

TEAGASC Today's farm

SEPTEMBER-OCTOBER 2011 VOLUME 22 NUMBER 5

Advice on business, production, environment, and countryside issues



Why cheese is sure to please

The many benefits of an eProfit Monitor 9

Superlevy: managing the risk 16

Managing autumn closing 20

Don't miss out on a College place 22

Beef Demo Farms 28

Keep an eye on your tree planting deadline 32

Thinking about winter barley? 36

Plus countering compaction, Botanic Gardens and more...



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4 Upcoming events

6 Etc

Farm Safety

8 Poster boy

Dairy

- 9 The many benefits of an eProfit Monitor
- 11 Cheese Glorious Cheese
- 16 Superlevy: managing the risk
- 18 Cows causing compaction
- 20 Managing autumn closing

Education

22 Don't miss out on a college place

Drainage

24 Look before you dig

Equine

25 Young Breeders Programme

Drystock

- 26 No ordinary flock
- 28 Beefing up the dairy enterprise

Forestry

31 Going native

Environment

32 Don't miss your tree planting deadline

Tillage

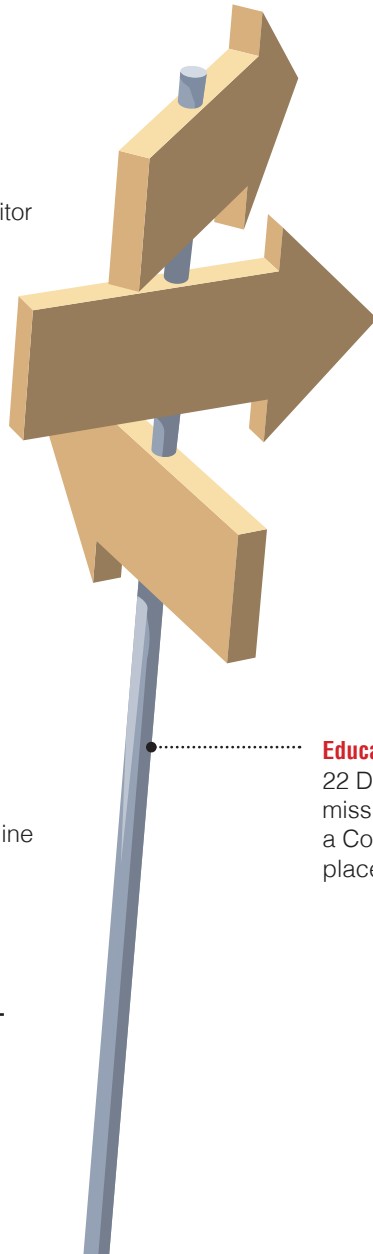
36 Thinking about winter barley?

Botanic Gardens

38 Be safe in the garden

Cover caption | While the majority of Ireland's cheese production will continue to be exported there is potential on the home market too. UK consumers average over 10kg per head per year against about 6kg/head here.

Picture courtesy of Bord Bia



Education
22 Don't miss out on a College place

COMMENT

Saying yes to cheese



Mark Moore
Editor,
Today's Farm

There's a cheese flavour to this edition of Today's farm. Tom Beresford describes everything from the history of cheese-making, to the highly positive prospects for cheese at a global level. In a separate article Frank Hynes reports on a farm in Clare producing cheese from ewe's milk.

Extraordinarily, cheese-making had all but died out in Ireland by the beginning of the 20th century but expanded rapidly after encouragement by the Department of Agriculture. It seems only logical that as a dairy nation we should continue to build our cheese-making expertise and develop further high value products.

At the top end of the market cheese is a luxury food delivering unmatched flavours and textures. Both large scale processors and niche suppliers can produce such cheeses. Farmhouse cheese production allows farmers to add value to their milk and generates rural employment. Tourism benefits as hotels and restaurants can offer unique local cheese.

Teagasc has over 50 years of experience in cheese research and is deeply involved in supporting both on-farm and industrial scale cheese makers with world-class technologies.

We are a long way behind France which boasts more than 400 cheese types. There's no reason why we shouldn't close the gap.

Is é Today's Farm an iris do chliaint 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 chlúdófar amach anseo beidh táirgeadh fuinnimh ar an bhfeirm, an fhoraoiseacht, an ghairneoireacht, srl. Agus beidh altanna ann ó thráth go chéile faoi chúrsaí feirmeoireachta thar lear freisin.

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upcoming events

TEAGASC EXHIBIT AT THE NATIONAL PLOUGHING CHAMPIONSHIPS 2011

**20, 21 and 22 September,
Athy, Co Kildare**

The theme for the Teagasc stand at the National Ploughing Championships this year is:

'Do you know your potential?'

The Government has laid out ambitious plans in the Food Harvest 2020 document targeting substantial increases in output for all farming enterprises. The document builds on evidence that virtually all farms have scope to increase profitably and sustainably increase their output. Teagasc Profit Monitor results show that there is a wide range of profitability between farms with virtually identical resources and similar farming conditions.

So, if you are interested in identifying just how well your business could be doing please visit the stand and speak directly with experts on each enterprise. The key to any kind of progress is to identify: Where am I now? Where do I want to get to? And How will I get there? By visiting the Teagasc stand, you will be able to find out what level of profitability is realistic in the short and medium term. Very often, dramatic increases in profit are possible by adjusting the management or the mix of enterprises on a farm.

In the medium term, it may be possible to radically improve the profitability of your business but this can only happen if you have a target to aim for and the belief that it is possible. If you wish, Teagasc experts present will discuss your own situation, in confidence, and at a strategic level. This discussion can be followed up with local advisers across your kitchen table.

Teagasc scientists will demonstrate the kind of technologies which are already boosting profits on-farm and will continue to increase output sustainably as we move towards 2020.

As always, the Teagasc stand will have specialists on the full range of Teagasc activities so education,

“ If you are interested in identifying how well your business could be doing, please visit the Teagasc stand at the Ploughing and speak with experts



horticulture, forestry, energy crops, etc, will be represented — potential doesn't only lie within the conventional beef, sheep, dairy and tillage enterprises! See you there!

NATIONAL TILLAGE CROPS FORUM

**7 September,
Keadeen Hotel, Newbridge, Co Kildare**

The Teagasc National Tillage Crops Forum is scheduled to take place on Wednesday, 7 September, at 2pm in The Keadeen Hotel, Newbridge, Co Kildare. At the forum, Raluca Rusu from DG Agriculture in the European Commission will discuss efforts by the European Union to give greater market transparency.

Teagasc food researcher, Eimear Gallagher will discuss ways of adding value to grain.

Odlums and Teagasc will also combine to exhibit new developments in bread making.

The Tillage Forum will feature two sessions, one on technology and margins with a second session on grain marketing. In the first session,

Barry O'Reilly from the Department of Agriculture, Fisheries and Food will outline the best varieties for winter wheat and barley for 2012 and will present recently harvested trial results.

Tim O'Donovan, Teagasc, will discuss what made 2011 a record year and will present a new easy to use computer analysis tool. Teagasc researcher Ritchie Hackett will look at the profitability of oilseed rape as it looks to be the break crop of choice now.

The session on grain marketing will be facilitated by Andy Doyle from the *Irish Farmers Journal*. Fintan Conway, IFA, will give the market outlook for the next year for grain, while speakers from the trade will indicate how to add value to grain. Speakers will include Tom Bryan, Boortmalt; Murtagh Mcwey, Glanbia; John Flahavan, Flahavan's Progress Oats Ltd; Eamon Lynch, Teagasc tillage crops adviser.

EBI DAIRY DISCUSSION GROUP OPEN DAY

**8 September,
Farm of Liam and Matthew Budds,**



LEFT: The focus of the Teagasc stand at this year's National Ploughing Championships will be farm potential.

hosted by the Irish Agricultural Catchments Programme (Teagasc/DAFF) and the UK Demonstration Test Catchment Projects (DEFRA/EA) will take place from Wednesday 14 September to Friday 16 September in the Mansion House, Dublin.

This conference will bring together international experts to address the following issues:

- Can we manage agricultural catchments for economic and environments objectives?
- Where are we seeing successes and why?

NATIONAL ORGANIC CONFERENCE

14 September
Ballykisteen Hotel, Limerick Junction, Co Tipperary

The Teagasc national organic conference is scheduled to take place in Ballykisteen Hotel & Golf Resort, Limerick Junction, Co Tipperary on Wednesday, 14 September.

This conference will be officially opened by Shane McEntee, TD, Minister of State at the Department of Agriculture with responsibility for Food, Horticulture and Food Safety. Topics covered will include:

- Financial performance of organic farming
- Tools for improving financial performance on organic farms
- Market opportunities for local organic produce
- British/EU organic market trends
- Lamb production — breeds, grazing management and parasite control
- Organic farming — a vet's view
- Achieving best animal health practice and use of herbal leys on organic farms
- Organic farmer stories — creating a market — Beale Organic Cheese; Crowes Farm; Horizon Farm.

This conference must be pre-booked and the closing date for bookings is Friday, 9 September. The conference fee is €50 and you can contact Helen McNulty, Teagasc, Athenry on 091-845217 if you wish to book.

TEAGASC NATIONAL PIG CONFERENCES

18 October, Cavan
19 October, Horse & Jockey

Summerhill, Kinsalebeg, Co Waterford

An EBI dairy open day will take place on Thursday, 8 September, hosted by the 2010 national winners of the ACCBank EBI dairy discussion group competition — Deise 1250 Dairy Discussion Group.

The open day will begin at 10.30am and will cover the following range of topics:

- 'Ladders of Opportunity' — the post 2015 debate
- Breeding cows/EBI
- Herd health group survey
- Grassland management
- Expansion/quote management
- Financial management
- The EBI competition is sponsored by ACCBank and jointly organised by Teagasc, ICBF and the *Irish Farmers Journal*.

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The Forager Handbook Miles Irving

This handy and carefully researched book provides an excellent and practical account of the wild things that can be eaten. Pictures and descriptions help identify the various plants and there are recipe suggestions with advice on how to prepare and use the plants. Poisonous lookalikes, the best times for foraging and typical environments are all detailed and chapters divide what can be foraged into flowering plants, ferns, conifers and marine algae.

