

TEAGASC Today's farm

MARCH-APRIL 2011 VOLUME 22 NUMBER 2

Advice on business, production, environment, and countryside issues



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Spirovac is Back...

Bovine leptospirosis is a highly infectious disease and is widespread in Ireland with over 70% of Dairy Herds infected¹.

If leptospirosis gets in to your herd it can have serious effects on productivity and profitability.



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BOVINE LEPTOSPIROSIS VACCINE



For further information please contact your veterinary surgeon or Pfizer Animal Health, 9 Riverwalk, Citywest Business Campus, Dublin 24. (01)4676650. **LM**

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COVER | caption:

“A well managed grass-clover sward can generate an astonishing amount of nitrogen, dramatically reducing fertilizer bills,” says Dr Bill Keogh, demonstrating the potential savings (for each hectare!) at Teagasc Solohead Research Farm.

PICTURE: Mark Moore

COMMENT

Haggle hard, even in the good times



Mark Moore
Editor,
Today's farm

EU decoupling of farm support payments from production offered farmers the opportunity to review and possibly suspend parts of their business which don't make a profit in their own right.

Too many enterprises are still cross-subsidised from profits generated by other enterprises on the farm or the Single Farm Payment.

Fortunately, prices have firmed up, and more enterprises can at least 'break even', but farmers should constantly review whether or not all activities within the business are 'pulling their weight'.

Now, farmers need to do some decoupling of their own by trying, wherever possible, to break the link between rising prices and rising input costs.

Some rising costs, such as fuel, are difficult to avoid. Nitrogen fertilizer, the price of which is very closely linked to the oil price, can be managed by making greater use of clover, for example — see our cover story. Or see our story on the fertilizer value of soiled water.

Other farm input costs have a habit of drifting higher simply because sellers know farmers have a greater ability to pay. As we enter a world of greater volatility in output prices, farmers must maintain the squeeze on inputs and input prices, regardless of the fact that milk, beef, lamb or grain prices are relatively healthy.

The only way to survive in volatile markets is to maximise profits in the good times (and build reserves or reduce debt); tougher conditions can be relied upon to re-appear.



Is é Today's farm an iris do chliant Teagasc. Bíonn altanna teicniúla ann faoi chúrsaí déiríochta, faoin eallach, faoi chaoirigh agus faoin gcuradóireacht, agus faoi go leor eile. Is minic altanna faoin timpeallacht agus faoi dheiseanna éagsúlaithe feirme san iris freisin. Gné an-tábhachtach den iris is ea na haltanna faoin gcaoi le cúrsaí gnó na feirme a láimhseáil. Ar na topaicí eile a chlúdófar amach anseo beidh táirgeadh fuinnimh ar an bhfeirm, an fhraoiseacht, an ghairneoireacht, srl. Agus beidh altanna ann ó thráth go chéile faoi chúrsaí feirmeoireachta thar lear freisin.

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Upcoming events

NATIONAL BEEF CONFERENCE 2011,
5 APRIL, CILLIN HILL, KILKENNY

National beef conference

Teagasc invites all farmers to the national beef conference. An impressive panel of speakers will explore the opportunities for Irish beef producers and outline the steps necessary to achieve profit from beef at farm level.

Topics covered will include:

- Future outlook for Irish beef production,
- Getting the most from grazed grass,
- Herd health for maximum performance and profitability,
- Breeding efficiency and breed improvement in beef herd.

The potential for AI use on suckler farms to increase production and quality in the beef herd will be highlighted in the final session of the conference. A live exhibit of AI progeny along with an open discussion forum promises to make this event one not to be missed.

HORSE SPORT IRELAND & TEAGASC
SPRING 2011 SPORT HORSE SECTOR
INFORMATION SEMINARS

Sport horse seminars

Developing a viable business within the sport horse sector

Date	Venue
7 March	Sligo Park Hotel, Sligo, Co Sligo
8 March	Ardboyne Hotel, Navan, Co Meath

Seminar topics

The sport horse industry, equestrian tourism, rural development grants, county enterprise grants, commercial rates, business planning, questions and answers to the panel.

Panel presenters

Horse Sport Ireland, Fáilte Ireland, Pobail & LAG (LEADER), County Enterprise Board, The Valuation Office, Teagasc will be panel presenters. The seminars are open to the public and start at 7pm. No admission charge.

For further information, please contact: Martin Maloney (HSI) by emailing mmaloney@horsesportireland.ie, phone: +353 (0)45 854523 or Declan McArdle (Teagasc) at declan.mcardle@teagasc.ie, phone: +353 (0)87 6831876.

COLLEGE OPEN DAYS 2011



Agricultural college open

Date	Venue
22 March	Mountbellew
22 March	Clonakilty
23 March	Gurteen
23 March	Botanic Gardens
24 March	Ballyhaise
24 March	Pallaskenry
8 April	Kildalton

Courses in agriculture and horticulture have changed radically.

All courses are now nationally accredited with 11 courses on the CAO list, and there is now the opportunity to progress right up to honours degree level.

Career guidance teachers and students will have a unique opportunity to get fully updated on all new courses at seven special careers events, organised by Teagasc.

As well as hearing the full story on all new courses in agriculture, horticulture, horses and forestry, you will also get information on the diverse range of career opportunities available to graduates.

What you will get

- Information on all further and higher level courses in agriculture, horticulture, horses and forestry.
- An outline of careers in agriculture,

EARLY GRASS CATTLE FARM WALKS 2011

Cattle farm walks

Teagasc invites all interested to a series of early grass cattle farm walks in March and April. The walks will address topical issues on grassland and getting more from grass to reduce costs.

Date	Venue
7 March at 2:30pm	Joseph Hannon, Kilulla, Newmarket-on-Fergus, Clare
8 March at 10:00am	Maurice Kearney, Kilbaha, Moyvane, Kerry
10 March at 2:30pm	John Finlay, Ballycuddagh, Ballycolla, Laois
16 March at 2:00pm	John Fitzpatrick, Dareens, Clonmore, Templemore, Tipperary
16 March at 2:30pm	Donie Ahern, Model Farm, Herbertstown, Limerick
22 March at 2:00pm	Jo Connolly, The Leap, Roscrea, Offaly
23 March at 3:00pm	William Stack, Ballyedmond, Midleton, Cork
24 March at 2:00pm	Allen Callagy, Broadford, Moyvalley, Kildare
24 March at 5:30pm	Michael Mellett, Mochara, Shrule, Mayo
31 March at 2:00pm	Oliver McFarland, Clones, Monaghan
1 April at 2:30pm	John Kelly, Mornine, Moydow, Longford
8 April at 2:00pm	Hugh Doyle, Curraghtown, Summerhill, Meath

JFC INNOVATION AWARDS, CLAYTON HOTEL, GALWAY, 11 APRIL 2011

JFC Innovation Awards

This year's JFC Innovation Awards for rural business organised by Teagasc, the Department of Agriculture Northern Ireland, Irish Local Development Network (ILDN) and the *Irish Farmers Journal*, and sponsored by JFC, are taking place in the Clayton Hotel, Galway on Monday, 11 April.

The awards, now in their fifth year, have highlighted excellent ideas that rural entrepreneurs and farmers have used to set up new businesses.

The overall prize fund for the competition is valued at €40,000. This includes cash prizes totalling €12,000 provided by JFC Manufacturing, advertising in the *Irish Farmers Journal* valued at €16,000, and mentoring and business support from Teagasc, ILDN and DARD, worth €16,000.

Despite the recession, rural innovation is thriving with over 60 entries competing in this year's JFC Innovation Awards.

Twelve finalists have been selected from all across the country to compete in the final in Galway.

The ideas put forward by the finalists range from food and craft trails to energy farming, language and diving schools to new products in animal safety and beauty products

Competitive

As always, the speciality food category is fiercely competitive with innovations in mushrooms, processing apples, organic bread mixes, selling direct and Turbot farming.



days 2011

agri-business, amenity and production horticulture, forestry, horse breeding and training and career profiles of graduates.

- Guided tours of college teaching and recreational facilities and visits to the college's modern farming and horticultural enterprises.

Who you will meet

- Talk to college teaching staff and educational experts.
- Meet students currently attending courses.
- Hear from potential employers of course graduates.

NATIONAL BIOENERGY CONFERENCE

The 2011 National Bioenergy Conference takes place in the Tullamore Court Hotel on 20 April 2011. This year's conference is jointly organised by Teagasc, DAFF and SEAI. The conference will look at the bioenergy policy options for heat, electricity and transport with the introduction of a new government. Talks on anaerobic digestion, willow chip drying, energy crop harvesting, liquid bio-fuels, the potential of bioenergy to sequester carbon and Ireland's biomass resources quantified will be presented followed by a one hour panel discussion with key personnel from the biomass industry focusing on bioenergy development options to meet Ireland's challenging 2020 energy targets.

Contact liz.osullivan@teagasc.ie or 059-9183483 for further details.

FORESTRY EVENTS

Tending and Thinning of Broadleaf Woodlands, Community Centre, Milltown Village, Co Cavan, 20 April.

DAIRYMIS GROUP REGIONAL EBI OPEN DAY, WEDNESDAY 13 APRIL

It will be hosted on the Farm of Michael and Marion Gowen, Downing, Kilworth, Co Cork from 11am to 1.30pm.

The group has decided — similarly to the Crookstown and Damer group in 2010 — to speak at the boards themselves and are looking forward to this event.

John McNamara is chairman of the group and Eddie O'Donnell is vice chairman.

Teagasc offers joint education courses

Three new initiatives announced

At the Teagasc education conference in Dublin Castle recently, Director, Professor Gerry Boyle announced details of three new joint education initiatives: a B.Agr.Sc. (honours) in dairy business at UCD; a new B.Sc. in horticulture (honours) in DCU; and a new B.Sc. in sustainable agriculture (honours) at Dundalk Institute of Technology.

Dairy business

The B.Agr.Sc. (honours) in dairy business at UCD is designed to provide students entering the dairy industry with a high level of scientific, technical and business skills.

Years one, two and four will be delivered at UCD while in year three students will undertake 'Technical Management of a Dairy Farm' at Teagasc Kildalton prior to starting professional work experience placements. Students will be exposed to the latest research developments by tak-

ing modules in grassland management and applied dairy cow nutrition, applied animal breeding and reproduction, dairy systems and herd health at Teagasc's Animal Production and Grassland Centre, Moorepark.

Horticulture

A new B.Sc. in horticulture (honours) has been developed by DCU in conjunction with Teagasc. The programme will combine the best of science at DCU with the best of horticulture at the Teagasc Horticultural College at the National Botanic Gardens.

The two campuses are almost adjacent and provide world-class campus facilities with gardens of international renown. The first students will be taken on this autumn.

Sustainable agriculture

A new B.Sc. in sustainable agriculture (honours) at Dundalk Institute of Technology is being offered in conjunction with Teagasc, Ballyhaise, Co Cavan. This course will focus on economically and environmentally sustainable agricultural technologies and systems. The course is aimed at commercial farmers and farm managers, as well as professionals servicing the agri-food sector.



At the conference, the Teagasc/FBD Student of the Year 2010 was announced. Pictured with Frank Murphy, principal, Teagasc Kildalton, is overall winner William Keane from Kilmacthomas, Co Waterford. William completed an advanced certificate in dairy herd management at Kildalton College.

Teagasc performs well in Forfás study

FORFÁS has published a bibliometric study of the public research base in Ireland, including Teagasc. Teagasc had the highest total scientific papers of all the public research organisations over the 10-year period from 1998 to 2007.

Its total of 1,367 puts Teagasc between NUI Maynooth and the University of Limerick but, importantly, the majority of Teagasc papers are in the agriculture and food science areas, showing the very significant capacity Teagasc has in this area.

The report also noted a rising annual volume of papers in Teagasc (annual average of 175 for the period 2005-2007 versus 117 for the period 1998-2000).

Catchment science meetings in San Francisco and Dublin

Prof Phil Jordan, Dr Alice Melland and Dr Per-Erik Mellander, Teagasc personnel working on the Agricultural Catchments Programme (ACP), presented their work at the American Geophysical Union meeting in San Francisco recently.

The session was co-organised with colleagues from the University of Durham, England, and the US Forest Service, Anchorage, USA.

The ACP is evaluating the effect of the good agricultural practice regula-

tions on water quality and farm productivity.

The Irish ACP group, with programme manager Ger Shortle, met recently to review their project in anticipation of an international conference to be held in Dublin in September 2011. This conference has a similar theme and will explore international experiences of agri-environmental policies and their effect on water resources and the people living and working in river catchments (www.teagasc.ie/catchmentscience).

A breeding plan for a compact calving pattern

For most spring-calving systems, the breeding season will begin between mid-April and the first week of May. The goal must be to get as many cows pregnant as quickly as possible. This article outlines strategies to maximise success during the breeding season



Stephen Butler
Moorepark

Pre-breeding heat detection

Begin heat detection three to four weeks before the planned mating start date (MSD). This is a good time to improve your heat detection skills, to train new staff to correctly identify cows in oestrus, or to try alternative heat detection aids. All heats should be recorded. By mating start date, you will be able to anticipate when cycling cows will next come on heat (i.e., weeks one, two or three of the breeding season), and you will also have a list of all cows that have not yet been seen in heat.

The following is a simple pre-breeding heat detection programme using tail paint, but other heat detection aids can also be used.

