	Advisor
Cavan	Ballyhaise Village	Tuesday 29 March	Mature forest & reforestation	Kevin O'Connell 087 1216159
Clare	Kilmaley	Friday 1 April	New conifer forest	Michael Somers 087 1216163
Cork	Crosshaven	Wednesday 23 March	Native woodland	John Casey 087 2242283
Donegal	Ballybofey	Monday 28 March	Young broadleaves	Steven Meyen 087 6775158
Galway	Headford	Tuesday 22 March	Agroforestry	Noel Kennedy 087 9090504
Kildare	Kill	Thursday 24 March	Native woodland	Liam Kelly 087 9090495
Limerick	Shanagolden	Thursday 31 March	Young conifer and broadleaves	Jonathan Spazzi 087 7102739
Longford	Ballycloghan, Carrickboy	Tuesday 22 March	Native woodland	Liam Kelly 087 9090495
Mayo	Kilmovee	Tuesday 29 March	Native woodland and conifer crop	Noel Kennedy 087 9090504
Roscommon	Brideswell	Thursday 24 March	Native woodland	Noel Kennedy 087 9090504
Tipperary	Rearcross	Friday 25 March	Conifer thinning	Michael Somers 087 1216163
Wexford	New Ross	Wednesday 30 March	Mixed woodland	Frances McHugh 087 6222111
Wicklow	Laragh	Thursday 24 March	Native woodland & conifer	Frances McHugh 087 6222111

College Open Days

Hear about courses available and meet staff, at the following colleges:

Friday 4 March 2022

- **Teagasc Ballyhaise Agricultural College**
Ballyhaise, Co Cavan, H12 E393. Time: 10am - 1pm.
- **Teagasc Clonakilty Agricultural College**
Clonakilty, Co. Cork. P85 AX52. Time: 10am - 12 noon.
- **Teagasc Kildalton Agricultural College**
Piltown, Co Kilkenny, E32 YW08.
Tours start at 10am and 11am.
(Apologies if your edition of *Today's Farm* arrived after these dates.)

Wednesday 9 March 2022

- **Gurteen College Open Day**
Gurteen College, Ballingarry, Roscrea, Co Tipperary, E53 TP93. Time: 10:30am - 12:30pm.
- **Teagasc College of Amenity Horticulture Open Day**
Teagasc College of Amenity Horticulture, National Botanic Gardens, Glasnevin, Dublin 9, D09 VY63. Time: 12 noon - 3pm.

Saturday, 26 March 2022

- **Salesian Agricultural College Open Day**
Pallaskenry, Co Limerick, V94 V8N3. Time: 11am - 2pm

Soils, nutrients and fertiliser factsheets

This compendium of 20 soils, nutrients and fertiliser factsheets is designed to assist farmers with nutrient management planning, optimisation of soil fertility, using organic manures strategically and increasing clover in swards, all balanced with prudent fertiliser usage.

A compendium of 20 factsheets has been assembled by Teagasc to provide the latest technical advice and are available for all farmers to view and download on <https://www.teagasc.ie/crops/soil-soil-fertility/soils-nutrients-and-fertiliser-factsheets>. They can also be viewed and downloaded on the 'Publications' section of the Teagasc website at <https://www.teagasc.ie/publications/2022/soils-nutrients-and-fertiliser-factsheets.php>.

They cover soil testing, lime application, organic manures, clover, P and K advice and protected urea. There are also detailed enterprise factsheets with practical advice for farmers with cattle, sheep, dairy and tillage businesses. The importance of growing enough grass this year and securing enough fodder for next winter are also addressed in individual factsheets.

Teagasc has a detailed programme of knowledge transfer events, published articles, videos and podcasts providing information for farmers as part of the Soils, Nutrients and Fertiliser campaign. These are available through www.teagasc.ie and other Teagasc digital platforms.

Teagasc Manual on Drainage and Soil Management

The great variety of soils and soil problems means that every drainage challenge on mineral soils is unique. Careful investigation of the site, professional diagnosis, prudent assessment of the costs/benefits, expert implementation of a planned project and due consideration of environmental factors are all essential.

The Teagasc Manual on Drainage and Soil Management is laid out to easily provide answers for readers seeking information on any aspect of drainage or soil management.

Each section begins with a brief introduction and a list of the questions addressed within it. The questions are repeated in each section to ensure easy navigation. The manual can be downloaded for free at https://www.teagasc.ie/media/website/environment/soil/Teagasc_Drainage_Manual_2022.pdf

Printed versions of the manual can be purchased for €40. To order, please contact Oakpark Reception on +353 (0)59 9170200 or email to info@teagasc.ie.

Discount available to Teagasc clients.

Spring Beef Grass walks

These upcoming walks will focus on spring fertiliser applications, the value of slurry, making the most from soil sample results and ensuring you make enough silage in 2022.

Find out more at www.teagasc.ie/beefgrasswalks.

Date	Location	Time
2 March	Michael & Tom Roddy, Dundalk, Co Louth	2pm
2 March	Gerard Mulligan, Mohill, Co Leitrim, N41 EY75	2pm
3 March	Aidan Maguire, Navan, Co Meath, C15 W4C2	2pm
4 March	Colin Tyner, Arklow, Co Wicklow, Y14 X440	11am
4 March	Mark Geoghegan, Newtowncunningham, Co Donegal, F93 PR90	11.30am
7 March	Dermot Costello, Nenagh, Co Tipperary, E45 WF58	2pm
8 March	Gavin White, Abbeyshrule, Co Longford, N39 X967	11am
8 March	Brendan McKearney, Castleblaney, Co Monaghan, A75 YN25	2pm
9 March	Michael Carroll, Bagenalstown, Co Carlow, R21 P030	11am
9 March	Conor McGrath, Tullamore, Co Offaly, R35 TP60	11am
10 March	Daryl Good, Aherla, Co Cork, P31 F250	1pm
10 March	Paddy O'Brien, Ramsgrange, Co Wexford, Y34 FT62	11am
10 March	Oliver O'Hara, Leckaunaskeagh, Co Leitrim, F91 Y8P6	3pm
11 March	Jimmy Madigan, Ballyhale, Co Kilkenny, R95 W407	11am
15 March	Ted O'Connell, Stradbally, Co Waterford, X42 T992	11am
15 March	Alan Redican, Ballymote, Co Sligo, F56 KF30	2pm
15 March	Brian Murphy, Shrile, Co Mayo, H91 Y076	3pm
16 March	William Scott, Donegal Town, Co Donegal, F94 D524	11.30am
22 March	Michael Culhane, Ballygarreen, Co Clare, V94 Y2N6	11am
23 March	Tim Mulcahy, Whitechurch, Co Cork, T34 T102	2pm
24 March	Ciaran Bartley, Boher, Co Limerick, V94 XD23	2pm

ADVERTORIAL



Developing calves from the inside out

Maeve Regan,
Head of Ruminant Nutrition, Agritech

Newborn calves are born with undeveloped rumens, yet they will spend most of their lives as fully functioning ruminants. Rumen development begins within the first few days/weeks after birth and is advanced by exposure to healthy bacteria from the environment and the consumption of solid feeds. Hence, the importance of introducing a high energy/18% crude protein calf starter ration from approximately 3 days of age, with free access to fresh clean water and high-quality clean straw (no haylage or silage).

Weaning should not be considered until calves are consuming at least 1-1.5kg of concentrates per head per day – signalling that the calves dry matter intakes can cope with the transition to a solid feed diet.

Importance of diet for early rumen development



A. Milk Only



B. Milk & Hay



C. Milk & Grain

Rumen development at six weeks. When fed milk only (A) the rumen has no papillae and is white in colour, meaning there is little feed absorption possible. When fed milk and grain (C) the rumen at six weeks shows developed papillae and is dark in colour, allowing for significant feed absorption.

Source: Penn State University

What is happening to dairy calves at grass?

Year on year, in the proceeding weeks after turnout to grass, cases of calves suffering from setbacks such as summer-scour syndrome or calf wasting symptoms have been reported.

Spring grass is very high in oils like CLA (conjugated linoleic acid), sugars and potentially nitrogen, and to a young undeveloped rumen, this can be hard to adjust to. In addition, low covers of grass also have very little fibre, which is a key substrate for good rumen health. Ensuring greater rumen development in early life will help combat these issues, alongside practises such as, offering concentrates post-turnout, grazing slightly heavier covers of grass, using a strip-wire to ensure stem is being grazed as well as leaf and/or offering a fibre source at first to ease the transition.

For further calf rearing advice, contact your local Agritech sales advisor or visit www.agritech.ie



www.agritech.ie

Commercial Beef Value (CBV) – what is it?

Appearance alone is a poor predictor of beef potential – the CBV will offer buyers and sellers a better estimate of a calf's true value.

Pearse Kelly

Head of drystock Knowledge Transfer, Teagasc Animal and Grassland Research and Innovation Programme.



There are over 23,000 beef farms nationally who buy stock that they take through to slaughter or rear and sell on as live animals. Currently, they are buying calves, weanlings and store cattle based entirely on what they see in front of them.

Not knowing whether an animal is bred from good or bad stock in terms of beef genetics, and therefore likely performance, is a serious disadvantage. This is changing thanks to the new Irish Cattle Breeding Federation (ICBF) Commercial Beef Value (CBV). Any stock destined for the beef trade who have their sire recorded at birth can now have a CBV generated for them.

"The CBV is an exciting new development for the industry," says Chris Daly, ICBF. "Since its inception, ICBF has largely catered for breeding herds – dairy and suckler. The CBV is a genetic value tailored specifically to the needs of the farmer buying animals to take through to slaughter. Farmers will have access to it in the mart ring, but also through their HerdPlus accounts."

Commercial Beef Value

The CBV is a value that ICBF is now generating on all cattle that are likely to be finished as beef cattle. This includes all male and female (non-pedigree) stock bred from beef cows, dairy-bred male and female calves sired by a beef bull and male calves sired by a dairy bull.

Table 1: Commercial Beef Value (CBV) cut-off values for top 20%, average and bottom 20%.

	Suckler	Dairy x beef	Dairy x dairy
Top 20% (5-star)	>€302	>€124	>€44
Average	€248	€69	€24
Bottom 20% (1-star)	<€178	<€44	<€1

Source: ICBF – based on the January 2022 evaluation.



Aidan Maguire with his Teagasc advisor David Argue.

The CBV is calculated for each animal using their terminal index, but does not include the traits for calving difficulty, gestation length and mortality.

These traits are not needed when the stock you are buying is not going to be bred from.

The CBV measures the potential the animal has for carcass weight, carcass conformation, carcass fat, feed intake and docility (all based on the breeding indexes of its parents).

Put simply, cattle that have a high CBV will, on average, be faster growing, better shaped at slaughter,

leaner and will not eat as much per kg liveweight gained. They will also be more docile.

Cattle that have a low CBV will, on average, be poor for many of these traits.

High CBV cattle are therefore worth more than low CBV cattle. Knowing whether animals are high or low for CBV allows the buyer to make a much more informed decision about how much should be paid for each.

What's a good CBV figure?

CBV values will be a lot more use to the buyer if they compare like with like. A beef calf bred from a suckler cow is almost always going to have a much higher beef merit than a Holstein Friesian bull calf bred from a dairy cow.

It makes sense for the farmer buying suckler-bred animals to compare them with other suckler-bred animals. A farmer buying dairy male

calves should compare their CBV with those of similar animals.

A 'within breed type' star-rating has been included in the CBV, which will help farmers identify the best animals within the breed type that they are buying.

Table 1 shows the CBV for the top 20%, bottom 20% and average for the three breed types.

It is important to remember that genetic breeding values only improve your chances of making the right decision. They are not always right. Favourites don't always win horse races and the 40-1 outsider sometimes beats the odds and wins.

However, on average across a large number of horse races, the favourites always earn the most prize money and the outsiders, by comparison, make very little. The CBV is no different.

Not all high CBV animals will make the most money and low CBV animals will not always end up with low value carcasses.

If you consistently buy higher CBV stock within the type of animals you buy and avoid buying low CBV stock within the same category, you will be massively increasing your chances of purchasing the better bred animals.

After that, the only decision that



has to be made is how much extra you are willing to pay per head for higher CBV stock.