The author makes a living out of foraging by selling what he finds to top restaurant chefs, who know the value of what he is able to supply, and the reader can trust the information provided.

The Forager Handbook costs €19.54 from www.bookdepository.co.uk (including worldwide postage).

- Sean Sheehan



Handling your cups

Fiona McCoy, Teagasc Moorepark

How many times have you ever stopped to think how many times in your milking career you will put clusters on cows? And how many times you'll take them off? Well, if you're milking 90 cows, twice a day, with an average lactation length of 280 days, you'll put those clusters on over 50,000 times a year. And then you'll take them off 50,000 times a year. After 40 years, you'll have put on over two million clusters...and taken them off over two million times too!

Cluster handling is given very little attention, considering the important role it has to play in milking efficiency, mastitis prevention, milker welfare and cow comfort. Air entering the cups can lead to vacuum fluctuations, and air impacts at the teat ends. This contributes to teat-end damage, and can drive potentially bug-laden milk up the teat canal, leading to new cases of mastitis.

Too many milkers suffer repetitive strain injuries (RSI), such as Carpal Tunnel Syndrome, from years of putting on and taking off clusters incorrectly. Stop and think about how you cup cows.



Potato Genome Sequence in Nature journal

The Potato Genome Sequencing Consortium (PGSC), an international team of scientists including Teagasc representing Ireland whose goal was to develop a high quality draft sequence of the potato genome, has published its findings.

The PGSC was initiated in January 2006 by the Plant Breeding Department of Wageningen UR (University & Research Centre) in the Netherlands and, during the course of the project, developed into a global consortium of 29 research groups from 14 countries. The Teagasc group, led by geneticist Dr Dan Milbourne of the Crops, Environment and Land Use Research programme, based at Oak Park in Carlow, was among the earliest members of the consortium.

The potato is the world's third

most important food crop. The potato genome sequence, the 'genetic blueprint' of how a potato plant grows and reproduces, will assist potato scientists and breeders improve yield, quality, nutritional value and disease resistance of potato varieties, a process that has been slow in this genetically complex crop.

The potato genome sequence will permit potato breeders to reduce the 10 to 12 years currently needed to breed new varieties.

The Teagasc group contributed directly to the whole genome sequencing effort, and also performed an in-depth analysis of a region on chromosome four, which harbours genes that confer natural resistance to late blight and the potato cyst nematode, the two most significant limitations to potato production.



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Taoiseach Enda Kenny launched the Farm Safety Poster campaign in Teagasc Athenry in July.

The A to Z of safety



Anthony O'Connor
Teagasc, Athenry.

If you are from a farming background or are a farmer, as I am, you won't like hearing of somebody being killed or hurt in a farm accident. You say to yourself that this 'should not be happening', but it does happen - only too often. Sixteen people have died in farm accidents so far this year and 2,000 have been injured. The death toll reached 26 in 2010, up from 13 in 2009.

You ask yourself: can I do something about the situation, maybe something different, something that reflects my own farming background and experiences? So, it began.

The A - Z of Farm Safety is my at-



This poster is an attempt to reduce the growing number of

accidents and deaths on Irish farms. So please read your A-Z poster and keep safe on your family farm

tempt to do something different and practical. Every letter of the alphabet carries a message on the poster; i.e. B is for Bulls, M is for Machinery, etc. Each letter is expanded on, outlining hazards or risks on farms and ways to avoid them. With 26 letters in the alphabet, most aspects of farm health and safety are mentioned; e.g. Livestock, Machinery, Slurry gases, Drownings, Zoonotic diseases, etc. How effective will it be? Only time will tell. Every farmer knows of somebody who has been killed or injured in a farm accident. Each letter and following paragraph was based on someone I know or on my own personal experience.

•**The letter G:** a neighbour of mine was killed in a slurry gas accident in the mid-1990s.

•**The letter O:** when a tractor overturned on me many years ago, I was lucky to escape serious injury

•**The letter D:** This year, local to me, a three-year-old little boy who had his thumb crushed while riding on the drawbar of a tractor.

I would like farmers to erect the Safety Poster in a prominent position on the farm and to review it for a few minutes each morning before starting work. It could be a life saver.

In April, the A to Z Farm Safety poster concept attracted one of the top Teagasc Staff Innovation Awards. Following the award, Teagasc pro-

vided funding for a national poster campaign. In recognition of the national importance of farm safety, the Taoiseach, Enda Kenny, TD launched the Farm Safety Poster campaign in Teagasc Athenry in July.

Clients

Teagasc has distributed the A - Z Farm Safety Poster in a fold-up A2 format to each of our 40,000 clients with the August Management Newsletters.

Teagasc is also in the process of distributing and erecting A2 laminated posters in places where farmers do business and frequent, i.e. livestock marts, agri-merchants, co-op stores, veterinary surgeons' premises, tractor and farm machinery traders and FBD offices.

Posters will also be distributed to the public at the National Ploughing Championships. This poster is an attempt by Teagasc to reduce the growing number of accidents and deaths on Irish farms. So please read your A-Z poster and keep safe on your family farm. I would like to thank my family, friends and colleagues in Teagasc for the help, encouragement and advice in making this A - Z Poster to become a reality.

For additional posters, please contact Jane Neylon, Teagasc Athenry. Telephone 091 845211 or you can email jane.neylon@teagasc.ie

It's a no brainer

Do an eProfit Monitor



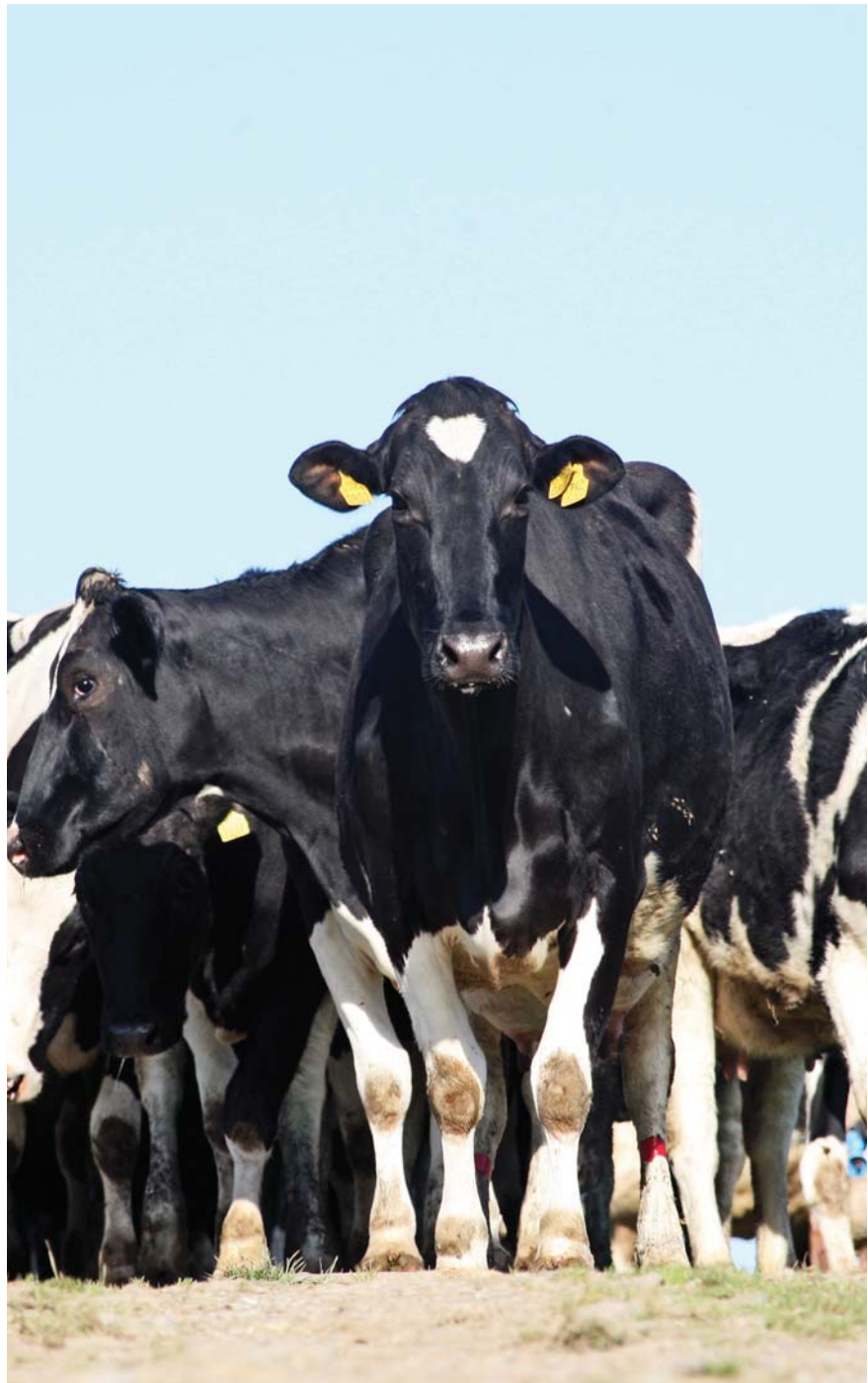
Tom O'Dwyer,
Teagasc Animal & Grassland
Programme, Moorepark

Are you doing enough to assess your farm performance each year? Many farmers collect information over the year but fail to take the final step and analyse it. The eProfit Monitor is a financial analysis package available to all Teagasc clients. The results of this analysis will allow a farmer to identify the net profit and, more importantly, the physical and financial components which produced that final result.

Why complete an eProfit Monitor?

- To measure the financial performance of your farm
- To compare the current and previous year's performance of your farm
- To benchmark your performance within your discussion group (with anonymity, if preferred) and with the best farmers in the area/nationally
- To identify areas for improvement in your farm business
- To help you to plan for a viable future in dairy farming

Next page >



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dairying

Charting your course

The eProfit Monitor will help take the guesswork out of the big decisions facing farmers over the coming years. Any farmer thinking of expansion must assess his current farm performance before committing to a large investment; the eProfit Monitor is ideal for this.