- Apply tail paint of one colour (e.g. red) to all milking cows 28 days before the planned mating start date. Apply red paint to late calvers as they enter the milking group.
- Check the tail paint on all milking cows weekly until mating start date. If there is heavy rain, you may need to refresh the red paint.
- Record all cows that have had tail paint removed (by other animals mounting), and paint these cows with a different colour (e.g. green).
- At mating start date, any cows with

“ By mating start date, you will be able to anticipate when cycling cows will next come on heat and you will also have a list of all cows that have not yet been seen in heat



If pre-breeding heat detection is carried out you should switch to a new colour paint (e.g. blue) after cows have been inseminated. This will allow you to rapidly get a picture of how your submission rates are progressing

undisturbed red paint are unlikely to have been in heat during the preceding 28 days. Cows with green paint have been in heat at least once during the same period.

- You can calculate the percentage of the herd that is cycling and showing oestrus by dividing the number of cows with green paint by the number of cows with either green or red paint, and multiply the result by 100.

- The figure should be greater than 70%. If the figure is lower than this, you need to investigate why the others are not being identified as coming on heat (cycling). This could be because:
 - your pre-breeding heat detection is poor.

- you have too many late calving cows.
- Poor cow body condition. Thin cows or cows that lost a lot of body condition after calving are at risk of anoestrus (not coming on heat).
- heifers may not have reached their body weight and body condition targets at calving.

Breeding begins

From MSD onwards, heat detection efforts need to be stepped up for the period of AI use, which should be at least six weeks.

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- Watch the herd to detect cows on heat for at least three periods of 30 minutes (minimum) each day. Ideally, this should be when cows are generally inactive (i.e. lying down, ruminating). This improves the chances of picking out groups of restless cows that are more likely to be in heat.

Check for signs of heat two hours after the morning milking, early afternoon and again at two hours after the evening milking.

- If pre-breeding heat detection was carried out as outlined on the previous page, you should switch to a new colour paint (e.g. blue) after cows have been inseminated. This will allow you to rapidly get a picture of how your submission rates are progressing:

- cows with blue paint have been inseminated.
- cows with green paint were detected in heat before MSD and you should know when to expect them to return to heat.
- cows with red paint have not yet been inseminated and have not been observed in heat.

Getting bulls prepared

Make sure bulls are in good body condition and have reached the correct body-weight for their breed and age well in advance of the breeding season. Purchased bulls should be sourced from clean herds, screened for infectious diseases, and vaccinated with the same vaccination programme as the cows. Bulls should be purchased two to three months before you plan to use them.

- The number of bulls required will depend on herd size and the proportion of the herd already pregnant to AI.
- For a 100-cow herd, with AI for six weeks resulting in approximately 50% to 70% of the herd in-calf, at least two bulls will be required. If less than half of the herd is in-calf after six weeks of AI, three bulls will be needed.
- If possible, rotate the bulls used with the cows. After a week of activity, libido will be restored by resting for a few days before returning to the cows.
- Where herd size allows, keep more than one bull with the milking herd at a time.
- Monitor bulls carefully for signs of body condition loss, lameness, lethargy, etc.
- Observe bulls to ensure that they are



serving correctly.

Reviewing performance

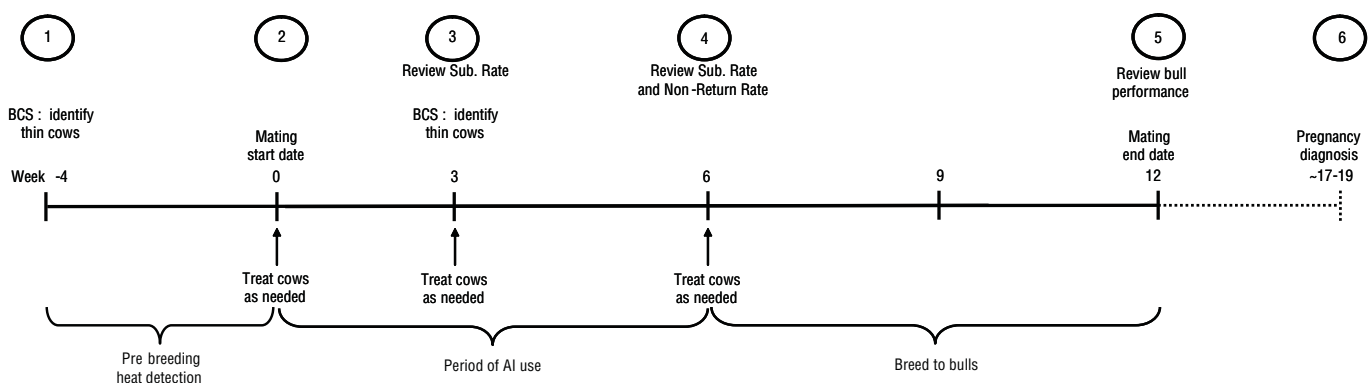
Reproductive performance should be reviewed periodically throughout the breeding season, not just at the end. We will focus on the six key timepoints identified for reviewing reproductive performance in *Figure 1*.

- 1) Look at the body condition score of the herd. Identify thin cows and take action immediately to improve BCS.

- 2) Based on pre-breeding heat detection results, you will know if your herd is hitting the target for the proportion of the herd cycling. If the proportion of the herd cycling and displaying oestrus is lower than 70%, it is unlikely that the three-week submission rate target of 90% will be met.

Also, look at what proportion of the herd have yet to calve at MSD. The target should be all cows calved. If more than one in 10 have yet to calve, it will not be

Breeding Program for compact calving





have not repeated and divide this figure by the total number of cows bred in the first 18 days of the breeding season.

This figure will overestimate conception rate by about 10%, but the degree of overestimation is greater where heat detection is poor. The target for a 24-day non-return rate is to achieve more than 60%.

5) For a compact calving pattern next year, the breeding period this year should stop after 12 to 13 weeks of breeding. On many farms, breeding periods last three to four weeks longer than this. The length of the breeding season is a compromise between the duration of the calving period next spring and the empty rate at the end of this year.

Ideally, bull activity will be minimal by 12 weeks into the breeding season. If bulls are still active, extending the breeding season may be necessary.

6) The herd should be pregnancy tested approximately five to seven weeks after mating end date.

This will: (i) confirm pregnancies for cows with AI dates early in the breeding season; (ii) confirm pregnancies for cows that became pregnant to the bull and allow an estimate of the stage of the pregnancy and expected calving date; and

(iii) identify non-pregnant cows.

The target for proportion of cows not pregnant at the final pregnancy diagnosis is less than 10%. Based on the results of the pregnancy diagnosis, the six-week in-calf rate should also be calculated. This is calculated by counting the number of cows that became pregnant in the first six weeks of the breeding season and dividing by the number of breeding cows in the herd. The target for compact calving systems is 75%.

Identifying problems and taking action

Careful identification of the genetic, management and husbandry factors responsible for poor fertility is the best long-term strategy to improve cow fertility.

- Examine the genetic merit of the herd. What is the herd average EBI and the average fertility sub-index? This can be easily assessed using ICBF reports. The average fertility sub-index of the highest fertility bulls (HO, FR, and JE) in the spring 2011 active bull list is €126 (range €113 to €170).

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Check for signs of heat two hours after the morning milking and two hours after the evening milking

possible to achieve a compact calving pattern without adopting strict control on the duration of the breeding season over the next few years.

3) At three weeks after MSD, review your submission rate. Count the number of cows bred and divide by the total number of cows that you plan to breed during the breeding season.

Note that this should include any cows that have not yet calved but that you plan to breed. The target figure is 90%. Achieving a high three-week submission rate is a critical driver of fertility performance in seasonal calving systems.

4) At six weeks into the breeding season, all cows should have been bred to AI at least once (with repeats served more than once). If heat detection is good, you can get an approximate idea of your conception rates at the start of the breeding season by looking at 24-day non-return rates.

At 42 days (i.e. six weeks), any cows bred in the first 18 days of the breeding season were bred at least 24 days ago. Count the number of cows bred in the first 18 days of the breeding season that

The time is ripe for making substantial genetic progress in genetic merit for fertility traits.

- Examine body condition score. The target herd average BCS at MSD is 2.9. If the cows that have not been seen cycling have low BCS, improve their energy status by increasing grass allowance and/or concentrate supplementation.

Alternatively, consider reducing milking frequency to once a day for cows below target BCS.

- Is the diet properly balanced for energy, protein and minerals? Are grazing conditions adequate to allow the necessary grass intake?

- What is the health status of the herd? Were there problems with calving difficulty, retained membranes, metritis? If yes, these cows should be examined and treated appropriately.

- Are there infectious disease problems on the farm (BVD, IBR, leptospirosis, salmonella, neosporea, mycoplasma bovis, etc)? These diseases have become prevalent on Irish dairy farms, and negatively affect reproductive performance. Find out the disease status of your herd.

Any necessary vaccinations should be carried out well in advance of the breeding season according to the manufacturers' guidelines. Strict biosecurity should be employed to minimise risk of disease introduction to the herd.

- Is mastitis a problem? Mastitis has a negative effect on fertility; implement changes to the milking routine and parlour hygiene to minimise spread between cows.

Treating cows during the breeding season

On every farm, a proportion of cows will be anoestrus (i.e. not displaying behavioural oestrus) at the start of the breeding period. The return to normal cyclic ovarian activity usually occurs, on average, by 30 to 35 days after calving.

The first heat is often silent and the first cycle after this heat is usually short (eight to 12 days). This means that most cows should have started to display behavioural oestrus by days 38 to 47 post-calving or earlier.

Failure to show signs of heat by 60 days after calving is called postpartum anoestrus. This can be due to either true

“ Mastitis has a negative effect on fertility; implement changes to the milking routine and parlour hygiene to minimise spread between cows



Consider reducing milking frequency to once a day for cows below target BCS.

Figure 2 | Hormone protocol for synchronizing anoestrus cows

Day: 0 (Mon)	7 (Mon)	8 (Tue)	9 (Wed)	10 (Thu)
P4D in 8am GnRH 8am	PG 8am	P4D out 8am	GnRH 5pm	FTAI 10am - 12pm

In the illustration, the protocol starts on a Monday and finishes with insemination 10 days later on a Thursday. GnRH = Gonadotropin releasing hormone (e.g. Receptal, Ovarelin, Fertagyl); P4D = Progesterone releasing device (e.g., CIDR, PRID) PG = Prostaglandin F2? (e.g. Lutalyse, Estrumate, Prosolvin, Enzaprost). FTAI = fixed-time AI

anoestrus or sub-oestrus.

- Sub-oestrus is when cows have normal cyclic ovarian activity, but are not detected in oestrus due to weak or silent heats, or due to inadequate observation.

- True anoestrus is when cows have inactive ovaries.

Approaches to resolving sub-oestrus should include improving heat detection techniques and ensuring that observations are long enough (over 30 minutes) and frequent enough (three to four times per day). Resumption of cyclicity after calving is influenced by nutritional status, body condition score, milk yield, calving difficulty, uterine infection, breed, age and concurrent disease.

Treatment of true anoestrus should first examine nutritional status and body condition score. These can be improved by increasing pasture allowance, in-

creasing concentrate feeding and/or reducing the energy output in milk by restricting anoestrus cows to once a day milking until they have been bred or confirmed pregnant.

Hormonal treatments can be used to stimulate a resumption of cyclicity and are most effective if combined with increased energy intake.

Treatments involve the use of progesterone-releasing devices (e.g. CIDR, PRID) which result in ovulation and resumption of normal cyclicity.

The treatment outlined in Figure 2 stimulates resumption of cyclicity and facilitates fixed-time AI (FTAI) at the end of the hormone protocol.

Fixed-time AI means there is no requirement for behavioural oestrus behaviour and hence heat detection is not required.

Clover helps you cope with costly N

James Humphreys, Bill Keogh, Paul Murphy & Andy Boland
Teagasc Moorepark

THE rising cost of cereals is driving up the price of milk and beef and is encouraging farmers across the northern hemisphere to plant more crops this spring, fuelling demand for fertilizers.

Supply of fertilizer N is limited by investment in manufacturing infrastructure and rising manufacturing costs — mainly oil and gas. As a result, the cost of fertilizer N has more or less doubled since the late 1990s. It has been increasing at an average rate of 9% per year (Figure 1).

In contrast, although there has been a wide range in milk price in recent years, farm gate prices for milk and beef have been relatively static. Consequently, fertilizer N is becoming an increasingly expensive input on Irish grassland farms. For example, in the early 1990s a dairy farmer had to sell 1.5 litres of milk to purchase 1kg of fertilizer N. In recent years it was necessary to sell between three and four litres of milk to purchase that same 1kg of fertilizer N. This growing imbalance between input and output prices is not sustainable.

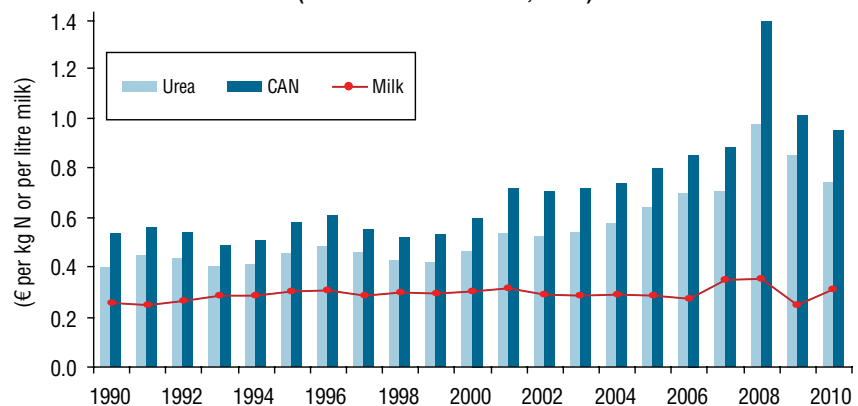
Nitrogen is the single most important input, sustaining the productivity of grassland and underpinning the profitability of dairy and beef production. Rising costs have driven down national fertilizer N use by 30% since 2000. Clearly, there has been scope for improved efficiency and for cutting costs. However, rising fertilizer N costs seems set to continue with a spike in prices again this year. The challenge is to find a viable alternative to fertilizer N and the most economically viable alternative for Irish systems of production is white clover.