In all likelihood, until CBV becomes mainstream among purchasers, there is unlikely to be a significant difference in the costs for high, versus low, CBV animals.

Where are the CBV values?

All commercial beef cattle that have a sire recorded for them at birth now have a CBV generated by ICBF. If you are signed up to ICBF HerdPlus on-line service, you can look it up today for the stock you already have.

When you log into to your account under the 'View Profiles' tab at the top of the screen, you will find 'Commercial Beef Value (CBV)'. Once you

select that, all of the stock on your farm that are eligible to have a CBV are displayed, and if they have a sire recorded for them, a CBV will be given.

Each animal is labelled under one of three breed types: dairy x dairy, dairy x beef or suckler. Apart from a CBV value, they are also given both a 'within breed type' and 'across breed' star rating. The five traits that make up the CBV are also displayed, showing a value for each animal for each trait. One animal might have a high CBV due to very good expected carcass weight, whereas another may be high due an expected high conformation score.

» Continued on next page

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Pat Collins, Castlemartyr,
Co Cork.

» Continued from page 7

CBV at purchase?

It's one thing being able to see the CBV of the stock you already have on your farm. The real advantage, of course, is going to be when you can see it for the stock you are thinking about buying.

If you are buying animals directly from another farmer, you can ask them for a print out of the CBV of the stock they are selling.

Once they are in HerdPlus and have recorded the sires of their calves, farmers have access to this information. If they don't record the sires and you want to continue buying their stock, ask them to record sires on all births in the future.

Having the CBV displayed on the marts screens along with all of the other information shown for cattle in the sale ring will be a huge advantage to buyers. ICBF is currently working with marts to get the CBV displayed for eligible animals.

Is CBV for sellers?

While it is obvious that the CBV will be a great tool for calf and cattle buyers, it can also be of benefit to the farmer who is selling stock. If you are breeding calves, weanlings or store cattle for sale that have above average beef merit when compared to similar breeds of cattle on sale, then this should be reflected in the CBV values of your stock.

These higher CBV values can be highlighted to potential buyers, whether through on-farm sales or when selling through the mart.

If the CBV of your stock is below average compared to their counterparts for sale, what can be done? The beef genetic merit of the bull that is being used should be examined first. If you are using a stock bull, should he be replaced with a higher genetic merit bull?

If you are using beef AI, look at the sires you are using and consider changing them to higher beef merit bulls. If changing the bulls used in a herd is not having a big impact on the

CBV of the calves, they are producing then you have to look at the cow type you have.

The cow makes up 50% of the genetics of the calf and if she is lacking in beef merit, it will be difficult to make progress quickly.

"CBV could encourage the breeders, mostly dairy farmers, to use beef straws on some of their cows or improve the quality of any bulls they might be using for 'mopping up'," concludes Aidan Maguire, Navan, Co Meath.

"Beef and dairy farmers could work together to generate a bit more for everyone. Sellers should be able to get a better price and the buyers should benefit from higher animal performance."

"The CBV could take off if farmers hear about it and understand its potential," says Pat Collins, Castlemartyr, Co Cork.

"There's no easy money in beef and if we can generate more margin by utilising good genetics, that makes sense to me."

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Performance, profit, protecting the environment

This Waterford family, who are part of the Teagasc Future Beef programme, demonstrate exceptional beef farming in tune with the environment.



Aisling Molloy
Teagasc Future Beef
Programme Officer.



Eamon McCarthy and son Donnchadh farm 45.47ha at Glendine, Co Waterford. Their land is in three blocks in the west of the county, on the border with Cork and close to the seaside town of Youghal.

The McCarthy family, which includes Eamon's wife Liz and their two older children, Niamh and Cillian, run 50 suckler cows and are split 70/30 between spring and autumn calving. Males are finished as bulls and at under 16-months, heifers not needed as replacements, at 20 months.

"We've always had a focus on farming as efficiently and profitably as possible, but we also have a keen interest in the environment and we don't want our farming to harm the environment around us," says Eamon, who attended Rockwell College in Co Tipperary, completing the Farm Apprenticeship Scheme and qualifying as a farm manager.

"We like to try and be ahead of the curve if we can. There's always something new to help us make progress, so we were interested to apply to be demo farmers in the Future Beef programme when Catriona (Foley) our Teagasc advisor suggested it last year."



Catriona Foley and Aisling Molloy with Eamon and Donnchadh McCarthy.

The aim of Future Beef is to show beef farmers how they can produce a quality product as efficiently as possible, to farm more profitably and be environmentally and socially sustainable.

Key objectives are to:

- Create more sustainable and profitable farms.
- Reduce greenhouse gas (GHG) and ammonia emissions.
- Improve water quality.
- Improve biodiversity.

Farming sustainably

"I believe that being carbon efficient

is the way forward," says Eamon. "Otherwise we can't sell our beef effectively. I believe all beef should be produced with minimal environmental impact. I never removed ditches on the farm as I see a value in them, not only as shelter, but for the biodiversity they contain."

Eamon and Donnchadh are already meeting key breeding targets. All cows are bred using AI so that complementary bulls can be chosen for each cow, based on maternal and terminal traits. The full spectrum of beef breeds are represented in the herd, with Eamon expressing a slight



Catriona Foley and Eamon McCarthy with some of his finishing stock.

inclination to Charolais. Their calving interval is 363 days and they calve 100% of their home-bred heifers at two years of age. The herd produces 0.98 calves per cow per year.

Replacement heifers are checked for myostatin genes through Weatherbys from existing genomic samples and AI bulls are selected to minimise the risk of difficult calvings.

Animal performance is also exceptional, as they are achieving 200 day weights of 307kg for the bulls and 268kg for the heifers. Similarly, the slaughter performance is reflecting this, as the under 16-month bulls averaged 389kg carcass weight, U= grade at 15.4 months of age. The heifers averaged 299kg carcass weight, R= at 20.1 months of age.

"We have been measuring grass using PastureBase Ireland since 2017," says Donnchadh.

"We aim for cattle to spend a maximum of three days per paddock. We

turn the suckler cows out to grass as soon as they calve in spring, and this year the yearling heifers have been grazing since late January."

Newer technologies like Low Emission Slurry Spreading (LESS) are employed on the farm and protected urea has replaced CAN as the main nitrogen source.

"We learned about it in detail at a local beef discussion group with Catriona last year. I'm happier using it and it is safer than ordinary urea. I believe we need to take on any technologies that can help us reduce our environmental impact," said Eamon.

Special Area of Conservation

The McCarthys have 11.7ha of land near Youghal which is a Special Area of Conservation (SAC) due to the presence of various fish, freshwater pearl mussel, otter, salt meadows and other flora and fauna.

This is managed extensively and

receives no fertiliser or pesticides to maintain the valuable habitat for biodiversity. The autumn calvers graze this land over the summer and Donnchadh says that "anything that is in calf will thrive there."

Eamon and Donnchadh grow 4.6ha of winter barley annually, which is kept for feeding to their cattle over winter in an effort to reduce their carbon footprint.

"It gives us a measure of independence, which we like," says Eamon.

The farm always had some tillage and a small purpose-built attic grain store from the 1970s, which stores the golden barley before it is rolled on-farm. The straw is used for bedding and manure is spread back onto the tillage ground to recycle the nutrients. There are also 6ac of forestry on the farm, consisting of sitka spruce, ash and sycamore. It was planted over 20 years ago in wet land and provides a valuable biodiversity habitat.

Future plans

As part of the Future Beef programme, Eamon and Donnchadh want to produce their beef at as low a carbon footprint as possible: "We try to be as good as we can, we don't see the point in being second best," says Donnchadh.

- They plan to achieve this by:
- Getting better utilisation of their grassland by subdividing more paddocks.
- Making better use of PastureBase Ireland.
- Improving the soil fertility on the farm by following a detailed nutrient man-

agement plan based on recent soil sample results.

- Improving the silage quality on the farm.
- Improve the financial performance of the farm by using the Teagasc cost control planner and completing an annual profit monitor.
- Using ASSAP report recommendations to keep the water quality on the farm at a high standard.
- Reducing the use of dosing products by taking faecal egg samples before dosing.

- Considering the use of clover or multi-species swards to reduce nitrogen inputs on the farm.
- Getting involved in research projects as part of the programme, such as the Pollinator project.

You can keep up-to-date with Eamon and Donnchadh's progress through the Future Beef website at <https://www.teagasc.ie/animals/beef/demonstration-farms/future-beef-programme/> and through the Teagasc Waterford/Kilkenny social media pages.

Get more grass for your money

If you're planning to use less fertiliser, simple grassland management techniques can help maintain the farm's stocking rate, as well as replenishing winter feed stocks.

Philip Creighton
Sheep Enterprise Leader,
Mellows Centre, Athenry.



Damien Costello
Sheep specialist, Teagasc
Animal and Grassland
Research and Innovation
Programme.



Set stocking/continuous grazing systems, where sheep graze the same grassland area throughout the season, are still used on Irish sheep farms. Rotational grazing systems offer greater flexibility in grassland management by providing increased control over sward structure, grazing severity, regrowth periods and overall pasture supply.

To provide a constant supply of high-quality grass to ewes and lambs throughout the grazing season, a useful rule of thumb is to grow the grass in three weeks and graze it in three days. The reason is that the grass plant will only ever have three live leaves at any one time.

During the main grazing season, the grass plant produces a new leaf every five to seven days. Once the plant is grazed or cut, it will begin to form its first new leaf (fresh regrowth) after about three days. This leaf will be fully formed after seven days.

This process repeats itself for the second and third leaf. If the plant is not grazed at this point (three weeks/21 days since cutting or grazing), the first leaf that had been produced will die and the process begins again.

This wastes energy and nutrients and results in a drop in sward quality, as there will be more dead material present in the bottom of the sward.



In a rotational grazing system, the grass plant has the opportunity to fully express its natural growth cycle. By moving animals every two to three days, you are protecting the regrowths (the first new leaf developing) and allowing the plant to maximise its growth potential.

By grazing every three weeks, you are also maximising the quality of the grass being grazed. This also means you are making the best use of the nutrients in fertiliser or slurry.

Rotational grazing involves dividing the grassland area into a number of paddocks, which are then grazed, fertilised and rested in turn.

Take a farm with a flock of 100 ewes stocked at 10 ewes/ha for example. There should be a minimum of five

paddocks of 2ha (5ac) each per grazing group. This can then be further divided using temporary fencing as required.

By subdividing the paddocks, sheep are moving every two to three days. This keeps fresh, high-quality, grass in front of the sheep and allows the area to be grazed quickly, meaning grass can begin growing again.

Grassland management at turnout

The strategic closing up of paddocks in autumn largely determines the grass supply available to ewes and lambs at turnout. The ultimate goal is to turn out ewes and lambs to grass covers that will meet their feed requirements with little or no concentrate supplementation.



On farms operating a rotational grazing system, the aim should be to group up most ewes and lambs into larger grazing groups as quickly as is practical, usually by two weeks post-turnout.

It's a good idea to have a paddock for the group of ewes and lambs that have had 'issues' and require close observation and/or further treatment.

Factors determining optimum grazing group size include:

- Number of divisions available.
- Average size of paddocks and whether there is an option to sub-divide paddocks with temporary fencing.

•The maximum group size of ewes with their lambs which the sheep handling unit can accommodate.

- Overall flock size.
- Whether the farm is all in one block or is a fragmented holding.

Grass measurement

Grass measurement and budgeting need not be complicated or expensive. There are a number of methods that can be used to measure grass supply on farms.

Sward sticks, rising plate meters and the quadrant and shears method, are all commonly used.

The important thing is that some

form of measurement is carried out on a regular basis which can be used to aid management decisions.

In a year when feed and fertiliser input prices have increased substantially, information to help make accurate and informed decisions is essential.

Grass measurement and budgeting can allow strategic supplementation to take place when required, but will also allow you to remove supplementation, with confidence, once growth improves.

By identifying strong grass growth and surpluses, fertiliser applications can be adapted/reduced to suit the current feed requirement.

Farmer experience

Francis Gonley and his family run an all sheep farm on the outskirts of Sligo town. The soil on the home farm (17.9ha) is largely good-quality but can be described as 'heavy'.