Dairy Expansion Programme

To date in 2011, approximately 2,000 dairy farmers have completed a Teagasc eProfit Monitor analysis and have received an assessment of both the physical and financial performance of their farm for 2010. This represents one third of the number of dairy farmers who have registered as DEP participants with Teagasc. The remaining two thirds of DEP participants are required to complete a Teagasc eProfit Monitor analysis by the end of 2012 if they are to receive their Year 3 (2012) DEP payment.

The ideal time to complete the analysis is in December or January – at the end of one production year and before the next one starts.

You can then use the results to make decisions for the coming year. If you have not completed the analysis before, maybe you should start now by looking at 2010 figures and aim to get the 2011 figures analysed earlier in 2012.

Many of the figures required are available in your 2010 tax accounts and other reports. Your first attempt may lack complete accuracy, but this can be improved in future years with knowledge of the information required. You have to start sometime; if not now, when?

What information is required?

You must supply the following details for your farm business:

- Background, including details of land owned, land farmed, quota and labour details
- Your sales and direct payments – milk, cow, calf, replacement and cattle sales and direct payments
- Your stock - opening, closing and average stock numbers plus details of



Any farmer thinking of expansion must assess his current farm

performance before committing to a large investment; the eProfit Monitor is ideal for this

The eProfit Monitor will help take the guesswork out of the big decisions facing farmers over the coming years.



animal purchases and sales

- Your expenses
- Your capital spending and loans

Regular users will have systems in place to gather the necessary information; e.g. Teagasc Cost Control Planner, farm software packages (e.g. AgriNet, Kingswood), pen and paper. It is not too late to start gathering the necessary information for 2011. Or, for many first time users of eProfit Monitor, your 2010 taxation accounts could be a very useful starting point.

Combining the financial information from these with other reports from your milk processor (details of milk sales) and ICBF (stock numbers) will allow you to complete most of the Input Sheet. Put aside a day or two (don't leave it until evening time) for this task; check with your Teagasc adviser first for what you require. Perhaps somebody in the household could help – a student on holidays looking for some pocket money, perhaps?

What will you get back?

It is said that 'the view must be worth the climb'. Once you complete the Input Sheet, you will receive a number of reports from your adviser. He or she will highlight the main strengths and weaknesses of your farm as identified in the analysis. You can then discuss with your adviser how best to build on your strengths and correct your weaknesses.

If you are a member of a discussion group, and group members have agreed to share eProfit Monitor results, your adviser will be able to prepare a group comparison report to allow you to benchmark your performance against that of other farmers in your area. You will have to put some work into it, if not you, who?

Summary

The eProfit Monitor will help you decide on the best way forward for your farm. It is hard to believe that many dairy farmers will invest large amounts of money in farm buildings, milking parlours, dairies and milk quota without knowing their costs and margin of production.

An eProfit Monitor analysis will take the guesswork out of it and reduce your chances of making a poor investment decision. It is not too late to gather the necessary figures for your farm. Talk to your local Teagasc adviser for more details and assistance with this important task.

Remember that it is a requirement of DEP that a Teagasc eProfit Monitor must be completed by the end of 2012, if a DEP participant is to get his Year 3 payment. The benefits of doing an eProfit Monitor, in most cases, will be far greater than simply securing your year 3 payment!

Comments on the eProfit Monitor

Direct quotes from farmers who have completed eProfit Monitor:

- "The eProfit Monitor allows me to stay in business."
- "The eProfit Monitor has helped my business by clearly demonstrating what effect everyday decisions have on my costs and profits."
- "Farming without the eProfit Monitor would be like hurling without goalposts. How would you know what to aim for? How would you keep the score?"
- "It enables me to make decisions based on sound, exact analysis."

• **AnneMarie Butler, Agricultural Manager Ulster Bank, says:**

"The eProfit Monitor demonstrates to us the performance of the farm to date and the potential of the farm for future growth. It also indicates that the farmer has an awareness of his costs and margins and is involved in analysing the performance of the farm business on an annual basis. As such, it is an important report which can affect a funding decision."

Co Tipperary dairy farmer, Ky Vaughan, recently completed eProfit Monitor for the first time: "I always knew I was doing okay but when I completed the Profit Monitor for the first time this year, I knew exactly how my farm was performing. I can now benchmark myself against others who are using the Profit Monitor."



The eProfit Monitor will help you decide on the best way forward for your farm

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CHEESE IT!

Cheese making crucial to future of dairy industry

Tom Beresford, Teagasc Food Programme, Moorepark

Cheese contributes significantly to the profitability of the Irish dairy industry and ultimately the price paid to farmers for each litre of milk.

The Food Harvest 2020 report predicts that milk production in Ireland will increase by 50% from 2009 production figures by 2020. Many in the industry expect that cheese production over this period will almost double from 157,000 tonnes produced in 2009, with an export value of €650m, to 300,000 tonnes by 2020. As a rule, it takes 10 litres of milk to make 1kg of cheese.

Combining a strategy of added value through product diversification and specialisation will provide an opportunity to substantially increase the export value achieved and further add to the buoyancy of the industry as a whole.

Cheesemaking is believed to have begun by accident over 8,000 years ago in the Fertile Crescent', a region that was home to the very earliest farmers and now covers parts of Iraq, Syria and southern Turkey. Stomachs of animals, calves in particular, were used as containers for liquids such as water and milk. Occasionally, the milk would turn into curd, and farmers discovered that this curd could become a satisfying and nutritious food.

It is likely that the art of cheese-making came to Ireland at around the same time as domestic livestock farming. The earliest references to cheese in Ireland date from the early



Christian period but no recipes for its manufacture survive from this time

The industry is currently very buoyant and it is expected that a considerable amount of the additional milk that will be produced in Ireland as a result of the abolition of quotas in 2015 will be converted into cheese to meet growing demand in traditional markets in the UK, but also new markets for Irish cheese in continental Europe, north America and Asia.

Teagasc expertise

While cheese is among the oldest fermented foods developed by mankind, there is a significant level of technical expertise required to ensure its successful manufacture. Teagasc has operated a cheese research programme at Moorepark since its foundation in the 1950s. The scientists involved in this programme work closely with

industry to address the evolving technical issues encountered by the industry and to assist in new product development.

In response to the anticipated expansion of the industry and new market opportunities, Teagasc has recently begun a major new project with the Irish Dairy Board to develop the technology to produce a range of continental type cheeses in Ireland. Traditionally, cheddar has been the primary cheese produced here. There are a number of reasons for this but chief among them is the fact that our seasonal grass-based milk production system suits this type of cheese. Production of continental type cheeses from such a milk pool presents a number of technical challenges which scientists at Teagasc Moorepark are currently addressing.



FBD is going on tour

FBD was founded for farmers by farmers and this year, as part of our strong commitment to the farming community, we're going on tour.

So, keep an eye out for the FBD Tour Bus at the National Ploughing Championships in Athy, Co. Kildare from September 20th to 22nd.

You can pop in for a chat about your individual farming insurance needs with a member of our friendly staff.

With over 40 years experience insuring Irish farmers, they're sure to have a package to suit you, at a great price.

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Supporting Irish Farmers

dairying

The research programme at Teagasc is internationally recognised and involves scientific expertise in a range of relevant disciplines, including cheese technology, dairy chemistry, bacteriology, flavour chemistry, texture and rheology.

This science is used to assist industry in the development of cheeses with new flavours, modified cooking properties, cheese with reduced fat and salt levels and cheeses with enhanced nutritional properties.

A measure of the international status of the cheese research programme will be apparent this September when a large number of international research scientists and dairy industry experts will attend the 8th Cheese Symposium to be held in Cork which is jointly organised by Teagasc, University College Cork and INRA (a French research organisation much like Teagasc).

Farmhouse cheeses

In addition to the large dairy companies that manufacture cheese, there are about 60 farmhouse cheese producers. While overall output is only in the region of 1,300 tonnes per annum, they produce a wide variety of cheese types. These cheeses add to the diversity of Irish food production and enhance our reputation as a premier food producing country.

Teagasc provides specialist technical support to this sector which includes individual advice for producers, training courses and access to product development facilities, laboratory testing and cheese technology expertise. **Our next training course on farmhouse cheese making is scheduled for the 8th to 10th November.**

John Hempenstall, who farms at Curranstown, Arklow, Co Wicklow is a good example of a successful farmhouse cheese maker. John, with technical assistance from Teagasc, established Wicklow Farmhouse Cheese in 2005 to supplement his farm income. He milks approximately 60 cows and has developed a distinctive range of cheeses using pasteurised milk from his herd of Friesian cows.

The cheeses are handmade in a purpose-built dairy on the farm by the entire Hempenstall family. They have won gold, silver and bronze awards at, among others, the British Cheese Awards.

Wicklow Blue has specifically enjoyed critical acclaim since arriving on the market. He has a range of products now, including Wicklow Blue, Wicklow Baun, St Kevin, Blue Crumble, a natural buttermilk and a selection of new cheddar cheeses. The brie cheeses are available in delicatessens, supermarkets and farmers' markets as well as many restaurants



throughout the country. John and his daughter, Anna, regularly conduct tastings at supermarkets. "It's vital to catch the attention of the shoppers who are confronted by a huge range of cheeses," said John. He maintains that if your cheese cannot generate a 'wow factor' through its taste and texture, it will not succeed. "Customers will pay extra for something special," he said. "But if you can't deliver that, the supermarkets won't give you shelf space."

John, together with other Irish cheese makers hopes to break into some of the upmarket supermarkets in the UK. "It's a slow process but the potential is huge," he said.

A key to the production of quality cheese, and the future expansion of the industry, is the production of premium quality milk for cheese production. This requires milk that has fat levels of more than 3.6% and protein of more than 3.3%, total bacterial counts (TBC) below 30,000 and somatic cell counts (SCC) below 100,000. The milk must be completely free from residues.

