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Today's Farm

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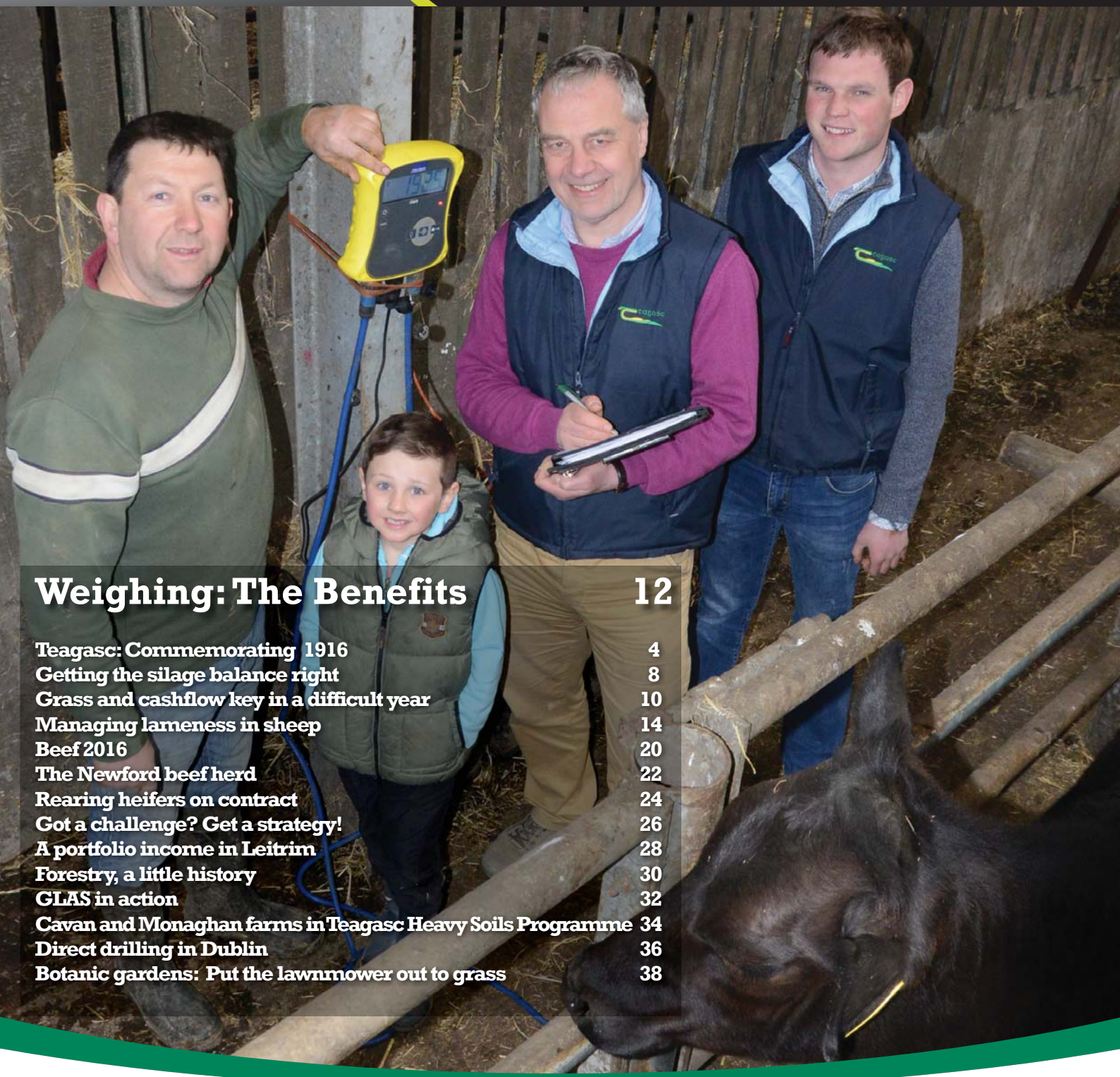

Weighing: The Benefits 12

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Environment
A look at some of the 25 GLAS actions
>> 32

Pat Lenihan, Stradbally, Co Waterford, working for FRS Network putting 75cm tall tree shelters in the grove of native trees to protect against hares as well as rabbits.

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Cover | Sean Cooney, Joseph Cooney, Bob Sherriff and Owen O'Sullivan (Teagasc KT masters degree student) weighing heifers as part of a weighing initiative in the southeast.

COMMENT

Mark Moore
Editor,
Today's Farm

Most useful machine on the farm

Do you own a scales with which to find out exactly what your animals weigh at key stages in their lives? If not, and if you don't have access to one via a neighbour or contractor, it's impossible to know exactly how they are performing. An initiative to encourage farmers to weigh animals in the southeast was led by Teagasc advisor Bob Sherriff.

A key lesson from the study was how much better high genome status animals perform than their lower-quality cousins. In the past, animals were judged on appearance, now we have high-tech genomics and low-tech weighing equipment to confirm their merit.

An meaisín is úsáidí ar an bhfeirm

An bhfuil meá agatsa lenar féidir leat a fháil amach cén meáchan go beacht atá i do chuid ainmhithe ag príomh-chéimeanna dá saol? Más rud é nach bhfuil, agus mura bhfuil fáil agat ar cheann ó chomharsa leat ná ó chon-raitheoir, ní féidir leat bheith cinnte conas go díreach atá ag éirí leo. Ba é Bob Sheriff, comhairleoir de chuid Teagasc atá le feiceáil ar an gclúdach, a bhí i gceannas ar thionscnamh fao-inar spreagadh feirmeoirí san oird-heisceart chun ainmhithe a mheá. Ceacht tábhachtach a foghlaimíodh ón staidéar sin arbh ea a fheabhas a bhíonn feidhmíocht na n-ainmhithe ag a bhfuil ardstadas géanómaíochta lena n-ais siúd atá ar chaighdeán níos ísle. San am atá caite, is ar bhonn dealraimh a tugadh breithiúnas ar ainmhithe, ach anois tá an ghéanó-maíocht ardteicneolaíochta agus trealamh meáite ísealteicneolaíochta againn lena bhfiúntas a dheimhniú.

FARM AND COUNTRY LIFE 1916

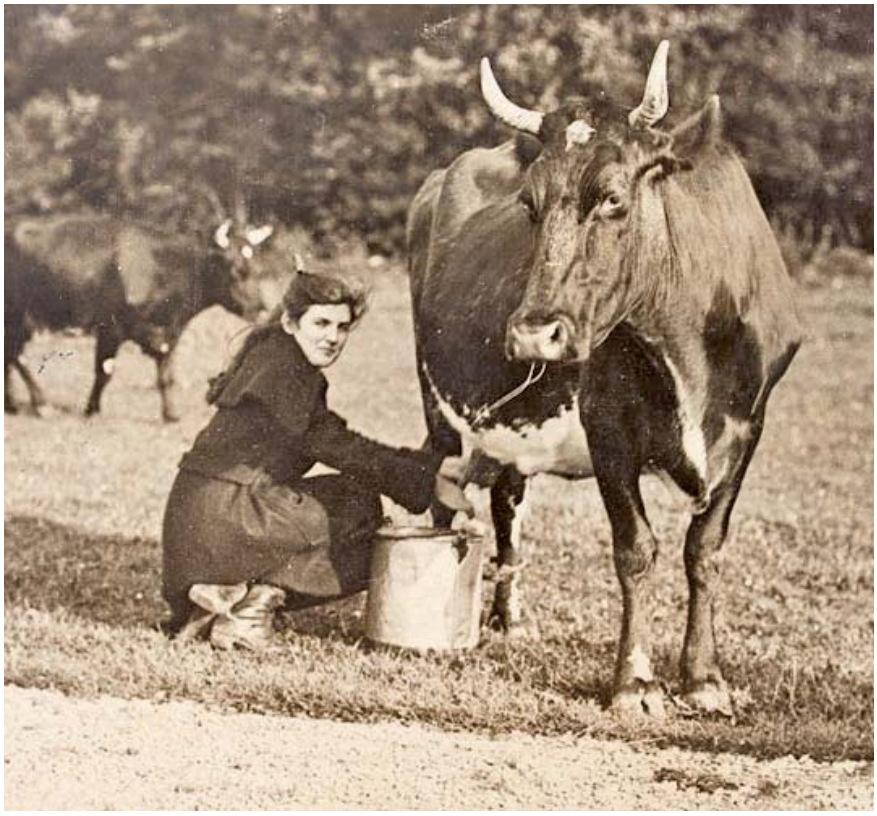
Teagasc, in partnership with Galway County Council, will stage "Farming and Country Life 1916", Ireland's largest rural 1916 commemorative. The event will take place at the historic Mellows Campus, Athenry, on 10 and 11 June.

Speaking at the launch of the event, Prof Gerry Boyle, director of Teagasc said: "This will be the most significant 1916 commemorative event to take place in rural Ireland. I want to acknowledge the enormous co-operation we have received from all of our collaborators. I also want to acknowledge our title sponsor, FBD, who have been extremely supportive of this project."

The event will be free to attend and will appeal to a wide audience from children to grandparents, urban and rural, farm families, schools, the diaspora and visitors to our country. The site will incorporate picnic areas and a packed schedule of entertainment for all ages. The expected attendance at the event is 50,000, making it the largest 1916 commemoration to be held outside of Dublin.

The event will reflect on an important part of life in Ireland at the beginning of the last century. It will prove highly educational, authentic and will accurately retell the story of local 1916 military events and farming and country life of the era. It will showcase a significant number of interactive exhibits, dramatic re-enactments, lectures and reconstructions.

A large number of farming, rural, community and voluntary, local and national organisations will be participating in the event, including the IFA, GAA, National Ploughing Association, UCD, ICA, Museum of Country Life, Agricultural Museum in Johnstown Castle, GAA Museum, Department of Folklore in UCD and many local heritage and historical societies.



> "The event will be free to attend and will appeal to a wide audience from children to grandparents, urban and rural, farm families, schools, the diaspora and visitors to our country

There will be a series of highly interactive villages that will explore all aspects of farming and country life in Ireland 100 years ago and it will chart the major developments in the first half of the 20th century. The event is being organised around seven thematic villages:

- Ireland 1916 (The 1916 Rising).
- Farm family and rural life.
- The land.

IALB/EUFRAS/TEAGASC CONFERENCE 2016

Fifth EUFRAS meeting – 55th IALB conference
Date: 19 to 23 June 2016
Venue: University of Limerick

IALB EUFRAS TEAGASC "Innovation Support for a Diverse Agriculture" is the theme of the event taking place on the University of Limerick campus in June. The conference will consist of plenary sessions, excursions taking in farm visits and cultural highlights, and highly interactive workshops. The workshops will be highly applied with participants learning about, and discussing, new initiatives in knowledge transfer and other professional skills. The official languages of the conference are English and German.

For more on the Newford open day, see page 22.

NEWFORD HERD OPEN DAY

The first national open day will take place on Wednesday 25 May from 2pm until 7pm.

The farm is located just off the M6 at Junction 17 at Teagasc, Athenry, Co Galway.

See also article by Adam Woods on page 22.

National Library of Ireland

- Education and co-operation.
- Mechanisation of farming.
- Livestock.
- Sporting and cultural life.

Event highlights

- A series of stages will be packed with performances from musicians, actors and various artists from across the country and will also host a number of formal ceremonies during the two days.
- A life-size replica of the GPO will form the backdrop for a major interactive "Ireland 1916" display.
- A large equine display will showcase working horses of the 1916 era and include live demonstrations.
- The craft and artisan producers' village will give live demonstrations of the skills that were part of life in 1916.
- Family entertainment area, including a community circus
- Panel discussions, debates and lectures relating to rural life and farming.
- Livestock from the 1916 era.
- Interactive replica of the 1916 farmhouse.
- Live hurling and football matches in attire of the day.
- Agricultural education in 1916.
- Rural electrification display.
- Farm mechanisation – steam-powered tractors, vintage machinery including live demonstrations.
- Food of 1916 – how did rural Ireland feed itself at the beginning of the century?
- Ireland 1916 – Live exhibit on the Rising.
- Actors in dress of the day will circulate and entertain the visitors.

»Continued on next page

»From page 5

A huge crowd is expected to attend this year's beef open day at Teagasc Grange.

BEEF 2016

A major beef open day will take place on Tuesday 5 July, at the Teagasc Animal & Grassland Research and Innovation Centre at Grange in Dunsany, Co Meath. See also article by James Keane on page 20.