It accommodates the lowland ewe flock, which Francis has been steadily expanding in recent years. The out farm, which is 8km from the home farm, is located on Benbulbin in the picturesque area near Glencar Lake and the famous Glencar Waterfall.

This block is home to a Scottish Black-face hill flock and comprises reasonable quality green ground adjoining a large area of commonage. Since joining the Teagasc BETTER farm sheep programme in 2017, priorities for the home farm are:

- Improving soil fertility through liming and where necessary building P and K levels.
- Adding both permanent and temporary fencing to increase number of grazing divisions.
- Reducing the number of grazing groups on the home farm to two.
- Weekly grass measuring and entry of results onto PastureBase Ireland.

Grassland performance indicators 2017 v 2021

Post-turnout, the ewes and lambs are grouped up as quickly as is practical into two grazing groups.

One group consists of mature ewes and lambs; ewe lambs rearing lambs run as a group up to weaning.

Since 2017, the permanent divisions on the home block have increased from

nine to 12 paddocks. When further subdivision is counted in, up to 18 grazing divisions are available during the main grass growing season.

In terms of grass grown, PastureBase Ireland data confirms a huge improvement. In 2017, the farm grew 7.9t of grass dry matter per hectare on the home block – this increased to over 12t per hectare last year.

"I was very sceptical at the start about the use of paddocks, but now I would never go back," says Francis. "By measuring the grass covers, I have confidence to take out surplus paddocks.

"Our stocking rate has been increasing steadily and we are now able to take hill lambs to the home farm for finishing. In short, we grow more grass with less fertiliser," Francis says.

Genetics not injections

Breeding is playing an increasingly greater role in animal health management.

Stuart Childs

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



Natascha Meunier

Beef Healthcheck Programme Manager, Animal Health Ireland.



Antimicrobial resistance is becoming a major concern for human medicine. Antimicrobials include antibiotics, antivirals, antifungals and antiparasitics that are used to prevent and treat infections in humans and animals.

Resistance by pathogens to these products is on the increase at both human and animal level. Such resistance is forecast to be the cause of death for up to 10m people per year

by 2050 if current trends remain unchecked.

Recent regulatory changes to the use of veterinary medicines will mean some change to the way antimicrobials are used in farming. Prophylactic use of antibiotics such as routine blanket dry cow therapy is no longer allowed and antiparasitics will require a prescription from 1 June 2022.

Products to treat diseases will be available where required, but only under veterinary supervision. The old adage of 'prevention is better than cure' very much applies to the future of livestock farming.

Prevention can include:

- Good biosecurity to prevent transmission of disease.
- High levels of hygiene to prevent disease.
- Vaccination has a significant role to play in eliminating some disease on farms, reducing the requirement to treat with antimicrobials.

Is there a role for breeding naturally healthier animals?

For many years, farmers, breeders and advisors have focused on more milk solids, easier calving and higher fertility; but can we also breed for improved animal health?

Health traits such as SCC, mastitis and lameness already account for around 4% of the EBI value. These are important economic traits for all dairy farmers and will be of even greater importance in the future once antimicrobial availability is reduced.

Cows with low breeding values for mastitis and lameness (i.e. showing strong genetic merit for resistance to mastitis and lameness or any other trait of interest) will be less likely to suffer from these illnesses. This will mean they will need fewer treatments, if any.

Looking at the progress in relation to fertility in the Irish national herd gives us some insight into the poten-

Figure 1: Fertility trends for Irish dairy herds participating in HerdPlus from 2012 to 2021 (source: ICBF)



Figure 2

Prevalence of TB, liver fluke, mastitis and lameness in the poorest and best 20% based on breeding values for each disease.

Source: Alan Twomey, Teagasc and Siobhan Ring, ICBF

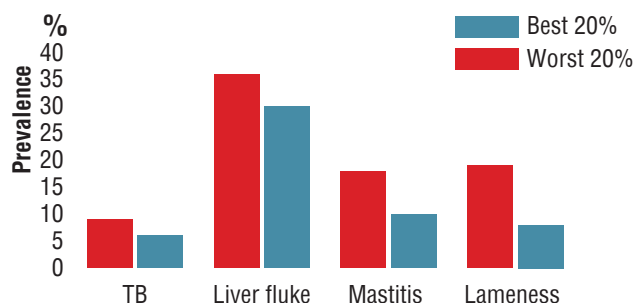
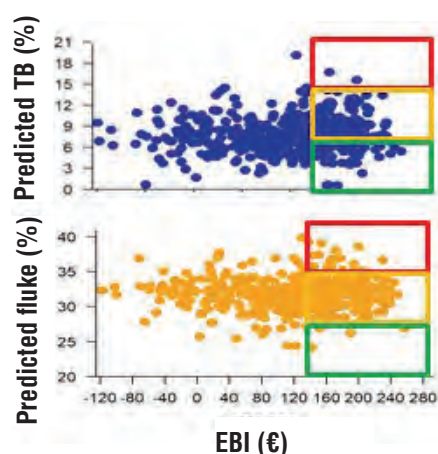


Figure 3: Traffic light system highlights best, average and worst breeding values for TB and liver fluke resistance.

Source: Alan Twomey, Teagasc and Siobhan Ring, ICBF



Traffic light system for using TB and liver fluke resistance breeding values



- Highest overall index bulls with highest predicted prevalence of infection (Red)
- Highest overall index bulls with average predicted prevalence of infection (Yellow)
- Highest overall index bulls with lowest predicted prevalence of infection (Green)

tial for breeding for health.

Fertility, while believed to be a low heritability trait, has improved significantly over the last decade due to the emphasis placed on it in the breeding programme.

While health is also seen as a low heritability trait, we can now, through the use of genomics, dramatically increase the population contributing data.

This helps to overcome the low heritability as it allows for greater selection of animals with the traits of interest. It also allows them to be used in the population of breeding bulls sooner, which reduces the generation interval.

As cow fertility improves and cows remain in herds for longer, animal health will become the main reason for involuntary culling. The emphasis placed on health traits when selecting bulls will, logically, increase.

TB and liver fluke

Depending on where you are in the country, TB and liver fluke may or may not be of significant interest to you. These are two health traits that have been researched extensively at Teagasc Moorepark. The aim has been to investigate whether there is animal resistance to them.



Cows being treated with a pour-on drench to target liver fluke.

This research has found that there is variation between animals' ability to resist TB or liver fluke infection. (see Figure 2).

The data shows that there was a 26% difference for TB and a 17% difference in the case of liver fluke between the best and worst groups. This shows that we could breed for greater resistance to both TB and liver fluke.

While these traits are not currently incorporated in the EBI, they are available on the ICBF website. If you are in an area that is particularly susceptible to either TB, liver fluke or both, you should pick your bull team

for the 2022 breeding season on the criteria that you have identified as needing improvement for your farm.

Then, using the TB and liver fluke proofs and the traffic light system that goes with it (Figure 3), you can make an informed decision in relation to the bulls you use in your herd with regard to these particular health traits.

It will not be an instant fix, but breeding for health traits, as with other traits, is both additive and cumulative, so will be steadily improving the health of your herd over a period of time.

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Fertilising for grass silage

Mark Plunkett

Fertiliser specialist, Teagasc Crops, Environment and Land Use Programme.



Increasing fertiliser prices mean the cost of making grass silage has shot up. However, the cost of good-quality silage is still a lot lower than the cost of comparable concentrate feed in dry matter terms. First-cut grass silage costs around 20c/kg DM, while a kilo of concentrate feed is 40c/kg and rising.

Maximising grass yield and the quality of first-cut grass silage should be the aim on all livestock farms to ensure sufficient winter fodder. Grass for silage is a hungry crop and has a large nutrient (N, P and K) demand, as outlined in Table 1.

To reduce the impact of high fertiliser prices in 2022, aim to apply P and K offtake (index 3) levels to maintain soil fertility levels – this is not a year to be trying to raise soil indices.

Nitrogen

Good-quality grass silage will reduce the need to feed additional concentrates and also reduce the requirement for second-cut silage.

To achieve a high-yielding quality grass silage crop, it is essential to apply sufficient levels of nitrogen (N) at closing time, as there is a very good response to N fertiliser during this period. Under-application will mean that the crop will run out of steam before the expected harvest date.

However, oversupplying N will delay the harvest date, result in very heavy crops of low-quality material and lower animal intake next winter.

For first-cut silage, apply 125kg N/ha (see Table 1). The optimum rate on individual fields will depend on soil type, how much early N was applied and cattle slurry N spread. Between 20 to 25% of early-applied N may be available.

Good-quality cattle slurry can supply from 20 to 25% of the crop's N requirements where it has been applied using LESS technology (trailing shoe/band spreader) at closing time.

For example, a typical cattle slurry application of 33m³/ha (3,000 gals/ac)



Seamus and James Bourke with Teagasc dairy advisor Adrian Curtin.

by LESS will supply around 33kg N/ha of available N. Therefore, adjust fertiliser N rates to take account of this slurry N. It is important to take into account expected harvest date. On average, the crop will utilise 2.5kg N/ha/day.

P and K

The P and K requirements for grass silage are shown in Table 1. Aim to apply index 3 recommended rates (i.e. matching offtake rather than attempting to raise indices) this year to reduce the impact of high fertiliser prices.

Table 2 shows the P and K supplied through an application of 33m³/ha of cattle slurry on a P and K index 3 soil. This will deliver the majority of

the crop's P and K requirements. In this situation, a straight fertiliser N product plus sulphur (S) will supply the balance of the crop's nutrient requirements.

On soils with P and K index 1 or 2, the availability of cattle slurry P and K reduces to 50 and 90% respectively. To maximise the availability of cattle slurry P and K, apply it as close as possible to closing time. This will result in a better match of the slurry P and K to peak grass nutrient demand.

Apply additional fertiliser P to balance the crop's full P requirements if needed. For example, apply 27-2.5-5 or 25-4-0, etc.

Sulphur

Recent research from Teagasc Johnstown Castle on S shows yield responses of up to 3t DM/ha, and increased N recovery by 25%, in grassland. S also reduced nitrate leaching by 46% compared to where N was applied alone. Therefore, aim to apply 20kg S/ha/cut to meet the crop's S requirements.

Table 1: Fertiliser advice (kg/ha) for first-cut grass silage yielding 25t/ha fresh grass (5t DM/ha).

Soil Index	N	P	K
1	125	40	185
2	125	30	155
3	125	20	125
4	125	0	0

Adrian Curtin and James Bourke. James says he believes a good earthworm population is a sign of a healthy soil, the basis for good grass yields.



Table 2: N, P and K (kg/ha) supplied by an application of 33m³/ha (3,000 gals/ac) on soils at P and K index 3.

Nutrient	Available nutrient
Supply kg/ha	
N	33
P	16
K	115

Aubane discussion group

The Aubane group are progressive and seek new ways to boost grass yield and quality while protecting the environment. Father and son dairy farmers Seamus and James Bourke are members of the group and farm near Rathcoole, west of Mallow in north Cork, and are passionate about how they manage their soils.

"We try to encourage earth worms

says Seamus. "We believe healthy soils are the secret to good silage crops."

To enhance the value of their manure, they compost it before applying it on their paddocks. "We're not organic, but we do like to see plenty of life in the soil," adds James. "We used protected urea last year and we were very pleased with it, it seems to keep releasing nitrogen to the crop for longer than CAN."

The pair are part of the Aubane discussion group, whose members compare their silage analysis each year. The group average for the 2021 silage was 25.7DM, 70DMD and 12.1% CP.

"Our colleague, Tadhg Sheehan, came out top this year with 22.3DM, 75.6DMD and 12.3% CP, but we'll be aiming to catch up with him next year," smiles James.

— Adrian Curtin, Teagasc Kanturk

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Silage: short-term savings could prove costly next winter

Plan carefully for adequate silage supplies next winter.

Joe Patton
Head of Teagasc Dairy
Knowledge Transfer.



“Feed in the yard is money in the bank.” This is an old idea, but it remains a core principle of managing risk on dairy and drystock farms. Despite some commentary that carrying a feed reserve is ‘tying up capital’, the on-farm experiences of years like 2009, 2013, 2018 have repeatedly demonstrated the value of having adequate silage.