The components of the research programme at Teagasc Moorepark,

which support the cheese expansion ambitions of the dairy industry, have received public funding from both the Irish government and the EU over a number of years. Indeed, the importance that government places in this area was demonstrated by the recent decision by the Department of Agriculture to fund a national research project on cheese which will be co-ordinated by Teagasc.

The main beneficiaries of a buoyant and profitable cheese industry are, of course, the dairy farmers. To this end a significant portion of the Dairy Levy Trust fund has been applied to supporting the milk quality and cheese research programmes at Teagasc Moorepark. Continued use of this fund will support the research necessary to assist the industry in delivering an expanded, diversified and added value cheese sector for the future.

The world's smelliest cheese

Cheese smell or 'aroma', the term used by cheese connoisseurs, is an important quality indicator and arises as a consequence of a complex series of chemical and biochemical con-



Consumption trends

Cheese consumption varies greatly between different countries. Within the EU, average cheese consumption is 16.6kg per head per annum. Greece and France lead the way on 31.1 and 26.1kg per capita, respectively. In the UK, one of the main markets for Irish cheese, consumption is 10.9kg per capita per annum. Consumption in Ireland is running at 6.1kg/head per annum. Per capita consumption in emerging markets such as China is very low, but is expected to grow as they develop a more 'western style' diet.

The most rapidly expanding markets in the world are Russia, Brazil and Argentina, which are growing at 5% to 7% per annum. Overall, EU cheese consumption is increasing and this offers good opportunities for Ireland to exploit.

Germany is the largest cheese importer in the EU, followed by the UK and Italy. The premium reputation of Irish dairy products in Germany, in particular the lead position occupied by butter sold under the Kerrygold label, suggests significant opportunities for Ireland.

Cheese is generally regarded as a healthy and nutritious food, rich in protein and essential minerals, particularly calcium. Cheese is also high in fat which is a concern for many consumers.

However, there is conflicting evidence as to the effect of cheese fat on health, with some studies demonstrating a link between cheese consumption and reduced abdominal fat, blood pressure and blood sugar.

Cheese also contains high numbers of potentially 'probiotic' (good) bacteria. Probably the best advice to give the consumer is to include cheese as part of an overall balanced diet and to balance energy intake with exercise.

versions that occur during the ripening process. However, the aroma of some cheeses is not to be experienced by the faint hearted.

There is much debate among experts as to which cheese should carry the mantle of the world's smelliest cheese. Leading contenders include Munster (from a region in France, not Ireland), Epoisses (smells so bad that it is banned from public transport vehicles all over France) and Pont l'Eveque (a French cheese dating from the 13th century). If you can judge a book by its cover, Stinking Bishop, a British cheese, must also be a strong contender.

World's most expensive cheese

The value placed on cheese by the market is dictated by the overall availability of the cheese plus its flavour, texture and cooking properties. Many of the most expensive cheeses are linked to specific geographical regions of Europe and are often very complex cheeses in terms of their manufacturing and ripening processes.

The two most expensive cheeses in the world owe their status to their rarity. In second place, at €800/kg, is a cheese made from Moose milk in Sweden, and in first place, at €1,000/kg, is a cheese made from Donkey milk in Serbia. Despite their cost, we are unlikely to be advising a major restocking of the Irish dairy herd!

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QUOTA ALERT



George Ramsbottom,
Teagasc, Animal and
Grassland Programme,
Oak Park

At discussion group meetings I have attended recently, more than half of farmers said that they are at risk of exceeding their quota. On average they reported a 500-litre per cow shortfall.

For a 100-cow herd, this would result in a 50,000-litre excess. However, the variation between individuals was enormous – from being slightly under, to 1,000 litres per cow, over quota. Steps they identified to address the milk quota shortfall include:

- Cull 'problem cows' early
- Early dry off of the herd
- Milking once a day until dry off
- Reduce meals fed this autumn
- Plan to go over quota

Cull problem cows early

Taking the example of a 100-cow herd, culling 10% of cows on September 1st could result in the a reduction in milk output, as shown in *Table 1*. The effect of this on the whole herd is a drop of 12,300 litres – a relatively small impact. Farmers said they felt that this year is a good time to sell cull cows as prices for all categories of livestock are relatively buoyant. A combination of culling and drying off thin heifers or cows is another option that could help to reduce milk supplies.

Early dry off

Another idea discussed was drying off the whole herd early. This could result in the following reduction in milk yield:

- Using the milk yield averages outlined in *Table 1*, a November 1st dry off could reduce milk sales by 30,000 litres per 100 cows.
- An even earlier dry off on October 1st would reduce milk sales by 72,000 litres.

Either case is relatively unattractive because of the cashflow implications. Drying off on September 30th means that the last milk cheque received on dairy farms until next year will be on October 20th.

If individuals have no quota left for



the spring, they won't receive a milk cheque until May 20th.

Milking once a day

Research at Teagasc Moorepark has found that once a day milking has a big effect on the volume of milk produced per cow in the last part of the lactation. On average, for a 10-week period from October 4th, late lactation spring calving cows produced 12.9 litres per day when milked twice per day and 9.1 litres per day when milked once per day.

Milk composition increased on the once a day system. In a 100-cow herd over a 70-day period, this would result in a milk volume reduction of approximately 28,000 litres; adjusted for

butterfat increase, this would amount to a milk volume reduction equivalent to 20,000 litres or 200 litres per cow. Somatic cell count would become a problem if cell count was high (greater than 250,000 cells/ml) before the herd started on once a day.

Reduce meals fed this autumn

The groups looked at reducing meals fed this autumn. Assuming a response of 0.75kg of milk per kg meal fed, feeding no meal this autumn for a 75-day period at 2kg per day would reduce milk yield by approximately 11,000 litres, or 110 litres per cow.

'Plan' to go over quota

Some of the farmers discussed in-

Table 1 | Estimated reduction in milk yield achieved by culling 10 cows on 1 September from a 100-cow herd

Month	Yield (litres/day)	Total per cow (litres/month)	Total per herd (litres/month)
September	17	510	5100
October	14	420	4,200
November	10	300	3,000
	Total	1,230	12,300



tentionally going 'over quota'. They argue that with a milk price of 38c/litre or more for this autumn's milk, and practically all of the variable and fixed costs associated with milk production already incurred, the option is rational.

The impact of superlevy on net average milk price varies with the proportion of milk affected. If the average annual milk price is 34c/litre, and 10% incurs a superlevy, then your net milk price is calculated as follows.

- You sell 110 litres at 34c/litre = €37.40
- You pay a superlevy on 10 litres at 28.6c/litre = €2.86.
- Your revenue less superlevy = €34.54
- Your net milk price = 31.4c/litre (€34.54 divided by 110 litres).

The net milk price received at different percentages over quota is outlined in *Table 2*. The higher the percentage of milk that incurs a superlevy fine, the lower the net milk price. At 10% over quota, the net reduction is 2.6c/litre, while at 40% of milk production incurring a quota, the effect was a reduction of 8.2c/litre in net milk price.

How much quota is 'enough' for this coming spring? Approximately 10% of average annual milk is produced

in the February-March period on the typical spring milk farm. For example, taking a herd with a median calving date of March 1st, typically, such herds will produce approximately 20 litres/cow/day during March.

This means that a 100-cow herd could produce approximately 60,000 litres or close to 12% of their average annual yield before the end of the quota year. The factors that will influence the quantity required for the spring will include:

- Milk yield potential of the cows
- Quantity required to feed calves on the farm
- The volume of milk that can be stored on farm at the end of March

Median calving date – one week earlier or later will alter the quantity required for the spring by approximately 140 litres per cow.

Options for the future at all meetings revolved around a closer alignment of

cow numbers to quota. I believe that the more expansion oriented farmers will continue to operate closer to the edge, carrying more cows than they need to fill their quota.

They said that having built up cow numbers and the facilities to match, they are reluctant to down-scale too much at this stage.

In all cases, milk production costs must be closely monitored; high cost milk production is not economic.

However, cow health must not be compromised; restricting feed intake too severely to stay under quota will reduce profitability further.

- For farmers short by between 100 and 300 litres per cow, reducing meals, culling cows and drying off a portion of the herd early will largely solve the problem.

- For farmers in greater difficulty, once a day milking is the option that will help them the most.

Table 2 | Net milk price obtained relative to the percentage of milk supplied that incurs the superlevy fine

	% Over Quota			
Milk Price c/l	10%	20%	30%	40%
34c	31.4c	29.2c	27.4c	25.8c

dairying

Keep off the grass!

Soil compaction can seriously damage productivity from pastures

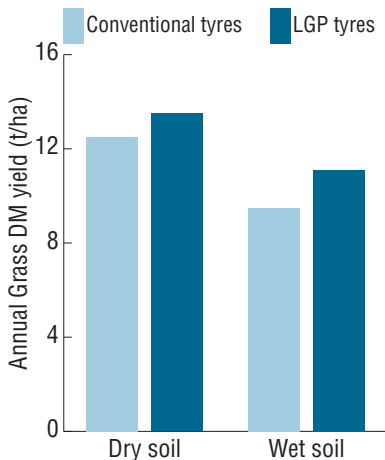


Dermot Forristal
Cereals, Environment and Land Use Programme, Teagasc Oak Park

Grasland soils can be damaged by animal or machinery traffic, particularly when soils are wet. The compaction caused can reduce grass yield and is both long lasting and difficult to remedy. Preventing compaction protects yields and nutrient efficiency and is preferable to attempting to reverse damage done.

Soil structure is how the soil particles and the pore spaces between them are arranged; I like to think of it as being similar to a jamjar full of different size stones. Pore spaces are hugely important in good soil. They allow water to drain away, help roots to penetrate and they let in air to support the complex biological processes that are necessary for the soil to supply nutrients.

Figure 1: Impact of conventional and LGP silage harvesting traffic on grass yield



When the soil is compressed by an animal treading or a machine passing over it, the soil structure is squashed, causing:

- Fewer pores which restricts drainage.
- Less air in the soil and less beneficial biological activity.
- Compacted soil which prevents root growth.

The effect of compaction should not be underestimated. In a three-year Teagasc trial comparing conventional and low ground pressure silage harvesting equipment, annual grass yield increases of between 8% and 16% were recorded where LGP tyre equipment was used (*Figure 1*).