GREENFIELD DAIRY FARM OPEN DAY

Date: Wednesday 18 May 2016
Venue: Kilkenny

The objective of the open day is two-fold; firstly, to update dairy farmers on the key outcomes in terms of both physical and financial performance of the farm over the last seven years; secondly, to help dairy farmers to cope with the low milk price in 2016.

Strategies to cope with the low milk price will be discussed at the open day, which will include cashflow budgeting, cost reduction options, as well as an increase in efficiency and productivity.

Directions

Four miles from Kilkenny on the R712, just before the Gowran exit.
Coordinates: 52°38°50° N, 7° 08' 14'' W.

The Greenfield dairy farm open day will take place on Wednesday 18 May.

Other upcoming events

28 June	Dairy open day	Clonakilty Agricultural College, Darrara, Clonakilty, Co Cork
11 May, 10am to 1 June, 5pm	Organic courses. Course dates: 11, 17 and 25 May, and 1 June	Teagasc Centre, Codrum, Macroom, Co Cork
13 May, 9.30am to 10 June, 4.30pm	Organic courses. Course dates: 13 and 20 May and 3 and 10 June	Teagasc, Mellows Campus, Athenry, Co Galway
25 May, 11am to 1pm	**Broadleaf thinning event:** Teagasc, in association with the Forest Service (DAFM) is organising a broadleaf thinning event focusing on the first and second thinning stages on Wednesday 25 May in Dunmanway, Co Cork	Parkway Hotel, Dunmanway, Co Cork

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Silage: balancing yield and quality

Joe Patton
Dairy Specialist, Teagasc Animal and Grassland Research and Innovation Programme

Spring 2016 will not be remembered fondly by dairy farmers. The combination of low milk prices and prolonged periods of wet weather challenged even the most ardent exponents of early grazing. The consensus at discussion group meetings has been that spring this year was worse than 2013, "except that there was still silage in the pit".

It is a strong reminder that although maximising grazed grass in the milking cow diet remains the priority, grass silage still accounts for at least 20% to 25% of the annual feed intake. It must be managed well to avoid deficits both in bulk and feed value. However, grass silage should complement grazing in the overall system, not replace it.

The three key elements in cost-effective silage production are:

• High overall annual grass yield (>14.5t DM per ha. High dry matter yields for first cut (4.8t DM for mid-May up to 6.2t DM per ha for early June) and subsequent cuts.

• The appropriate feed quality for the class of stock to be fed. This is best measured using the % DMD – the % digestibility of the crop dry matter.

• A clean, stable, well-preserved feed with high intake characteristics. This is achieved through good fermentation and can be assessed by measuring pH (target 3.9 to 4.2 for unwilted crops), ammonia (should be less than 9%), and lactic acid (aim for over 8%) content.

Difficult weather and poor growth have resulted in late closing with some silage area being grazed twice in spring. Applying N fertiliser to silage ground was also delayed on many farms. This, coupled with a depletion of silage reserves, has raised the question of delaying first cut to bulk up and increase the number of silage tonnes in the pit.

Balancing yield and quality targets

Grass DM yield is the single most important factor determining silage cost per tonne, but quality also needs to be considered when setting the target cutting date. A survey of Teagasc silage quality analyses on dairy farms 2014-2015 shows national average silage DMD at approximately 66% (the range is 58% to 80%).

Thus, the "average" silage is suitable for maintenance-only diets (e.g. dairy cows that do not need BCS gain). Dairy farms operating at or below "national average" silage quality would benefit from improving the DMD of first-cut silage by three to four points. Potential benefits for spring-calving herds include shorter dry periods to replenish BCS, reduced concentrate supplementation for milking cows in late autumn, and improved growth rates in dairy weanling heifers.

There are a number of key points to remember when planning a strategy that balances silage yield and quality:

• Target silage DMD varies with the type of stock to be fed. Within a given sward, DMD is very much determined by grass growth stage at harvest (Figure 1). For higher DMD silage (73+), harvest at or just before seed heads emerge. DMD drops by one unit for every two to three days' delay after that, depending on weather and sward conditions. If the crop lodges or there is dead material at the base, DMD generally drops a further three to four units.

• A common misconception is that improving silage quality comes at a direct cost to DM yield. On the contrary, the principal factors that drive yield – soil P and K status, soil pH, reseeded (ryegrass) swards, N application rate – also drive quality because they help to generate high DM yields before grass heading date.

• Given late closing this year, later cutting may also be planned for on many farms. Grazing a second time should postpone DMD decline to some degree. However, it is important to understand that while delaying the first cut well beyond (more than one week) grass heading date appears to put bulk in the pit, losses in digestibility means that total feed available to the animal is not increasing, or perhaps even declining (Figure 2). It also slows grass recovery rate and reduces second-cut yield, so that total yield of digestible feed per hectare is lower.

Table 1: Wilting hours

DM% of crop	0	24	48
6 metres per row	17	19	23
3 metres per row	17	23	31
Tedded out	17	30	50

• For spring-calving herds, silage for dry cows should be 69 to 70 DMD; otherwise, it will be more expensive to reach BCS targets. The scope for delaying silage cutting – at least week beyond heading date is therefore quite limited.

• Silage fed to milking cows and young stock needs to have higher DMD and should be harvested at an earlier growth stage (72+ DMD). Budget how much of this material is needed (equivalent to three bales per cow for spring/autumn feeding, plus three bales per replacement heifer). For spring-calving herds, taking out a small percentage of first-cut as bales seven to 10 days early helps to meet this budget.

• For areas that were grazed twice, is there merit in delaying first cut to allow these to catch up? Evidence from research at Teagasc Grange (Figure 3) shows that the gap in yield between areas grazed twice versus once is maintained or even increases through early June. Grass DMD will have declined too far on the main area by the time these sections are ready for cutting. A better option may be to manage this area separately, baling it early at lower yield to provide high DMD material.

• A guideline for fertiliser N is that

A combination of low milk prices and prolonged periods of wet weather in spring 2016 challenged even the most ardent exponents of early grazing.

Figure 1: Grass growth stage effects on silage DMD

Silage DMD	76+%	74% to 76%	71% to 73%	68% to 70%	<67%
Suitable for	Fresh-calved dairy cows in winter milk.		Dry cows requiring BCS gain -2.75 at dryoff.	Dry dairy cows requiring little or no BCS gain.	Poor quality feed.
	Buffer feeding milking cows early spring/late autumn. Finishing cattle.		Dairy weanling/in-calf heifers. Growing cattle.	Dry suckler cows requiring BCS gain.	Dry dairy cows - meal feeding required to gain BCS. Dry suckler cows.

Figure 2
Cutting date effects on DM and total digestible DM yield in grass silage swards

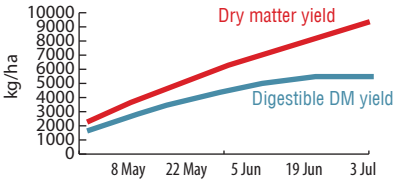
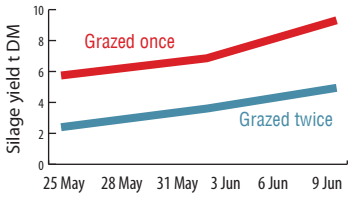


Figure 3
Silage DM yield for swards grazed once or twice in spring



grass uses up two units of N (2.5kg) per day on average. Fertiliser should be applied approximately 50 days before planned cutting date. Sticking rigidly to this interval could mean very late first cuts on some farms this year. However, the crop may still be harvested sooner depending on nitrate and sugar levels. If weather conditions are otherwise suitable, it is advisable to test the grass crop rather than delaying cutting based solely on the two-unit rule. Wilting to >28% DM is a very effective aid to preservation if nitrate readings are high.

• Grass sugar content is more critical to good preservation than nitrate readings. Add a sugar source (e.g. molasses) if the opportunity for cutting is there but Brix (sugar) readings are low. Under good ensiling conditions, there is no clear benefit to using additives. Adding inoculants (bacteria, enzymes) will not significantly improve feed value if the standing grass crop is of poor quality.

• Where wilting is needed, reaching the target DM of 28% to 32% is a function of swath type and duration of drying (Table 1). Dry matter will not increase sufficiently in large rows, even if left for 48 hours. On the other hand, grass tedded out and left for at least 36 hours in good conditions may become be too dry for pit silage (at least 40%).

> Silage fed to milking cows and young stock needs to have higher DMD and should be harvested at an earlier growth stage

Grass and cashflow key in a tough year

Sandra Hayes
Teagasc, Business and Technology
Dairy Advisor, Thurles

Like all farmers Michael Ryan of Deansgrove, Cashel, Co Tipperary, has found spring 2016, to put it politely, difficult. "The weather conditions made it extremely hard to manage dairy cows at grass. We fed higher levels of meal/concentrates than normal and more silage was eaten than planned," says Michael. To maximise feed from grass, Michael took a number of steps:

• He did up a spring grass budget, so that he knew the daily and weekly grass allowance needed for his cows.

• He fenced off small walkways into the paddocks to allow cow access into paddocks and minimise damage.

• Cows were milked early in the evening to allow cows back to grass in daylight for two to three hours' grazing before rehousing them at night.

A lot of work, one may say. But with good grassland management, efficient use of labour, correct housing and feed space area, Michael was able to have grass in the cows' diet in all bar three days this spring.

Managing labour is vital, says Michael. "I have used my contractor more and more over the years. Large jobs such as slurry spreading and fertiliser spreading are contracted out. This year, we had a Teagasc student on a 12-week placement from Pallaskenry College and we participate in a placement programme with a French agricultural college from February to June."

Michael demonstrates and allows students to practise the vital skills experienced on a busy dairy farm during the calving/spring grass planning period. Michael's father Maurice is still actively involved in a support role on the farm.

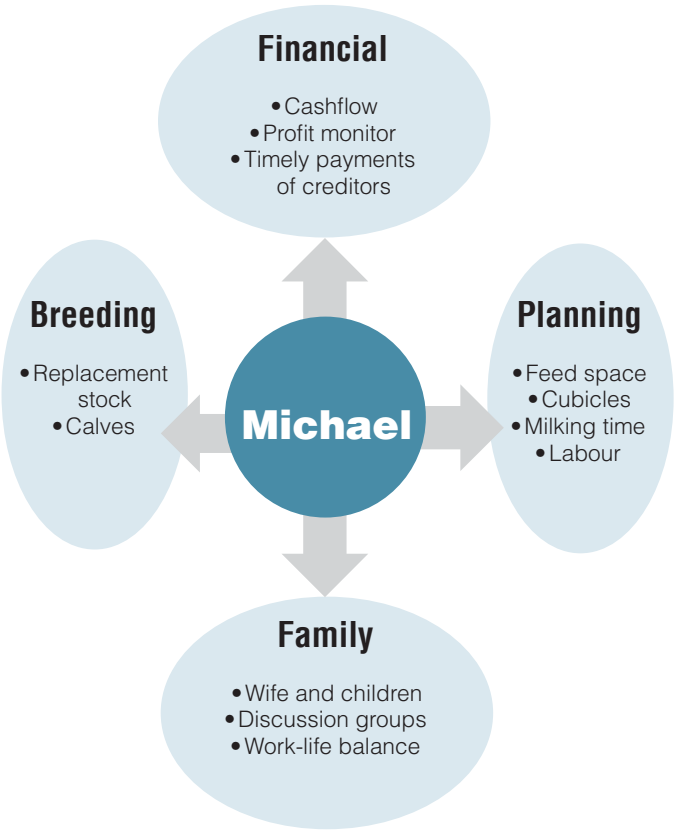
"Efficiency is impossible without good facilities," says Michael. The building programme since 2010 has included cubicles for 120 cows and followers. Slurry storage and feed space for buffer feeding livestock was undertaken and, finally, a 20-unit milking parlour and updating calving and calf housing was undertaken in 2012.

All of this phased development was planned for, both physically and financially by Michael, with budgets and cashflow in mind at all times. "Cashflow is important to me and also my suppliers or contractors," he says. With this in mind, Michael brought forward a cash surplus of €250/cow this spring to cover the bills and to ensure prompt payment.