White clover is a legume that has the capacity to fix atmospheric N and convert it to plant available N in the soil. We have measured annual rates of N fixation up to 180kg per ha at Solohead (equiva-



White clover herbage is well adapted to grazing management and has very high nutritive value.

Figure 1. The cost of fertilizer N (€ per kg N) and milk (€ per litre) since 1990 (Central Statistics Office, 2011)



“ White clover collects nitrogen from the air and makes it available to grass, greatly reducing the need for bought-in nitrogen

WHITE CLOVER | key points

- Nitrogen fertilizer is expensive and will likely remain so.
- White clover collects nitrogen from the air and makes it available to grass, greatly reducing the need for bought-in nitrogen.
- White clover works very well in a typical Irish sward which is both cut and grazed, provided that fertilizer is applied in the spring when the clover is dormant.

lent of 13 bags of CAN per ha) under favourable conditions. Fixation rates typically range between 100 and 150kg N per ha, depending on fertilizer N input, grazing management and weather conditions. High rates of fertilizer N input inhibit N fixation and, therefore, fertilizer N should be used only in spring when the clover is dormant.

Tight grazing is very important, particularly over the winter and spring. Tight grazing over the winter in spring increased clover herbage production and N fixation by 50% during the following grazing season.

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FARMER FOCUS

LJ Ryan, Dundrum,
South Tipperary

LJ Ryan, who farms near Dundrum in South Tipperary, happily admits that he discovered the potential of clover in his swards by accident. Cleared out by BSE in 2001, he was gradually rebuilding his herd and naturally cut back on fertilizer nitrogen on fields with a relatively low stocking rate. "We noticed that clover thrived and sward output remained high," said LJ. "Today, we have 107 cows and only use about 70 units of nitrogen (25 in late February, 25 in mid-April, 15 to 20 at end of May) on grazing fields."

LJ said that clover works best on south-facing fields and naturally works best in warm, favourable weather; of course, those conditions are needed for strong grass growth from fertilizer nitrogen too.

LJ uses a fertilizer spreader (with a home-made distributor onto the spinning discs) to apply about a kilo of clover seed/acre onto the ground after a silage cut. This helps to keep clover percentage high.

A glance at LJ's Profit Monitor shows the benefits. The Teagasc target for nitrogen costs is 1.8c/litre; LJ's figure is just 1.37.



LJ Ryan

Tim Maher, Roscrea

Tim Maher, who farms near Roscrea, is also a long term exponent of clover.

He has a high performing 70-head suckler herd, followers and other finishers totalling about 270 animals.

In 1998 he laid his land out in 2ha paddocks to experiment with clover. "I apply just under 50 units of nitrogen split between mid-February and the end of March," said Tim.



Tim Maher

"In the current climate you need to focus on profit rather than output. Clover allows me to finish heifers on the grass clover sward and means we are using less expensive concentrate to finish the bulls.

"In my experience it's essential to keep the sward grazed fairly well so that the clover is not shaded out by grass. It's also important to keep the soil pH at a healthy 6.3 to 6.5. Then clover will really benefit your bottom line."

Rates of fixation at the lower end of range outlined above are recorded in colder, wetter years. White clover herbage is well adapted to grazing management and has very high nutritive value. Hence it fits well into systems predominantly based on grazing permanent grassland.

Red clover

Very high rates of N fixation (over 300kg N per ha) have been measured for red clover, producing crops of 15 or 16t herbage DM per ha per year in a three-cut system with no fertilizer N input under Irish conditions. However, red clover is not persistent, particularly under grazing management, meaning that swards need to be reseeded at intervals of three or four years.

Red clover is used extensively in Alpine and Nordic regions for silage and hay production and zero grazing for livestock kept indoors. Under Irish conditions, when the costs of reseeding and harvesting are taken into account, red clover is not as attractive an option as white clover, except on mixed grassland and tillage farms where crops of red clover can be integrated into the tillage rotation. For the vast majority of farms predominantly based on grazed permanent grassland, white clover is a more economically attractive option.

Combining white clover and fertilizer N

The clover-based swards at Solohead can grow between 10 and 12t of herbage

DM per ha per year with input of fertilizer N in spring. Fertilizer N is applied for early grazing in spring and to bulk up yields of first cut silage. It is applied at a time of year that causes least inhibition of N fixation.

The fertilizer N input that we use is an average of 90kg N per ha across the farm, ranging from 60 to 120kg per ha, with the paddocks for first-cut silage getting the higher amounts. Using higher rates of fertilizer N than this erodes the economic benefit of having clover in the sward because higher rates increase the extent of inhibition of N fixation, especially when applied during the summer.

We can get away with higher rates on N use on silage paddocks in spring where 30kg per ha is applied for early grazing and 90kg per ha plus slurry is applied for first cut silage, because huge quantities of N (up to 200kg per ha) are removed in a crop of first-cut silage, leaving the soil depleted of N in mid-summer. These circumstances facilitate high rates of N fixation by the clover, which drives on pasture production.

High fertilizer N input during the main growing season also causes grass to shade the clover out of the sward. Tight grazing can overcome this to some extent to help maintain the clover content of the sward.

However, this does not solve the problem of inhibition of N fixation. If clover is present, but is not fixing N, it makes little or no economic contribution to sward productivity under Irish conditions.

Herbage production

The range in annual herbage production of between 10 and 12t of herbage DM outlined above is linked to summer rainfall: less herbage is produced in wet years on the heavy soil at Solohead. After three wet summers — 2007, 2008 and 2009 — we have started to investigate how to overcome problems of wet soil conditions to improve the productivity of our clover-based grassland. One question we are investigating is the most suitable cow for these conditions and the other is how to cost-effectively relieve wet soil conditions.

During the winter 2009/10 we replaced half our herd of Holstein-Friesians (HF, 610kg liveweight) with Jersey crossbreds (JX, 480kg liveweight). Over the last number of years our HF cows have been producing 500kg milk fat and protein (MS) per cow and, stocked at 2.2 cows per ha, produced 1,100kg MS per ha per year. In 2010 the JX cows were stocked at 2.5 cows per ha and produced 430kg MS per cow, which is more or less identical to that produced by the HF cows on a per ha basis. Whether there are benefits associated with JX cows on heavy soils remains to be fully quantified because poaching damage has cumulative effects that need to be quantified over a number of years.

Food Harvest targets

With the abolition of the milk quota regime in 2015, the emphasis is on expansion of milk production, with the Food Harvest 2020 report targeting a 50% in-

crease in milk production by 2020 (and a 20% increase in value of beef output).

From the perspective of fertilizer N, the question is what will be the cost of fertilizer N in 2020? The current increase in costs of 9% per year can hardly be sustained because increasing prices are likely to stimulate investment in manufacturing infrastructure. On the other hand, it is likely that the cost of energy for the manufacture of fertilizer N will continue to increase unless alternatives are found.

One of the next generation sources of energy that is unlikely to contribute to lower fertilizer N costs is biofuels. Important biofuel crops such as maize and sugar cane have a requirement, and increase demand for fertilizer N.

Indeed, it is widely believed that the spike in cereal and fertilizer prices in 2008 was partly driven by increases in cropping for biofuels in north and South America and in Europe.

For these reasons it seems likely that the cost of fertilizer N will continue to rise but perhaps not at the same rate as during the last decade. Indeed, current global population levels cannot be sustained without affordable fertilizer N.

A second question is whether white clover-based systems can support the increase in milk production envisaged by the 2020 report. According to the most recent National Farm Survey (2009), the average stocking density on dairy farms is 1.93 LU per ha, with an output of MS of 650kg per ha and input of 140kg fertilizer N per ha. This level of output is 60% of that being achieved by the white clover-based system at Solohead.

A well managed white clover-based system with well bred high EBI (110) cows has the potential to support an average increase in dairy production of almost 70% on existing dairy farms, although farm fragmentation is likely to be a limiting factor on many farms. Nevertheless, this level of increase is substantially higher than the target outlined in the Food Harvest 2020 report; does not include farm conversions to dairying and can be achieved with substantially lower fertilizer N input than currently used on farms. Hence, white clover is not a limiting factor and bringing the EBI to the required level is no problem within a nine-year timeframe.

Greenhouse gas targets

A third question is: can we meet this increase in milk and beef production while simultaneously meeting the reduction targets for national greenhouse gas (GHG) emissions?

It is unlikely that the same reduction levels will be expected from agriculture as from other sectors of the economy. The other

aspect is that our research has shown that clover-based systems result in a substantial reduction in GHG emissions compared with N-fertilized systems.

For the maximum level of production achieved with clover swards at Solohead, an additional 125kg per ha of fertilizer N is needed to achieve the same level of production from non-clover N-fertilized grass swards which, at current costs, equates to €145 per ha.

Under these circumstances, a clover-based system on a 50 ha farm will increase family farm income (FFI) by €7,250 while lowering GHG emissions by 12%. To achieve the same level of FFI on the N-fertilized system it is necessary to increase milk output by between 10% and 15%. However, this approach will result in higher GHG emissions of approximately 30% to 35% compared with the clover system (for the same FFI).

Therefore, integration of white clover into grassland-based systems of production can have a positive impact in FFI and on meeting national GHG emission targets.

Future perspective

White clover has not proven to be a popular option on farms in recent years despite the steadily rising cost of fertilizer N. Research is needed to determine why

this is the case. There are problems with clover, such as bloat, which are reasons for not growing it on farms. However, there are management solutions for these problems and new and better solutions are being researched and developed all the time.

A highly productive clover-based system of milk production has been running in Solohead for more than 10 years. We have lost no animal to bloat nor, indeed, have we had to treat any animal for bloat during that timeframe. Bloat is not a problem where appropriate management practices are in place.

The major obstacles seem to be lack of awareness of the benefits of clover and lack of appropriate management skills. It pays to learn how to manage white clover in grassland.

The cost of fertilizer N is only going in one direction. An increasingly pressing question is whether you can afford not to be growing clover?

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“ White clover works very well in a typical Irish sward which is both cut and grazed, provided that fertilizer is applied in the spring when the clover is dormant

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dairying

Students optimistic on expansion

'Looking forward in anticipation to 2015'

'Being able to expand without the worry of a superlevy fine'

'I'll have the cows on the ground ready to embrace the new era of milk production'

James Ryan,
Teagasc Kildalton

ALL quotes from the students currently studying on the Advanced Dairy Management programme in Kildalton Agricultural College. 'Expansion' is the buzz word currently in the vocabulary of these 18 students and all are poised to embrace it.

Weekly visits to some of Ireland's top achieving dairy farmers are whetting their appetite for expansion. The support of the Blackwater Discussion Group initiative, by welcoming these young pioneering dairy students onto their farms, is acknowledged as a major benefit by the group.

"Their support and willingness to impart their vast knowledge to us is critical," said Richie Dollard, chairman of the Kildalton dairy students.

Richie, from Tullogher, Co Kilkenny, is raring to get back home full-time once the course ends in May and to start the process of expanding his and his parents' dairy farm.

"All these top farmers have grown their farms and their willingness to share their knowledge with us is priceless," said Richie. "Their enthusiasm and motivation is palatable and you leave the farm with such a positive outlook."

Joe O'Connor is secretary of the Kildalton group. He invited his fellow students onto his home farm at Ballyroan, Co Laois. "I want to increase cow numbers on my grazing platform so all the lads came out, had a walk around and

“ We'll need one another and we can share our experiences of expansion. We'll all be going through it together

came back with excellent suggestions. One question that came out of the group was the need to start a reseeding programme on the platform immediately."

He added: "Expansion will happen a lot quicker with top quality pastures on my home farm and I'm delighted this was brought to my attention on the day."

Tom O'Donoghue, from Mount Melteray, Co Waterford, also brought the group onto his home farm. "We farm at a high altitude and I needed the group's opinions on the cow type and their suitability for our farm. "I'm looking at a shorter growing season like other lads in the group and this, coupled with limited land availability, makes expansion tougher. But where there's a will, there is a way, and increasing herd size and the milking platform is my top priority."

Dairy Efficiency Programme

The new Dairy Efficiency Programme (DEP) has given this dairy group further grounds for optimism. The possibility that they can apply for this scheme and acquire 200,000 litres is seen as a great opportunity. "It can make our dreams of expansion a reality," said Luke Casey from Stradbally, Co Waterford. "Up to this, milk quota was the one obstacle that had held us back and now we can hopefully get our hands on this quota."

This exciting scheme is, however, not without its faults and the dairy students' cite one big issue — the closing date for the scheme. "While not finalised yet, if they go by last year's closing date of early April, we will be exempt from entry," said Thomas Nolan from Ballacolla, Co Laois. "We'll have passed our course by mid to late May and this could make us eligible to apply, but if the Department stick to last year's closing date, then we are out."

Daire WeWey from Laois and Diarmuid Casey from Cork referred to the Food Harvest 2020 target of increasing milk production in Ireland by 50% by 2020. "As young dairy farmers we are the people to achieve this. We can drive ex-



pansion and grow cow numbers. However, we need new incentives to free up land for long-term leasing. Partnership is not working as there is no quota to be got, or very little, and all the paperwork is very prohibitive.