How can you identify compaction?

There is no simple measure for compaction. The most practical option is to examine the soil and look for signs of compaction. Above ground indicators include:

- Water logging.
- Poor growth on headland areas (machinery compaction).
- Poor growth following poaching damage.

If these indicators are present, take

a large intact spade-full of soil and examine it carefully. One side should remain undamaged by the spade; this is the part that will be examined. Recognising soil structure damage requires some experience.

The structure is assessed by looking at how easily the spade-full breaks up and assessing the size and shape of the soil clumps it breaks down into.

Compacted soils tend to have a blocky or platy structure that does not crumble easily.

The difficulty is that soils naturally differ in their structure and it can sometimes be difficult to determine whether the structure you are looking at is natural for that soil or a result of compaction.

Dealing with compaction

If you suspect compaction, what should you do? Research suggests that prevention is better than cure. The most important risk factor with compaction is soil moisture. Wet soils are easily damaged. Where compaction is caused by animals, the prevention options are centred on flexible grazing management.

The aim must be to reduce animal



While all machinery operations can cause soil compaction, those that have heavy loads and a high traffic density, such as silage harvesting, are critical.



The best strategy is to control animal and machinery traffic and use low ground pressure tyres where possible.

traffic on wet/vulnerable soils – a difficult task where extended grazing is being practised.

Flexible grazing and 'on-off' grazing options can minimise damage by allowing animals to be taken off the paddock when conditions are wet or to restrict their time on it.

'On-off' grazing results in less animal traffic as the animals graze intensively and walk less when they only have access to grass for a short period. Paddock shape, location and increasing the number of entry points can also help prevent or reduce damage.

Compaction by machinery

Limit traffic in wet conditions and reduce machine ground pressure by fitting larger tyres capable of carrying their load at lower inflation pressure. While all machinery operations can cause soil compaction, those that have heavy loads and a high traffic density, such as silage harvesting, are critical.

The increase in tyre size needed to get substantial reductions in ground pressure is significant, but change will have to be made as the increase in weight and axle load of machinery has been dramatic.

Treating compacted soils

Where compaction has already occurred, the first step is to prevent further compaction. Moderately compacted soils may recover over time because soil wetting and drying, freeze/thaw, earthworm activity and root growth can all contribute to soil loosening. This can only happen if further damage is prevented. The decision to mechanically loosen the soil should not be taken lightly, as research has shown that these actions have disadvantages and do not necessarily return the soil to its original state.

Soil aeration or spiking

Soil aeration with a spiked rotor which penetrates the surface is a simple soil slitting operation with a typical working depth of about 100mm to 150mm. Where there is a very definite compact layer close to the surface, aeration can improve grass growth. However Teagasc research indicates that this situation is not that common.

Trials have shown little yield response to spiking in many situations. While spikers will not resolve machinery compaction, they may

have a limited role where there is very shallow compaction caused by animal traffic. If it is done, spiking should be carried out in dry conditions.

Sub-soiling or deep loosening

Where there is compaction deeper in the soil, deep loosening or sub-soiling may be considered. This involves pulling deeper working (250mm to 400mm) tines through the soil to lift and shatter the compacted soil.

The operation is expensive and can cause surface disruption, and may not be possible in stony soils. Research suggests that there needs to be a definite reason for sub-soiling as it can have a negative effect on grass yield in the short term, and deep loosened soil is at risk from re-compaction. It should be reserved for extremely compacted soils which time alone will not resolve. The soil must be dry when sub-soiling to ensure that the necessary shatter is achieved. Tine depth and spacing are also key.

The best option is always to avoid causing soil structure damage by controlling animal and machinery traffic and using low ground pressure tyres where possible.

dairying

KEEPING UNDER COVERS

A guide to autumn grassland closing management



Deirdre Hennessy,
Teagasc, Grassland Programme, Moorepark

As summer moves into autumn, the grassland management focus changes from managing grass to ensure that surpluses are kept to a minimum, to building covers to extend the grazing season. Generally, grass supply is not limited in early autumn and the aim should be to maximise its proportion in the diet of the cow.

The two main objectives of autumn grazing management are:

- To maximise the proportion of grazed grass in the diet of the dairy cow during this period
- To finish the grazing season with the desired farm cover

Grass budgeting is essential to ensure that these objectives are achieved. Provided that grass is well managed in autumn, it should be of high quality (20% to 23% crude protein; more than 70% DMD) and provide sufficient nutrients to the lactating dairy cow until late November.

Spring 2012

Throughout the autumn, and at every stage of autumn grazing management decision making, it is worth remembering that the grazing season actually begins in autumn; that means that the management put in place now is one of the main factors that will influence grass availability next spring.

60:40 Rule

Grass budgeting is essential to ensure that the objectives mentioned previ-

ously are achieved. The '60:40' rule is recommended as best practice to achieve these objectives (*Table 1*). The target is to have at least 60% of the farm closed by the end of the first week of November and graze the remaining 40% from then until housing. By adhering to this rule, the optimum target farm cover of approximately 220kg DM/LU at closing can be achieved.

Grass budgeting in autumn

Target farm covers for the autumn period are shown in *Table 2*. Several management issues and key targets must be achieved in the autumn to maximise the proportion of grazed grass in the diet of lactating dairy cows at this time of year:

- **Increase rotation length from mid-August onwards to greater than 30 days by mid-September**

Rotation length can be increased from mid-August through reduced stocking rate on the grazing platform as second cut silage ground comes back into the grazing rotation. If no silage ground is available, then stock other than milking cows should be removed from the grazing platform to other areas of the farm. Consider drying off low yielding cows, heifers or cows in poor condition, or cows that are due to be culled, to reduce the stocking rate on the grazing platform.

- **Highest average farm cover should be achieved in mid to late September**

A farm cover of up to 1,125kg DM/ha is manageable in mid to late September. Building up this average farm cover allows a 'bank' or a reserve of grass to be attained on the farm. This average farm cover will gradually



decline until closing. This 'bank' of grass will allow grass to be a major component of the diet in the late autumn, ensuring that grass is available for grazing even when growth falls below feed demand.

- **Be flexible in your approach to autumn grazing**

If a period of wet weather occurs, graze lower covers first. Strip grazing should also be used in wet weather in autumn to graze high covers to maximise grass utilisation and avoid spoiling and trampling of grass which would result in reduced utilisation.

Consider 'on-off' grazing if wet weather persists to ensure that grazed grass continues to be the main forage in the lactating cows' diet without causing detrimental damage to sward surfaces and subsequent sward quality.

Several strategies exist, such as turning cows out for three to four hours after milking and then returning them to the shed until the next milking, or allowing cows to graze by day and then housing them at night.

Research at Moorepark has shown that animals adjust their grazing behaviour to compensate for reduced access to pasture, so that intake, and hence milk production, are not compromised.

- **Maintain pre-grazing herbage mass at or below 2,500kg DM/ha**

Autumn pre-grazing herbage masses should be maintained at or below 2,500kg DM/ha to ensure maximum utilisation and to maintain herbage quality. Pre-grazing herbage masses can be allowed to increase to these high levels in autumn as the sward is vegetative and does not go stemmy



during long regrowth periods.

Also, in the autumn, once ceiling yield (i.e. the point at which no increase in herbage mass is observed on the paddock) has been achieved, herbage mass and quality are maintained for four to six weeks.

If pre-grazing herbage mass increases above 2,500kg DM/ha, other stock, e.g. dry cows, heifers, should be used to graze these paddocks to ensure that milk production is not compromised.

•Start the last rotation on 10 October

The final grazing rotation for the year should begin on 10 October in the south of Ireland. Every paddock grazed from this day onwards should not be grazed again until spring.

Every day delay in closing from 15 October reduces spring grass supply by 15kg DM/ha. In the northern part of the country, or in slow grass growing areas, closing may begin earlier (two to three weeks) as this will compensate for lower subsequent autumn and early spring growth.

•Close paddocks in the order in which you wish to graze them in early spring

Ideally, the paddocks you plan to graze first in spring should be closed first in the autumn. These paddocks should be those closest to the parlour and/or the driest areas of the farm which will facilitate early spring turnout.

•Post-grazing residuals of 150kg to 200kg DM/ha (4cm to 4.5cm) should be targeted during the last rotation

Swards should be tightly grazed in autumn to ensure that old material does not remain in the sward over winter, leading to decay of herbage

and tiller death.

Grazing swards tightly at closing will ensure that light can penetrate to the base of the sward to promote tiller production over winter, thus ensuring a productive sward in spring.

If possible, dry cows or other stock should follow the milking cows to clean off paddocks and ensure that milk production is not reduced.

•Target closing cover

The closing farm cover target for farms stocked at 2.5 LU/ha is approximately 550kg DM/ha or 220kg

DM/LU in late November. Achieving this target closing cover will promote grass growth over winter, in suitable conditions, to ensure productive, leafy, high quality swards next spring.

Grazing guide

For more information on grazing management, see the new 'Grazing Guide' booklet jointly published by Teagasc and the *Irish Farmers Journal*.

Table 1 | Targets for autumn farm closing management

Week end date	% of total farm area grazed
10th October	Start closing the farm in rotation
7th November	60% Grazed & Closed
25th November	Full-time housing

Table 2 | Target autumn farm covers (kg DM/ha) for a spring calving herd stocked at 2.5 LU/ha

Month	Stocking rate (on grazing area) (LU/ha)	Growth (Kg DM/ha)	Target average farm cover (kg DM/ha)	Target cover per cow (kg DM/cow)	Event
Aug 15	2.5	65.0	775	310	
Sept 1	2.5	51.0	1100	440	
Sept 15	2.5	37.1	1125	450	Peak cover achieved
Oct 1	2.5	30.0	1075	430	
Oct 15	2.5	26.8	950	380	First paddock closed
Nov 1	2.5	15.0	700	280	Supplement introduced
Nov 15	2.5	8.5	600	240	
Nov 22	2.5	2.7	550	220	House by day and night

education

DON'T MISS OUT!