Michael believes that clearing a bill on a monthly basis ensures prompt service when required and suppliers will often agree a discount for immediate payment. The same discount cannot be achieved when a bill is let run for a number of months. On the

Michael's TOP TIPS

- All costs have to be monitored. Question every single thing you buy.
- Try and make sure you pay on time and always ask for discount. This ensures value for money and prompt service.
- Continue to invest in soil fertility. Michael has been building up pH, P and K levels on the farm for the last four to five years and believes it would be a backward step to stop this even with a low milk price. "My greatest resource is grazed grass and if pH, P and K levels drop, so too will the grass grown on the farm," says Michael. See Table 1 (for tonnes of grass grown in recent years).
- Reseed where you will get the best return. Michael will not do any reseeding on the milking platform this year (because swards are comparatively young) but some reseeding will be done on an outfarm (old pasture).
- "Take a little off everything" – Michael has completed a Teagasc eProfit Monitor for the farm since 2005 and, therefore, he knows the costs of production for his litre of milk. In trying to reduce costs this year, something has be to taken off all costs but not by sacrificing one thing over another.
- Heifers are key. In the past, he kept all surplus stock but, in spring 2016, surplus calves were sold. The herd supplied 481kg MS/cow to the co-op in 2015. Now in focusing on breeding for this year, Michael will target bulls with the highest protein percentage, fertility and positive for milk. "Current milk price is irrelevant to my breeding strategy as the straw purchased today will not return investment until four years' time.
- "You must put maximum effort into heifers as they are the best bred and the most fertile animals on the farm." With a high submission rate of over 90% and a very good conception rate of 50%, Michael will breed with Friesian Holstein straws for three to four weeks and then revert to beef straws. This will achieve his target number of heifers for 2019 without the need to carry surplus stock on the farm.
- "If you don't plan, you cannot change." Michael believes in planning so that he can adapt and change if something goes wrong.
- No capital expenditure this year. The last building project was undertaken in 2012 on the farm, so no capital expenditure is crucial on the farm this year.



other hand, Michael's Co-op, Dairygold, operates a deferred payment system of four to five months for feed and fertiliser."That allows me to pay off large bills for feed and fertiliser in June, July and August when milk supply is larger," says Michael, who signed up for the fixed milk price scheme for 18 months operated by his co-op. He fixed 15% at a base milk price of 30c/litre.

Sandra Hayes and Michael Ryan. Michael is a young, enthusiastic dairy farm. He is a member of two local dairy discussion groups, 3C and Outrath. He is married to Karen and they have two young children, Micheal and Shona.

Table 1: Grass growth

2013	10.61 tonnes DM/ha
2014	13.9 tonnes DM/ha
2015	14.6 tonnes DM/ha

Table 2: Increase in cow numbers

2014	80
2015	103
2016	120

Table 3: EBI

	No.	Milk	Fertility	EBI
Cows	124	€67	€112	€217
2016 calves	47	€87	€139	€265
2015 calves	44	€79	€121	€237

(Table 3 information courtesy of ICBF)

What is measured is

A group cattle weighing study in the southeast yielded strong messages

Bob Sherriff
Teagasc Drystock Advisor, Wicklow

Teagasc drystock advisors in Wicklow, Wexford and Carlow each nominated two volunteer farmers from their discussion groups to participate in the study. Slaney Foods supported the initiative through a small financial incentive to the farmers involved who completed the prescribed weighings.

The study compared the performance of beef calves born in spring 2015. Each calf was weighed in early July and again at weaning in October. Their dams were also weighed at weaning to examine the cow/weanling weight ratio. Most of the farmer participants had their own weighing scales; some borrowed or hired one.

Each farmer entered their weights on the ICBF weight-recording page on the ICBF website. When all the participants had carried out their weighings, a summary of the results from each farm was circulated to all the members of the group (Table 1). This allowed each farmer to examine his own animal's performance and compare it against those of the other group members. "The cross comparison was really interesting and a great strength of the study," said Wicklow farmer Sean Cooney.

Overall, the best bull calf in the study weighed 538kg at weaning in October and had an average liveweight gain (LWG) from birth of 1.79kg LW /day. He was born on 14 January 2015.

The best female reached 413kg at weaning and had a performance of 1.42kg LW/day from birth to weaning. The best overall average male and female performance was 1.61kg/day and 1.33kg/day respectively (Table 2). This average figure may include bought-in replacement calves where a calf may have died, so this had an influence on the average figures.

The study identified the best-performing lines in the herds, information which can be used to make culling decisions. The figures also give a very accurate outline of the performance of the stock and this information can be used to improve the overall efficiency, and carbon footprint, of the herds involved.

Noirin McHugh Teagasc geneticist, used the data collected to compare the performance of five-star cows against one-star cows in the herds. She carried out the analysis for the entire group and also gave each farmer in the group an individual printout of the performance of the cows in their own herd.

"The calves from the five-star cows were 28kg heavier than the progeny from one-star cows," said Noirin. "Also, the five-star cows had a shorter calving interval (11 days less) compared with the one-star cows. The five-star cows calved for the first time, on average, four months earlier than the one-star cows in the study. The average weanling weight to dam weight ratio was 48% for the five-star cows, which is close to the recommended target of 50%, compared with 42% for the one-star cows."

At a meeting held this spring, after the study was complete, the farmers voiced their strong support for the programme and made a number of suggestions which would help the usefulness of the information gathered.

These included the importance of

Table 1: Autumn/summer weight recording detail (average of 1.51kg/day)

Animal details							18 July 2015			17 Oct 2015		
Animal	Born	Sex	Brd	Sire	Dam	Birth weight	Weight	ADG birth	ADG last test	Wgt	ADG birth	ADG last test
IE371083610115	31 Jan '15	M	LM	IE371513520122	IE351005541355	45	312	1.59		441	1.53	1.42
IE371083610131	28 Mar '15	M	LM	IE371513520122	IE211288750570	45	198	1.37		321	1.36	1.35
IE371083620108	17 Jan '15	M	LM	IE371513520122	IE211306590346	45	353	1.69		530	1.78	1.95
IE371083620124	23 Feb '15	M	LM	IE371513520122	IE351005591343	45	254	1.44		383	1.43	1.42
IE371083620132	11 May '15	M	LM	IE371513520122	IE371171770642	45	171	1.85		304	1.63	1.46
IE371083640101	9 Jan '15	M	LM	IE371513520122	IE351005581318	45	293	1.31		453	1.45	1.76
IE371083640118	8 Feb '15	M	LM	IE371513520122	IE351005571390	45	279	1.46		421	1.5	1.56
IE371083650110	19 Jan '15	M	LM	IE371513520122	IE371083680014	45	282	1.32		417	1.37	1.48
IE371083660103	10 Jan '15	M	LM	IE371513520122	IE371083690015	45	250	1.08		370	1.16	1.32
IE371083680105	12 Jan '15	M	LM	IE371513520122	IE241737231002	45	344	1.6		502	1.64	1.74
IE371083680121	11 Feb '15	M	LM	IE371513520122	IE351005591327	45	268	1.42		416	1.5	1.63
IE371083690106	14 Jan '15	M	LM	IE371513520122	IE371372540140	45	363	1.72		538	1.79	1.92
IE371083690122	12 Feb '15	M	LM	IE371513520122	IE351005531338	45	279	1.5		427	1.55	1.63

managed

Bob Sherriff and Wicklow farmer Sean Cooney who took party in the study.

> Each calf was weighed in early July and again at weaning in October. Their dams were also weighed at weaning to examine the cow-weanling weight ratio

having a computed 200-day weight for the cattle weighed, to facilitate an accurate comparison between all of the stock recorded.

Another good suggestion was that the weighing data would be best shown in a graph style, which could include the performance of the other group members stock and a line showing the national targets for weanling growth. This would allow a much clearer comparison against the other members of the group. We will have these changes in place in 2016.

Slaney Foods has reiterated its support for the study for 2016 and all the farmers involved are enthusiastic to participate in the study again in 2016.

Table 2: Teagasc/Slaney cattle weighing study

Farmer	Advisor	Female average	Male average	Best female	Best male
JW	DB	1.19(250)	1.21(261)	1.42(263)	1.73(366)
TM	MD	1.09(334)	1.11(344)	1.29(375)	1.33(395)
NO'C	JD	1.14(308)	1.27(342)	1.48(315)	1.54(333)
DB	BS	1.09(274)	1.03(303)	1.55(380)	1.46(350)
JK	VO'C	0.79(212)	0.8(224)	1.43(276)	1.34(342)
GE	BS	1.30(344)	1.43(393)	1.42(413)	1.65(454)
JR	PF	1.32(368)	1.51(425)	1.52(390)	1.79(538)
AW	BS	1.33(302)	1.43(331)	1.59(217)	1.69(365)
SC	BS	1.13(315)	1.16(335)	1.52(366)	1.65(453)
CC	OW	1.29(347)	1.61(413)	1.36(409)	1.71(492)

Average = kg/day

Join in. Special thanks must go to all who assisted in the study including Slaney Foods, the participating farmers, ICBF, and Teagasc advisors and specialists. If you are farming in the southeast and wish to get involved in this year's study, please contact your local advisor.

drystock

Dealing with LAMENESS in your flock

Ciaran Lynch
Sheep specialist
Teagasc Animal and Grassland Research & Innovation Programme

Lameness in sheep has been a persistent problem affecting the industry for many years. It represents a welfare issue, which in turn limits production and requires a significant labour input in its treatment and in dealing with other health issues that it may pre-dispose the sheep to.

In short, lameness can represent a significant cost in your flock. A realistic target of having less than 5% of sheep lame at any time is achievable when a control plan is in place.

> The level of ewes affected with scald and footrot remains high although there was large variation

Causes of lameness

There are a number of factors that cause lameness in sheep. However, we will focus on three of these. Two well-established causative factors – scald and footrot – account for the vast majority of foot issues causing lameness in sheep. A third – contagious ovine digital dermatitis (CODD) – is one that is becoming more prevalent.

A survey by Teagasc on a large number of ewes in six lowland and four hill flocks during the pre-weaning period examined the extent of a number of foot issues. The mean clinical incidence of the three conditions is shown in Table 1.

As expected, the level of ewes affected with scald and footrot remains high, although there was large variation among flocks. There was a significantly lower incidence in flocks that had good facilities and employed effective control strategies.

The occurrence of CODD was confined to two of the six lowland flocks where a relatively small number of ewes were affected. However, recent work in the UK suggests that it is becoming a major issue. Anecdotal evidence in Ireland based on reports of CODD-like symptoms from farmers indicates that the level present in Irish flocks is also rising.

Description and treatment

Understanding what condition is affecting the sheep is important, as this will influence the potential treatment strategies.

Barry McGlynn and Damian Costello view Barry's footbath facilities.

Table 1: Incidence (%) of foot conditions in ewes within a flock

Condition	Lowland flocks	Hill flocks
Scald	29.2	5.9
Footrot	12.6	6.2
CODD	1.1	0

Adapted Lynch et al. 2011

SCALD

• Occurs in the interdigital space between the claws, affecting the skin area.

• The area is typically wet, with associated redness and swelling.
• Loss of hair in the interdigital space.

Treatment

• Scald can be effectively treated, in most cases, through a routine footbathing procedure or with application of antibiotic spray.
• Common in young lambs from five weeks onward (mid-April on).
• Important to treat in a prompt manner to avoid performance setbacks.

FOOTROT

• Initially occurs between the claws.
• Pungent foul-smelling stage; may also have greyish oozing pus.
• Under-running of the horn, which may lead to separation.

Treatment

• A good footbathing procedure can help keep the incidence of this condition in its benign form at bay.
• Avoid re-infection by putting ewes back on previously grazed paddock post-treatment (avoid for 10+ days).
• In its virulent form, ie where the affected leg is no longer loadbearing, foothbathing will no longer be effective.
• Consult your veterinary surgeon on suitable antibiotic treatments.
• Treatment with long-acting antibiotics (eg oxytetracycline and amoxicillin products) have been shown to be effective.
• Avoid spread by separating affected sheep (e.g. post-weaning).
• Identify lame ewes and be prepared to cull repeat offenders.
• Vaccination may be an option worth considering to reduce the incidence of footrot in flocks where it is a continual problem (NB: vaccination should not be considered for flocks that have used Cydectin 1%).

Continued on p16

Jessica, Grace and Barry McGlynn with Damian Costello.

CODD

- Starts with inflammation occurring at the coronary band (hairline between hoof and leg).
- No significant smell.
- Will bleed easily and may have some associated grey scum.
- Leads to the separation of the outer wall of hoof and can result in detachment of the hoof.
- May result in the complete detachment of the hoof horn.

Treatment

- Unlike footrot and scald, traditional footbathing is not effective against CODD.
- Isolate sheep suspected of having the condition.
- Consult your veterinary surgeon to confirm the diagnosis and potential treatments.
- The condition is treatable with antibiotics. However, there is varying efficacy among the different antibiotics currently available.
- Where condition persists, you should cull.