"While very grateful for the support and knowledge given by our weekly visits to farmers and, in particular, the Blackwater group initiative, we need support from the industry."

Top quality advice is essential, according to all the students in the group. "We need a dedicated adviser to support us in the start-up and expansion phase."

James Curtis, Wexford, Jim Phelan, Kilkenny, and Michael Meaney, Carlow, emphasised the importance of the support of the group of students while they expand.

"We'll need one another," the three young students agreed, "and we can share our experiences of expansion. We'll all be going through it together," said Jim, "and I'll know when I meet the lads at a group meeting or on the phone that they will know exactly what I'm going through."

Ricky Fitzgerald from Waterford commented: "I'm going to increase cow numbers and expand the grazing platform. Expansion to me is not putting up state of the art cow accommodation but spending money on cows and the grazing platform. I'm looking at converting other sheds or a stand-off pad, but expanding with cows that will give an immediate return on investment is my principal priority. Then I'm putting away the cheque and cutting production costs."



LEFT: Students on the Advanced Dairy Management programme at Kildalton.

ABOVE: Richie Dollard (left) and Joe O'Connor.

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A little TLC can reduce the risk of clinical mastitis



Finola McCoy
Teagasc Moorepark

TWO weeks before calving until two weeks after is often the highest risk period for mastitis infection and can determine the mastitis status of both the individual cow and the herd for the rest of the lactation. Thus, there are huge potential gains for farmers by preventing new infections around the calving period.

Many infections can be prevented by implementing some relatively simple steps. These management changes have proven to be very effective on many farms, and often cost very little or nothing at all. A good starting point is a little TLC.

T is for teat health

Mastitis infections occur when bacteria get into the udder through the teat ends. Any actions that reduce the number of bacteria near the teat end at milking, and improve teat health, will minimise the risk of new mastitis infections.

When freshly calved cows come into the shed, their teats are tight and tender. Teat skin is often dry (the last teat spray emollient will have been several weeks past) and may be splashed with dirt and manure.

For the first milkings after calving, when the risk of new infection is highest, it's really worth an extra investment in teat preparation.

- After every milking, use a good teat disinfectant that contains an emollient. Emollients soften and condition dry, chapped, skin, minimising the possibi-

TEAT HEALTH | tip

- If you are training heifers through the parlour before calving, consider also spraying teats with teat disinfectant containing emollient. This reduces the population of bacteria on the teat skin and helps to soften the skin in the days leading up to first milking.

lity of bacteria multiplying and surviving in teat cracks. It is essential to completely cover the whole teat surface to help kill any remaining bacteria.

The risk of infection is made worse if the teat ends are actually damaged by the milking process, so the health of the teats relies on the milking machine operating well and being used correctly.

- Ensure the teat cup liners are in good condition and that they are not nearing the end of their effective life (maximum of six months or 2,000 cow milkings for rubber liners). Liners develop very small cracks over time and these can harbour mastitis-causing bacteria. Modern liners do not need 'breaking in' before use on fresh cows or heifers; the liners must be at their most effective for massage of the teats.

- Check that the milking machine has been recently tested and serviced by an IMQCS certified technician. This will give you confidence that the tight, tender teats of freshly calved heifers and cows are being massaged by effective pulsation and that the vacuum is set at an optimal level.

How to forestrip freshly calved COWS

- Wearing gloves, squeeze the base of the teat between the thumb and the first two fingers then pull gently downwards, without getting milk on your hands.
- Strip onto the concrete or a dark surface or strip cup; never onto your other hand.
- Look for clots, strings, wateriness or discolouration in the first few streams of milk. Changes in the milk that persist for more than three squirts indicate that a cow has mastitis that requires treatment.
- Repeat this for each quarter.
- Quarters with only a few flecks in the first three squirts may be left untreated and checked again next milking.
- Wash your gloves under running water and disinfect them (teat disinfectant can be used for this).



L is for looking

Look for clinical mastitis. The sooner a case is found and treated, the greater the likelihood of both curing that case and preventing spread to other cows. The most effective way to detect clinical mastitis in freshly calved cows costs virtually nothing. By foremilk stripping (or forestripping), careful operators can identify early cases of mastitis.

But technique must be good. If done poorly, forestripping may contribute to the spread of mastitis between cows. Milk should never get onto the hands of milking staff. Wearing clean milking gloves helps to reduce the risk of spreading infection during this procedure.

C is for cleanliness

Some of the worst clinical cases of mastitis are caused by bacteria normally found in the environment and occur around calving. At this time, the numbers of environmental bacteria (such as *Streptococcus uberis* and *E. coli*) may be high,



especially if udders are contaminated with manure. Until milking begins there is no 'flushing effect' of milking out, so if these bacteria enter the teats they are able to multiply and establish infections. Even with the best treatments, many cases of environmental mastitis are difficult to cure. Making an effort to prevent infections is the best approach.

- Calve in a clean, dry calving environment
- Put cups on clean, dry teats:

“ here are huge potential gains for farmers by preventing new infections around the calving period

The teat skin of freshly calved cows is often dry, with extra dirt and manure. Extra preparation during the key early milkings may be necessary. For example, while not routinely employed during lactation, careful teat washing with a low-pressure hose and drying with a soft paper towel may be required for freshly calved cows.

Ensure that parlour exits, laneways and housing are clean

The period after milking, when the teat orifice is still closing, is critical in helping to prevent infection. Splashes of mud and manure onto teats and teat ends can place millions of potentially infectious bacteria into the area around the teat orifice.

To reduce this risk, avoid the need for cows to walk, stand or lie down in mud and/or manure for the first 20 minutes after milking. Critically examine the milking shed exits, laneways and housing to see if improved drainage or regular cleaning will reduce the level of exposure to mud and dung.



CellCheck is the new AHI-led national initiative, the aim of which is to achieve a fundamental change in the way in which we all view and deal with mastitis in Ireland. The key objectives of CellCheck are to build awareness, deliver best practice, set standards and build capacity.

AHI has convened a technical working group whose role is to collate Irish and international expertise and research in mastitis control. This will produce an independent source of evidence-based science and practice.

An agreed, clear, consistent message and guidelines are essential to enable progress. So too is dissemination of this knowledge.

This article is the first in a series, focused on delivering seasonally appropriate key messages, based on the outputs from the AHI technical working group.

Unproductive swards

Michael O'Donovan, Grassland Science Research Department, Teagasc, Moorepark

IN 2010, grass production was monitored on 18 farms across Munster and average grass production was 11.9t Dry Matter/hectare, which was an increase of one tonne of DM/ha from 2009.

There is huge variation in grass dry matter production on Irish dairy farms; as much as 50% between farms and 60% within farms. While there are different reasons behind this difference — poor soil fertility, soil type, drainage issues, poor management — the key factor is the level of perennial ryegrass within pastures.

Reseeding is crucial for grassland farmers

The biggest limitation on grassland farms in Ireland is that our swards aren't dominated by perennial ryegrass.

Recent research in Moorepark has shown old permanent pasture to be, on average, 3t DM/ha lower in DM production than perennial ryegrass swards and 25% lower in nutrient responsiveness.

Figure 1 shows the dry matter contribution across the grazing season of a 10% perennial ryegrass sward compared with 100% perennial ryegrass sward. The majority of the difference in DM yield between the two swards is accounted for up to mid-May.

Swards with low levels of perennial ryegrass are nutrient inefficient — 25% less than swards with high levels of perennial ryegrass. These swards have no role on farms and should be replaced.

If spring grazing is an objective, it will not be achieved with a 10% perennial ryegrass pasture.

From an economic perspective, a low proportion of perennial ryegrass in the sward is costing dairy farmers €300/ha in



RESEEDING | objectives

The objectives of reseeding are to create swards that are:

- Productive
- Maintain high grass quality
- Are nutrient responsive (+10kg DM per kg N)
- Allow higher animal output — 8% higher milk output per hectare relative to permanent pasture
- Reduce silage requirement
- Increase the productive capacity of the farm (carry a higher stocking rate).

drag down profits

Figure 1: Dry matter distribution with 10% perennial ryegrass compared to 100% perennial ryegrass swards

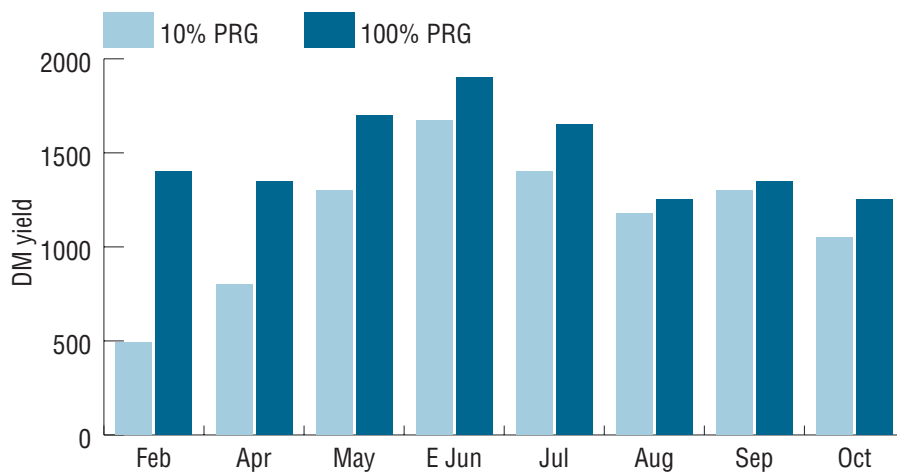
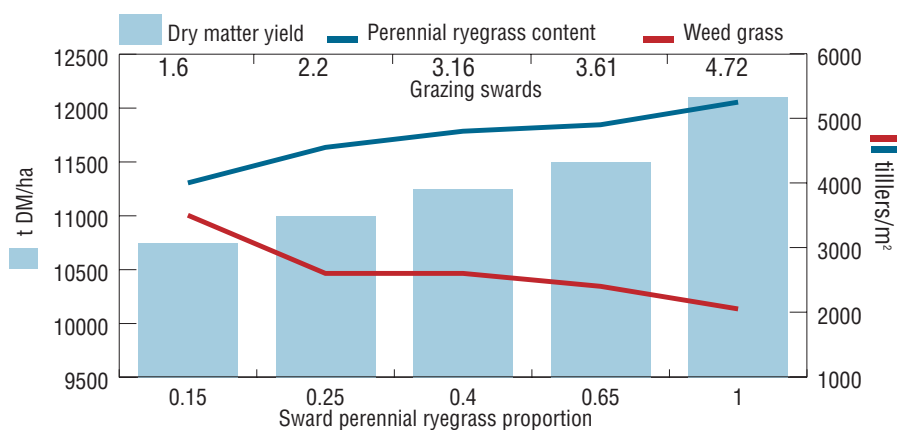


Figure 2: Relationship between perennial ryegrass content, DM production



loss of DM production during the growing season. *Figure 2* shows the DM production, tiller density (PRG and weed grass (WG)) and ground score (GS) (% of PRG in the sward) differences of swards with different levels of PRG. As the GS and PRG percentage of the swards increased, the DM yield of the swards increased. The DM yield ranged from 10.7t DM/ha (GS1) to 12.1t DM/ha (GS 4.7).

It is clear from these preliminary data that GS has a positive effect on the DM yield of a PRG sward.

The future challenge is to quantify the lifetime DM yielding ability of a sward within our grazing systems.

“ The objectives of reseeding are to create swards that are productive; maintain high grass quality; are nutrient responsive (+10kg DM per kg N) and allow higher animal output — 8% higher milk output per hectare relative to permanent pasture

» Next page

INDUSTRYVIEW

Plan your reseeding programme early

DAVE Barry, general manager (grass seed and Forage crops) with Golderop Ltd in Cork stated that there are a number of factors contributing to the grass seed scarcity for 2011.

- The consumption of seed, both amenity and agri, was low in 2008 and 2009 in northern Europe. This led to seed breeders and assemblers having very high levels of stock in warehouses in autumn 2009.
- As a result, the area of seed sown in the autumn of 2009 for harvesting in 2010 was reduced (grass seed crops are sown in the autumn to allow vernalisation, which is essential for a variety to produce seed; crops are normally harvested in the two following years). Much of the overstock problem was with amenity seed but the contracted areas for both amenity and agri seed were reduced. The yields in the 2010 harvest were moderate and wet weather in August and September in Denmark and Holland caused some crop losses.
- The consumption of seed in 2010 was at record levels in Ireland and was very high across northern Europe. The surplus stock of most agri varieties was used. The top grass varieties in Ireland were in huge demand and all available seed was consumed.
- The seed for sale in 2011 is from the 2010 harvest and the tonnage of seed was reduced due to the reduced area sown. In some cases, there had been large stocks of seed of particular varieties at the start of 2010, with the expectation that the stock would last for two years, but the high demand in 2010 used all the seed.
- The end result is that there is a limited amount of seed of recommended list varieties available for 2011.
- There is probably enough seed of recommended list varieties for normal levels of reseeding (average of past 10 years). The tonnage available of some of the popular varieties is limited.

Message

The message coming from this in 2011 is to plan your reseeding programme early and ensure you identify and purchase the appropriate recommended list varieties.

dairying

Variety selection

Mary McEvoy, Grassland Science Research Department, Teagasc, Moorepark

WHEN you make the decision to reseed, you are faced with a choice as to what mixtures to select for your farm. The key traits to look out for in varieties are high seasonal production (spring and autumn), high quality and good persistency.

The National Recommended List, published annually by the Department of Agriculture, Fisheries and Food (available to download from their web site) is a good source of information on the performance of cultivars under Irish conditions.