How to maximise your chances of a place at Agricultural College



Paddy Browne
Teagasc, Education Programme

Agriculture and agricultural education are back in fashion at the moment. Agriculture is performing very well and is seen by many commentators as key to our economic recovery. So much so, in fact, that some young farmers I met recently claimed that their occupation now actually improves their prospects when they go out clubbing!

The big news, of course, is the ongoing and very significant increase in applications for places in Teagasc agricultural colleges and courses at local Teagasc centres. Enrolments to Teagasc colleges have increased by 80% over the last five years with 1,113 first year enrolments in 2010/2011. All six agricultural colleges turned away students in 2010/2011 with a total of 230 unsuccessful applicants.

There has been a further very significant increase in applications for the coming academic year, with over 700 students unsuccessful in getting a place on the first round of offers.

Teagasc is implementing a range of measures to make extra places available at both college and local level. These include:

- Recruitment of six new teachers into colleges
- Redeployment of advisory staff
- Increase in student staff ratio on certain courses
- Additional local part-time courses
- Procurement of agricultural education services from the private sector.

If you have just started your last year in school, and are thinking of agricultural college, the following are some pointers to help you make your decision. It's likely that the demand for places will continue to be high next year so, as Roy Keane famously once said: Fail to prepare; prepare to fail.



Ballyhaise, Co Cavan
• College of Amenity Agriculture, Botanic Gardens, Glasnevin, Dublin.

Many students make the mistake of applying to only one college. This limits their chances of securing a place because some colleges turn away a lot more students than they can take in. Geography and distance from home are obviously factors, but they shouldn't narrow your choice too much.

Choice of college

There are seven colleges from which to choose:

- Kildalton College of Agriculture and Horticulture, Piltown, Co Kilkenny
- Clonakilty Agricultural College, Clonakilty, Co Cork
- Salesian Agricultural College, Palaskenry, Co Limerick
- Franciscan Agricultural College, Mountbellew, Co Galway
- Gurteen Agricultural College, Ballingarry, Co Tipperary
- Ballyhaise Agricultural College,

Choice of course

There is a wide range of courses across the colleges. The Advanced Certificate in Agriculture is the standard course for future farmers, but there are also courses in horticulture, forestry, equine, agribusiness and agricultural mechanisation.

While the majority of courses are further level courses accredited by FETAC, all seven colleges are involved in joint higher level courses with partner institutes of technology or universities. Through these links,



STUDENTPROFILE



**Killian O'Donovan,
Ballymacwilliam,
Clonakilty, Co Cork**

Completed course 2008

- Progressed to Advanced Certificate in Dairy Herd Management course which he completed in June 2008

Course

- "The course was highly beneficial to me. The learning was a big step up from first year to second year and the emphasis on the home farm business was very applied."

Work experience

- "I did my 12 weeks work experience on the farm of Gareth O'Neill in Ballineen, Co Cork. This was a very worthwhile experience as it is a very efficient dairy farm, involved in grass measurement and budgeting. This is the technology that will help raise profits in my own business during my career. All Level 5 trainees seeking a career in dairy farming should do this course."

Future plans

- "I plan to farm in partnership with my parents and build a successful dairy farm which will be based on grazed grass. I am an active member of my local discussion group. I am interested in travelling also and, with my parents, we are part of the European Dairy Farmers network which is a useful network for exchanging ideas."



it is very feasible to progress from further level to higher level courses and to progress right up the qualifications ladder to the top.

Get your hands on a copy of the Teagasc course prospectus to see more detail on each course or visit www.teagasc.ie. Your career guidance counsellor will also give you valuable advice. Surveys have shown that many of our students make their choice after discussion with friends and neighbours who are going through or have gone through the system, so 'phone a friend' before making your decision.

College careers days

As well as looking up the Teagasc course prospectus, you should attend some of the careers events which are held at each college twice a year. Visits are often arranged by schools or you and your parents might like to attend.

At these events you can see first-hand the college facilities and get

information on the courses on offer and the career prospects associated with each course.

Our colleges are unique in that all the main agricultural and horticultural enterprises are carried out to top commercial standards, based on the latest technology from Teagasc's research centres.

Commute or live in

Students at all our colleges have the option of commuting daily or moving to the college for the duration of the course. Four of the seven colleges provide residential accommodation, while students attending the other three colleges can avail of accommodation adjacent to the college.

While the decision will usually be based on proximity to the college, there is an increasing trend towards commuting. This is disappointing in some ways because the complete college experience is best achieved by living away from home in a new environment.

drainage

Look before you dig

By David Trant and Oliver McGrath, Teagasc, Listowel

Before subsoiling, moling or draining land, it's vital to carefully investigate the source of the problem.

Assessing the problem

The topographical position of a consistently wet area is the first thing to be considered: is all of the area flat or is the problem occurring at, or near, the bottom of a slope or is it confined to a few obvious points? This can help identify if the problem is caused by a 'Hillside Seepage', an Artesian 'Spring' or just a high water table, etc. There might be an obvious rush or iris (flaggers) zone, which also indicates springs or seepage.

Examining the top soil by digging with a spade or a shovel will give an indication of the soil properties and structures, e.g. sandy free draining soil or heavy clay.

Test pits: This involves digging a few trial holes on site using a mechanical digger, which will give you a good overview of the problems involved. You can appraise the soil type, the subsoil and usually the parent rock material.

Any impermeable layer, usually clay, can be identified and the layer depth can also be measured or an obvious pan, e.g. iron pan, found. Inflows of water may be observed; sometimes 'baling out' the water is necessary to ascertain the 'recharge' and conductivity of adjacent soil.



A test pit where it was found that the wet area (peaty gley) had springs.



The outflow of water from the main drains indicates a successful outcome and the area has become a lot more workable already.

Be extremely careful with soil pits as tonnes of earth can cave in suddenly and trap a person in a deep drain or pit.

Levels should be taken to ascertain outfall, slope of land and low points within the site. Based on experience and knowledge, a layout can be designed and a map of works drawn up.

Example

Michael and Donal Keane, Listowel are involved in the Teagasc Heavy Soils Project and have recently undertaken drainage works. We had carried out assessment works last year. The picture above shows a test pit where we found that the wet area (peaty gley) had springs, i.e. water breaking up from below the clay zone and also a 'perched' water table owing to the clay. The area was extremely wet.

The picture below (*right*) gives an idea of the state of the land before

drainage took place.

Drains have been installed at depths of about 1.2m to relieve the perched water table with sump areas excavated to 2.2m to intercept the confined aquifer (water bearing layer).

Drains have been made using 50mm to 100mm stone without inserting a drainage pipe but it remains to be seen if this has any drawbacks in the future.

The outflow of water from the main drains appears to indicate a successful outcome and the area has become a lot more workable already.

Future work

Research work is ongoing in the Solohead farm into the effect of cow type (weight) on land and also comparisons of the effect of different types of disruption techniques in wet soils. The Heavy Soils Project will also help develop best practice on wetter land.



The Young Breeders Programme



Wendy Conlon, Teagasc, Rural Economy & Development Programme

You don't need a horse to avail of this opportunity

The Young Breeders programme is aimed at young people between 14 and 25 who are interested in assessing, exhibiting, and breeding performance horses. You don't have to be a breeder or come from an equestrian background. An avid interest, and an eagerness to participate and learn, are all that is required.

The concept of Young Breeders was first introduced to Ireland in 2005 and has since been encouraged and developed by Horse Sport Ireland and Teagasc. The first national Young Breeders competition took place in Ireland in June 2006. In July 2009 not only were the World Championships, with 17 competing studbooks, hosted in Kildalton College, Co Kilkenny, but the senior Irish Sport Horse Young Breeders (20 to 25 years) achieved overall third position in their category against stiff competition.

The Young Breeders Championships are based on five key areas:

Theory (stable management, the

sport, breeding, feeding, health and welfare)

- Assessment of conformation
- Assessment of loose movement and loose jumping
- Presentation of horses in hand, using the triangle system
- Turnout of horses

These skills and knowledge come into focus for varied uses including purchasing a new horse or pony; deciding which mares and stallions to use for breeding; assessing offspring on the ground; presenting horses for inspection, sale, show or competition.

The National Championships 2011 were held in Kildalton College on 19 April with approximately 50 young people participating.

The Teagasc Equine team and a number of industry professionals ensured that those participating were well prepared following a series of training sessions which started in September 2010.

This year's World Championships were contested by 20 teams over the course of two days in France. The event was colourful, a true test of knowledge and skill, and a most enjoyable experience for all concerned. New friendships and networks were formed which may prove invaluable when marketing horses.

The ISH studbook performed solidly over the two days of the championships to attain an overall placing of fifth, against 20 other studbooks.

The junior team finished sixth in

their category and the senior team finished a commendable 4th.

On an individual level one of the ISH senior competitors, Iris Brazil performed outstandingly well to achieve third position within the 60 competing seniors in the assessment of loose movement and loose jumping, and finished an admirable eight overall.

If you are interested in participating at any of the Young Breeder training days, or for further information, contact the organisers:

- Wendy Conlon, Galway, 087 9879083, wendy.conlon@teagasc.ie
- Declan McArdle, Meath, 087 6831876, declan.mcardle@teagasc.ie
- Ruth Fennell, Waterford, 087 9602537, ruth.fennell@teagasc.ie
- More information, including training material, is available from the Teagasc web site.

Young Breeders are also on the HSI website, horsesportireland.ie/breeding/young-breeders

To be kept informed, contact any of the listed Teagasc advisers to make sure your details are included in the Young Breeders database.

You will then be sent text alerts and receive any relevant emails.

New members are always welcome and all levels of experience are catered for. Remember, 'Young Breeders' do not have to be breeders, but should have an interest in learning more about the evaluation and presentation of horses as these are core aspects of the programme.