LAMENESS CONTROL

Having a control strategy is vital to effectively control lameness issues in your flock. There are a number of key areas to consider:

Quarantine

- As with most health issues, if you don't have it in your flock, you certainly don't want it.
- All purchased sheep (rams, ewes, replacements or store lambs) should be thoroughly inspected at purchase.
- Footbath all purchased on arrival.
- Isolate purchased sheep on arrival.

Treatment strategy

- Consulting your advisor and vet on suitable control strategies should form part of a flock health plan employed on your farm.
- Consider the product that is being used for footbathing, possible antibiotic treatments and potentially vaccination.

Facilities and footbathing procedure

- Use products appropriately – correct dilution and mixing procedure is vital.
- Footbaths should be covered if using zinc sulphate, copper sulphate and some other proprietary products to avoid further dilution.
- Solution needs to be 5cm deep – this may need to be topped up in walk-through footbaths.
- Contact time is important for products like zinc sulphate.
- The contact time of walk-through footbaths is frequently less than 10 seconds.
- Larger stand-in batch footbaths provide a better chance of treating sheep effectively and contact time can be increased.
- Once footbathed, all sheep should be allowed to stand on a clean, hard surface, ideally for up to one hour before being allowed back out to the field.

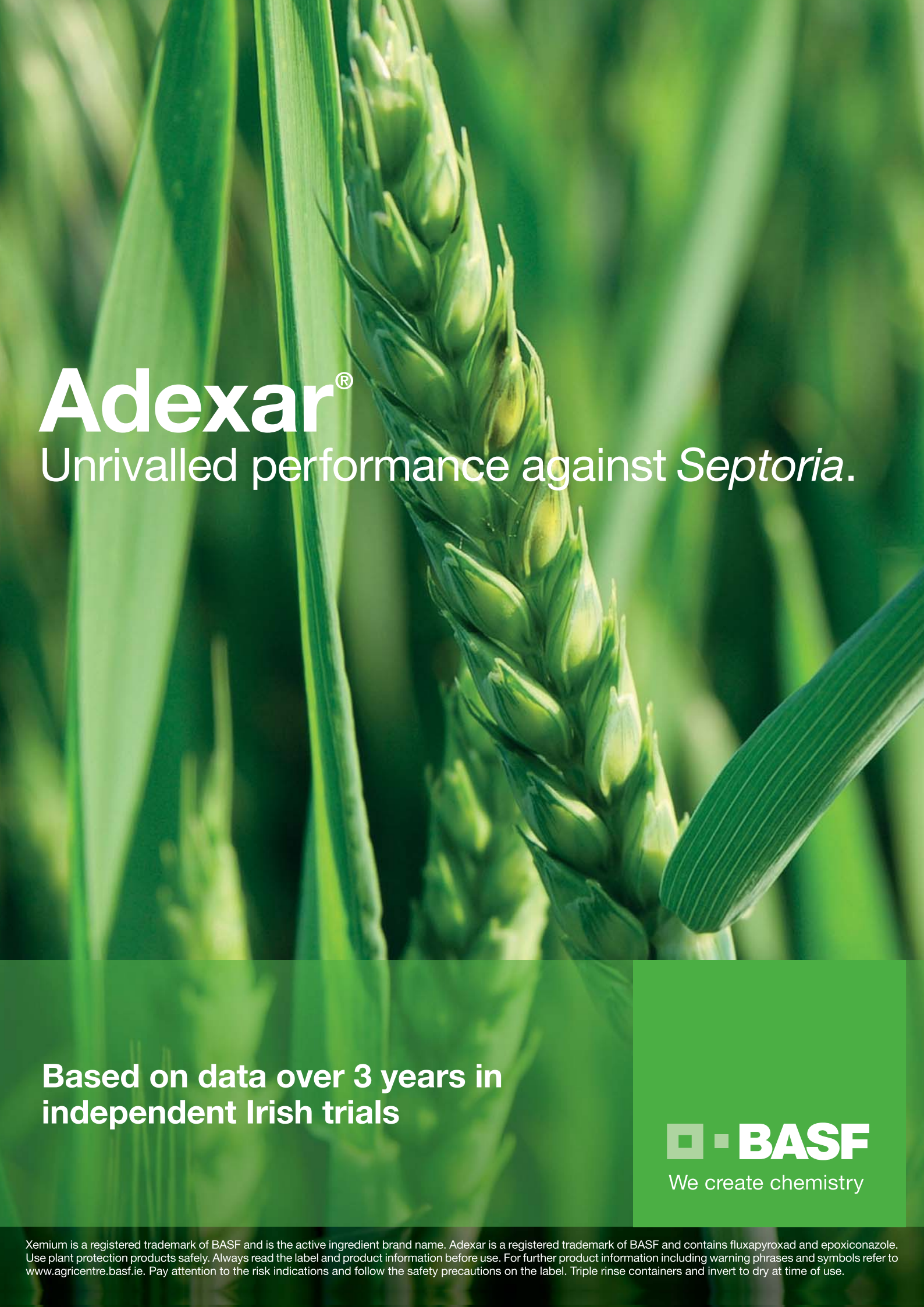
Avoiding spread, records and culling

- Separate lame sheep from the main bunch where practical (eg post-weaning) to reduce the reservoir of infection and facilitate routine treatment.
- Identifying affected sheep is important, particularly when dealing with repeat offenders.
- Sheep that become subsequently re-infected after effective treatment should be isolated and culled.

Breeding

- Evaluation of Sheep Ireland's Eurostar index indicates significant progress is being made in identifying animals that are less susceptible to some of the common causes.
- This is something that producers need to exploit when purchasing rams in the coming years.
- Avoid keeping replacements from lame ewes.

Continued on p18



Effective facilities to tackle lameness

Damian Costello,
Teagasc B&T drystock advisor, Athenry

In August 2014, Barry McGlynn (pictured right) assembled his 200 mule ewe flock in advance of the imminent breeding season. He was carrying out a routine check on each ewe to ensure she was suitable for going to the ram for another season.

Barry had identified the increasing levels of lameness in his flock. He took note of the number of individual ewes that were turned over and treated for lameness on that particular day.

The final count treated came to almost 40 head, or 20% of the flock, with the majority of cases diagnosed as footrot. Barry admits it was an issue that had been getting progressively worse over time.

Treating large numbers of individual sheep with a combination of paring, footspray and antibiotics was not alone adding to his workload, but was also having a major negative effect on flock productivity. He decided that remedial action would have to be taken.

One year later, when carrying out the same routine task, Barry says you could count on one hand the number of ewes needing individual footcare treatment. So how was this dramatic improvement achieved in practice?

Handling unit and batch footbath

As a member of the Athenry Sheep Discussion Group and a STAP participant, Barry paid particular attention to sheep footbathing facilities he came across on other group members farms and also at various national sheep events that he attended.

Following careful consideration on all options, he decided that a disused calf creep in one of the cattle sheds was his most suitable location for a batch footbath.

This area is located close to his handling yard, which he also recently upgraded, having applied for a TAMS grant aid and purchasing a 20ft Cormac sheep handling race and associated penning.

He employed Brody Engineering in nearby Athenry to fabricate a steel batch footbath that would hold up to 25 mature ewes.

"The one issue with the steel bath initially was that the floor surface proved very slippery," says Barry. He has since laid rubber mats on the floor of the bath to provide a non-slip surface for the sheep.

Combining routine management tasks with footbathing

The new handling system is working very well, Barry explains. "If you are, for example, dosing all the ewes, a group of 25 ewes can be dosed first and then turned into the batch footbath. They can then stand in the footbath solution while the next 25 ewes are being dosed."

As a farmer who also works off-farm, he is adamant that carrying out routine management tasks should be a labour-efficient, one-man operation.

Barry is very pleased that his investment has helped him achieve this objective and describes handling sheep in the modified unit as a pleasure.

His promising young sheepdog is getting used to the new handling routine and has a major influence on sheep throughput, Barry points out.

The handling facilities met with the approval of his fellow discussion group members when he hosted the group meeting last August.

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Beef 2016 open day – profitable technologies

An open day will take place on 5 July at Teagasc Grange.

The Teagasc Animal & Grassland Research and Innovation Centre in Grange, Dunsany, Co Meath, will host a major beef open day on 5 July

James Keane
Teagasc Beef Specialist

Eddie O'Riordan
Beef Enterprise Leader, Teagasc Animal and Grassland Research and Innovation Programme

> Farmers are now looking for ways to exploit the genetic gain on their own farms

A major beef open day will take place on Tuesday 5 July, at the Teagasc Animal & Grassland Research and Innovation Centre at Grange in Dunsany, Co Meath. Thousands of beef farmers are expected to attend and see Teagasc's comprehensive research and advisory programme.

This major Teagasc event coincides with a time of huge uncertainty in the beef industry. The focus will be on the application of technologies, which will help Irish beef farmers to increase the profitability of their farming businesses.

Key industry experts from Bord Bia, the Irish Cattle Breeding Federation, Animal Health Ireland, Department of Agriculture, Food and the Marine, *Irish Farmers Journal* and University College Dublin will be present to discuss individual farmer queries. In addition, meat industry representatives, the main beef breed societies and AI breeding companies will be present on the day.

At the open day, there will be a special focus on suckler beef, calf-to-beef, exploiting genetics, performance from pasture, and breeding and herd health.

Suckler beef

Ireland's suckler herd of approximately one million cows produces animals suitable for both finishing and live export. In recent years, the efficiency advantage of bulls over steers has encouraged some suckler farmers aiming to increase output to change their system of beef production. However, changes in market specification for both bulls and steers, especially on age at slaughter and on carcase weight limits, is leading many suckler farmers to question their system of suckler beef production.

All of the different suckler systems will be explored at the event on 5 July, with the emphasis on beef output per hectare, maximising profit per head and per hectare and meeting market requirements.

The Teagasc Derrypatrick Suckler Herd has changed its focus in recent years with early-maturing bulls now used on half the herd to measure the effect on profitability. Visitors will see some of these calves and hear how the system has been performing.

Exploiting genetics

Over the last year with the introduction of the Beef Data and Genomics Programme, farmers are looking for ways to exploit the genetic gain on their own farms.

The introduction of the replacement and terminal indices in conjunction with the new genomic proofs being available, gives farmers the option of focusing more closely on traits for which they want to select.

The Teagasc suckler maternal herd of over 100 cows, based in Teagasc Grange, is validating the replacement index and this herd will be on display. Farmers interested in the new Beef Data and Genomics Programme will also hear about the ways that this new technology will benefit Irish suckler farmers over the coming years.

Calf-to-beef system

With the increase in the national dairy herd, and the potential changes to the calf crop through the use of sexed semen, there is likely to be an increase in the number of beef calves

Beef 2016 technology villages

The key technologies in driving profit will be covered on 5 July through a series of presentations and these main topics will then be elaborated on in greater detail in technology villages.

In these villages, farmers will be able to meet and discuss these topics on a one-to-one basis with Teagasc advisors and researchers, along with all of the main industry stakeholders involved in the business of beef farming.

Producing quality beef, indoor feeding, farming in a sustainable environment, CAP reform and the Teagasc /*Irish Farmers Journa*l BETTER farm beef programme, farm safety, new emerging technologies, farm buildings among many other topics, will also be on display.

There will also be a major forum at the end of the day, where farmers will discuss their experiences of beef farming and will outline the plans they have for their own farming systems into the future.

The open day is kindly sponsored by the FBD Trust.

(both dairy calf gender and beef sired calves) coming from this source.

While some of these calves will be exported live at a relatively young age, a significant number will remain on Irish beef farms. What systems of beef production should these calves be finished in? What markets will they be targeted at and what specifications will these markets require? What level of profitability can be expected per head and per hectare, from these systems?

Over the years, Teagasc has undertaken a considerable amount of research on dairy calf-to-beef systems and, in recent years, has researched and modelled new systems.

Teagasc has also launched the Teagasc Green Acres Calf to Beef Programme to demonstrate these systems operating at farm level. All of this work will be on display on the day with the opportunity also to discuss market prospects with both Bord Bia and the main meat processors.

High performance from pasture

The most profitable Irish beef farmers include a high proportion of grazed grass in the lifetime diet of their animals. By maximising the quality of this grass and by growing a high quantity of grass per hectare (through maintaining soil fertility and reseeding old pastures), these farmers are capable of achieving high liveweight gains of beef per hectare.

Visitors to BEEF 2016 will be taken through a major grassland demonstration where the key decisions on grassland management will be discussed with grassland experts.

Profitable breeding and herd health

One of the first targets that a suckler herd needs to hit, if profitability is to be maximised, is a tight calving pattern of less than 12 weeks.