When considering a mixture, you should be aware of the content (kgs) of each variety in the mixture. Ideally, a seed mixture with three to four varieties is desirable, with a minimum of three kg per variety to ensure there is sufficient quantities of each variety in the mix to allow them to make a beneficial contribution to the sward.

It is also worth considering the target use for the sward: is it a grazing only paddock or will it be cut for silage every year?

For grazing swards, a ratio of diploids to tetraploids of 65:35 (approximately) is recommended. In general, this level of tetraploid will result in a 50% tetraploid proportion in the established sward.

On heavy soils, reduce the tetraploid proportion, as diploids generally have a higher ground score than tetraploids and so will increase the density of the sward. Using varieties which maintain quality across the season is important; late heading cultivars (heading in early June) tend to maintain higher quality than their earlier heading counterparts

“ Ideally, a seed mixture with three to four varieties is desirable, with a minimum of three kg per variety to ensure there is sufficient quantities of each variety in the mix to allow them to make a beneficial contribution



Mary McEvoy assesses individual rye grass plants for winter hardiness after December's deep frosts.

as they remain vegetative for a greater period.

Spring growth is also an important characteristic, and use of the recommended list will help to identify cultivars that can provide high quality and good spring growth levels.

Including 0.5kg of a medium leaf clover will reduce artificial N requirements in a sward. The level of clover can be increased, depending on the planned fertilization levels for the farm.

When selecting cultivars for the silage area, intermediate heading cultivars are preferable to achieve high silage yields of good quality. Increasing the tetraploid proportion to 40% of the seed mixture is recommended, with no clover in the silage mixes.

Key points

- Three to four varieties in a mix; with at least 3kg of each variety in the mix
- Sow 14 to 15kg per acre
- Post-emergence spray is crucial

Grazing specific mixtures

- 30% to 40% tetraploid
- Late heading varieties
- Select varieties with high spring growth to extend the grazing season
- Medium-leaf clover

Silage ground

- Increase tetraploid proportion to 40% (preferably with good ground cover)
- Intermediate heading varieties
- Avoid clover in silage ground



The Clonakilty dairy herd has moved to spring calving, with the result that there were no dairy calves born in the college in the autumn of 2010.

Huge change in Clonakilty



Karen O'Connell
with John Mulhern,
Pat Hennessy,
Finbarr Griffin
& John Murphy

LAST year, 2010, saw a huge change in the Clonakilty dairy herd. The entire herd has moved to spring calving, with the result that there were no dairy calves born in the college in the autumn of 2010. This more streamlined system is expected to improve efficiency of grass utilisation which will reduce costs, specifically concentrate feed costs, and enable the college herd to achieve current targets set down.

Dairy calving

Some 134 calvings took place in the spring of 2010 and 31 in the autumn of 2009. There were 124 calves born to cows (68 male and 56 female calves).

Of those, 118 were born alive (64 male and 54 female calves). There were 42

calves born to heifers (22 male and 20 female calves). Of those, 40 were born alive (21 male and 19 female calves).

Spring calving 2010

Cows began calving on 2 January and ended on 22 April, with a median calving date of 11 February. Calving spread was 15 weeks and five days and the average age at calving was four years and 10 months.

Heifers began calving on 15 January and ended on 24 March, with a median calving date of 30 January. Calving spread was nine weeks and five days and the average age at calving was two years and two months.

The calving interval of the herd was 420 days. The six-week calving rate was 55%. Calves per cow per year were 0.83. Current replacement rate stands at 23%.

The potential replacement rate, or dairy females born in the period and still in the herd on 30 June is 35%, which is above the national average of 26%. One-hundred per cent of replacements born in the period are bred to dairy AI, nearly twice the national average of 51%.

The percentage of calves born dead was 4.8% and this figure increased to 9% mortality at 28 days. Mating started on 12 April for both the cows and heifers. AI was used until 14 June and the stock bull was then used until 5 July. This gave a breeding season of 12 weeks.

Twenty-one-day submission rate was 78% for cows and 86% for heifers. This increased to 92% for cows and 93% for heifers for the 42-day submission rate. However, first service conception rate was poor for the cows at only 43%, but was excellent for heifers, at 96%.

>> Next page

“ The calving interval of the herd was 420 days. The six-week calving rate was 55%. Calves per cow per year were 0.83



PRODUCTION | targets

The production targets we have set in the college for 2011 are:

- To produce 1,000,000 litres of milk with a target of milk solid production of 500kg/cow.
- To reduce our calving interval from its current level of 420 days to the national average of 402 days.
- To reduce our concentrate usage per cow by more than half to 500kg per cow.

A total of 171 cows were presented for scanning after the breeding season, of which 38 (22%) were not in calf. A further 61 heifers were presented for scanning with 5 of those not in calf. This gives an overall not in calf rate of 18.5%. Some 189 females are expected to calve in spring 2011, with 29.6% of those being first calvers. That will be an increase in milking cow numbers of 11% on 2010. All animals that were not in calf have been removed from the herd.

Bulls used in the herd in the 2010 breeding season were MJS (Je), HZO

(HOFR), OKR (Je), MTD (Je), LKQ (Je), AMC (Je), HWY (Je), PKU (Je), ABT (Je), SYI (Je), HUG (NR), WIU, (Je), OKV (Je), EUW (HOFR/Je), KKK, (Je), GKG (Je), NUG (Je), GHK (Je). 153 females (80%) are in calf to Jersey. There was an average of 2.3 serves/conception for the cows and one serve/conception for the heifers.

The current EBI of the herd is €86 (€29 milk and €49 fertility).

Milk details

The total milk collected for 2010 was 968,485kg. The maximum number of



to 17.4 t DM/ha) and grass utilised was 10 t DM/ha, or 81% utilisation. Some 10.76ha (12.7%) were reseeded in 2010. We intend to reseed 11.7ha (13.7%) in 2011. Thirty-six hectares were cut for first cut silage in mid-May with a further 32ha cut for second cut in July. Silage ground was spread with 287kg N/ha (119kg N from CAN and 170kg N from cattle slurry). Thirty-four kilos of N per hectare were spread after each grazing.

Concentrate usage remains high in the herd at €39,340 for the year, or 1,129kg/cow (at €210/t). It is anticipated that this will be reduced in 2011. With fewer groups of animals in the grazing rotation, better control of grass should be achievable.

Replacements

For 2011, there will be 56 replacement heifers available for breeding. Average EBI of the replacements is 122 (€49 for milk and €66 for fertility). 39% of the heifers are Jersey crosses. They will be crossed back to Friesian. In 2010, a total of 136 animals were sold. These included 59 cows, 64 dairy bull calves and 13 heifers. Animal sales amounted to €34,932 for the year. A Hereford stock bull and nine calves were purchased in 2010. The

total cost of animal purchases was €2,736.

Capital investments in 2010 include modification of the existing calf area to include 37 new cubicles, a new calf house to replace the calf area (accommodation for 80 calves) and a new bulk tank (Packo tank 15,000 litres) with modifications to the existing dairy.

2011 has started off very successfully in the college. Cows began to calve a few days earlier than expected, on 10 January with 71% of cows calved in the first six weeks of the calving season (42 heifers and 93 cows calved with 133 live born calves, 79 males and 54 females). The median calving date will be around 1 February. Cows were let out to grass on 28 January. Current yields are 24kg milk per cow per day at 4.32% fat and 3.29% protein, giving a milk solid production of 1.83kg/cow/day.

After a critical assessment of the herd, we have identified key areas that need addressing, including meal usage and milk solid production, in order to improve our profitability. As a result of restructuring the herd, we hope to harness the benefits that a compact calving system has on grass growth, milk solid production and replacement heifer generation.



2011 has started off very well for the college. Cows began to calve a few days earlier than they were due to

cows milked was 174, giving an average yield of 5,566kg/cow. The average butterfat and protein percentages for the year were 3.86% and 3.42%, respectively. Lactose was 4.68% and SCC averaged 205,000. Milk solid production per cow was 406kg, or 70,506kg in total, which equates to 842kg MS/ha over 83.7ha. The average milk price for the year was 31.30c/litre.

Cows were out to grass from 28 January until 1 November, when poor weather necessitated their housing (276 days). Grass grown was 12.1 t DM/ha (range 5.5

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drystock

Teagasc suckler beef breeding groups



Pearse Kelly
Teagasc Cattle Specialist

THE profitability of every suckler herd is heavily dependent on the average production per cow in the herd. Empty cows, late calvers, repeat breeders and high mortality all drag down the average production in a herd.

The latest suckler breeding figures from ICBF show the average number of calves per cow per year at just 0.78 in the year 2009-2010. Teagasc are inviting interested suckler farmers to join one of their new Project Breeding Groups, starting this spring countrywide. The focus of these groups is to examine the breeding efficiency of members' herds and, if possible, make improvements.

What's involved?

Farm walks will be held this April on suckler farms to examine the whole area of breeding efficiency. What the targets are, how they have been achieved and how they are being maintained on these farms will be among the topics discussed.

If you are interested in joining a local Project Breeding Group you should attend one of these farm walks where you will meet the Teagasc advisers involved.

Following on from the farm walks the groups will be formed and will meet two



to three times each year on a different member's farm. A condition for joining these groups is that you sign up for the ICBF HerdPlus service. This is necessary to establish your current breeding efficiencies, to set targets for the future and to track what progress you are making in achieving these targets. The HerdPlus service costs only €20 for the first year and €60 each year after that.

There will also be further farm walks later in the year where a number of groups will be brought together to visit farms that are making progress in particular areas.

What will be tackled?

Very early on in the Teagasc/*Irish Farm-*

ers Journal BETTER farm project it was recognised that the breeding efficiencies of most of the herds involved needed to be improved. A process was put in place for each herd that involved:

- Identifying weaknesses
- Choosing the best time of the year for calving
- Deciding on the maximum length of the calving season
- Putting in place a herd health plan
- Identifying the cows that were dragging down the average production
- Making decisions on culling, breeding dates, etc.

These new groups will be focusing on all of these areas. One of the main health concerns in recent years is the effect BVD may be having on a lot of our suckler herds' fertility and mortality figures. All of the BETTER farms have screened their herds for this disease and are now very close to eradicating it on their farms.

Many of them have already reported significant improvements in the health of their 2011 calf crop which they attribute to the steps they have taken to rid their herd of BVD.

“ If you are not already in a suckler discussion group and are interested in joining one of these new Project Breeding Groups in 2011 you should contact your Teagasc adviser or local office or attend one of the breeding farm walks that will be held in April to promote them

FARMERFOCUS

Hitting the targets in Co Waterford



FARMING near Clashmore in Co Waterford, JJ O'Neill is a member of his local Suckler Discussion Group run by Teagasc adviser Mark Slattery.

JJ has a 50-cow spring calving suckler herd. The bull calves are sold as steers at 14 to 15 months of age in May, at 450kg having been fed very little meal.

Most of the heifers are put in calf to be sold at the point of calving at 22 months of age. The heifers that do not go in calf are finished at 20 months.

The average calving interval on the O'Neill farm for the last three years was 354 days and the average number of calves per cow per year was exactly one for the same period.

Calving starts in early February and

“ I find the main advantage of having such a compact calving is that I have a very uniform bunch of calves all the way through to sale

ends in April. In 2010, of the 50 cows calved, 43 calved in February and March. He expects a similar calving pattern this year or better.

The bulls went in on 1 May in 2010 and when he scanned the cows and heifers at the end of July they were all in calf for at least 30 days at that stage.

JJ only vaccinates at the moment for BVD as he has not had any reason yet to vaccinate for other diseases.

He has been using a Saler bull for a number of years with most of his cows now half-bred Salers. He uses an easy-calving stabiliser bull on his heifers.

“I find the main advantage of having such a compact calving is that I have a very uniform bunch of calves all the way through to sale,” said JJ. “Also, I can concentrate a lot more on the calving by having most of it done in two months. At the moment I have four individual calving pens and one group pen for putting them in for a short while after calving. With so many calving together, we would like to have more individual pens.”

JJ aims to get stock turned out to grass as early as possible. With compact calving in February and March, he can turn out cows and calves as soon as he has grass and the weather allows, which is usually in late February/early March.

The lessons that have been learned from this whole process will be used within the Project Breeding Groups at an early stage.

Compacting the calving into a 12-week period is one of the key breeding targets.

There are many advantages to doing this and all of them help to increase a suckler herd's profitability. The closer your calves are born together:

- The more focused you will be at calving
- The more ruthlessly you can cull late calvers
- The less groups of stock on the farm, allowing for better grassland management
- The easier are dosing, meal feeding, weaning, etc
- The more uniform they will be at weaning, which means they can be targeted for sale together.

The overall aim of the Project Breeding Groups will be to:

- Tighten the calving spread
- Reduce the calving interval
- Reduce calf deaths
- Increase the number of calves per cow per year.



Ella, JJ and Darragh O'Neill, and Mark Slattery, Teagasc Dungarvan adviser.

drystock

Sheep prospects are bright

Farmers can boost their incomes by expanding prudently and focusing on grass



John J. Cannon
Business and
Technology Adviser,
Letterkenny

THE DAFF Food Harvest 2020 report, published in 2010, sets out a target increase of 20% in sheep output by 2020. But sheep numbers in Ireland and the rest of Europe are low at present and Bord Bia recently predicted that European sheep supplies would not recover for the next few years.

Storms in New Zealand during August and September 2010 may have resulted in a loss of one million lambs out of a total production of 18 million.