No ordinary flock



Frank Hynes,
Sheep Specialist,
Grassland
and Animal
Programme,
Teagasc Athenry

Sean and Deirdre Fitzgerald run a flock of 135 spring lambing ewes in Cratloe, Co Clare. But this is no ordinary flock. The ewes are milked and the milk used for cheese production

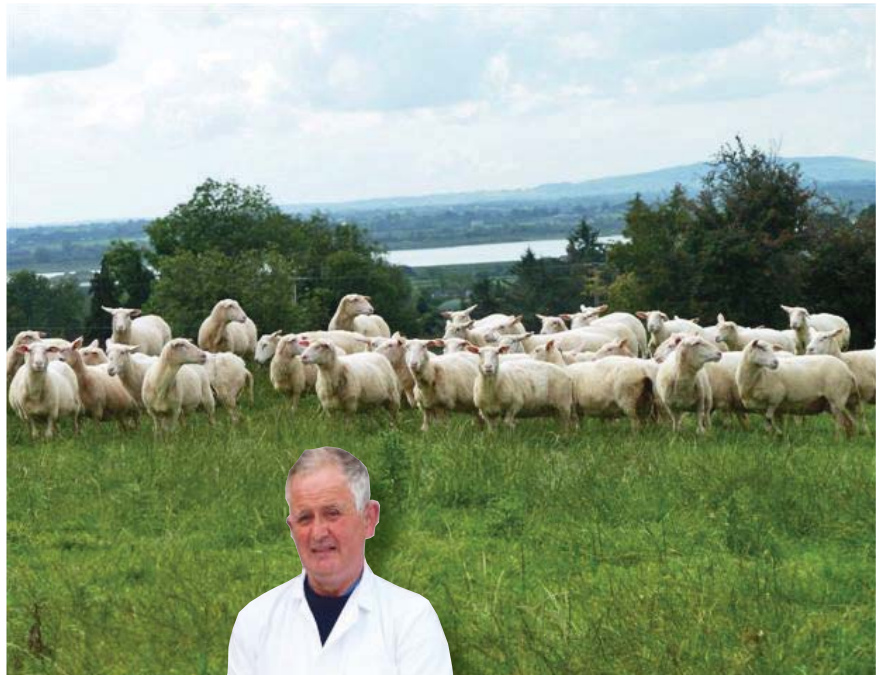
With the introduction of milk quotas in the early 1980s, Sean and Deirdre Fitzgerald's plan to expand their dairy enterprise stalled. They then set about investigating the potential of alternative farm enterprises which could supplement their dairy income. Eventually, they identified cheese production from sheep milk as a promising option.

In 1987, they travelled to the UK where they purchased 45 Friesland ewes and three rams. They set about the production of cheese from sheep milk, the first of its kind to be produced in Ireland. They have expanded this flock since then by breeding their own replacements. The only animals purchased have been rams to introduce new bloodlines.

Today, they milk 135 sheep, twice daily, from spring to autumn. Lambing begins in mid-February. The target is to have ewes turned out to grass within 24 hours of giving birth. Ideally, the Fitzgeralds would like if all ewes had singles as milk production is the main output. However, the majority of ewes give birth to multiples.

Lambs are left with the ewes for several weeks as this is the best way to rear the lambs. They are weaned once they reach 15kg to 16kg live-weight. During this time the ewes produce more milk than the lambs can consume. The ewes are milked to collect the surplus.

Apart from the value of this milk, Sean points out that the ewes' milk production level would fall to that demanded by the lambs, and the ewes



the bulk tank.

Sean points out that the Friesland breed is recognised for high milk yield and high prolificacy rather than lamb conformation. However, the Fitzgeralds overcome this by crossing with Texel and Suffolk rams. After weaning, lambs are maintained on grass with a small level of concentrate. As the lambs reach approximately 40kg, they are sold as stores for further feeding or as ewe lamb replacements in other lowland flocks. Replacements for the Cratloe Hills flock are home bred, primarily pure-bred Friesland. However, there are also a few Friesland x Texel ewes in the flock.

Milking

Ewes are milked in a specially designed milking parlour. It is basically a herringbone parlour, similar to that used for cows, but on a smaller scale. There are six milking units on one side with stalls for 12 ewes.

Each unit is used to milk two ewes before letting out the batch of ewes and letting in the next batch.

The milk is transferred to a bulk tank in the dairy where it is cooled. This bulk tank is then used to transfer the milk to the cheese plant for processing.

The milk supply for the cheese produced on the farm all comes from this

eventually dry off early if the surplus was not milked. There would also be extra cases of mastitis to deal with. "Having lambs running with the ewes for the first number of weeks slows down the milking process," said Sean, "but this is the best way to rear the lambs."

The milk produced in the first week after lambing is not suitable for cheese production. This complicates management slightly as ewes are kept in groups according to lambing date until all ewes' milk can be included in

... in Cratloe Hills



ABOVE LEFT: Milking sheep is similar to milking cows.

ABOVE RIGHT: Goats cheese is a tasty, high value product.

plant is situated some distance from the milking facility. After milking, the milk is taken to the cheese plant in a bulk tank used specifically for the sheep flock.

The milk is pasteurised before processing. After the starter and rennet are added, the curds are cut and packed into moulds to give the cheese its final round shape.

The moulds are pressed to eliminate excess whey. The rounds are then immersed in brine. Finally, a light wax coating is applied to the rounds to preserve them. The cheese is placed in a humidity and temperature controlled store where it undergoes the final maturing process.

The cheese is available as mild or mature, depending on the period of storage. The mild cheese is semi-hard and has a milder flavour than the mature cheese. The mature cheese is hard, slightly drier, with a more robust flavour. The cheese is supplied in two forms: a wax coated round block or vacuum packed sections. These can be purchased in various sizes, ranging from 125gm to 2.5kg, and are available widely throughout Ireland.

In addition to being involved at all stages of production, Sean is also directly involved in the marketing of the cheese.

He regularly attends promotions at various locations throughout the country. This, he believes, helps him keep in touch with his customers and is key to the success of the business.

single flock. The main food source for the ewes is grass from the farm with some meals fed in the parlour during milking. Ewes are dried off in early to mid-September, coinciding with the start of the breeding season.

"Medicines are only administered to ewes in exceptional circumstances during the milking season," said Sean. "The animal is isolated from the herd to ensure residues of drugs do not end up in the milk." Ewes are maintained outdoors on grass until mid-November.

However, paddocks are closed off in rotation, starting at the beginning of October to ensure that grass will be available for ewes from mid-February

onwards. Ewes are housed on wood-chip bedding during the winter.

Milk processing

The milk produced on farm is used for cheese production. Sean believes that as they are self-sufficient, they have an advantage over larger creameries that use milk from several herds. "Because we are in control of our raw material, we can assure our customers of high quality," said Sean. Working with small quantities, all of the cheese is hand-made and there is more time to follow traditional methods.

Sean stresses the importance of hygiene. For this reason the cheese

Beefing up the

Dairy bull beef demo farms



Pearse Kelly,
Teagasc Animal
& Grassland
Programme

In July, Teagasc and Dawn Meats held a very successful and well attended open day at Johnstown Castle on the dairy calf to beef research unit. The dairy bull calves in Johnstown are being finished at

many different ages with varying levels of inputs. As part of this joint programme, Teagasc is working very closely with four commercial farmers who also have dairy bull beef enterprises on their farms. Their systems, performance and financial returns will be followed closely over the coming three years.

Tom Bergin, Co Laois

Tom (*pictured*) is farming in Ballybrophy, Co Laois. His Teagasc adviser is Tom Everard. He is farming in partnership with his sister, Theresa, and his brother, Andrew. The Bergins have been purchasing Friesian, Hereford and Angus bull calves for a number of years and

finishing them either as steers at two years of age or bulls at over 20 months. They were also buying a small number of heifer calves for finishing.

As part of the programme they are now buying all Friesian bull calves each spring with the intention of finishing most of them as bulls. A lot of the spring 2010 born calves will have to be housed this autumn for finishing out of the shed early in 2012 as they are below the target weight for finishing at an earlier age. This is being done mainly because many of them were born later in the spring.

To overcome this for future years, where the intention is to finish many of them at 18 months of age,



dairy enterprise

no calf bought in this spring was born later than March. Tom is already seeing the benefit of this in the performance of the calves, as a group, at pasture.

The Bergins are now buying in 130 to 140 calves each spring. All three of the Bergins have off-farm jobs which limits the time they can devote each day to the farm.

For this reason they do not rear the calves themselves but have them reared, either on the farms they were born

on or on specialised rearing units until they are 12 weeks of age. It is at this stage that they move onto the Bergin farm when they can go straight to grass.

The target is that they are 100kg to 110kg when they arrive at 12 weeks old. While these calves cost significantly more than two to three-week-old calves, there are a number advantages to this arrangement. The time, labour and skills needed with calf rearing are eliminated and there is no need for calf rearing housing. The main mortality risk period is passed by the time the calves move onto the Bergin farm.

Next page >





Laurence McEvoy, Co Kilkenny

Laurence farms 54 adjusted hectares near Ballyraggett, Co Kilkenny. His Teagasc adviser is Terry Carroll. Over the last two and a half years he has been increasing the number of Friesian bull calves brought into his farming system. He prefers British Friesian to Holstein type calves and artificially rears all of them himself. While the first of his dairy-bred calves were finished as steers, he is now switching to mostly bull beef at a much younger age.

In 2009 Laurence bought 38 Friesian bull calves, reared them and finished them as two-year-old steers this February (2011) at a carcass weight of 340kg. These left a gross margin of €336 per head. As a system, dairy calf to steers at two years of age when managed properly can return as good a gross margin per hectare as any beef system with stocking rates of two to 2.5 calves purchased per ha/year.

The following spring (2010) he bought 79 bull calves and decided to finish them as bulls instead of steers because of the high weight gains he was able to achieve with calves at grass in their first year. One of his key requirements when buying calves so that they perform well at grass is that they are January to March born and a good weight for age at purchase.

These bulls were housed last autumn and were finished out of the shed at the end of May this year at less than 16 months of age and at a carcass weight of 297kg. They made a gross margin per head of €218. While lower per head than achieved with the two year steers, at least twice as many young bulls can be finished per hectare due to their lower finishing age and lower grass demand. Laurence also bought 70 autumn born Friesian bull calves from winter milk producing herds last autumn. These have spent this year at grass and will be housed shortly for finishing early in the new year, again at around 16 months of age. They have performed well so far and weighed 252kg on 31 May. They have a target housing weight in early October of over 350kg.