Unfortunately, this is not being achieved on many farms due to a combination of management and breeding decisions.

Improving cow fertility and calving suckler heifers at two years of age are two of the main ways to improve or maintain a tight herd calving pattern.

Currently, only 18% of all suckler heifers calve between 22 and 26 months of age. The goals that need to be met and how they can be achieved will be addressed on the 5 July by Teagasc researchers and advisors, as well as by ICBF, AI breeding companies and the various breed societies.

Herd health planning and the role of different vaccination and parasite control programmes are increasingly important on Irish beef farms focusing on their output and costs.

Teagasc research and advisory messages, along with Animal Health Ireland and the District Veterinary Offices, will demonstrate just how important animal health is to the Irish beef industry and will show the latest technologies that can help beef farmers to improve their herd health while at the same time controlling costs.

The open day takes place form 2pm to 7pm on Wednesday 25 May.

Newford open day takes place in May

Adam Woods
Beef Systems Research,
Teagasc Animal and Grassland
Research and Innovation Programme

As the 2016 calving season draws to a close, preparations are being put in place for the farm's first national open day which will take place on Wednesday 25 May from 2pm until 7pm. The newly established suckler-to-beef herd will calve down 98 cows in 2016 and there are numerous attractions on the day for people to go and see. Let's look at the top five reasons why you should visit the open day:

1. Hitting €1,000/gross margin from a steer and heifer production system finishing heifers at 20 months and steers at 22 months predominantly off grass at the and of the second grazing season. High output from grazed grass will drive the farm's financial performance.

2. The farm has a strict breeding plan whereby replacements are being sourced from the dairy herd as either Hereford X or Angus X heifers. These are then bred to high terminal index continental bulls to breed animals with high growth rates and early finishing ability. Artificial insemination will be used in 2016 for six weeks with the cows being bred to stock bulls cleaning up for five weeks.

3. The farm operates at a very high stocking rate of 2.7LU/ha and grazing management is extremely important to keep costs low and cattle thriving. A new paddock and water system has been installed to ensure maximum grass growth and utilisation. Attendees will hear how grass is managed and budgeted on the farm.

4. The farm has ambitious weight targets for all progeny. High weaning weights and daily liveweight gains at pasture are fundamental to the success of the farm. All progeny born in 2015 and 2016 will be on display on the day for attendees to see with lifetime performance data detailed on all stock.

5. The farm has one full-time labour unit – herd manager Matthew Murphy. Time management is key to the smooth running of the farm and attendees will get the chance to talk to Matthew about how he manages his time and the tasks on the farm, including his labour-saving tips.

The farm is located just off the M6 at Junction 17 at Teagasc, Athenry, Co Galway. The open day takes place form 2pm to 7pm on Wednesday 25 May. Admission is free and everybody is welcome to attend. For further details, contact Adam Woods at adam.woods@teagasc.ie or 087-121 8734.

FARM FACTS

- 55.8ha.
- 100 cows.
- Stocking rate: 2.7LU/ha.
- System: Steer and heifer finishing from 20 to 24 months.
- Cow type: AA and HE/Holstein Friesian cross.
- Terminal sires: Limousin, Charolais and Simmental.
- Calving period is from February to April.
- Replacements sourced from the dairy herd and contract-reared.
- One labour unit management.
- The project is managed by Teagasc, Dawn Meats and the *Irish Farmers Journal*, with McDonald's also supporting the initiative.

Dairy cashflow – Teagasc/Kerry Agribusiness monitor farm analysis

Investment in an expanding business should only take place when the core business costs are under control

Ger Courtney
Business & Technology Dairy Advisor, Teagasc/KerryAgribusiness Joint Programme

Analysis of the cash position (all cash in and out of the business) of the 14 Teagasc/Kerry Agribusiness monitor farms showed that, in 2015, for every €100 coming in to the farm (milk/stock/direct payments), €52 went out in cash costs (farm expenditure) with €48 retained to meet drawings/taxation/capital repayments and cash capital investments.

A similar cost base in 2016 means that with a lower milk price, approximately €40 per €100 coming in is available to service drawings/tax/repayments. A change of 5c/litre in milk price or costs is the equivalent of €29,600 in cashflow for the monitor group milking on average 112 cows.

All farm businesses face a major challenge in 2016 to maintain a balanced cash budget and, for many, the challenge is to minimise the loss. High cost structures are unsustainable given the continuing volatility in milk price exposing the farm business to an unnecessarily high level of risk in a lower milk price environment.

Monitor farmers have completed a cashflow budget for 2016 targeting major reductions in feed and other input costs, so that a more sustainable cost structure is in place on these farms. Purchased concentrate costs of less than 2c/litre are being achieved by the best grass management performers (3.2c/l on heavy soils monitor farms).Quarterly reviews will be required to assess progress and make any required adjustments.

Investment in an expanding business should only take place when the core business costs are under control and adequate provision is in place to mitigate against future risks to the business such as lower milk price, poor climatic conditions or high input prices.

Table 1: 100-cow spring-calving dairy herd 2015 (€)

Farm receipts (including €35,950 non-milk sales/direct payments)	181,500
Less:	
Household expenses	44,000
Taxation	11,500
Financial repayments	18,500
Maximum farm expenditure to achieve balanced budget:	
*Farm expenditure	107,500
Cashflow surplus/loss	0

Note: All farm businesses need to establish the breakeven* farm expenditure that allows all cash commitments to be met. The example in Table 1 shows that if total annual farm expenditure exceeded €107,700, the outcome would be a cashflow loss.

Contract rearing – why

Rearing animals on contract offers higher output, with minimal capital expenditure

Tom Curran
Farm structures specialist,
Teagasc Rural Economy
Development Programme

High output per hectare is a key driver of profit on beef farms. Contract heifer-rearing provides an option to increase output per hectare at a lower cost than increasing the numbers of beef stock on the farm. The animals are not purchased and there is no money tied up in the stock. Payment is normally by monthly direct debit, so the system provides a steady cashflow to the rearer. Achieving the target weight gains for the heifers and getting them in-calf are the key benchmarks for good performance.

What does success look like?

The key to the arrangement is the relationship between the rearer and the dairy farmer. This is built on good communication, trust and respect for each other. Success for the rearer is where the dairy farmer is happy with the performance of the animals and pays the agreed amount of money on the agreed date.

Success for the dairy farmer is that the animals reach their bodyweight and breeding targets.

How is an agreement set up?

A written agreement which records all the details agreed between the rearer and the dairy farmer is essential. There are two template agreements available from Teagasc: a flat-rate contract and a weight bonus contract. Don't rush into the arrangement. Before completing these templates, the rearer and the dairy farmer must reach agreement on all the practical issues around the movement and rearing of the stock. This should include, among others:

- The number and identity of the animals to be reared.
- The date when animals arrive.
- The date when animals return.
- The rate and frequency of payment.
- A schedule of weighing.
- Vaccination programme.
- How AI and breeding will be handled.

Once agreement is reached on all the practical issues, the template agreement should be completed and signed by the rearer and the dairy farmer. Both parties must have a signed copy of the agreement and it may also be advisable to leave a third copy with a nominated person (a facilitator). Template agreements are available at http://www.teagasc.ie/collaborative-arrangements/contract_rearing_of_heifers.asp

Achieving performance

Including a schedule of weighing takes the guesswork out of the arrangement for both the rearer and the dairy farmer. It is vital that the animals reach the target weights shown in Table 1. Animals should be weighed individually at the beginning of the agreement to give a starting weight.

They should also be weighed at agreed intervals during the rearing period to identify poorer performing animals.

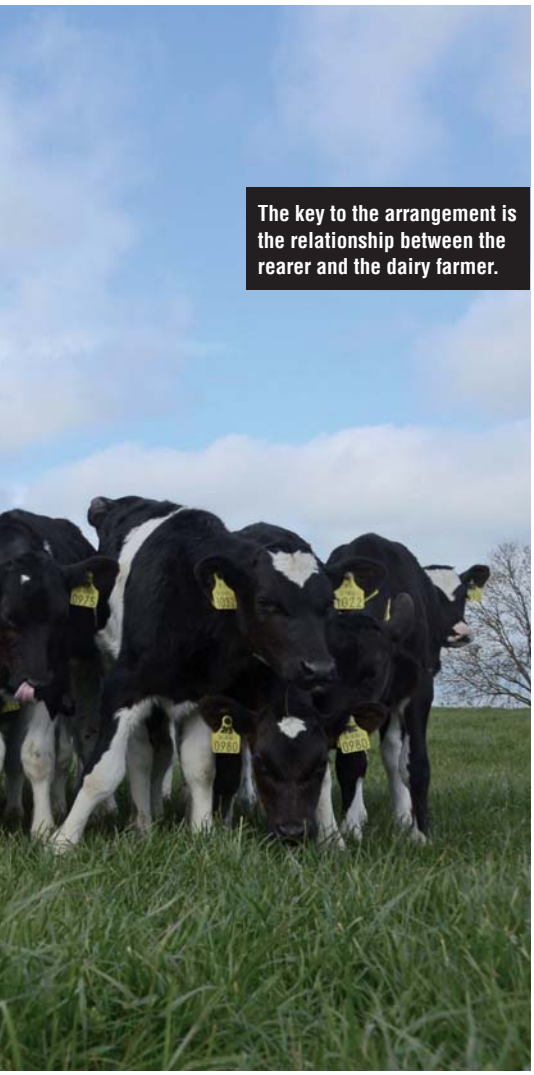
Animals that are found to be underweight or underperforming may need to be given preferential treatment. This includes access to top-quality grass and higher meal feeding, to allow them reach the targets. A schedule of weighing during the rearing period must be set out at the beginning to monitor performance.

Breeding performance

The second key indicator of performance is the proportion of heifers that are in-calf. A minimum of 90% should return in-calf. Decisions around the breeding season must be agreed at the beginning of the arrangement.

Such decisions may involve the proportion of animals to be in-calf, the use of heat detection aids, synchronisation protocols, AI usage and the provision of stock bulls.

it is worth considering



The key to the arrangement is the relationship between the rearer and the dairy farmer.

Table 1: Target weights for dairy heifers based on age and breed

	Month	% mature liveweight	Holstein Friesian	New Zealand / Br Friesian	Jersey X Holstein Fr
Birth	**February**		**41**	**38**	**34**
Six weeks	March		63	56	56
Three months	April		90	80	80
Six months	July	30%	155	148	138
Eight months	September		175	170	160
Nine months	October	40%	220	210	196
12 months	February		280	267	250
15 months	March	60%	330	315	295
19 months	September		450	425	390
21 months	November		490	470	437
24 months (pre-calving)	February	90%	550	525	490

Table 2: Rearing

Five stages of rearing:	Costs and labour* input
1. Calf-rearing (birth to 12 wks)	High cost, high labour
2. First grazing season	Low cost, low labour
3. First winter	High cost, moderate labour
4. Second grazing season	Low cost, low labour
5 Second winter	High cost, moderate labour

Table 3: Beef costs

	2014 average suckling-to-beef farms	Rate: €1.20/heifer/day
Stocking rate (LU/ha)	1.73	1.73
Receipts (€/ha)	1,242	1,140
Variable costs	€/ha	€/ha
Feed	272	130
Vet/AI	82	121
Fertiliser and lime	156	156
Contractor	120	120
Other variable	79	79
Total variable	710	606
Gross margin	532	534

Source e-Profit Monitor Analysis Drystock Farms 2014

Assumptions

- Heifers arrive as weaned calves on 1 May and leave the rearer's farm on 1 November of the following year (549 days).
- Each heifer unit includes a calf and a yearling heifer. So, 2.18 heifer units/ha on 40ha is 87 calves and 87 yearling heifers.
- 300kg of meal (€250/t) fed to each heifer (1kg/day for two weeks after turnout and 1.5kg/day for six weeks pre-housing, 1.5kg/day over 92 days of first winter).

Risks of contract heifer-rearing

The person that you are signing up the agreement with may be a risk. Are they trustworthy, reliable and honest? Can you establish a good working relationship with them so that the agreement runs smoothly? The answer to these questions must be yes. Conflict can be minimised or avoided by developing a strong working relationship where both parties honour the commitments made in the written agreement.

Good communication and putting in place a well-written agreement gives clarity to the arrangement. The Teagasc contract rearing templates enable farmers to nominate a facilitator should an issue arise that cannot be resolved between the parties themselves.