A rolling reserve of at least 400kg DM per livestock unit (equivalent to about two bales per cow) above normal winter feed requirements should be in place to cope with adverse weather.

With fertiliser N prices currently at very high levels, this year is clearly not ideal for building reserves. However, the requirement to plan ahead to secure enough feed is more important than ever, because the cost of filling silage shortages next winter is also likely to be prohibitive.

Feed supply on farms - insights from Teagasc Fodder Survey

Reasonable grass growth rates and good harvest conditions through most of the summer meant that 2021 was relatively straightforward in terms of silage production. This is reflected in the results of the Teagasc Fodder Survey, which reported an average surplus of around 20% for dairy and drystock farms (Table 1).

This level of surplus is welcome from a feed security perspective and it has had the effect of insulating farms to some extent against rising feed and fertiliser prices.

That said, the survey estimated around 8-10% of dairy and drystock farms had projected silage deficits of more than 20% for the winter.



Richard Bond, pictured with advisor Lorcan Dooley, recently won the Laois Quality silage award 2021/2022.

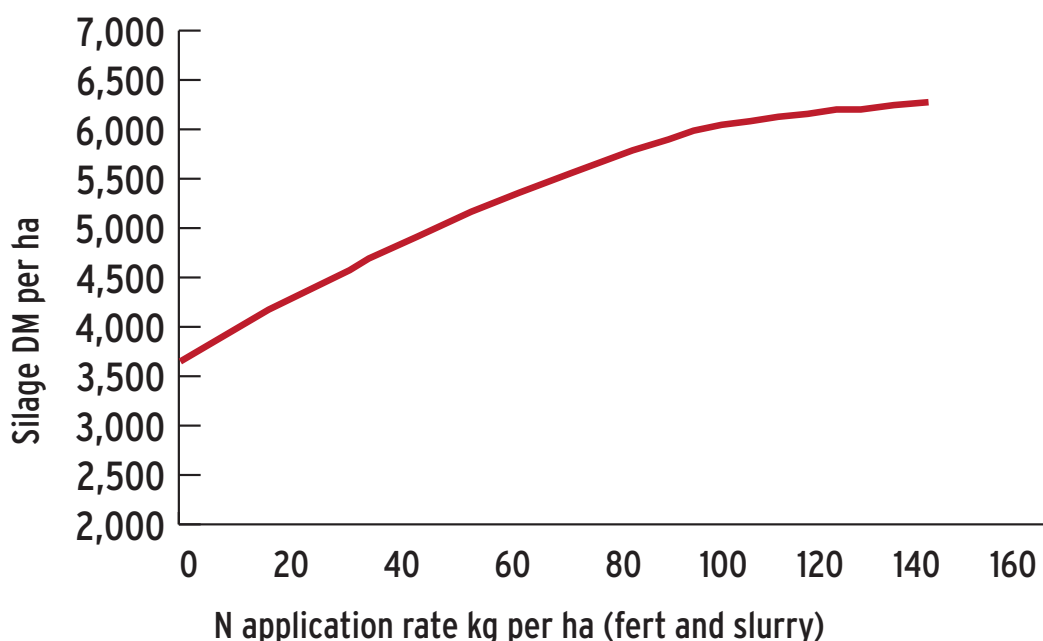
There was no obvious trend in the scale or location of these farms. This indicates that shortages were down to individual management decisions. In fact, the only pattern in this data was a tendency for the same farms to be repeatedly short of feed year after year.

These farms are very exposed to input cost rises and reductions in silage available to be purchased on the open market. With fertiliser prices likely

to remain high beyond the dates for first and second silage applications this year, there is an increased risk of tighter supplies and higher tonnage prices, especially if 2022 brings adverse weather events.

I would strongly recommend that farms with a history of fodder shortage issues in recent years take early steps to plan ahead for next winter. This simply means a combination of assessing current stocks, securing

Figure 1: Marginal silage DM rate yield response to increasing fertiliser N for first cut.



extra silage supply and/or reducing likely silage demand.

Assessing current stocks and likely demand

A good measure of whether you made enough silage last year is how much silage you have left over this spring. So, check your silage levels before looking at any tables of data or budgeting programs. To state the obvious, it is your starting point.

Other things you need to establish include:

- Will there be more stock on-farm compared to last year?
- Will you end up cutting less area than last year?
- Do you plan to reduce fertiliser input per acre?

If the answer to one or more of these questions is yes, then it is likely that your silage supply will tighten significantly.

Can the current silage reserves match this change? If not, then the farm stands a high risk of running into a deficit next winter.

It may seem too early in the year to

be discussing plans for next winter, however the decisions made over the next couple of months will determine the supply of feed at that time.

There are too many variables involved to make farm-specific recommendations, so the best advice is to contact your Teagasc advisor to run a simple silage forward budget based on your own figures.

The feed budget function in PastureBase Ireland offers an excellent means of developing a budget that can be updated during the year.

As part of this plan, you may need to consider offloading non-productive or marginal stock to reduce demand before the onset of winter next year. Carrying lower grade stock on very expensive silage is difficult to justify.

Fertiliser N for silage- should I cut back this year?

This is a big question for spring 2022 (see also article by Mark Plunkett on pages 16-17). Based on many years of research, current recommended total N rates are 125kg N per ha for first-cut, and 100kg N per ha for second-cut, as-

suming late May and late July harvest (these would be reduced by 20% for old pasture and/or low P and K index soils).

It is understandable that farmers will seek to make savings on fertiliser N, however there are two key points to consider;

- The marginal response to additional nitrogen.
- The cost of replacing any reduction in silage produced from the marginal N applied.

Remember that all of the other costs, such as a contractor, land charge etc, will remain essentially the same, so any cash savings on N fertiliser will have to match or exceed the value of the silage yield foregone.

Figure 1 illustrates a typical response curve to fertiliser N for first-cut silage. From a 0kg N application growing 3.7t DM, there is a high growth response to N applied, but at a declining marginal rate as the application approaches 140kg N per ha.

In other words, the amount of extra silage grown by the final 20kg applied

» Continued on next page

Table 1: Winter feed balance by region and enterprise autumn 2021.

Enterprise	Region	Winter fodder balance ¹ %	Approx. days short
Dairy	Midlands north east	106	-
Dairy	North west	110	-
Dairy	South east	116	-
Dairy	South west	122	-
Drystock	Midlands/north east	128	-
Drystock	North west	131	-
Drystock	South east	134	-
Drystock	South west	127	-

¹Based on planned winter feed demand minus current feed stocks. Simple (un-weighted) average of fodder balance per farm in sample.



The Sligo/Leitrim contract rearers group has placed increasing emphasis on silage quality in recent years.

»Continued from page 19

is much less than the first 20kg applied.

While the response curve will vary greatly between farms and years (due to soil type, weather etc), the average figure shown indicates that the extra silage DM grown by the marginal N applied is costing under €120 per tonne DM, up to 100kg N per ha (80 units per acre total N).

This is likely to be less than the market cost of replacing the additional feed, so the fertiliser N rate is justified.

However, at higher N application rates, or on lower grade silage ground, the economic response to the extra fertiliser may not be justified.

In such circumstances, it is espe-

cially important to complete a silage budget and examine the possibility of reducing total silage demand for next winter.

Should I delay taking first-cut to bulk up my silage crop?

This is a common question, but it is a false assumption that 'one big cut' will reduce costs and secure enough feed for the winter. It has been clear from recent fodder crises that farms which fail to cut first-cut silage by early June at the latest are much more likely to run short of silage in a bad year.

Why? A delayed heavy first-cut actually reduces annual yield and can create problems salvaging second-cut crops later in the year (remember, August is a surprisingly wet month). Farms that routinely take earlier

first-cuts have higher annual silage yields and better quality to boot.

Finally, it is often argued that spring-calving, pasture-focused dairy systems feed silage mostly to dry cows and do not require significant stocks of quality feed.

However, for a typical spring-calving herd stocked at 2.5 to 2.8 cows per ha, up to 50% of total silage will be consumed by milking cows.

This percentage will increase for farms at higher stocking rates, winter milk herds and farms operating on heavy land.

Furthermore, all young stock silage and 100% of recommended silage weather reserve (400kg DM per cow) should be of good quality.

This highlights the need to focus on silage quality as well as quantity, even in the face of high fertiliser prices.

Sligo group focus on silage quality

The quality of grass silage on cattle rearing farms in the west of Ireland often goes unmeasured and therefore overlooked. Priority is more often than not given to yield, which is important but should not be achieved at the expense of quality.

Silage can account for up to 40% of the total annual dry matter intake on cattle rearing farms. The Sligo/Leitrim contract rearers group has focused on silage quality over the last number of years.

The awareness that feeding 2kg of concentrates with moderate quality silage, where required, to reach a daily weight gain of 0.6kg/day will cost 70-80c per day increases the focus on silage quality.

The significant savings in concentrate associated with making 75-80 DMD silage for young growing animals has become a priority for the group. Between 60-80% of the heifers reared on many of the farms achieve the target daily winter gain without concentrate feeding.

Regular weighing, regrouping according to weight and facilitates targeting concentrate feeding only to the animals that require extra attention are key to achieving target weights.

On a moderate quality silage of 68 DMD, where 2kg of concentrates is required, over a 150-day housing period for 50 heifers and concentrates at €360/ton equates to a cost of €5,400.

Where over 75 DMD silage is made and only 20% of the heifers require concentrates, the cost reduces dramatically to €1,080, or a saving of €4,320 over the winter period.

-Tom Coll, Teagasc Ballymote



Great silage pays dividends.

Reseeding the secret to quality silage in Laois

Richard Bond recently won the Laois Quality silage award 2021/2022. The award, run by Teagasc Laois staff, looks at a number of Key Performance Indicators when assessing silage quality, such as DMD, intake value, protein percentage and UFL.

Richard's first-cut pit silage tested at 80DMD, intake value of 88.7, protein 12.2% and a UFL of 0.91.

Richie is milking 160 spring-calving cows. He places a big emphasis on making good-quality silage for the spring diet. Kelly Bros Monasterevin cut the award winning silage by precision chop on 30 May.

"We harvest 100ac of first-cut each year," says Richie. "About 25ac of this is newly reseeded, with the other 75ac having been reseeded in the last five years. The ground was in tillage prior to reseeding.

"Soil fertility is good, but K is an issue each year, with a need for regular soil sampling as it can drop quickly. The silage ground is typically zero-grazed at the start of the year and then cut twice followed by two more zero grazings."

"The majority of the silage ground was zero grazed up to St Patrick's Day. It got 2,500 gallons of slurry on 20 March and on 1 April it got three bags of 21-2-10 +2 S. The crop was left to wilt for 36 hours."

Richie says he places a big emphasis on cutting the silage in the right conditions and admits to becoming obsessed with weather apps around silage time.

"I'd also stress the need to contact your silage contractor in advance to give him plenty of notice," adds Richie. "I typically call him two weeks in advance to give them an idea when I want the silage cut."

—Lorcan Dooley, Teagasc Portlaoise.

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The 'weed' that can

Kevin Murphy is embracing clover in his intensive dairy system.

Michael Egan

Teagasc Animal and Grassland Research and Innovation Programme, Moorepark.



Colm Doran

Teagasc Gorey.



“In the past, my uncle referred to clover as a ‘July weed’” says Signpost farmer Kevin Murphy, who now sees clover as an way to help reduce his reliance on purchased fertiliser. Kevin is a participant in a project called ‘On farm white clover evaluation’.

The aim of this project is to aid farmers in establishing white clover across the milking platform using a multi-year approach.

This will allow them to reduce their use of chemical fertiliser and target a farmgate nitrogen surplus of 130kg N/ha/year and a nitrogen use efficiency of over 40%.

Kevin is farming outside Gorey, Co Wexford, with his wife Ann and Brian Sunderland. They farm a total of 137 ha, of which 55ha is owned. In 2021, they milked 300 cows, with an overall stocking rate of 2.5 LU/ha.

“We are currently using 23 kg N/ha on the grazing platform, but we aim to reduce this by 20% in the next few years,” says Kevin.

“The grazing platform is 88ha and heavily stocked at 3.4 cows/ha. We know that if we want to continue to farm at this stocking rate, we will need to produce the grass with less chemical nitrogen.”