Even if the average carcaseweight of lambs were to increase by 2% and consumption was to decrease slightly, the outlook for the industry is positive, provided that consumers do not switch to other, cheaper sources of protein.

SHEEP | key points

- Sheep farmers have been reducing ewe numbers for a decade prior to 2009. This trend should now be reversed.
- For the foreseeable future, livestock production in Ireland must be predominantly grass-based, with strategic use of meals/concentrates at critical times, such as the six weeks prior to lambing.
- Sheep farmers can increase their incomes and help Ireland's recovery with increased exports of lamb by adopting the steps outlined and gradually increasing numbers over the next few years.
- Lambing date should coincide with grass growth (begin 10 to 17 March) with land rested for 120 days prior to that. Therefore, some land should be rested from late October or early November with additional land closed in mid-November and the re-

mainder closed in late November or early December.

- Close off one hectare per 10 ewes. Slurry at the rate of 13 to 18 cubic metres per hectare (1,500 to 2,000 gallons per acre) or 30 kgs. of nitrogen per hectare (24 units per acre) should be applied in February or early March whenever ground conditions allow.
- Graze the sward tightly during late May and June to ensure good grass quality during July and August. Ewe flocks should be based on the prolific maternal breeds, with rams from performance recorded terminal sire breeds used to produce the 'factory' or butchers lamb.
- Follow the data coming from the Teagasc BetterFarm sheep programme. It is there to bridge the gap between research and the experiences of individual farmers.



Current margins in sheep

The 2009 Teagasc e-Profit Monitor analysis data showed a wide variation in the margins achieved by sheep farmers. *Table 1* summarises the results from 98 farms on a per ewe mated basis. The results are divided into: top third, average and bottom third on the basis of

gross margin per ewe. Gross margin is the best way to compare sheep and cattle enterprises as it eliminates distortions caused by fixed costs such as depreciation of buildings and machinery, car, telephone and electricity charges, etc.

In calculating gross margin, the main variable costs are: purchased feed, fertilizer, veterinary and other variable costs, as shown in *Table 2*. Gross margin excludes premia, REPS and DAS payments.

The main thing to take from this data, apart from the variation, is that even with a weaning rate of 1.53 lambs weaned per ewe mated and relative poor lamb prices during 2009, it was possible to have a gross margin of €71 per ewe or €679 per hectare, as shown in *Table 3*.

While there was little difference in the bottom two thirds of producers, there was a significant difference in favour of sheep in the top third. They had a gross margin that was €108 per hectare higher than their suckler beef farm counterparts.

Preliminary results from the 2010 e-Profit Monitor farms point to gross margins of over €90 per ewe or €900 per hectare on many of the farms in the top third category. This was due to the better prices obtained for factory lambs



Table 1 | Per ewe to the ram analysis 2009 (98 farms)

	Top 1/3	Average	Bottom 1/3
Lambs reared per ewe mated	1.53	1.47	1.40
Financial Performance €/Ewe			
Gross output	121	101	74
Variable Costs	50	59	66
Gross Margin	71	42	8

Teagasc e-Profit Monitor 2009

Table 2 | Major costs per ewe to ram 2009 (98 farms)

	Top 1/3	Average	Bottom 1/3
Total Variable Costs (€/Ewe)			
(of which)			
50	59	66	
Purchased Feed	16	21	26
Fertiliser	10	11	11
Veterinary	9	10	10
Contractor	7	9	12
Other	8	8	16

Teagasc e-Profit Monitor 2009

Table 3 | Lowland sheep and suckling compared (2009)

	Top 1/3	Average	Bottom 1/3
Gross Margin - €/Hectare			
Sheep Gross Margin - €/Hectare	679	335	46
Suckling Farms Gross Margin /ha	571	313	24

Teagasc e-Profit Monitor 2009

Table 4 | Key targets for hill flocks

Litter size	1.3 lambs per ewe
Barren ewes	2%
Weaning %	1.1 lambs reared per ewe mated

The 2009 e-Profit Monitor results showed a gross margin of €24 per ewe with a figure of €30+ per ewe anticipated in the 2010 results.



MAIN PICTURE: Two things to aim for in early April — a nice grass cover and two lambs going to the field with most ewes.

ABOVE: Good information is a very important asset. Linda and David McLaughlin, Greencastle, weighing a new-born lamb as part of the Teagasc BetterFarm Sheep Programme.

during 2010. However, this shows that the target gross margin of €1,000 per hectare is much more achievable with a sheep enterprise than with beef sucklers.

Can these targets be achieved?

Lowland sheep farmers should target a weaning rate of 1.6 lambs reared per ewe mated. Many of you reading this will have scanned results of 1.9 lambs per ewe mated or better. If you allow 15% for losses from scanning to weaning, it will still leave you with over 1.6 lambs reared per ewe mated. So this is a realistic goal.

Hill sheep

Research evidence from the Teagasc Research Farm at Leenane and data from the three Teagasc hill sheep BetterFarms in Donegal, Sligo and Mayo, points to the need for every farmer to have a plan with key dates and a management plan set out. These include:

- **Lambing date** — starting in early April.
- **Grass at lambing** — resting ground for 120 days prior to lambing.
- **Feeding** — and management during late pregnancy.
- **A grazing plan** — for example, ewes with single male lambs and ewes with twins being kept on greenland until

weaning. The hill or mountain being used for ewes in mid-pregnancy, for ewes with single ewe lambs from mid-May to weaning and for ewes post-weaning.

- **A selling strategy for male lambs** — as stores or finished, depends on the amount of greenland available.
- **The use of cross breeding** — to produce more saleable stock and prolific ewe lambs.
- Other key aspects include grass grazing height, body condition, disease control, etc.

“ Livestock production in Ireland must be predominantly grass-based, with strategic use of meals/ concentrates at critical times, such as the six weeks prior to lambing

tillage

Spring cereal weed control



Tim O'Donovan,
Tillage specialist

THANKFULLY, there is great optimism among tillage farmers for 2011. The harvest of 2010 proves the degree to which the weather and climate dictates just how much (or little) profit is in tillage farming. While we enjoyed fine weather during the harvest improving quality, reducing costs and, most importantly, raising spirits, it was a series of adverse weather events across the globe that caused grain prices to rise.

With higher potential margins, there is always the tendency to apply a little more, just to be sure. Applying too much nitrogen, for example, may lead to other problems such as lodging and more disease as well as being wasteful, whereas for inputs like phosphorus and potassium, you can use your 'reserves' in future years should you need to.

I like to think that weed control is an input that will pay dividends in future years. The old adage 'One year's seeding is seven years weeding' is very much true today even with an excellent array of herbicides to choose from. However, a word of caution — higher than required levels of herbicide has reduced yields in British and Irish trials, especially if the crop is stressed.

Weed control budget

Table 1 shows real data from growers (with spring barley on their farms) who completed a Teagasc Profit Monitor in 2008 and 2009. The Teagasc target figure for weed control in spring barley is €45/ha.

Where weeds are numerous and yield robbing, Teagasc trials found that the response to herbicides was up to 1.0t/ha and at €150/t for grain, the return on money spent is 3:1. Further returns



Weed control is an input that will pay dividends in future years.

Table 1 | Teagasc €Profit Monitor Data

Crop: Spring Barley	Average 2008 & 2009 (58 farms)
Average herbicide spend (euro/ha)	50
Range (euro/ha)	22-104

would be expected for ease of harvest (especially in difficult situations) and quality bonus. However, some trials show that in competitive crops, high rates of herbicides can reduce yields (by up to 0.3t/ha).

Difficult weeds such as wild oats, thistles, canary grass, etc, are increasing every year. There is a strong case this year to speak to your adviser and have a strategy for these difficult weeds. This will more than likely mean a higher spend than your target figure but you will reap the benefits in future years.

Effect of weeds in spring crops

Weed type, size and vigour of the cereal

crop play a major part in determining yield response to weed pressures. Yield increases from herbicide use have not always been significant in Teagasc trials or elsewhere. However, other factors such as ease of harvest and general seed quality are often as important as yield in determining margins. Low ground lying weeds (e.g. Speedwells, Pansy, etc) may not be especially yield robbing but can make for a difficult harvest and also will increase moisture content.

Reduced rates

The timing of weed control and product selection is very important, especially when using reduced rates. In Oak Park

Spring oilseed rape

John Spink, Teagasc Oak Park

With forward prices of around €400/t available at harvest, spring oilseed rape looks a tempting option compared with some of the spring cropping alternatives. When the likely increased yield of the following cereal are considered, it becomes even more tempting.

Grown on a small acreage compared with the winter crop there is relatively little research carried out on spring oilseed rape either in Ireland or elsewhere in Western Europe. However, some of the more basic research carried out on the winter crop can be read across to the spring crop.

British research has fairly well established that if the winter oilseed rape crop is going to perform poorly it is more often than not because the crop is too thick, with too many flowers and pods. The winter crop has from emergence in late August or early September through to April to form flower buds, up to eight months. In contrast, the spring crop might have less than eight weeks. Commonly, therefore, the spring crop will perform poorly because it produces too few buds and flowers and, consequently, too few seeds.

To maximise the output of the crop, it is essential to get the crop away to a strong start and ensure that early season growth is not hindered. Put up to 50kgN/ha in the seedbed and the remainder between two true leaves and early stem extension, but don't allow the crop to go hungry before the second dressing is applied. Oilseed rape also responds well to sulphur and a minimum of 25kgS/ha should be applied with at least some, if not all, in the first dressing.

The spring crop is particularly sensitive to damage by pollen beetle because before the flower buds open, the beetles will burrow into unopened buds leaving them sterile, and as outlined earlier, the crop needs all the flowers and pods it can produce. It is also prone to very high infestations of pollen beetles, particularly if there is a large area of winter oilseed rape close by, which they will fly out of as it finishes flowering and descend on any spring crop in the area.

The increased sensitivity of the spring crop compared with the winter crop means the spray threshold is only three beetles per plant in the spring crop compared with 15 in the winter crop. The greatest risk period is around green to yellow bud stage with the risk of damage decreasing as flowering progresses.

With careful management and if the crop gets a good start, spring oilseed rape crop can easily produce over 3.5 t/ha. If a proportion is sold forward while prices are good, it is worth serious consideration this spring.

“ Carefully minded, the crop can yield excellent returns



trials, reduced rates gave effective weed control when timed early (at start of tilling) rather than late (flag leaf).

Research has also shown that the weather before spraying (three to four days) is more critical than the weather after spraying. Basically, the uptake of herbicides is critical for good weed control and this is influenced by the cutin (skin) on the weed leaf. Kind, growthy conditions with some moisture in the soil will encourage the weed leaf to take up more of the chemical that is sprayed onto it. If you have cold, dry conditions then either wait (don't let the weeds get too big!) or use the newer sulfonylurea (SU) mixes which act better under difficult conditions.

Weed control strategies

The basic principal of weed control is to knock the weeds back enough to allow the crop get ahead and smother them out. Control of weeds in spring cereals begins by looking at last year's field-book and noting what weeds were prominent

in the field. Growers should not rely solely on herbicides to solve every weed problem and the principles of good weed control should be followed to reduce the challenge placed on herbicides.

- Identify all weeds at cotyledon stage and think back on weeds that were not well controlled in the past.
- Select a SU herbicide that has a good rating against the four or five most common weeds in the field (*Table 1*). It is equally important to identify weeds that the chosen herbicide is not good at controlling as it is often necessary to add another herbicide (CMPP, MCPA, etc) to control those weeds. In most cases, the addition of a hormone type spray will give a better overall weed control.
- Spray early at the three to five-leaf stage for successful weed control in spring cereals. This is particularly important with undersown crops.
- In some cases, a follow-up herbicide may be necessary if late germinating weeds come through such as volunteer potatoes, thistle, sow thistle, etc.

Diversification

Carefully considered diversification can help farm families facing income challenges

David Meredith, Kevin Heanue, Maria Heneghan and Cathal O'Donoghue, Teagasc Athenry

In 2011, farm households face a range of financial pressures brought about by, on the one hand, changes in the availability of off-farm employment and, on the other hand, changes in agricultural policy. Following decoupling of farm support payments from production the National Farm Survey found that farm households, on average, spent €5,141 of direct payments per year covering farm related costs.

While 'cross subsidising' farming in this way might not be economically rational it is possible that, for some farm households, the cost was one worth paying in order to preserve family farming traditions. It is likely that this subsidisation was made possible in many instances by the presence of off-farm income. Working off-farm is the most popular form of farm diversification in Ireland. In 2009, more than half of all farmers or their spouses held an off-farm job. The wages from this work accounted for 81% of household income on part-time farms and 38% on full-time farms.

With the on-going economic crisis, off-farm employment is increasingly difficult to find, the number of jobs in key sectors including construction and commerce have fallen substantially and wages, in general, have also declined.

Options

When these developments are combined with increasing volatility of farm incomes and uncertainty regarding the exact nature of Single Farm Payments post 2013, it is clear that farm households

“ If developing an enterprise, it is vital to produce a good or service that the market wants and be prepared to react if the market changes

in Ireland face considerable income challenges. Recognising these issues, Teagasc aims to assist farm households in exploring the best means of securing their immediate and future income needs through the Options Programme.

Available free through the Teagasc advisory service, Options works with farm households to assess their current situation and evaluate what steps might be undertaken to sustain the farm business into the future.

The programme takes a realistic look at the financial situation confronting the household by establishing the level of income generated from farm activities and off-farm employment.

The costs of running the farm enterprise and household living expenses are then assessed with regard to, firstly, the income situation and, secondly, future income needs which might revolve around making allowance for pension savings or sending children to college. Teagasc has developed a 'Household Budget Calculator' which is available through its website. This calculator lets farm households track where the money goes every month, which is the first step in assessing the current situation.