Disease is a risk when any farmer takes in animals from another herdowner. The rearer and the dairy farmer should seek the advice of their own local veterinary surgeon and also inform the local District Veterinary Office of the arrangement. It is wise to establish the current disease status of both herds. This will determine the likelihood of disease exposure before the heifers arrive on the farm, and is critical to the management of the heifer herd once they are brought into the farm. They will need protection (e.g. management and vaccination strategies) against circulating diseases in both herds before their introduction.

Guideline costs

Farmers often ask for a guideline cost for rearing heifers. But, it is important to note that there are five stages of rearing dairy heifers and the overall cost is very much dependent on these stages and also how input costs are structured between the rearer and the dairy farmer.

In many situations animals arrive on the rearer's farm weaned at 10 to 12 weeks of age while, in other cases, they arrive as early as three to four weeks of age. This must be factored into the payment agreed.

Financial return compared with beef

The figures in Table 3 are indicative of the potential return of contact rearing on a per hectare basis.

With good grassland management, rearing heifers at a stocking rate of 1.73LU/ha may require a lower meal input when compared with finishing beef animals. Veterinary and AI costs are likely to be higher with heifer rearing due to breeding and vaccinations.

Contract rearing has the potential to increase output per hectare on the rearer's farm without investment in beef stock.

It provides cashflow through regular monthly payments paid directly into the bank account. The profit for the rearer depends on good technical performance at grass to achieve the necessary weight gains.

If you have a challenge, you need a strategy

Today's Farm editor **Mark Moore** outlines how you can address strategic challenges on the farm through a Teagasc/UCD course

> The course offers the opportunity to network with farmers from all over the country with a wide range of enterprises

Ger Reidy, who farms near Ennistymon, Co Clare, is preparing to climb Mount McKinley in Alaska. This exceptionally fit Co Clare suckler beef farmer is in the process of completing the Seven Summits Challenge whereby you climb the highest mountain on each continent.

He plans to fly to Anchorage and travel to Talkeetna, a frontier town in northern Alaska in mid-May. The strategy for climbing Mount McKinley involves being flown to a glacier near the Arctic Circle from where Ger and a group of other mountain climbers will each drag a sled with their tents, food and climbing gear to their base camp high on the 20,320ft mountain. While pulling the sled, each climber will also carry a heavy backpack of 25kg.

From the base camp, it gets extremely steep and they will not be able to pull sleds over this terrain. The team of climbers will then shuttle back and forth to intermediate camps and on to high camp, carrying their supplies and climbing equipment to prepare for the final assault on this exceedingly cold summit.

Last year, Ger was thinking about a strategy for an issue much closer to home: succession planning for his farm near Ennistymon. "I was looking for a course that would provide a structure for addressing strategic challenges on farms, particularly in the west of Ireland" says Ger. "That's why I signed up for the Teagasc/UCD Michael Smurfit Business School Certificate in Business Strategy (farming). There was a broad range of farmers attending the course and they had a range of challenges – some were looking to expand, others were looking at new opportunities and others were interested in succession issues like myself.

"Because the course looked at various aspects of how to formulate a strategy, it was applicable to us all. A key part of the course was the requirement to complete a written strategy paper, and make a presentation for our own unique situation. That gave me and my family members a real focus to address these issues, which would have been continually put on the long finger," he says.

This year will see the fourth run of the strategy course, which is delivered by staff from the UCD Michael Smurfit Business and Teagasc over three modules totalling six days. The course will likely again be delivered at the Lyrath Hotel in Kilkenny and starts in September (see panel for dates.) By holding the course away from the farm business, participants are able to get away from day-to-day chores and concentrate on building a

Participants in the Teagasc/UCD Michael Smurfit Business School Certificate in Business Strategy (farming) last year included (alphabetically): John Brophy (Carlow), Tom Campion (Kilkenny), Karl Cooney (Louth), Paul Costello (Galway), Tom Cummins (Limerick), Jim Curran (Cork), James Curtis (Wexford), David Hannon (Meath), Eamonn Healy (Wicklow), Peter Fleming (Cork), Dara Kavanagh (Wicklow), John Kelly (Wicklow), Patrick Kelly (Donegal), Mark Kiernan (Cavan), Carmel Lawlor (Kildare), John McGuinness (Meath), PJ Nangle (Meath), Padraig O'Connor (Limerick), Dermot O'Leary (Cork) and Frank O'Mahony (Cork).

Ger Reidy is preparing to climb Mount McKinley in Alaska.

strategy for the medium term.

The course is fully accredited by UCD at Level 8 and there are no prior academic achievements (such as the Leaving Cert or college qualification) needed to participate. Anyone who has been managing a complex business such as a farm can be accepted by UCD as having sufficient business knowledge to participate. "Participating in the course was nothing like being back at school," says Mark Kiernan, a pig farmer and mill operator in Co Cavan. "While you are in a classroom, and learning about areas such as strategy formulation, you are constantly in a discussion about real-life business situations with those taking part contributing and sharing their experiences.

Mark Kiernan, a pig producer and miller from Co Cavan, has developed a new product range as a result of doing the strategy course.

"What I particularly liked about the course was networking with farmers from all over the country and with a wide range of enterprises. You had a majority of dairy farmers but there were also farmers in tillage, beef or pigs, like myself. I developed business ideas by talking to these leading farmers, as well as developing a strategy for my own pig business during the course."

"I found the course both enjoyable as well as extremely useful," says spring-calving dairy farmer Frank Clare who farms in Lobinstown, Co Meath. "You have to do the work yourself but you get a good level of support from Teagasc mentors and the fact that the course requires you to do an interview at the end, where you describe your strategy, means everyone in the group takes it seriously and you therefore get a lot out of it. I would certainly recommend the course to anyone who wants to think strategically about their business."

The cost is €2,200 (though there are discounts for Teagasc clients). This covers tuition, overnight stays, meals during the curse, materials, etc. The course will almost certainly be fully subscribed, so please express your interest soon. Please send an email to mark.moore@teagasc.ie and write business strategy course in the subject line. Alternatively, or if you don't receive a reply for any reason, contact me on 087-417 9131.

Dates

Teagasc/ UCD Michael Smurfit Business School Certificate in Business Strategy (farming) key dates:

- Module one: 26-28 September 2016 (2.5 days).
- Module 2: 25-26 October 2016 (two days).
- Finale day: 15 November 2016 (one day).

To hear more from Ger Reidy, please scan this QR code to see a brief video.

Focus on what you can control

This Leitrim farmer concentrates on what he can influence directly

Seán Doorley
Teagasc B&T Beef and Sheep Advisor, Manorhamilton, Co Leitrim

Beef farming has its challenges. Some farmers will tell you at length about how they are up against it with the weather, soil type and farmgate prices. These are genuine complaints, but most are outside our control. Concentrate on the factors that are within your control: namely breeding, grassland management, herd health, financial analysis and participation in Department schemes and programmes.

With good management of these factors, any farmer can expect a reduction in production costs, an increase in farm output through improved animal performance and maximum income from direct payments.

In Co Leitrim, 2,510 farmers (68%) describe themselves as specialised beef farmers. The majority have spring-calving suckler herds and sell weanlings through the five cattle marts in the county. Producing quality stock is a path generations of farmers in Leitrim have taken to add value to the weanling calf and maximise returns from the farm.

The average farm size is 25.10ha and virtually all holdings are fragmented. Part-time farming is the norm and an off-farm job is a vital component of household income.

Junior Gill is 34 years old and farms in Curraghmartin, Drumsna, Co Leitrim. He is married to Michelle, a primary school teacher, and they have a 16-month-old daughter, Lily Rose. Junior runs a tyre service business with his brother in nearby Carrick-on-Shannon.

"I completed a part-time certificate in agriculture course in Teagasc, Ballymote, Co Sligo, in September 2011 and started farming 16ha in 2012 when my father retired," says Junior. "I have since increased the farm to 34ha by purchasing and renting land. Most of the land is heavy and stock are housed over the winter for up to six months depending on the weather."

Young Farmers Scheme

In 2015, Junior successfully applied for the National Reserve and Young Farmers Scheme. Through these schemes, he was able to increase his BPS entitlements to €250/ha and he received a young farmer top-up of €65/ha. The National Reserve is open to farmers each year depending on available budget, but the young farmer top-up is open for the duration of the current CAP agreement.

Discussion group

In 2012, Junior joined his local Teagasc beef discussion group where I am the facilitator. "I joined the group to increase my technical knowledge in beef farming," says Junior, who currently chairs the group.

"By participating in the group, I was able learn from my colleagues and Teagasc but also to avail of the funding under the BTAP programme, receiving a payment of €825, and I expect to receive payment of €750 under the New Knowledge Transfer Beef Programme starting in 2016."

Through the discussion group, Junior says he has gained a lot of knowledge of breeding, in particular. He uses 100% AI on the farm. The calving is split 50:50 autumn/spring-calving. He says he has to have this split because of a shortage of calving facilities on the farm, which we will address next year.

"We use AMBIC AI ALERT detector patches to aid heat detection. These patches are attached to the tail head of the cow and burst to release paint when a cow is mounted," says Junior.

Since 2013, Junior has seen improved results in his breeding statistics (Table 1). From 2013 to 2015, calving interval was reduced from 450 to 388 days, calves per cow per year increased from 0.79 to 0.92 and the number of months with cows calving reduced from eight to five.

Junior has fitted a calving camera linked to his smartphone, which helps to reduce the risk of calf mortality at birth. "Technology is getting cheaper and can be of great assistance to any part-time farmer," he says.

TAMS II

Junior intends to apply under the

Sean Doorley and Junior Gill.

Table 1: Breeding performance improvements 2013-2015

Performance indicator	2013	2015
Calving interval (days)	450	388
Calves per cow per year	0.79	0.92
Number of months with a calving	8	5

TAMS II Young Farmer Capital Investment Scheme in 2016 to avail of a 60% grant to construct an additional three-bay slatted shed with calving pens. "The extra accommodation is needed for calving cows and for the retention of Pedigree Simmental bulls, which will be sold for breeding," says Junior. "I'm currently preparing an application for planning permission. It's important to plan early as planning will take at least three months to be granted and full planning permission must be obtained before submitting a TAMS II application."

BDGP

Junior has Charolais/Limousin cross and pedigree Simmental cows. He has increased cow numbers on the farm from 10 to 24 since 2012. He intends to increase pedigree Simmental cows from four to 12 over the next few years. He is in the Beef Data Genomics Programme (BDGP) and has 58% of females in the herd with four or five stars. "From now on, we'll only keep genotyped replacements with four or five stars."

Junior's plans for the future

- AEOS will be finished this year and he hopes to join GLAS when it reopens in the autumn.
- He intends to start some reseeding this summer using minimum cultivation.
- He plans to have a single calving season when the additional animal housing is in place.

It's important for young farmers to be good managers when getting set up in farming. There are a number of factors that are within the control of any farmer that s/he can change and with adopting best practice, positive results can be achieved.

Since 2012, Junior has shown improvements in breeding and has increased stock numbers on the farm. He has maximised the use of Department of Agriculture, Food and the Marine schemes and programmes to help generate income to develop the farm. He has future plans for extra cattle housing and improvement of his grassland through reseeding.

Most importantly, Junior has "taken charge" and focused on things he can control.

A century of growth

Teagasc forest development officer **Michael Somers** looks back at just over a century of revival in our forest area

Trees store large amounts of carbon helping considerably against global warming and meeting our legal obligations under various environmental plans and proposals

A lot is written about Ireland's cultural revival in the late 19th and early 20th centuries. There is no doubt it shaped the cultural fabric of this land. But there was another revival which began about then. Reafforestation. Since farming began over 6,000 years ago, the forest area had been gradually whittled away. Nearly a century since the trend turned, there is still only a little over 10% of Ireland's land under trees.

The Irish people have always had a strong affection for trees. Thirteen thousand of the country's sixteen thousand townlands are named in one way or another after trees. But over the centuries, our native forests were cut and burned. In the latter part of the 17th century, Ireland was the leading exporter of charcoal in Europe. Another source of demand was the British Navy. A typical gunship required 4,000 trees – 20ha of mature forest.

Various schemes were introduced by the British Agricultural and Defence ministries to promote oak growing. A significant event was the 1801 Act of Union. Irish landlords now based themselves in London and rental income drained out of the country. Little was done to promote woodland establishment.

> "Commercial forestry is comparatively new to Ireland and will continue to change as we evolve management techniques to match our complex environment and soil types

In 1903, the forest area was 122,000ha – less than 2% of the total land area. Future wood supplies were seen as a major issue. The following year, Avondale Estate (the home of Charles Stewart Parnell) was purchased for forest research and education.