Why? Kevin cites cost saving, protecting waterways and reducing their greenhouse gas emissions.

The target for Kevin’s farm is to have 100% of the grazing paddocks with an average of 20% white clover in the sward in the next four years. On a year-to-year basis, Kevin is planning 12 months ahead, identifying the fields for reseeding and oversowing in advance.



“If we achieve this, there is potential to reduce our chemical N use enormously,” says Kevin.

Sward clover content was assessed at the end of year one and 30% of the milking platform area averaged 21% white clover.

The plan for this farm and other farms in the project is to achieve this level of clover across the area over four years, through a process of reseeding and over-sowing suitable paddocks (those with the correct soil fertility, low weed levels, high perennial ryegrass etc).

Blueprint for establishing white clover on-farm

- Put a clear plan in place.
- Select paddocks that are best suited due to their soil fertility/ryegrass content/weed content.
- Take a multi-year approach;
- **Year 1** – reseed ≈10%, over-sow ≈20%.
- **Year 2** – reseed ≈10%, over-sow ≈20%.

- **Year 3** – reseed ≈10%, over-sow ≈20%.

- **Year 4** – reseed ≈10%, over-sow any paddocks with poor/low levels of clover.

- Ongoing process to maintain white clover in swards.

- Use small/medium leaf varieties (recommended list).

“In 2021, I reseeded 9ha on 19 May,” says Kevin.

“Prior to this, the ground was sprayed off and seven days later, grass was mowed and baled. The seed was direct drilled using an earth drill and the seed mixture was 12.5kg/ac of Nashota (tetraploid) and 1.6kg/ac of Buddy (medium leaf clover).

“We rolled the seed bed and applied 2t of lime and three bags of 18-6-12. The reseed was sprayed six weeks post-sowing with Clovermax (2-4 DB) clover safe spray.

“We grazed the paddocks 14 days post-spraying, at a cover of 900kg DM/ha, to allow light to get into the

save you a fortune



Kevin Murphy.

base of the sward and increase tillering and clover branching.

"It was grazed a total of five times in 2021, at a maximum cover of 1,200kg DM/ha, to ensure the light got at the clover to help it establish. The species mix was measured again in November and it was good at 25% clover."

In June, Kevin sprayed off another 5ha. However, due to dry weather conditions, sowing had to be delayed for three weeks, so it was sprayed again and sown on 12 August. The seed mixture was 12.5kg/ac of Astonenergy (tetraploid) and 1.6 kg/ac of Coolfin (small leaf clover).

The same fertiliser application – three bags of 18-6-12 and 2t of lime – and grazing strategy were applied (grazing a low covers). These paddocks were grazed three times before the end of the year. Again, grazing was tight to allow light to reach the clover plant.

"Soil fertility on this farm is very good, with the majority of the farm in index 3 for P and K," says Kevin.

"Fortunately, we are also optimum for pH, with the overall pH of the

farm at 6.1 (average pH of soil samples taken from the milking platform). This has helped the clover get established and I wouldn't attempt to establish clover in a paddock unless fertility is good."

Taking account the clover established in 2021, Kevin now has 30% of the grazing paddocks with an average clover content of 21%. He plans to apply 150kg N/ha in 2022 on paddocks with over 20% clover (30% of the area) and maintain similar levels of N on non-clover paddocks.

"In 2021, we spread 235kg N/ha. If we can achieve the reduction in N anticipated, it will result in a total reduction of 15% N across the farm in 2022 compared to 2021 and I hope to

continue to reduce this over the coming years," adds Kevin.

So how will this be achieved? Kevin says he will continue to spread fertiliser as normal in the spring, but from May onwards he will reduce chemical N use by half. Instead of 38kg N/ha (30 units/ac) per month, he will spread 18kg N/ha (15 units/ac) per month. The decision to cut back will be made in April, based on clover content and weather conditions.

"We may need to adjust our plans, but I see the decision to drop the chemical N application rate as a no brainer when you consider fertiliser cost. I trust that clover will do its job. We certainly don't see it as a weed anymore!"

Clover management tips

- Graze tight in the first year to 4cm residuals.
- Ensure soil pH is greater than 6.5 and at least P and K index 3.
- Make sure the pasture is relatively weed-free before establishing clover. In a full reseed, the timing of the post-emergence clover-safe spray is critical.
- Spring growth can be lower than for an exclusively ryegrass sward. It helps to have high-quality silage available for spring supplementation.

Basic payments –

James McDonnell
Financial specialist,
Teagasc Rural Economy
Development Programme.



Direct payments (under the Basic Payment Scheme) have made an enormous contribution to family farm incomes over the last few decades. The future will be no different. In this article, I will provide some pointers to help you to complete this year's application. I will also include some information on the next CAP agreement, so that you can prepare for the next five years at least.

The Basic Payment form contains within it applications for other schemes, for example, the Areas of Natural Constraint (ANC) scheme, Young Farmer Scheme (YFS), Straw Incorporation Scheme, Protein Aid, GLAS and Organics, so it is important that you have all the relevant documents to hand when you are completing the application form.

If you have not done so already, you will soon receive a copy of maps and plots that you included in your 2021 application from the Department of Agriculture, Food and the Marine (DAFM). It is important that you check these documents carefully and note any changes that you wish to make on the 2022 application.

Maximise your payments

Table 1 demonstrates the importance of direct payments to Irish farming families. The average contribution in 2020 was 70% of the farming income. However, if we look at dry stock enterprises, it often makes up well over 100% of income.

This means that some of the money received in the form of direct payments was subsidising the farm business, demonstrating that the farm enterprise made a loss in 2020.

If we look back over a number of

years, the picture is no different. These figures make stark reading. It is important that we think about our own future in farming, as there are some significant challenges for the industry ahead.

Even on profitable dairy units, the direct payment makes up a significant proportion of the farm income, so it is important that you maximise the direct payments that are available. If you wish to discuss your finances in detail, please contact your local advisor.

The 2022 BPS application

If you are getting your advisor to complete the application form, you should prepare well for the meeting

to get the most out of the limited time available. The vast majority of farmers will meet their advisor in person.

If there are to be any changes to the farming operation, it is worth having a short chat with the advisor ahead of the appointment, in case you need to prepare anything extra (for example, making a name change to the herd number).

You may wish to discuss other issues, so make a list of items for discussion. This will ensure that both you and the advisor get the most from the consultation.

You may also want to review your farm plan, farm finances, increase the amount of silage conserved, or plan an investment. If you need to make



Table 1: Direct payments as a percentage of Family Farm Income*.

Enterprise	2020	Range (2015 – 2020)
Dairy	28	23 – 38
Cattle rearing	157	109 – 157
Cattle other	113	101 – 129
Sheep	105	143 – 105
Tillage	79	55 – 84
National average	70	57 – 77

*Family Farm Income (FFI) is the return from farming for farm family labour, land and capital. It is the principal measure of income used in the Teagasc National Farm Survey (NFS) Figures provided by NFS.

focus on them now



a further appointment as a result of your discussion, you should do so immediately.

Common errors

- Not informing the advisor that the ownership of the herd number is changing.
- Not stating that a lease of entitlements was not renewed when it expired in the previous year.
- Forgetting to reapply for the Young Farmer Scheme (tick box/new application if no tick box).
- Forgetting to add on extra land.
- Not following up with the auctioneer when leasing out entitlements.

Farm succession

I have received many queries on this

topic recently. It is important that every farmer has thought about farm succession. The first step is to write a will. This is an insurance policy against a lengthy legal rigmarole for your family should you pass on intestate (i.e. without having made a will).

Have a conversation with your advisor about farm succession. Succession is a complex area with lots to be considered, mostly around tax and government supports. There are some good supports for young farmers in the YFS and National Reserve (NR).

Deadlines

The deadline for all schemes (BPS, NR and YFS) is Monday 16 May 2022. As has occurred in other years, amendments can be made after submission

of the application up until the end of May. Reasons for making an amendment include:

- Correcting an obvious error (minor clerical error).
- Adding or deleting a parcel.
- Change of use of a parcel.
- Ticking/un-ticking the ANC box.
- Ticking of the YFS box (where applicable).

DAFM will acknowledge receipt of changes in writing.

The next CAP 2023 – 2027

Proposals for the next CAP have been published and are with the EU for approval.

The BPS entitlements will be replaced by a Basic Income Support Scheme (BISS). This is based on a slight recalculation of the existing entitlements.

- Convergence will continue, bringing the minimum entitlement up to 85% of the average.

- There will be a new environmental element called 'Eco Scheme' to partially replace greening.

- A scheme called the Complementary Redistributive Income Support for Sustainability (CRISS) will redistribute CAP funds from larger farms to medium and smaller ones. This will be paid on the first 30ha of each application.

- A National Reserve will also be provided and will allocate entitlements in a similar way to the current scheme.

- A new YFS called Complementary Income Support for Young Farmers (CISYF) will increase the payment to young farmers significantly. The expected payments will be between €160 and €190 per hectare for five years on a maximum of 50 eligible hectares

Table 2 shows the approximate figures for three categories of farmers by 2026. These figures are provisional and based on the proposed CAP strategic plan. They may change slightly once the final calculations are completed by DAFM.

Table 2: The current (2022) and future (2026) direct payments for three categories of farm (€).

Scheme Name	Minimum	Average	Maximum
BPS	110	179	472
Greening	48	79	208
Total	158	258	680
BISS	145	165	285
CRISS (max 30ha)	44	44	44
Eco	63	63	63
Total	252	272	365

Inflation and Irish agriculture

Will consumer price inflation over the course of the year further reduce the purchasing power of the incomes farmers earn in 2022?

Kevin Hanrahan
Head Rural Economy
Development Programme,
Teagasc.



As we look forward to the 2022 production year and beyond, the key uncertainty facing Irish farmers is whether movements of input and output prices will continue to be largely in balance (as they have been for most of the last decade) or will the agricultural terms of trade (the ratio of output prices to input prices) decline to such an extent that farm incomes fall.

There has been a dramatic surge in the price of fertilisers over the course of 2021, as illustrated in Figure 1. Will this increase in prices continue? The inflation in fertiliser prices (and price of goods in general) is driven by developments in demand and supply.

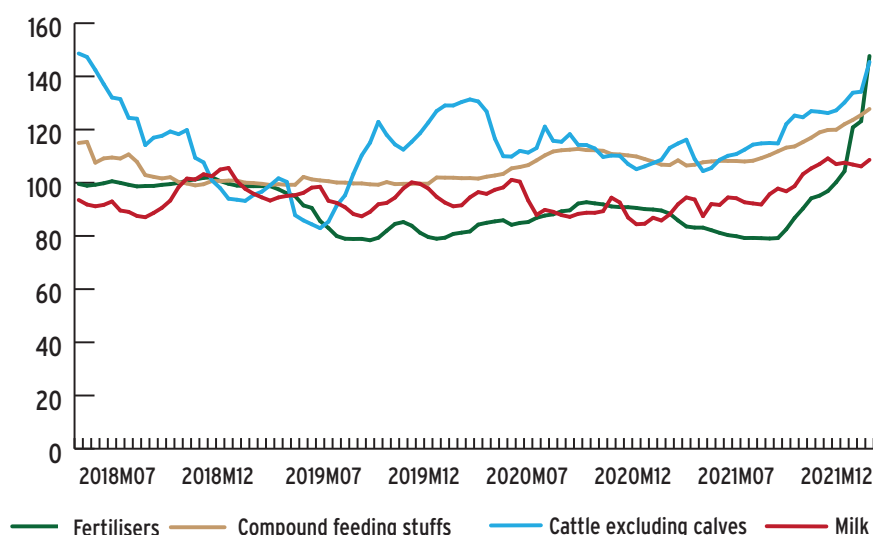
The key factors behind increasing fertiliser prices have been on the supply side, namely dramatic changes in the world price of natural gas, a key input for the production of fertiliser.

The enormous increases in gas prices over the last 12 months have led to the mothballing of some fertiliser plants in Europe and increases in prices as producers pass on higher energy costs to consumers of fertiliser.

The developments in gas prices (and fertiliser prices) in European gas markets have been particularly acute, reflecting both the recovery of European economic activity, but more importantly, the high dependence of European gas consumers on supplies from Russia.