The assessment of the amount of money coming in and going out is used to establish whether the household's needs and expectations, in terms of income, quality of life and the future of the farm business, can be met.

The farm household drives this part of the process; after all, only they can determine their future goal(s). In instances where the income coming from the farm and other sources is insufficient, the programme moves on to identify suitable and viable strategies for generating additional income or those ways that quality of life can be enhanced.

This could involve measures designed to reduce farm costs or increase the potential to secure off-farm employment through training or education.

Options seminars

In late 2010 and early 2011, Teagasc organised a series of 11 seminars that were attended by over 1,600 people. Each seminar followed a similar format with the current economic situation and trends in farm income covered before an assessment of the challenges and opportunities associated with on-farm diver-



sification were considered. This was followed by a presentation from somebody who has successfully diversified their farm enterprise. Examples included the development of conference and team-building facilities as part of a dairy enterprise in Co Wicklow; the production of organic burgers and direct sales at cultural events in Co Offaly; the development of farm-based tourism in Co Westmeath and the provision of sheep shearing services in Co Kildare.

Each of the entrepreneurs who spoke at the event had developed very different types of businesses but they highlighted a number of common issues. Other organisations that can assist farmers with funding or training such as LEADER companies, the local VEC, FÁS and local banks were also present at the seminars at Teagasc's invitation, to provide information and advice.

Strengths

The potential of farm households to diversify was stressed by all entrepreneurs:

- Farm households, in general, have good business acumen.
- Farm households think long-term and strategically.
- Farm households are multi-skilled (they deal with everything from animal husbandry to administration).
- Farm households have access to personal and community supports.

Seminar & information evenings

TEAGASC plans to hold more events over the coming months that will, alongside the Options Programme, provide support for farmers and farm households that are considering diversification.

These events include a seminar with the Department of Community, Equality and Gaeltacht Affairs and Local Development Companies (LEADER) to discuss the potential for farm diversification.

Horse Sport Ireland

More immediately, Teagasc, in conjunction with Horse Sport Ireland will be holding regional information evenings, see below for times and locations, for persons interested in developing businesses in the Sport Horse Sector.

Attendance of these events is free of charge.

7 March	Sligo Park Hotel, Sligo, Co Sligo
8 March	Ardboyne Hotel, Navan, Co Meath

KEY POINTS | diversification

- Farm families can benefit by calculating how their existing income meets current and anticipated future income needs.
- Farmers should critically examine the performance and potential of the farming business before launching an additional farm-related enterprise.
- Diversification should not be seen as an easy option. However, farm families have key strengths to draw upon such as the availability of assets and an entrepreneurial outlook, if considering diversification.
- If developing an enterprise, it is vital to produce a good or service that the market wants and be prepared to react if the market changes.
- Additional skills or education can greatly enhance the prospects for success.



Launching the nationwide series of Teagasc Options Seminars for farmers at the Orchard Conference Centre on the farm of Joe Hayden, Co Wicklow (from left) were: Joe Hayden, Tinahely; Maria Heneghan, Teagasc; Prof Gerry Boyle, Teagasc director; John Keating, Wicklow / Carlow / Wexford advisory area manager and Dr Cathal O'Donoghue, Teagasc.

- Farm households understand regulatory frameworks.
- Farm households have valuable assets.
- Farm households tend to have low borrowings.

Challenges

The development of diversified farm activities is not without challenges. The entrepreneurs stressed that a number of issues presented significant obstacles to the development of new business ideas. Some of these include:

- Raising the capital to develop the new business.
- Raising sufficient capital to meet matched funding requirements.
- Overcoming the risk attached to a new venture, particularly, the impact it could have on the continued viability of the farm enterprise.
- Lack of information on available financial and other supports.
- Uncertainty concerning effect of regulations.
- Lack of time to develop new enterprises.

Depending on the type of business being developed, the mix of challenges differed. For some, raising capital was critical while, for others, this was not as significant an issue. All entrepreneurs stressed two points: the need to be flexible in developing the business and the importance of training and education.

Flexibility relates to how the product

or service offered by the business is developed on an on-going basis. None of the entrepreneurs presented a 'simple' story of how their business developed. While they all had a single, clear idea of what they wanted to do, how they went about achieving this changed over time. For example, Sean and Orla Clancy (Clanwood Farm and The Organic Kitchen) started with the idea of making soups and selling them in local shops but they have since developed the business though the production and direct selling of organic burgers. In this case, flexibility involves taking the feedback from customers on how to improve their product or service or looking at ways to develop what they are doing, e.g. adding more products to their offering.

The contributors to the seminars emphasised the need to develop key skills as part of the business development process. It is not simply a case of taking a training course but, also, of thinking strategically about what skills are required to develop the business idea. It is common to find examples of individuals who did not have much formal education engaging in basic training courses.

They build on these by taking more advanced or specific training to develop a specific, skillset which allowed them to, initially, secure off-farm employment and, ultimately, establish their own business. The central point to all of the contributions on training and education is that it is an on going process.

Fertilizer value of dairy soiled water

With high and unstable fertilizer N prices, soiled water offers a substitute for fertilizer N that can cut costs and reduce environmental impacts in a win-win scenario, write **Denis Minogue, Paul Murphy and Andy Boland**, Teagasc Moorepark

LOW cost, high return substitutes for fertilizer N can help decrease fertilizer N use, offering cost savings to farmers and reducing environmental impacts.

One such substitute that is widely available on dairy farms is soiled water. Dairy soiled water is a dilute mixture of dung, urine, spilt milk and detergents. It contains nutrients such as N, P and K that can be used as a fertilizer to increase grass yield. However, soiled water is often seen as a problem rather than an opportunity and is often applied to land as a waste, without trying to get the most out of it as a fertilizer.

Nutrient content of soiled water

At present, there is a lack of knowledge on the quantities of dairy soiled water produced in Ireland and its nutrient content. As part of a research programme funded by the Research Stimulus Fund of DAFD, the volumes of soiled water produced and their nutrient content were measured on 60 dairy farms over a 12-month period. Approximately 10,000 litres (10m³) of soiled water were produced per cow per year. On average, this contained around 590mg/l N (0.6kg/m³). For comparison, cattle slurry is assumed to have a N content of 5kg/m³.

Roughly a third of the N in soiled water is rapidly plant-available ammonium-N and the balance is mostly organic N. This organic N would probably not be immediately plant-available but can become available over a growing season following mineralisation.

Soiled water also contains significant

“ Soiled water applied at 22kg N per ha could replace 17kg N per ha of CAN fertilizer, while maintaining the same grass production

quantities of P and K. The average P content of soiled water was 80mg/l and the K content was 570mg/l. Therefore, soiled water can also meet some of the P and K requirements on farm. A 100-cow farm might produce 1,000m³ annually, supplying around 600kg of N, 570kg of K and 80kg of P.

Fertilizer replacement value

So dairy soiled water contains significant quantities of N, but is it effective as a fertilizer to increase grass yield? And how much soiled water is needed to replace a given amount of fertilizer N?

To answer these questions, plot experiments were carried out as part of the research programme with soiled water and fertilizer N (CAN) applied at different rates to two different soils (poorly drained and well drained).

On average, soiled water applied during the growing season (February to September) gave 80% of the grass DM yield response of CAN applied at the same level of total N content. Soiled water applied at 22kg N per ha could replace 17kg N per ha of CAN fertilizer, while maintaining the same grass production.

Assuming a CAN fertilizer cost of €330 a tonne, this would amount to a potential cost saving of €20 per ha for each application. The 600kg of N in soiled water produced on a dairy farm of 100 cows could replace 480kg of fertilizer N, or 1.7 tonnes of CAN. Assuming 100% availability of K and P, this soiled water could replace 570kg of K and 80kg of P.

Assuming costs of €450 a tonne for muriate of potash (50%) and €425 a tonne for superphosphate (16%), this gives cost savings of €575 per year in N, €513 in K and €212 in P — a total cost saving of €1,300 per year.

Soiled water had a high N fertilizer replacement value on both a well-drained acid brown earth soil and a poorly drained gley soil, so soiled water should have a high N fertilizer replacement value across a range of soils.

Soiled water also maintains high replacement values through the summer



and autumn. In contrast, slurry has typically been found to have a replacement value of only 15% to 50%, decreasing through the growing season. What makes soiled water a more effective substitute for fertilizer N? Soiled water is more dilute than slurry and infiltrates better into the soil. This means that less N is lost as ammonia emitted to the air and that N is delivered effectively to the grass roots.

Roughly two thirds of the N in soiled water is in the organic form and not immediately available to plants. It was surprising, then, to find such high N fertilizer replacement values. This may be because soiled water spreads N more evenly compared with fertilizer pellets, which concentrate N in the area around the fertilizer pellet. Soiled water delivers N to a larger area of the sward. Soiled water application may also cause additional plant-available N to be released from the soil.

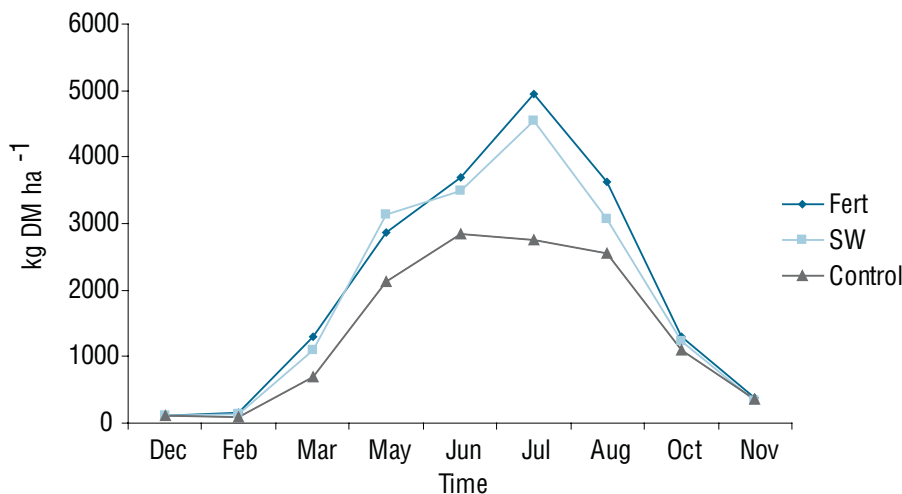
Strategies to maximise value

The best yield response to both soiled water and fertilizer N can be got from May to August — the time of peak grass growth potential and N requirement. To get the most out of the N in soiled water, it should be applied during this period. This is also a period when soil moisture deficits and water stress can become an issue and soiled water can be used to al-



Denis Minogue and Paul Murphy at the soiled water lagoon, Teagasc Moorepark.

Grass yield response to soiled water and fertilizer N (CAN)



leviate that.

Because two thirds of the N in soiled water is in the organic form and not immediately available to plants, it is better to apply soiled water early in the growing season so that this organic N can be mineralised and become available to the grass over the growing season. If you have the capacity to store soiled water through the winter period for application in the spring or early summer, in a clay or plastic-lined lagoon, for example,

this can help you get the most out of the N in your soiled water.

Rates of application are limited by the Nitrates Regulations to 50,000 l/ha (4,500 gallons/acre or 5mm with an irrigator) every six weeks. This amounts to roughly 30kg N/ha. In this experiment, soiled water was applied at 15, 22 and 30kg N/ha but there was little difference in yield between the two higher rates. Application at approximately 20kg N/ha (approximately 30,000 l/ha or 2,700 gal-

lons/acre) may be optimum. At present, most dairy farmers use a vacuum tanker to spread their soiled water. A pump and irrigation system or an umbilical system can save on spreading costs and time.

If fertilizer N is to be applied to a paddock in the same rotation, we recommend applying soiled water before the fertilizer N. This is to avoid the risk of leaching of N from the fertilizer when soiled water is applied.

Care should be taken to avoid over-application of P and K, which can have environmental and herd health impacts (e.g. milk fever, grass tetany). As always, the correct balance of nutrient supply is needed. In recent years, P and K fertilizer usage has decreased markedly and high N (low P and K) compounds such as 27-2.5-5 NPK have come to dominate, causing concerns about P and K deficiencies. The NPK mix of soiled water is a more balanced 15-2-14, close to an 18-2.5-14 compound fertilizer.

The composition of soiled water on dairy farms varies a lot. This presents a challenge for effective nutrient management. We recommend sampling and analysing your soiled water to get an idea of its N content. When sampling the soiled water tank, it is important to sample from the liquid part and not the crust at the surface or the sediment at the bottom.

Nature's treasure trove

Very elderly trees are beautiful and are often at the core of incredibly rich habitats

Dorothy Hayden, Teagasc College,
National Botanic Gardens

TREES are an integral part of the Irish countryside and contribute enormously to the scenic quality of our landscape. While we might sometimes be guilty of taking them for granted, our ancestors had great regard for the value of their trees, as they relied on them for many of the necessities of life.

Some trees can survive well beyond their expected normal lifespan and these relicts of the past can serve as a reminder of a time and a way of life long since gone.

Here in Ireland, we have an impressive array of these older trees though, sadly, not nearly as many as our nearest neighbour. We do, however, have more veteran ash trees than any other western country. Many of these trees have wonderful associations with our cultural and historical heritage, including treachery and commemoration, while others have been revered as places of pilgrimage for generations.

These trees and their stories have been compiled by the Tree Council of Ireland and recorded in the Heritage Trees Register, available on the Tree Council website, www.treecouncil.ie. Log on and feast your eyes on the spectacular images.