Arthur Forbes from Newcastle-Upon-Tyne was chosen to lead this initiative. At the age of 37, he laid out some of the experiments that shaped silvicultural design in Ireland. Forbes was a commercial forester and planned forests based on economic design rather than recreation.

Over the next decade, 49ha were planted in Avondale – 84 tree species were planted in 104 different plots. This brought Ireland right up to the start of the great war.

Timber demand from 1914-1918 was high. Oak was used to make trenches, railway sleepers and vast camps along the western front. In fact, World War I required more timber than any other war in history. Britain almost lost the war in 19 16 because of the shortage of timber.

In 1922, the Irish Free State came into being. A small afforestation of 388ha was conducted in 1923. This was cantered on upland areas. Over the past century, tree planting has increased. A small revolution in land use but one in which we all have had a part.

Today, a little under 50% of Irish forests is owned and managed by the private sector, including many farmers. Better land is being planted. This has given rise to a diverse menu of broadleaf species. Sitka spruce continues to be the most popular tree planted in Ireland.

What South America gave Ireland in the potato, north America gave with the Sitka spruce.

Commercial forestry is comparatively new to Ireland and is a very complex activity. It will continue to change as we evolve management techniques to match our complex environment and soil types. Trees store large amounts of carbon helping considerably against global warming and meeting our legal obligations under various environmental plans and proposals. Wood is also a sustainable, renewable and homegrown source of heating and electricity.

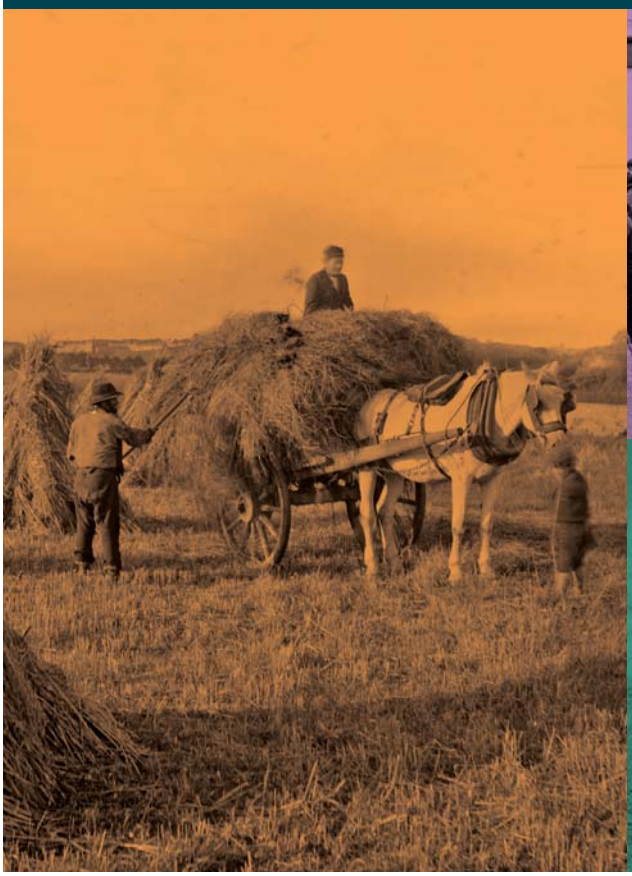
So far, there are 12,000 people working in the sector harvesting three million tonnes of timber. Ireland is the largest exporter of particle boards into the UK. As the journey goes on, the success of forest industry will grow. It is a gradual, but sustainable, revival.

FREE EVENT

FARMING & COUNTRY LIFE 1916

10 & 11 June, 2016
Teagasc, Athenry,
Co. Galway

Celebrating 100 years of farming and country life



Join us as we celebrate and commemorate farming and country life of 1916 through drama, music, interactive exhibitions and re-enactments.

www.teagasc.ie/1916

Teagasc
Agriculture and Food Development Authority

Comhairle Chontae na Gaillimhe
Galway County Council

Éire Ireland 1916

FBD

GLAS in action

Over 38,000 farmers have been accepted into GLAS 1 and 2. GLAS 3 is expected to open this autumn. With 14,000ha of wild bird cover crops to be planted by 31 May and 350,000 boxes and sand heaps for birds, bats and bees undertaken, this article looks at some of the 25 GLAS actions

Catherine Keena
Countryside Management Specialist, Teagasc Crops Environment and Land Use Programme

A grove of native trees is a lovely addition to any farm, providing a valuable habitat for biodiversity, increasing carbon sequestration and generating a source of timber and firewood.

There are four important criteria when buying trees:

- Trees must be purchased from producers and suppliers who are registered with the Department of Agriculture, Food and the Marine.
- Only trees grown from Irish seed may be used so you must get a provenance declaration form from the supplier.
- Choose from alder, oak, hazel, birch, willow, whitebeam, mountain ash or Scot's Pine.
- Select at least two species – in any proportion.

Preparation before planting is key

Trees can be planted into individual pits, planting to the same depth as previously planted. It is wrong to bury the stem or expose the root. Digging drains and heaping the soil in mounds is effective on poorly drained sites. Trees are planted into the mounds, which provide an elevated vegetation free zone. It makes the job of planting very easy, plant the trees into a slit made with a spade.

Trees must be planted in rows two metres apart with a distance of one metre between the trees. Where rabbits or hares are present, don't let night fall before protecting the trees either with tree guards or rabbit fencing. Tree guards 60cm tall protect against rabbits, while a height of 75cm is required to protect against hares.

- **Deadlines:** GLAS 1 – 31 March 2016 and GLAS 2 – 31 October 2016.

Bird boxes

Bird nest boxes are used by birds who normally nest in holes. Open-fronted nest boxes are used by the robin, wren and pied wagtail. The size of the hole in the nest box determines which birds it will attract: blue tit and coal tit use a hole of 25mm; great tit and tree sparrow use a hole of 28mm; house sparrow need 32mm; and starlings need 45mm.

Bird nest boxes should be placed at least 2.5m off the ground. Place one bird nest box on a tree or post or on the external wall of a building. Do not put bird nest boxes inside buildings as the birds who use these nest boxes do not nest within buildings.

Face the entrance of the box north or northeast to avoid the prevailing wind and rain from the southwest entering the box. Once the box is installed, put a marking on the tree or post for inspection purposes and for you and your family to observe the fascinating sight of these small birds nesting. Clean out nest material annually to prevent carryover of parasites from one nesting season to the next, ideally in February.

- **Deadlines:** GLAS 1 – 31 March 2016 and GLAS 2 – 31 July 2016

Dessie Kilcullen, Skreenbeg, Skreen, Co Sligo, installing a bird box on the farm of Henry Moore, Massreagh, Skreen, Co Sligo.

Conor Norris, Ballindysert, Co Waterford, watching his father James digging drains and heaping the soil in mounds in rows two metres apart for the grove of native trees.

Wild bird cover

Almost 8,000 farmers will be sowing 14,000ha of wild bird cover by 31 May this year, many for the first time. Wild bird cover is a crop grown and left unharvested as a giant bird table for seed-eating birds. These birds have declined due to specialisation and intensification, with a complete loss of tillage in many counties.

Seed-eating birds need a variety of large and small seeds, hence two crop types must be sown. For example, yellowhammers like the larger cereal seed while linnets prefer the smaller seed of linseed or kale. Wild bird cover also has significant benefits for wider biodiversity including bees, butterflies and small mammals, as well as birds of prey such as the owls and insect-eating birds such as the blackbird and thrush. Oats and linseed is the recommended mix as they will grow in all soil types, including heavier, acid soils.

As soon as the weather allows, spray off existing grass or previous crop with glyphosate. Leave up to three weeks before cultivation. Any cultivation method is allowed provided a fine, firm seedbed is achieved. Ploughing is recommended, followed by harrowing as necessary.

Richard Thompson, Willsgrove, Ballintubber, Co Roscommon, with wild bird cover in the harvest field.

It is recommended to purchase the oats and linseed separately. Both can be broadcast with a fertiliser spreader, using fertiliser as a carrier. Broadcasting seed rates are 110kg/ha for oats and 20kg/ha for linseed. Sow the oats first and harrow after, as the oats need to be sown to a depth of over 25mm (one inch). Roll and broadcast the linseed, then roll again. Do not apply pesticides after sowing. Fence off using permanent fencing.

Traditional dry stone wall maintenance

Farmers who undertake traditional dry stone wall maintenance in GLAS must maintain the stone walls chosen for this action from the start of their GLAS contract. The purpose of this action is to maintain and enhance the network of traditional freestanding dry stone walls, increase biodiversity and enhance the visual landscape.

Stone walls are an important feature in the landscape. Walls offer shelter to livestock, protection to wildlife and are an important habitat for flora and fauna. Dry stone walls are walls built using stones that fit comfortably without the use of mortar and constructed in a style traditional to the locality.

Stone walls entered for this action must be accessible and visible for maintenance. Walls with scrub on or against them are not eligible for payment. External stone walls entered for this action are payable at half-rate except for external stone walls that front on to a public roadway, private laneway or waterbody where the farmer has control over both sides of the wall for maintenance.

A stone wall that bounds a farmyard is eligible for payment, provided the participant has control of both sides of the wall for maintenance. Where the GLAS participant is also in the Burren Farming for Conservation Programme and is in receipt of the stone wall payment, they are not eligible for this action.

Cyril Bournes, Farnaharpy, Skreen, Co Sligo, rebuilding a stone wall in a manner traditional to the area.

More farms join Teagasc

James O'Donoghue
B&T Dairy Advisor, Co Monaghan

Pat Tuohy
Researcher, Teagasc Animal and Grassland Research and Innovation Programme

Aileen McCarron
Teagasc Walsh Fellow, Co Monaghan

The Heavy Soils Programme was established in 2010 to develop the skills and technologies which can facilitate expansion and maximise profitability on farms with poorly drained soils. It is a collaboration between the participating farmers and Teagasc research and advisory personnel.

Initially, seven poorly drained dairy farms in high rainfall regions of the southwest were selected in partnership with Kerry Agribusiness, Dairygold Co-Op and Tipperary Co-Op. These farms are located in Doonbeg, Co Clare; Athea, Co Limerick; Lisselton and Castleisland, Co Kerry; Kishkeam and Ballinagree, Co Cork and Rossmore, Co Tipperary. A further farm (a beef enterprise) located in Crossmolina, Co Mayo, was added to the programme in 2014.

The programme is now expanding again to increase geographic spread and cater for a broader range of soil and climatic conditions. Two additional farms in Cavan and Monaghan have agreed to participate (see map).

The aim of the programme is to increase the profitability through increased grass production and utilisation. This involves a range of strategies, including the installation of land drainage systems, improved soil fertility and grassland management and the development of farm infrastructure, as well as prudent financial planning and risk management.

Drainage

Land drainage is vital to reducing volatility and sustaining viable farm enterprises on poorly drained land. A site-specific drainage system (based on local soil type and conditions) has been installed on a site (approximately 2ha) on each of the participating farms.

These range in depth from 0.9m to 1.7m and are complimented by mole drains, gravel mole drains or subsoiling where appropriate.

The demonstration element of this work involves showcasing the works carried out to farmers and contractors at public open days held on programme farms.

Monitoring

Automated monitoring systems have been installed on participating farms to record weather (rainfall, evaporation, air and soil temperature, etc), drain flow rates, water table fluctuations and soil moisture content.

Gathering and analysis of these measurements will continue for a number of years. It will allow the effectiveness of the various drainage systems to be assessed in terms of drainage discharge rates and overall system performance over a range of seasons and weather conditions.

Fertility

A whole farm evaluation of soil fertility, paddock by paddock, is also carried out following annual soil sampling and recording of all inputs and offtakes to monitor change over time. Results to date have shown that programme farms, in line with national trends, are handicapped by low pH, P and K levels.

The acidity of the soils means that improvements in fertility are hard won. Annual sampling is allowing for targeted improvement strategies for soil fertility and steady progress is being made.

Carrying capacity

In 2011, the average herd size of the programme's dairy farms was 81 cows and this has risen to 96 in 2015. A full review of the farms found that the steady increase of three cows per annum has, on most farms, stretched the farm infrastructure to the limit.

Deficits in milking parlour, cow drafting and calving facilities, and calf-rearing accommodation were common on many farms. Bulk tank capacity, milk cooling capacity and slurry storage were also issues on some farms. All programme farms intend to increase cow numbers with an average herd size in 2020 predicted to reach 116. Given that farm infrastructure is already under pressure, considerable investment is required to allow for this growth. This will require careful consideration and planning.