The invasion of Ukraine by Russia on February 24 2022 will affect energy, fertiliser and wider agricultural commodity markets. The imposition of economic sanctions on Russia by the EU and other countries and the possibility of countervailing sanctions by Russia will interfere with trade in natural gas and other fertiliser ingre-

Figure 1: Four key price indicators for Irish agriculture; milk, cattle, concentrate and fertiliser prices.



dients such as ammonium nitrate.

The invasion of Ukraine will also probably have negative macroeconomic impacts for both the EU and the global economy on which Irish agriculture depends.

Teagasc forecasts for incomes earned by Irish farmers in 2022, published in the Teagasc Outlook 2022, were driven by forecasts for input price developments that exceed those forecast for farm output prices in 2022.

The terms of trade faced by Irish farmers in 2022 will deteriorate significantly, despite current strong prices for the goods they produce. Higher energy and fertiliser prices are the cause of this deterioration.

The invasion of Ukraine will only worsen the outlook for farm incomes by increasing inflation in energy and fertiliser prices and possibly reducing export demand for Irish agricultural output.

With consumer prices in Ireland also increasing for the first time in many years, the real purchasing power of lower farm incomes is also likely to decrease.

It is going to be a difficult year for real farm incomes and for real incomes across the Irish economy.

What can farmers do?

In the face of inflation in consumer prices, there is likely to be little farmers can do other than shop around for the best prices available for goods and services purchased.

On the farm, more attention to input use will be a key area in which farmers can mitigate the impact of very high fertiliser prices on farm incomes.

Farmers should contact their advisor and discuss how use of chemical N can be reduced in ways that don't overly reduce the productivity of farm systems.

National Championships for Equine Young Breeders 2022

The Irish Sport Horse (ISH) Young Breeders National Championships, jointly supported by Teagasc and Horse Sport Ireland, is to take place at Kildalton Agricultural College on Saturday 2 April.

Wendy Conlon
Teagasc equine specialist.



The National Championships are a first step in selecting teams representing the ISH Studbook at World Breeding Federation for Sport Horses (WBFSH) Young Breeder World Championships (WC) in Ermelo, Holland in July 2022, hosted by the KWPN Studbook. Although the knowledge and skill of participants is challenged and assessed throughout training and Championships, there is plenty of support, guidance and feedback provided.

What skills and knowledge are assessed during the National Championships?

- Multiple choice theory test – topics include breeding, stable management, feeding, health and sport.
- Assessing conformation, movement and jumping traits – Judges first score two horses, with discussion on reasons for allocating scores, before competitors assess a further three horses aiming to match the judges' scores as closely as possible for the latter three.
- Presenting in hand – Resource material is available on the website and a demonstration on the day will explain how this discipline is assessed. Horses are also provided.

Who can enter?

Those aged 15-25 years of age on 1 January 2022. Although training events have been provided around the country, the Championships are equally accessible to those who have not attended training. While encouraged, it is not compulsory to progress to WC if successful at Nationals.

What do past participants say about their experiences?

David Bourke, Enniskerry, Co Wicklow, competed at 2009 WC in Ireland: "Young Breeders gave me the tool kit to objectively assess my own stock, stand back and be critical.

Wendy Conlon, Teagasc, and Andrew Hughes, Ennisnag Stud, at Hughes Horse Stud Kilkenny with training participants from around the country.



Contacts with other competitors from across Europe are sustained to this day."

Sarah Brashaw Newtownards, Co Down, competed at 2019 WC in Austria: "I've driven literally hundreds of miles around Ireland attending training. Not coming from an equestrian background myself, it just goes to show that anyone can do it if they are willing to put the work in."

David Browne, Castledermot, Co Kildare, competed at 2017 WC in Canada: "I knew very little about conformation or athleticism before participating in the programme and learned an awful lot on training and competition days with the guidance and feedback from trainers and judges."

Michelle Dunne, Sandyford, Co Dublin, who competed at 2019 WC, admits to "feeling a bit lost, at the first training event I attended as I was quite shy and my instinct was to not go back." Yet two years later: "I wanted to be more educated about how to assess a horse and not make silly mistakes or waste money when buying, and have not looked back since. I love it."

Dan Geaney, Castleisland, Co Kerry, competed at 2019 WC Austria after winning at National Championships: "Before the Championships, I hadn't attended training, knew a bit about loose jumping, but never presented on the triangle in hand and just followed gut instinct on conformation. It was a steep learning curve and challenging, but the only way to learn is to speak up and ask questions – it's very important to do that."

Conor Wixted, Sixmilebridge, Co Clare, won the National Championships senior section in 2019: "Training days provide a chance to visit some of the best breeders and producers, alongside experienced and generous trainers, imparting invaluable information you wouldn't get anywhere else."

How to enter:

All details are available on <https://www.teagasc.ie/rural-economy/rural-development/equine/ish-young-breeders/Events> section or contact Teagasc equine specialist wendy.conlon@teagasc.ie.

Booking at <https://teagasc.clear-bookings.com/> closes 20 March.

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Docks



Nettles



Thistles



Buttercups



Dandelions



Ragwort



Meet Teagasc Director Frank O'Mara

Director of Teagasc Professor Frank O'Mara was appointed on 1 October 2021. He grew up on a farm at Lisronagh near Clonmel in south Tipperary and has lived in Carlow for the last 30 years.

Frank, can you tell us about your career background?

"I studied agricultural science in UCD and after graduating in 1987, I spent two years working for Charles R. Wynne, grain and agricultural merchants. I applied for a position as a PhD student at Teagasc Moorepark and I loved the four years I spent doing that research.

"I then spent 13 years at UCD, first as a postdoctoral researcher, then as a lecturer in animal nutrition and animal production. In 2006, I joined Teagasc at Oak Park, Carlow, as assistant Director of Research and became Director of Research in 2009."

What do you see as the biggest challenge for agriculture?

"It's no exaggeration to say that climate change is the biggest challenge facing not only farmers but all of human society. Teagasc has a huge role to play in creating a pathway that includes technologies and farm practices which will enable farmers to reach climate neutrality while maintaining food production and farm incomes. Teagasc is carrying out the research to help develop these solutions and our advisors are supporting farmers to implement them."

Are farmers expected to solve climate change?

"I can understand why farmers sometimes feel that way! But other sectors of the economy such as electricity generation, which must move to renewable energy sources, transport which must switch to electric vehicles, the building industry, which must use new materials and techniques and manufacturing also face enormous challenges. Consumers, too, face huge changes to their lifestyles."

Can we reach the targets?

"The Teagasc plan for greenhouse gas reductions is based on the MACC (Marginal Abatement Cost Curve),



which lists the potential of actions to reduce greenhouse gas emissions. It was produced in 2013 and updated in 2018. The challenge now is to support farmers to implement these actions and develop additional actions through research.

"The new Signpost farm programme will play a key role in bringing farmers, advisors and the industry together to collectively address the challenges.

"Our grass-based livestock systems are a good starting point. DAFM, the industry and Teagasc have been promoting grass-based rather than

high-input systems for many years, on the basis that they were the most likely to deliver good farm incomes and be resilient to the ups and downs in milk and meat prices. Fortunately, they are also good on greenhouse gas emissions.

"Systems which rely heavily on human-edible food such as grains to produce meat or dairy are less sustainable. We produce animal products from grass, which we can grow very well, but which is not itself human food."

» Continued on next page

Can technology help farmers to meet these challenges?

"Some technologies are already available. Low Emission Slurry Spreading, for example, is helping both livestock and tillage farmers use organic manures more efficiently.

"Ensuring optimum soil pH and incorporating clover in our swards are not new ideas, but we must increase their usage on farms. Clover and other legumes make fertiliser from the nitrogen in the air, reducing the need for fertilisers manufactured using expensive natural gas.

"In the short-term, we will continue to use some mineral nitrogen, particularly by embracing protected urea, which releases fewer greenhouse gases than other types.

"Teagasc researchers are investigating dietary supplements for livestock which will reduce methane emissions. But we can also reduce lifetime emissions from animals by finishing them younger. Obviously, we must develop systems that still give target carcass weights, and don't flood the market with cattle at one point in the year.

"In the medium-term, we will be breeding animals that are naturally lower emitters of methane. It will take some time for such animals to reach farms, but breeding will certainly be helping to combat climate change.

"We can only tackle climate change targets effectively, however, if every farmer plays a part – it can't be seen as someone else's problem."

Is Teagasc now focused solely on climate change?

"Not at all. Teagasc aims to add value for all farmers and farm enterprises and we have a holistic view of sustainability, which includes economic, social as well as environmental sustainability. We support farmers with production technologies, but also with farm business management decisions.

"Beef and dairy are the two big sectors of Irish agriculture and we will continue to support those enterprises, but we will also support farmers looking for diversification options.

"In the EU Farm to Fork strategy, organic production is targeted to triple by 2030. As part of that, the Irish Government has committed to increasing organic production to 7.5% of land area and Teagasc is providing increasing support to the sector. Of course, we must be careful that markets for organic produce are developed too.

"Farm forestry has grown from a low of about 4% to 11% over the last half century. Some of these forests are approaching maturity and our



Director Frank O'Mara welcomed tillage farmers to a recent Open Day at Teagasc Oak Park.

Up-close

- **Best advice:** "Growing up, I loved farming, but my parents, urged me to get a third level education. That's still excellent advice, even if you plan to return home."
- **Home background:** "My parents had a small mixed farm. They had dairy cows and beef cattle at different times. They also had some tillage, usually feed crops."
- **Interest in sport:** "I have a great interest in hurling, particularly the Tipp county team, and also Gaelic

football and rugby, but I get to fewer matches than in the past."

- **Most recent book you've read:** "*Troubled Blood* by Robert Galbraith. I enjoy a long crime thriller with a complex plot."
- **Favourite film:** "I am a fan of the Daniel Craig *James Bond* films, and always enjoy Clint Eastwood westerns and his recent films such as *Gran Torino* and *The Mule*."
- **Other hobbies:** "We do a small bit of farming and after a long day, it's great to go and check on the stock or do a few jobs."

forestry researchers, specialists and advisors will help farmers to extract value from their forests by optimising the harvest and marketing of timber. We will also encourage farmers to plant trees in appropriate locations.

"There is currently a review of the horticulture sector taking place. We have great growers in Ireland, but our small home market and the comparatively small scale of our industry means competition from imports is always strong.

"The Teagasc horticulture depart-

ment is supporting fruit, vegetable and mushroom growers. We are in the process of recruiting a new fruit researcher to focus initially on the apple sector.

"Farm business management is essential, particularly when margins are tight. Teagasc has developed some excellent tools to assist farmers – our Profit Monitor program has recently been upgraded and is providing excellent insights on farm financial data.

"In addition, of course, Teagasc has a huge Food Research Programme

and we are active in supporting stakeholders right along the food chain.

What advice would you offer to new entrants to farming?

"Coming from a farming background myself, I understand the passion that many young people have to farm.

"Farming is a great business, but it is a tough life. You need to work smart as well as hard, particularly when prices are weak. A part-time job off-farm is necessary for many.

"On the plus side, there will always be a need for food production and prices for most commodities are currently strong and hopefully that may be part of a sustained upswing. Not all sectors are benefiting and pigmeat prices are currently very low. This is exacerbated by high input costs, which are affecting all sectors. But without doubt, farming is a very fulfilling way to make a living.

"I advise young people planning to farm to get an education and accumulate technical and business skills. Teagasc currently has over 6,000 full-time, part-time and distance learners.

"Students in our colleges usually complete two years to Level 6, which includes practical work and skills training, as well as placements on farms. Teagasc graduates have the opportunity to progress their education further at Technical Universities (formerly Institutes of Technology) or other education providers.

"I advise young people about to begin farming to become part of a series of networks. This will include family, neighbours, farm discussion groups, industry etc. I would strongly encourage new entrants to maintain a relationship with Teagasc, as we can offer support or advice in all areas of the farm business."

What would you say to farmers who are within sight of retirement?

"Teagasc's role is to serve all stakeholders and we must be aware of what they need and the circumstances in which they are operating. The average age of farmers is now in the high 50s and for many, inheritance and succession issues are increasingly relevant.