Older trees and also those displaying interesting features such as water filled depressions, hollows, decayed wood, loose bark, sap runs and broken branch stubs are very important for the environment. The decay process is an entirely natural phenomenon in the cycle of a tree's life and fungi play a vital role in recycling wood.

The specific conditions found in these trees, provides a unique habitat for a wide range of insects, fungi, lichens and bryophytes, many of them rare or threatened.

The many holes and crevices provide valuable roost/nesting sites for bats and birds, especially now that modern buildings and plastic fascia boards exclude them from their former haunts.

These trees can range from large majestic specimens to squat hollowed out bowls, a mere shell of their former glory! Some can be seen in prominent locations throughout the country, while others may be out of sight and could be easily forgotten about. So, could you have any of this hidden treasure on your land? If so, the Tree Council would love to hear from you. They can be contacted

through the website www.treecouncil.ie or at Seismograph House, Rathfarnham, Dublin 14.

"Many of these trees have cultural significance," adds Gerry Douglas, a researcher on the genetic importance and conservation of trees at Teagasc Kinsealy. "Some have gruesome associations as 'hanging trees' or were planted by notable individuals such as Bishop Bidel's tree in Cavan. However, they are perhaps most important because they are the last survivors of their generation — their brother and sister trees have not survived.

"They are a link to the past and are closer to the original flora of the island than more recently planted trees. Despite their age, these very elderly trees are often capable of yielding viable seed or cuttings."

Older trees are very vulnerable to damage and are extremely sensitive to changes in their environment. However, it is not difficult or expensive to manage these trees in order to provide maximum environmental benefits, as the management tips below demonstrate. Awareness is the first step towards preserving this precious legacy. In the case of long lived trees such as oak and yew, we are mere custodians, looking after them for a brief period in their history, so let's give them a sporting chance!

- A key point is to avoid any drastic changes to the tree or its immediate surroundings.
- Resist the temptation to tidy up the tree by removing deadwood or large quantities of the natural vegetation growing on or in its structure.
- Where trees have to be reduced in height for longevity or public safety, leave the lower branches intact, as the tree depends on them for continuing survival.
- It is important to retain, where possible, both standing and fallen deadwood to support the needs of invertebrates and fungi. Larger pieces are more valuable and to maximise their value to the site, place in both shaded and sunny situations.
- In the absence of any appreciable quantity of deadwood, it can be brought in from a neighbouring area. Once established and colonised, do not remove or disturb, as this would disrupt the new inhabitants!
- Ground compaction caused by animals, machinery or soil stockpiling, particularly underneath the tree's canopy, should be avoided. Strategically-placed boulders can sometimes serve as a useful deterrent. This will also avoid the trees being used as scratching posts or nibbling of the bark.
- Locate drinking troughs and mineral licks far away from trees.
- A protection zone of 15 times the diameter of the tree or 5m beyond the canopy should be sufficient to avoid disruption to the habitat. However, where fencing is not a practical option, reduced stocking rates and or restricted time for animals in that field, would be helpful.
- Avoid ground cultivation close to trees.
- Normal agricultural practices such as the application of slurry/fertilizers, lime and pesticides are highly damaging to epiphytes and mycorrhizal associations and should be avoided in the vicinity of older trees.
- Lichen growth is hampered by excessive shading, so self-seeded fast growing trees should be removed swiftly before they impact negatively on the older trees environment. However, where





LEFT & ABOVE: William and Mark with their magnificent elm.

Last one standing

WILLIAM and Mark Young contacted the Tree Council about five years ago to bring their attention to a quite unique elm tree growing on their farm at Kilcarrig near Bagenalstown, Co Carlow. “We’ve lost 50 or 60 trees to Dutch elm disease but we have one mature tree which survived,” says Mark. “We’re told that other elm trees have survived in coastal areas but this is cer-

tainly one of the largest elms to survive inland.

As beef and sheep farmers, and members of REPS, the Youngs are enthusiastic tree planters but don’t plant elms. “Dutch elm disease is still around and kills off the trees when they reach 12 to 15 feet,” says their Teagasc adviser Hugh Mahon. “That proves the Young’s big elm tree really is something special.”

Beautiful beech

WHEN John Salmon’s grandfather bought a farm at Gort na Mona near Ballinasloe, east Galway, in 1909, he acquired some of Ireland’s greatest tree heritage.

Percy French, who had stayed on the farm in the early 1900s was inspired to write the song ‘Gort na Mona’ about the forest on the farm.

The farm is also host to some individual extraordinary trees planted more than 300 years ago.

“We have been told our copper beech is the largest of its type in private hands in the country,” says John Salmon who farms beef and sucklers amid the majestic parkland trees.

A number of trees are so significant they have preservation orders and are measured each year to record their growth and size for posterity.

The trees are in no danger on this farm. “We’ve no plans to fell trees,” says John.

“Unless they are unsafe, we are happy to see them reach their natural lifespan.”



John Salmon and daughter, Niamh, with a majestic beech — one of the oldest of its type in Ireland.

trees have been subjected to shade for a long period, this must be done very gradually over a period of years and preferably with specialist advice.

- Avoid isolating older trees from one another by vegetation clearance or physical barriers and, where possible, try to join up areas containing other specimens.

- Plant nectar bearing native plants such as hawthorn, blackthorn, rowan, guelder rose and holly close by as alternative sources of food for insects living in the trees. Interestingly, ragwort, thistle, bramble and hogweed provide an abundance of nectar!

- Where there are no natural successors on site to these older trees, it is important that seed is collected and plants propagated for future planting.

The author would like to thank Aubrey Fennell for his help in locating and selecting suitable Heritage Trees for inclusion in this article.

O'Moore County rich in forestry



Liam Kelly,
Forestry
Development Officer

LAOIS has a long history of forest production and a strong timber industry, both in harvesting and sawmilling. The county has over 14.31% planted in forestry, covering over 24,600ha.

The private sector accounts for slightly over a third (approximately 8,640 ha). Since 1990, over 5,700ha have been planted by farm foresters involving over 300 growers (Forest Service data, 2008).

It was against this backdrop that Teagasc/Laois IFA and some local forest growers got together in early 2009 to discuss forming a forest growers group. Teagasc has helped to facilitate the group and the provision of facilities for all meetings to date.

To retain a common interest, all growers who had planted prior to 2002 were invited to a meeting to discuss the formation of a group. As with all similar groups (18 nationwide at this stage) the main emphasis was on good crop management and encouraging forest thinning wherever appropriate.

The forest growers in Laois showed a keen interest and a steering committee

“ Full report available from LFFG committee or on the Teagasc website as a download on www.teagasc.ie/forestry

of 12 was set up to push the group forward. On consensus from the main group, it was decided to proceed as a discussion group initially and to:

- Educate the members in forest management (field days, meetings, courses).
- Carry out a study on the private forest resource in the county.

The LFFG committee approached the Laois Partnership Company (local Leader Group) to see what funding might be available for such a study. It was identified that there would be 75% funding available for a resource study that could identify opportunities for adding value to the county's forest estate. The objectives of the study were to:

- Produce a quantitative and qualitative timber production forecast for private farm forests in Co Laois over the period 2010 to 2020.
- Identify the suitability of farm forests in



ABOVE: At the launch of the Laois Farm Forestry Group Resource Study (from left): James Bennett, chairman LFFG, Donal Magner, forestry correspondent Irish Farmers Journal, Anne Goodwin, Laois Partnership Company, Nuala Ni Fhlatharta, head of Teagasc forestry development department, Andy Dunne, LFFG, Pat Hennessy, IFA (LFFG), and Mark Tartleton, PTR consultants.

Co Laois to supply thinnings/other timber products in the period 2010 to 2020, in terms of location, access, scope to cluster and forest owners' intentions.

- Ascertain the suitability of Laois woodland sites for recreation and lei-

Summary of survey results

Based on sites planted prior to 2003:

- There were 5,250ha planted by the farm forest sector.
- Coniferous plantations account for 82% of plantations, with Sitka spruce the most popular.
- Average plantation size is 11.8ha, with 50% less than 7.4ha.
- Average yield class, is 21.2m³ for conifers and 8.8m³ for broadleaves.
- The potential average harvest from Laois forests is 37,000m³ for the next 10 years.
 - First and second thinnings will account for 28,000m³/year on average.
 - However, if thinning does not take place, the forecast will not be achieved.

- On average, over 29 conifer and 14 broadleaf plantations will reach first thinning each year.
- Thinning of farm forests has started, though on a limited basis to date.
- Forest roads will be a big necessity with only 28% of the sampled sites having sufficient access for thinning.
- Scale will also be a challenge in the future for the first thinning operation.
 - Conifer sites will produce 550m³ but only half will produce 330m³ or less.
 - Broadleaf sites will produce 65m³ from first thinning, but half will only produce 35m³ or less.
 - Clustering or adjoining forest owners coming together may increase scale

when marketing timber or a thinning operation.

- Most surveyed owners expressed a desire to thin their plantations, although their interaction with the forest industry has been limited so far.
 - There is a willingness to cluster/or co-operate among growers.
 - 10% of surveyed growers have considered a recreational facility on their woodland to boost income. Many had some form of recreation, such as game bird rearing, but income generating potential is poor.
 - Full report available from LFFG committee or on the Teagasc website as a download on www.teagasc.ie/forestry



have a committee structure with officers (chairperson, secretary, etc). The group should also keep a record of its meetings and minutes. The group should be able to show a valid reason for the study and what its benefit may be.

Once funding for the study is secured, a clear and transparent process (e.g. tender and interview process) will have to be prepared to get a suitably qualified person to carry out the study.

In all studies, an end date to complete the study should also be built in so that the project can be completed within an agreed timescale. Having periodic meetings with the committee and person carrying out the study is very important. Projects like this should be possible for most groups once there is a common objective for the study among the group. The benefits to the group and its members are many and varied, but it certainly provides great satisfaction among all concerned once completed.

- This study would not have been possible without the help of Teagasc, IFA, Laois Partnership Company, the 50 owners who participated in the study, the Forest Service and the co-operation of the LFFG its committee and PTR Forest Consultants, authors of the report.

sure activities and to gauge the level of interest among forest owners in diversifying into tourism and leisure enterprises.

- Prepare a report at the conclusion of the project for the Laois Farm Forestry Group based on the findings of these objectives.

Following a tendering and interview process, co-ordinated by the LFFG committee, PTR forestry consultants were awarded the contract to carry out the study. This involved visiting a sample 50 sites in the county and also collecting data from the Forest Service in relation to planting year, plantation and species area.

The study, which started in August 2010, was recently completed. The study findings were launched to over 70 attendees from both the farm forest sector and the industry in January 2011.

The study findings are a great source of information for the LFFG, as many of its future decisions will be based on this report. It highlighted many opportunities, such as the volume of timber forecast to come to market, but also various challenges that are ahead if timber forecasts are to be achieved

Many other groups are considering carrying out similar studies, especially in the midlands. As all studies require funding, it is important that you will be recognised by 'the local Leader group' to draw down funding.

The group must be set up and



Laois has a long history of forest production and a strong timber industry, both in harvesting and sawmilling. The county has over 14.31% planted in forestry, covering over 24,600ha



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Botanic Gardens

How does your garden grow?

Eileen Woodbyrne

THERE are as many styles of garden as there are gardeners, and it could be said that a garden betrays quite a lot about the person who tends it. Perhaps the most obvious clue is where the gardener stands on the 'tidy' scale.

Some are happy to let plants spread and tumble about all over the place, while others take a more disciplined approach and seek to 'put manners' on the inhabitants of the garden.

To a point, tidy is good. For example, when removing fallen leaves and other debris that could otherwise harbour pests such as slugs, but sometimes it is at the cost of spontaneity and even biodiversity. Lots of small organisms will appreciate the food and cover provided by some deadwood in a garden.

Sometimes allowing nature to have its head will produce interesting plant combinations that the gardener might not have considered (*main picture*). This association happened by accident.

The choice of plants also says a lot about the gardener: a sophisticated scheme with limited use of muted colours, or a crazy riot of vibrant clashing shades? As in any sphere of design, colour trends change. There is no better place to see this than in the garden shows. In some years, many of the exhibitors choose deep and sombre blacks and purples, while in other years the trend is more for pastels or 'hot' colours such as strong reds and yellows.

Trees

Gardeners who have the foresight to plant trees are doing so, in part, for the benefit of those who come after them. The ultimate glory and grandeur of the larger species will only be fully appreciated by the planter's children.

Other gardeners go for the more immediate 'hit' of annuals and perennials that can be moved and replaced according to whim and fashion.

Sometimes the gardener's ethos comes across in how the garden is managed.

A concern for the environment has led many people to begin composting, while a heightened interest in the origin of food and its associated 'food miles' means that many people — even in relatively small suburban plots — are growing their own vegetables and fruits and even raising chickens in their gardens.

Garden ornaments, furniture and sundry other bits and pieces also speak volumes about their owners, from the humble garden gnome (somewhat controversially banned from the prestigious Chelsea Flower Show) to the more sophisticated sculpture. Each to his own?



A lovely combination of Gypsophila (baby's breath, a familiar accompaniment to cut flowers) and Agapanthus (African lily).



An occasional series by experts at the Teagasc college at the National Botanic Gardens aimed at adding to the appearance and value of your farm



Borage the gnome — defiantly smuggled into a display at Chelsea two years ago! (London Evening Standard, 2009).



A well-placed piece of sculpture can add interest and character (Pictured in National Botanic Gardens).



Spring cleaning in the National Botanic Gardens.

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