Overall, the programme is developing management and investment strategies for dairy and beef farms on a range of poorly drained soils to increase profitability. This will benefit all farmers operating under similar restraints.

Farmer focus

David Brady, Stradone, Co Cavan

David runs a spring-calving dairy herd and poultry enterprise. He is married to Rachel and has three children Owen, eight, Daniel, six, and Kate, 15 months. David completed his Green Cert in 1996 at Teagasc Ballyhaise Agricultural College. He returned home that year and took over the poultry enterprise. In 2012, David took over the dairy enterprise. He farms a total of 59.97ha with a milking platform of 38.5ha.

Since 2012, David has been working on improving his land, particularly the milking block. He lost over 20ha of leased ground in 2014, which meant he needed to utilise more from his "owned" ground.

However, he was also fortunate enough to purchase 4.2ha beside the milking platform in 2014.

Heavy Soils Programme

James O'Donoghue, David Brady, Stradone, Co Cavan (Heavy Soils participant) and Cian Devaney, Teagasc B&T Dairy Advisor, Ballyhaise.

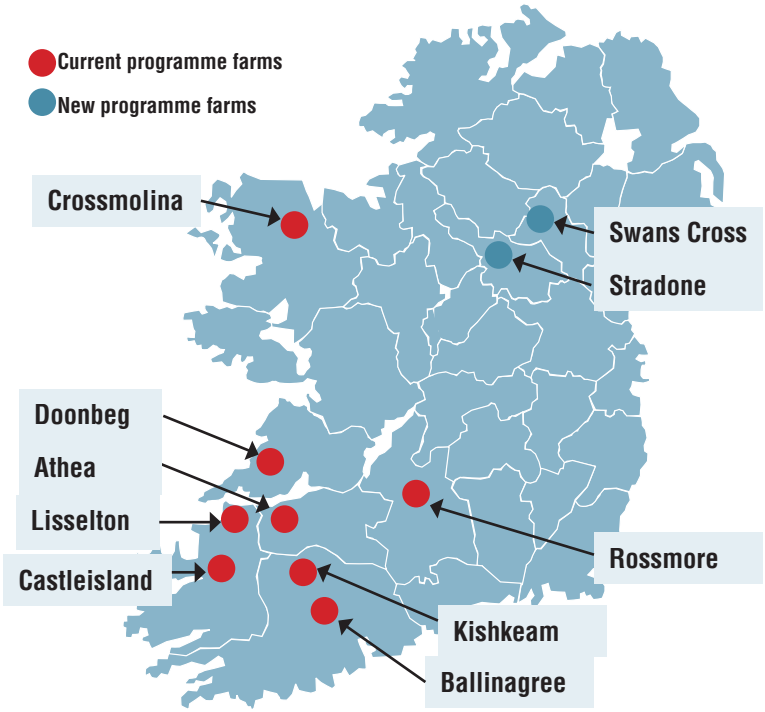


Table 1: Farm comparison

	James McMahon, Swans Cross, Co Monaghan	David Brady, Stradone, Co Cavan
Co-op	LacPatrick	Lakeland Dairies
Ha farmed	80.8ha	59.97ha
Milking platform (ha)	28.8ha	32.5ha
Milking platform SR (LU/ha)	3.05 LU/ha	2.25 LU/ha
Solids /cow	417	398
Concentrate kg / cow	835kg	930kg
Herd EBI	€84	€112

David admits he wasn't paying particular attention to the grazing block until the leased land was dropped. The set-back led to a renewed focus and David has since then worked relentlessly on drainage, reseeding, and soil fertility. "We've spread 200 tonnes of lime and reseeded over one third of the farm since 2013. This has allowed us to increase cow numbers from 60 to 80 over three years," he says. "Dairy farming on heavy ground is a constant challenge and over the next two to three years we plan to reseed the rest of the farm. Building soil fertility and enhancing drainage is crucial for long-term utilisation of grass."

James McMahon, Swans Cross, Co Monaghan

James McMahon farms an 80ha dairy/beef enterprise beside Swans Cross in Co Monaghan. He is married to Mary and they have three children, Stephen, 14, Cian, nine and Nicole, two. James took over the 60-cow farm in 1997 after completing his Green Cert. Stock numbers have increased to 90 cows on a 32ha milking platform, supplying LacPatrick Co-op.

James O'Donoghue, B&T Dairy Advisor Co Monaghan and James McMahon, Swans Cross Co Monaghan (Heavy Soils participant).

Over the years, he has carried out drainage projects such as shoring and stone-moleing on parts of the farm. Soil tests are carried out each year and 200 tonnes of lime have been spread on the farm over the last five years.

"Early turnout in spring is difficult to achieve in our region, and continuous heavy rain in spring or summer can result in cows having to be rehoused," says James. "My motivation for becoming involved in the Heavy Soils Programme this year is to learn more about what can be done to manage the difficult soil conditions, in terms of drainage, in this region. I've seen through membership of my discussion group the benefits and savings that can be made by achieving a longer grazing season."

Direct drilling

It's about a package of activities, not just a machine

Shay Phelan
Tillage Specialist, Teagasc Crops Environment and Land Use Programme

Soil health and reducing costs have been key issues on Tony Bell's farm over the last number of years. Tony runs approximately 80ha of arable land just beside the coast, north of Balbriggan, Co Dublin. Crops grown include winter wheat, winter barley, spring beans and maize.

"Reduced grain prices combined with increasing input prices forced me to have a look at my system a number of years ago," says Tony, who took delivery of his first direct drill in 2011. "I felt that my land was becoming more difficult to work. Reducing the amount of ploughing combined with applications of manures seemed, from my research, the way to go."

Occasionally, Tony will plough if necessary for compaction reasons, rotation or adverse weather conditions. However, Tony has calculated that drilling his combinable crops with his direct drill reduces establishments costs by between €75 and €85 per hectare.

Increased timeliness, significantly reduced time spent on repairs and reduced labour are other significant benefits to the system, according to Tony. He changed the drill in 2014 and has replaced the original drill with one that can drill fertiliser as well in the one-pass, again with the aim to reduce time and cost.

This establishment system is also used by Tony's brothers on their farms, as well as a number of other farmers in the north Dublin area. Indeed Tony has, over the last few years, increased the area direct-drilled for other farmers significantly, as more growers become increasingly aware of establishment costs. This has helped Tony to spread the cost of his drill over a greater acreage.

Tony is, however, quick to acknowledge that not all conditions are suitable for direct drilling and there can be significant yield penalties if conditions are not appropriate. One field of winter wheat last back end, for example, was ploughed before drilling as the maize harvest ran a little late and Tony feared that the seed bed would not be good enough for the direct drill system. Spring wheat was the chosen alternative as he was not prepared to put in winter wheat at any cost.

This flexible approach has allowed Tony to overcome some of the seed bed issues that occurred originally when he went down the direct-drilling route. "We actually saw yields drop slightly on the farm before they recovered in year three of the system. I put that down to dealing with compaction issues, as well as the land getting used to the system," says Tony.

Grass weed control is closely monitored as it can be a significant issue in direct-drilling systems. Preparing the land before entering into the system is a priority for success, otherwise significant yield penalties can be expected.

Soil fertility

Having soil tested his land, Tony noticed that the soil indices were dropping and he was finding it increasingly difficult and expensive to raise the soil P and K indices using chemical fertilisers.

Teagasc figures today show that only 15% of soils are in the ideal index 3 for phosphorous and potassium. Tony first started importing spent mushroom compost in 2008 and has been applying it to all his land annually.

He uses the compost as a nutrient source and has seen soil indices for both P and K rise significantly. P levels have increased from low index 3 to high index 3, while the K level has increased from low index 2 to high index 3, on average. Soil pH has also risen from low 6's to a pH of almost 7 across the farm. Organic matter levels have increased slightly and are now over 5%.

The reliance on compound fertilisers has reduced by over 50% compared to what was used in 2008. Tony admits that overall savings on fertiliser costs have been small to date, when the cost of the compost is taken into account, but the improved soil nutrient status should see savings in the future.

Being able to spread the compost after 15 September, when nitrogen and phosphorous containing chemical fertilisers are banned due to the Nitrates Directive, is also a benefit as

Tony Bell and Shay Phelan inspect a crop of spring beans.

his crops have an adequate nutrient source in the autumn.

"The land has become much easier to work, something that is easily seen in the diesel tank," says Tony. "It now takes five litres less per hectare of diesel to drill the average crop compared with when we started out with the system."

Earthworms

Tony also has discovered, like most direct-drill enthusiasts, that earthworm populations have increased significantly – no doubt helped by the fact that no slug pellets have been applied in years.

Stubble harrowing post-harvest to dry out the top soil and expose slug eggs to predators is also a key part of the operation. This cultivation pass is also useful for controlling various grass weeds such as annual meadow grass and sterile brome.

"Rotation also plays an important role in the success of his system," says Tony. "Continuous wheat was common in the area and with us but we have moved away from it now." Break crops such as beans have been grown on the farm for a number of years, while maize is also grown and sold to long-standing customers.

The break crops have numerous advantages such as reducing the pest buildup, especially grass weeds. There is also less likelihood of resistance as each pest is being controlled differently in each crop. Spring beans are usually followed by winter wheat, winter barley, maize and winter wheat again.

There has been a lot of interest over the last couple of years in growing catch crops on farm, especially since the introduction of GLAS. Tony feels that, while he is not in the scheme, catch crops could have benefits for his system both in terms of nutrient trapping and also soil conditioning. He established catch crops for the first time in 2015 to investigate further soil benefits and will continue with them for the coming years.

"It's the whole system that works for me, it's not just about one piece of machinery," says Tony. "The other elements contribute much of the savings. Preparation is key, elimination of compaction and difficult grass weeds before you start are very important to ensure your success with direct drilling."

Paul Fitters' garden in summer.

How to create a wildflower meadow

- Cut and remove grass once a year.
- Do not apply fertilisers or chemicals.
- Introduce yellow rattle.
- Have patience.

Cut out the lawn

Paul Fitters
Lecturer at the Teagasc College at the National Botanic Gardens

Mowing the lawn, week in week out, can seem an endless chore. Not only is it boring, it takes a lot of energy and is not good for biodiversity. For me, however, it mainly feels like a waste, so 10 years ago I decided to have a wildflower meadow instead.

Wildflower meadows are effectively grassland areas which are cut (generally) once a year, and left to do their own thing in between. The romantic notion is that by simply doing that, wildflowers will emerge instantaneously with beautiful butterflies and bees abounding. However, getting a successful wildflower meadow that is aesthetically pleasing takes a bit more than just cutting out the lawnmower.

For a meadow to have lots of biodiversity and look interesting most of the time, the main thing you need to do is make the plot nutrient poor. This means cutting the grass once annually and, after letting it dry and drop its seed, removing it so that nutrients locked up in the biomass are not recycled.

I have been doing this nutrient removal now for 10 years and each year the grass is getting less dominant and more and more flowering plants (other than grass) are starting to appear. For instance, my cowslips (*Primula veris*) are beginning to spread, more interesting plants such as common centaury (*Centaurium erythraea*) are popping up here and there and my first orchid appeared last year (what joy).

The arrival of new species each year proves that there is a natural seed bank in the soil. What helped to reduce the competitive power of the grasses was the introduction of yellow rattle (*Rhinanthus minor*). This annual plant is semi-parasitic on grasses: tapping its roots into grass roots and helping itself to precious nutrients and water at the expense of the grass plant.

The wildflower meadow is far more interesting to look at than my remaining lawn, closer to the house. I look on dandelions as irritating weeds in the lawn, whereas in the meadow they do not bother me and can even be stunning in their own right. In order to be able to see the biodiversity and newly emerging plants in the meadow, I use the lawnmower to cut paths through it. As well as giving me good access to the meadow, the pathways make me feel that all is under control, the meadow is not a neglected field but a deliberate feature of the garden.

Alternative

An alternative to cutting walkways through a meadow is to have dedicated areas of undisturbed grass within a lawn area. I saw a good example of this in Jardin de Plume in France. This award-winning garden created a grid of squares in a field in front of the house. Most squares had undisturbed grass in it, while one square was dug out to make a pond. Areas around it were cut regularly, had seating benches and some fruit trees. It worked amazingly well.

I cut my meadow in late August or September so that most plants have flowered and set seed. Also, the period of most vigorous growth has ended, leaving the meadow quite tidy for the remaining months of the year. If you are thinking of creating your own meadow, you need lots of patience. Do not expect instant success, but instead a pleasant yearly change of scenery as the plant community changes in response to reduced nutrient levels. For me, that has been part of the joy.

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