"Events that we run in this area enjoy huge attendance and interest. Teagasc aims to support farmers in making these decisions and also to support the new generation as they take over production.

"There is a big drive towards digital technologies and communication in Teagasc and we will certainly leverage digital technology to become more effective and efficient. We will use it to make life easier rather than more difficult for farmers and we will not leave farmers behind just because



Athy farmer Fred McCann with Teagasc Head of Crop Knowledge Transfer Michael Hennessy and Teagasc Director Prof Frank O'Mara.

they are not keen on going digital.

"For example, many clients prefer face-to-face contact or paper-based communication rather than digital and we will respect their wishes.

"A key area in my opinion is that of health and safety. Teagasc is working with others to promote physical and mental health and safety among all farmers."

What will be the long term impact of COVID-19?

"COVID-19 brought a lot of tragedy to Irish families. It also created a revolution in how people do their work and remote working is now a viable alternative for many. Rural communities may benefit, as people do jobs from rural locations and spending power remains in the locality.

"For Teagasc, digital events, webinars and digital conferences proved effective during the pandemic and I imagine future events will be a blend of digital and face-to-face contact. There is no perfect substitute for meeting face-to-face and we have a list of major events in 2022, including open days for sheep at Athenry in June, beef at Grange in July, dairy in Ballyhaise in July and soils and environment in Johnstown Castle in August.

What other challenges do you see for Teagasc and farmers?

"Though it is still being finalised, the new CAP, which will start in 2023, will certainly be a challenge for farmers and advisors. We are already planning how our advisors can support farmers to ensure they comply with the administration of the scheme and benefit as much as they can.

"Another key issue will be to work with farmers to ensure we are producing food in the way the consumer, at home and abroad, wants. That includes lots of factors, from prioritising animal welfare, enhancing biodiversity and avoiding pollution of waterways, as well as reducing greenhouse gases.

"So production systems and farming businesses will evolve, but there is nothing new in that. I would like to assure our clients and all farmers that we will work tirelessly to support them. We have a unique advisory service with dedicated and talented staff, whose mission is to support their farmer clients, and I would hope that farmers will continue to support and use that service. When combined with our education and research services, we have excellent people and resources to support farmers to deal with challenges as they arise."

—Mark Moore

Chickweed control in spring barley

Ciara O'Donovan
Teagasc Midleton.



Many spring growers in east Cork have said that they are finding it increasingly difficult to control weeds. The most commonly mentioned weeds are chickweed, corn marigold and sometimes speedwell. Wild oats and canary grass are widespread in the area, but growers say they are getting good control with the available chemistry.

Spring barley was generally sown in late March/early April last year, but April weather was cool and this may have contributed to poor uptake of herbicides.

Growers that delayed herbicide application got very poor control of larger chickweed and corn marigold. Some ended up having to apply a second herbicide.

The crop yielded very well last harvest, but growers are now looking at different strategies to control some of these difficult weeds.

Resistance

Similar to other parts of the country, most spring barley growers in east Cork control weeds with a sulfonylurea (Ally Max, Cameo Max, Harmony Max) and a partner product tailored to the weeds present in the field.

Growers are aware of resistance to sulfonylurea herbicides in common chickweed and corn marigold, so the partner product will contain actives that target these weeds.

Fluroxypyr (Hurler etc) is normally added at the maximum allowed rate of 0.75l/ha to control chickweed



and products containing clopyralid (Galaxy etc) are used at the maximum rate where corn marigold is the target.

This has worked well in the past, but in seasons where application is delayed, these products struggle to control larger weeds.

For the 2022 season, the aim will be earlier herbicide application. Growers generally know what weeds to expect, so they will target fields with chickweed and corn marigold first. History has taught us that waiting too long for weed emergence leads to control problems, especially if bad weather further delays the herbicide application.

Broadleaved weed control can be combined with wild oat and canary grass control. Herbicide resistance has been confirmed to pinoxaden (Axial Pro) in other parts of the country, but so far there are no reports of resistance in east Cork.

Growers are really conscious of the threat of resistance and recommended rates are used in combination with early timing to reduce the risk of resistance.



Controlling chickweed in spring cereals

Ciaran Collins

Tillage specialist, Teagasc Crops, Environment and Land Use Programme.



Herbicide resistance is the evolved ability of a plant to survive and reproduce following a herbicide dose that would normally kill it. There are two main mechanisms of resistance; enhanced metabolism and target site resistance. Enhanced metabolism resistance is where the weed can detoxify the herbicide, leading to poor control, but usually partial resistance, and is most likely to be found in resistant grass weeds.

Target site resistance is the blocking of the target site of herbicide action within the plant, resulting in the plant surviving a dose of herbicide. This usually results in complete resistance.

Two types of target site resistance have been identified, one affecting ACCase inhibitors (grass weeds) and another affecting ALS inhibitors (broadleaved and grass weeds).

Glasshouse studies carried out by Teagasc in 2008 on 20 cereal fields confirmed ALS resistance in chickweed. In the same study, all populations were controlled by CMPP, fluroxypyr, IPU and Calaris, irrespective of whether or not it was resistant to Ally.

More recently, trials carried out in Cork by Corteva confirmed chickweed resistance to ALS herbicides (Harmony M SX, Ally and Ally Max). Very poor control was achieved by Boxer (Florasulam).

The trial found that Arylex can contribute to control and that fluroxypyr is still giving good control.

Control

Chickweed is present in all tillage areas. It can survive low temperatures, germinates year-round and severely reduces yield when present in high numbers. It multiplies quickly when the crop is open, particularly after poor crop establishment. It is ideally suited to fertile, nitrogen-rich tillage fields and prefers wetter parts of fields.

Resistance testing is the only way to determine whether resistance is



Uncontrolled chickweed in wheat from East Cork following herbicide application.

present or not. From a practical weed control perspective, it is better to assume that chickweed is resistant to ALS herbicides and to use an alternative mode of action.

Recent trials indicate that the most reliable control is likely to come from products containing fluroxypyr, but products containing arylex and mecoprop p can also add to control.

The maximum allowed rate of 0.75l/ha of products containing fluroxypyr 200g/l (Hurler, Fluxyr etc) should be used on small, actively growing, chickweed. Difficulties in controlling chickweed usually occur in one of two scenarios; either the weed is too big, or conditions at spraying are not conducive to good herbicide uptake.

Large chickweed is difficult to control and growers can expect reduced effectiveness once chickweed is greater than 10cm. Coverage is often an issue when herbicide application is delayed and this further decreases control.

Weather at the time of application is a critical factor in the translocation of herbicide to the target site. Weeds are more tolerant to herbicides when they are under stress caused by adverse weather conditions.

Cold conditions, like those experienced last April, result in the weed developing a thicker waxy layer on the leaf surface. This slows metabolism, leading to reduced translocation of the herbicide.

The inclusion of an appropriate adjuvant can also aid uptake in difficult conditions.

Sulfonylurea herbicides control a broad spectrum of broadleaved weeds

and are a core component of weed control in spring cereals. But they should always be mixed with a partner that has activity on key weeds present in the field.

Examples of partner products to control chickweed include; Cleave 1.5l, Duplosan KV 2.3l, Galaxy 1.0l, Fluroxypyr (Hurler etc.) 0.75l, Pastor Trio 1.0l and Pixxaro 0.5l.

Minimise the risk of resistance

- Using mixtures of herbicides with different modes of activity helps to delay the development of resistance. For example, sulphonylurea (Cameo Max) mixed with synthetic auxin (Hurler).

- Crop rotation allows the use of herbicides from different herbicide groups to be applied to control weeds.

- Treat weeds when they are small and actively growing for maximum control.

- Use appropriate rate of herbicide. Finally if there are patches of uncontrolled weeds in the field after herbicide application, consider the following;

- Did I use the correct rate?

- What were the weather conditions like at the time of herbicide application?

- Was the spraying operation carried out correctly?

- Were the weeds too big at the time of application?

If all of these were done correctly, examine if there are live plants next to dead plants in the field. Surviving plants next to dead plants is a signal that resistance may be an issue and should be investigated further.

Longer days, more work, greater danger

Spring is coming, and with it peak workload. Reduce your risk of injury or even death with some simple precautions.



Francis Bligh and John McNamara
Teagasc Health and Safety specialists.

Last year saw a welcome reduction in farm workplace deaths. This may be due to more help being available on farms due to the COVID-19 lockdown. As people return to work, these extra hands won't be around, so be extra careful to prevent potential accidents.

Safety around tractors and machinery.

Taking time to get machinery ready for spring work is vital. Proper maintenance of tractors and machinery is good for the equipment and enhances your safety.

Days are getting longer, but ensure the full set of functioning lights and flashing amber beacons are present and working. Check that all guards and protective covers are in place. PTO covers and chains, including O guards and U guards, should be checked for signs of wear or damage.

Check hydraulic oil hoses, rams and couplings to ensure there are no signs of deterioration. Repair or replace where required. When carrying out these checks, beware of the risk of high pressure oil escaping and injuring your skin or eyes.

Wheel rims and tyres must be in good condition. Check for cracks or bulges in the tyres and cracks or loose nuts in the rims. Tyre inflation must be appropriate to the load and the task.

Visibility from the tractor is very important, so take time to regularly clean windows and mirrors.

Safety when handling slurry

Drowning is an all-too-frequent occurrence with slurry. Working around an agitator or slurry tanker is demanding. It is easy to lose concentration and unintentionally 'step-back' into a slurry tank. Make sure there are



safety grids and barriers installed to eliminate this possibility.

Be extra vigilant when placing slurry agitators into position. Use access holes for slurry pipes. Keep slurry tanks and pits securely covered or fenced.

Slurry gassing

Slurry produces a range of gases based on the nature of the fermentation occurring. Poisoning can happen 'above ground' due to the release of Hydrogen Sulphide (H_2S). H_2S can be detected by smelling at 0.1ppm. At 150ppm, the olfactory nerve which detects smell in the nose is desensitised, meaning H_2S cannot be detected by smell.

The gas produces adverse health effects at increasing concentration and death can take place rapidly above 700ppm. Teagasc research has shown that fatal concentrations of gas can occur once agitation commences.

Key safety tips when agitating slurry

- Always wait for a breezy day.
- Open all doors and vents.

- Remove all animals from the shed.
- Ensure people, particularly children or older persons, do not enter during or after agitation.

- Have at least two people present at all times.

- Check that machinery is in good repair and all guards are in place.
- Make sure tank access points are guarded.

- Stay away from the agitation point for at least the first 30 minutes after agitation starts.

- Remember, poisoning can occur either outdoors or indoors in calm conditions.

BEWARE: Slurry gas can travel into linked tanks or buildings that are connected by drainage pipes or channels. This means you or others in the yard may be unaware that milking parlours, store sheds or even workshops could have high concentrations of potentially fatal gas present.

Safety at calving time

Health and safety data shows that over the last 10 years, 196 people have lost their lives in farming related

work activity in Ireland. Of these fatalities, 38 involved livestock. In 2021 alone, working with cattle accounted for three fatalities.

Attacks by recently-calved cows are a common cause of accidents. Never turn your back on a cow when handling her newborn calf. Where possible, keep a barrier between you and the cow when removing the calf.

Tiredness

Sleep and good food is very important around calving time. Identifying risks requires your full concentration. Plan to have help available to allow you some time to rest.

Cow/heifer temperament

A cow that is normally quiet can become aggressive at calving. It is important to minimise the amount of interaction with the cow at this time. Good equipment and well-designed facilities can help achieve this.

Health and welfare around calving

When good management practices are

in place to manage cow body condition, nutrition and health, the likelihood of difficult calvings requiring intervention is reduced.

Reducing the need to assist a cow is good for the cow and saves time, energy and avoids the risks associated with this task.

Fit and healthy cows are also more likely to produce healthy vigorous calves, which helps to reduce the workload associated with caring for weak calves.

•**Dust:** Prevent or greatly reduce exposure to dust and spores when liming or bedding calving pens. Keep a set of dust masks in a clean, dry, convenient location when doing these jobs.

•**Hygiene:** Wearing arm length gloves and washable protective clothing and boots when assisting cows at calving will reduce the likelihood of the cow picking up infection. It will also reduce the risk of transfer of zoonotic diseases to the farmer.

•**Calving camera:** Monitoring cows remotely with a camera can help

reduce trips to the shed.

•**Calving pen and gate:** Securely restraining a cow at calving helps to reduce the physical demands associated with an assisted calving and reduces the risk of injury. Pen design should include a physical barrier (gate) between you and the cow at all times as she is encouraged into the head gate. Opening sections in the calving gate will also help if the calf needs assistance to suck.

•**Tagging calves:** Never tag a calf in a pen with its mother present. Always have a strong barrier or gate between you and the cow when tagging or separating a calf from its mother.

•**Good lighting:** It is essential to have good lighting around the yard and in sheds used for calving. Lighting will help to make the job efficient and will reduce the risk of trips and falls.

•**Calving equipment:** Always keep the calving jack and calving ropes clean, in good repair and stored safely.

•**Keep children away from the shed at calving time.**

Causes of farm workplace deaths in 2021

In 2021, nine farm workplace deaths occurred in agriculture (crop and animal production), two in the forestry and logging and one was related to farm construction (provisional data).

Thus, 12 workplace fatalities occurred on farms. Of the nine agriculture deaths, four each were in the '35-54' and '65 and older' age categories, with one 'aged 17 years or under'.

Four of the farm deaths were associated with farm vehicles, three with livestock, one fall from height and one due to a wound.

The 'forestry and logging' fatal injuries were associated with cutting timber on farms.

The construction death related to a wall collapse during construction.

Our sympathies are with the bereaved. To prevent further tragedies we all need to make farm safety our top priority in the year ahead.

Hurry and rushing are major factors associated with farm injuries. Pay particular attention to avoiding tractor knockdown or crush injuries or getting attacked by a cow with newborn calf during the coming months.

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Innovation and diversification in forest management

The new marteloscope training network aims to enhance owners' confidence and ability in managing a diverse range of forests.

Jonathan Spazzi
Teagasc forestry
development officer,
Limerick-Kerry.



Land owners plant trees for a variety of reasons. These include income diversification, timber production, carbon sequestration, protection of water quality, protection/enhancement of biodiversity, creation of woodland amenities and improved work-life balance.

In recent years, interest in establishing a diverse range of forests has been steadily growing, including interest in native woodlands and the

adoption of "close-to-nature" management options.

A balanced mix of forest management systems is therefore required to cater for the diversity of forest types, site conditions and, in particular, owner objectives.

Recent developments in European and national forestry policy are also directed at promoting diverse and integrated management as a means of enhancing forest resilience in the face of climate disruption, sustaining forest production and delivering diverse ecosystem services.

As part of these efforts, novel systems, known as continuous cover forestry (CCF), can allow commercial timber harvesting on suitable sites



Marteloscope training in progress.

while retaining a permanent forest cover. In this context, the Teagasc Forestry Development department will be rolling out a new programme of marteloscope workshops in 2022. This is a new knowledge transfer initiative aimed at enhancing owners' confidence and ability to manage a diverse range of forest types.

The main aim is to equip forest owners with the skills to choose the most appropriate management systems to meet their objectives and to help integrate and enhance both the production and biodiversity value of each forest.

The marteloscope network

A marteloscope is a specially prepared forest plot, ranging from 0.4ha to 1ha in size, commonly used across Europe for training purposes.

The name comes from the French "martelage" meaning "hammering" which refers to the way trees were traditionally marked for thinning across Europe by using a purpose-built hammering tool.

In essence, a marteloscope plot is an outdoor-classroom forest facility for training participants in tree selection and tree marking. It facilitates 'learning by doing'.



Senator Pippa Hackett, Minister of State at the Department of Agriculture, Food and the Marine, launched Teagasc's new marteloscope training programme, on her recent visit to Teagasc Oak Park, Carlow.

Pictured (L to R): Jonathan Spazzi, Teagasc Forestry Development Officer, Dr Nuala NíFhlatharta, Head of Teagasc's Forestry Development Department, Professor Frank O'Mara, Teagasc Director, Senator Pippa Hackett, Liam Herlihy, chair of Teagasc and Derek McCabe, chair of the North East Forestry Group.



The European Forestry Institute (EFI) has, in recent years, further developed marteloscope plots with specially designed software to be used on touch screen tablets while in the forest. Since then, the EFI has facilitated the development of a network of over 160 marteloscope training plots across Europe.

The Teagasc Forestry Development department has partnered with the EFI, in collaboration with Coillte and Pro Silva Ireland, to make this resource available to forest owners/foresters/students and other user groups here.

Training software

On a marteloscope plot, every tree is

numbered, measured and its timber and biodiversity values estimated. All the information is entered into the tablet-based software.

This is then used by participants to carry out thinning simulations and to analyse the impact of different choices on financial return and biodiversity.

Exercises almost always lead to group discussions, facilitating valuable peer-to-peer learning.

To date in Ireland, we have a total of nine marteloscope plots, three installed by Teagasc and six by Coillte. Teagasc has installed one plot in Co Limerick in Curragh Chase forest in partnership with Coillte and two in Oak Park Teagasc research centre, a

conifer plot and a broadleaf plot, to cater for a wide range of participants.

Given available resources and demand, further plots will be developed in other locations in the future.

Blended training

The training plots are available to forest owners for a one-day forest workshop. They are also utilised as part of a longer training course. The course currently available to broadleaf forest owners is designed as a blended programme.

It takes place over a number of weeks and consists of several facilitation-style virtual meetings, video tutorials and interactive exercises. A forest workshop in a marteloscope plot provides an end-of-the-course validation. The course encourages participants to explore their woodland, carry out practical exercises, practice selection skills on their own trees and to measure and share results with their peer group through a forum platform.

Donagh O'Grady is a progressive, active farmer and hands-on forest owner who attended one of the marteloscope courses earlier this year in Co Limerick.

He said: "For me, the course content and presentation were excellent and gave me a much better understanding of many issues around forest management including production and biodiversity.

"I now have the confidence to go into the forest and pick out the better trees. I think for those owners growing timber, a course like this is absolutely invaluable. The practical day in the forest was particularly enjoyable and informative."

Despite COVID-19 restrictions, four workshops have taken place in recent months. For the near future, the Forestry Development department will be increasing the marteloscope training activity with more workshops already scheduled in 2022, primarily for forest owner groups, but also including consultant foresters and forestry students.

For further information, contact jonathan.spazzi@teagasc.ie

The evolving nature of Irish forestry

Ireland is one of the few countries in Europe that experienced almost complete deforestation in recent history, with just over 1% of forest cover remaining at the beginning of the 1900s.

Since the foundation of the State in 1919, Ireland has undertaken progressive expansion of its national forest resources to reverse the deforestation trend of past centuries.

Early plantings focused on spruce

afforestation, followed in more recent decades by an increasing diversity of species being planted, reflecting the trends in land types available for forest creation. Today, our forest cover stands at over 11% of land area, of which approximately 30% is made up of broadleaf species and a further 20% of diverse conifers. This trend in species diversification is envisaged to continue in the future.

Almost 75% of private forests in Ire-

land are less than 30 years of age and many are approaching thinning stage.

There is a growing need for owners to understand management options and control the thinning process in order to realise the full value of their forests as part of a sustainable management approach.

This is imperative if a sustained level of timber mobilisation and a strong delivery of ecosystem services are to be achieved from our private forests.

Dahlias: plant with optimism for a long summer ahead

Chris Heavey

Lecturer at the Teagasc College at the National Botanic Gardens.



A garden should flower the whole summer long. Currently, you will see a great array of dahlia tubers in garden centres. These plants deliver flowering longevity. Whatever colour you fancy, there's a dahlia to provide it.

Dahlias are some of the easiest plants to grow. From dinner plate, to pompon, to single flower, there is one for everyone. Keep them fed and watered and you can't go wrong.

If you have ordered them from a nursery, your dahlia should be arriving now. You can pot them up into large pots and keep them under protection, or you can just unpack them and keep them in a cardboard box with shredded paper until you are ready to plant them out into the garden. Be sure the threat of frost has passed.

To achieve the best impact, place them in the sunniest position available. Forget about shady spots, the dahlia isn't a shrinking violet. Dinner plate varieties such as 'Penhill Water Melon' or 'Park Princess' can be placed at the back of a border, pompons can be planted mid border and single varieties like 'Bishop of Llandaff' look great to the front.

What is the secret to getting dahlias to flower really well? Food! Over winter, mulch the intended border with well-rotted manure. This will reduce water loss and feed the soil, which makes for beautiful flowers.

If you don't have access to manure, then use slow release fertiliser and mulch with composted bark, again to reduce water loss. Keep irrigated during dry spells and if you feel that they need a nutritional boost during the growing season, supply tomato food, which is good for any flowering plant.

Once flowering has begun, think about your dead heading technique. Dead heading means taking the spent flower off the top of the stem to encourage new flowers to grow.

Do this weekly and you should have continuous flowers right into late autumn. Dahlias make great cut flowers and last a long time indoors.

To increase your supply of dahlias, take softwood cuttings in early summer, as soon as the green shoots



Dahlia 'Bora Bora' and 'Bishop of Llandaff' sharing a late summer border with *Rudbeckia deamii*.

appear and have produced enough growth for you to do so.

Use a very sandy mix and the cuttings will root within two to three weeks. If you can, provide a little bottom heat to encourage root formation.

Once the season has ended, you can either dig up the tuber or leave it in the ground to die back naturally. If you are living in an area where rain and soil are heavy, choose the first option.

Do this when the first frost has knocked back the foliage. Lift the tuber, turn it upside down and let it dry out completely. Remove any soil and leave the tubers in a dry compost,

wood chips or shredded paper over winter.

Dahlias are invaluable for border interest in late summer/early autumn, or even into late autumn if the weather allows. Consider varieties such as the beautiful single red 'Bishop of Llandaff' or 'Wishes n' Dreams' which is pink.

For pompon types, 'Sweet Suzanne' is a lovely peach colour and for a decorative dahlia, a spectacular one is the giant 'Café Au Lait Rose'. If you want the massive dinner plate flower heads, then you can't do better than 'Bora Bora' which is a semi cactus variety in a fiery orange red.

Organic Farm Walks 2022

Teagasc, Department of Agriculture, Food & 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.

Wednesday, 2nd March | 12pm

Seamus Howard, Gortlecka,
Kilnaboy, Ennis, Co. Clare

Dairy

Wednesday, 30th March | 12pm

Brigid O'Connor, Gleann na
Gealt, Camp, Tralee, Co. Kerry

Hill Sheep, Agri - Tourism

Wednesday, 20th April | 12pm

Ross & Amy Jackson, Lacka,
Carrig, Birr, Co Tipperary

Cereals, Sheep

Wednesday, 11th May | 12pm

Andrew & Leonie Workman, Dunany
Flour Organic, Drogheda, Co Louth

Cereals, Milling Flour

Wednesday, 25th May | 2pm

Mark & Grainne Duffy,
Clogher, Ballybay, Co. Monaghan

Poultry-eggs, Cereals, Beef Finishing

Wednesday, 1st June | 2pm

John Hurley, Castle Hill House,
Knockalaughta, Ballintubber,
Castlerea, Co Roscommon

Suckler to Weanling, Sheep

Wednesday, 8th June | 2pm

Fergal Byrne, Calverstown
Little, Dunlavin, Co Kildare

Sheep, Cereals, Beef Finishing

Wednesday, 15th June | 2pm

Donal & Frederique Keane, Camelton
Stud, Summerhill, Co Meath

Suckler to Beef, Cereal

Wednesday, 22nd June | 2pm

Clive Bright, Ardsallagh,
Ballymote, Co. Sligo

Beef, Direct Selling

Wednesday, 6th July | 2pm

Gavin Tully, Clonhenritte,
Camolin, Enniscorthy, Co Wexford

Cereals

Wednesday, 13th July | 2pm

Declan Houlihan, Corrigeen Organic
Farm, Rathcabin, Birr, Co Offaly

Cereals, Poultry-eggs

Tuesday, 19th July | 2pm

Rose O Sullivan & Martin Fox,
Spring Cottage Organic Farm, Parke,
Kinnegad, Co Westmeath

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