Tom English, Co Wexford

Tom farms with his father, Andy, near Adamstown, Co Wexford. His Teagasc adviser is Michael Fitzgerald. Tom and Andy have been purchasing Friesian bull calves for many years and finishing them as steers. Their system has been to buy mostly autumn born calves and to finish them at two years of age, either off grass or after a short housing period.

They decided last September to finish their 2009 bought autumn calves (yearlings at that stage) as bulls out of the shed. Their average sale date this spring was the end of March with a carcass weight of 292kg. They made a gross margin per head of €278. The autumn born calves when done as young bulls (under 16 months) eat more grass in their lifetime than spring born bulls killed at a similar age.

Tom and Andy were also looking for a dairy bull beef system that would maximise the use of grass as their farm is well laid out with a rotational grazing paddock system. With this in mind they purchased 80 bull calves in spring 2010 to finish. The majority of these bulls were castrated this spring to be finished as two-year-old steers next spring out of the shed.

Approximately 10 were left as bulls to graze until July and were then housed for ad-lib meal feeding for 80 to 100 days. From turnout in March until the end of June they gained 1.31kg/day at grass and weighed 510kg. A similar or better performance per day indoors on meals to finish them is expected, which should leave them with a carcass weight of 320kg+.



Jim O'Shea, Co Tipperary

Jim milks over 100 cows near Grangemockler, Co Tipperary. His Teagasc adviser is James Mullane. In the past Jim was selling all of his Friesian bull calves born on the farm as stores but, in recent years, he has finished them as bulls. He now finishes approximately 70 bulls each year.

Like many dairy farmers who are finishing their own bulls, Jim's target was to finish at 22 months after grazing them for two summers.

The message coming back from the meat processors is that to secure a long-term market for Friesian bulls they need to be killed much younger than this. So Jim plans to pull his slaughter age back to 18 months, which will allow him to still graze in the second year until the start of July.

In 2010 he grazed all of the bulls together for the season as one bunch. He found that as they got older and bigger, they became a lot more restless as a group, with more aggression between them as the weeks passed. This had to affect their performance at grass.

In 2011 he has divided them into two groups of 35 – an older heavier group and a second group of younger bulls. With two smaller groups there is now little or no aggression within the groups. From March this year until July, his bulls gained 1.35kg/day at grass. However, they are still below target for finishing this year at 18 months as they had not performed well as calves in 2010. To avoid this for next year's bulls (born this spring), Jim is grazing most of this year's calves ahead of the bulls in a leader follower system so that they get access to top quality grass most of the time.

Go native



Frances McHugh,
Teagasc Forestry
Development Officer,
Teagasc, Crops, Environment
& Land Use Programme

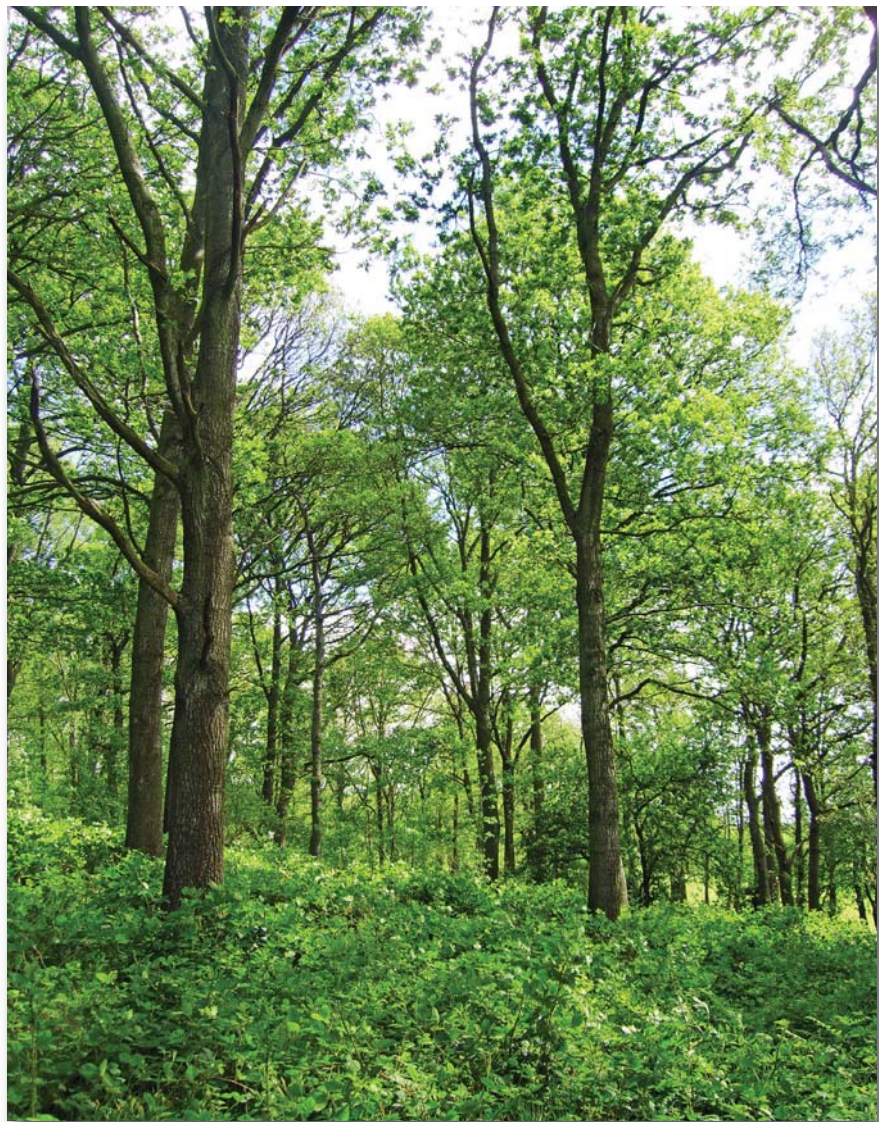
In 2010 over 38% of forestry planting consisted of broadleaves; in 1998 only 15% of trees planted were broadleaves. To highlight the need to plant and manage broadleaves properly, Teagasc will be holding a tree planting day in conjunction with Seed Savers in Scarriff as part of *Focus on Forestry*, which is taking place across Clare in October.

Focus on Forestry will include events on all aspects of forestry, including amenity, thinning, wood energy, nature walks for children, tree planting and much more.

The tree planting event will focus on native species and will give landowners the opportunity to talk to professionals about tree planting, both for REPs and commercial plantations. We have a variety of native species in Ireland and it is important to conserve and plant as many as possible. To find out more about the Focus on Forestry, keep an eye on the Teagasc website, www.teagasc.ie/forestry

Native tree species are those that managed to arrive here naturally, without any human assistance. In Ireland, our native vegetation is quite young; 15,000 years ago most of the land surface was only just recovering from the last ice age. For the next 2,000 years there were advancing waves of plants and animals migrating back to Ireland from the warmer parts of Europe.

Today, these first plants, willows and junipers, hang on only in places



where other taller trees find it difficult to grow, such as the Burren, or on mountain cliffs. Over much of the country they were rapidly crowded out by taller birches, willows, aspens and bird cherry when woodland, as we know it, started to get established. This, in turn, was swamped on the drier ground by a great wave of hazel which, by 9,000 years ago, covered Ireland from end to end.

The longer lived high forest trees eventually arrived, so that by 8,000 years ago pine dominated on the west-

ern sea board, oaks on the drier, free draining acid soils (sessile oak) and heavier lowland clays (pedunculate oak). Ash and wych elm flourished over the central parts of Ireland where the soil was more alkaline. In wetter and boggy areas, alder and birch became dominant. Apart from the wetlands, woodland covered most of Ireland; 7,000 years ago, the landbridges were flooded and Ireland became an island, halting the arrival of further tree species.

Why the emphasis on native?

One word: biodiversity. As our native tree species spread throughout Ireland, they brought with them snails, insects, lichens, birds, plants and fungi, which live in the shade and the soil they produced. All these made good food for birds, mice and other mammals. Over 450 species of insects feed exclusively on oak and willow and they, in turn, support a wide range of wildlife.

Introduced tree species support a lot less 'biodiversity'; beech, for example, supporting 98, and sycamore just 43.

Most of the native broadleaf species are involved in tree improvement projects. Tree breeders here co-operate with their colleagues in Britain under the British and Irish Hardwood Improvement Trust (BIHIT) in the improvement of ash, oak and birch.

The aim of the projects are to develop a homegrown sustainable supply of material that is healthy and adapted to the environment and that has improved growth rates and timber characteristics.

Tree improvement is long-term by nature but some species, like birch, are faster to work with than others, like oak. The birch

project is a Teagasc/UCC collaboration funded by COFORD and, while research continues, the project is already generating seed from an indoor seed orchard. This seed, from trees selected early in the project, has gone out to nurseries to enter the commercial supply of planting material in 2012/13.

An updated orchard, based on the results of 10-year-old field trials, will be producing seed in two years time.

- **Dr Elaine O'Connor**, UCC, project manager,
The Birch and Alder Improvement Programme

Don't miss your planting deadline

Catherine Keena reveals new figures on the amount of planting undertaken in AEOS 2010 and gives tips to those about to plant, based on farmer experience*

Over 17,000 farmers in REPS4 undertook to plant almost 900,000 trees. The vast majority of these must be planted by December 2011. Circular 2/2010 from the Department of Agriculture and the Marine altered the timescales for tree planting from those written in REPS plans. According to this circular, REPS Tree Planting must be completed by the end of the second calendar year. For example, farmers who joined REPS in June 2009 must plant all trees by 31 December 2011.

Farmers in AEOS 2010 undertook to plant over 400,000 trees in the past year. A major change in AEOS is the addition of an option to plant standard trees. Standard trees are at least 2m in height with a stem circumference of 6cm to 10cm compared with whips at 1m to 1.2m in height.

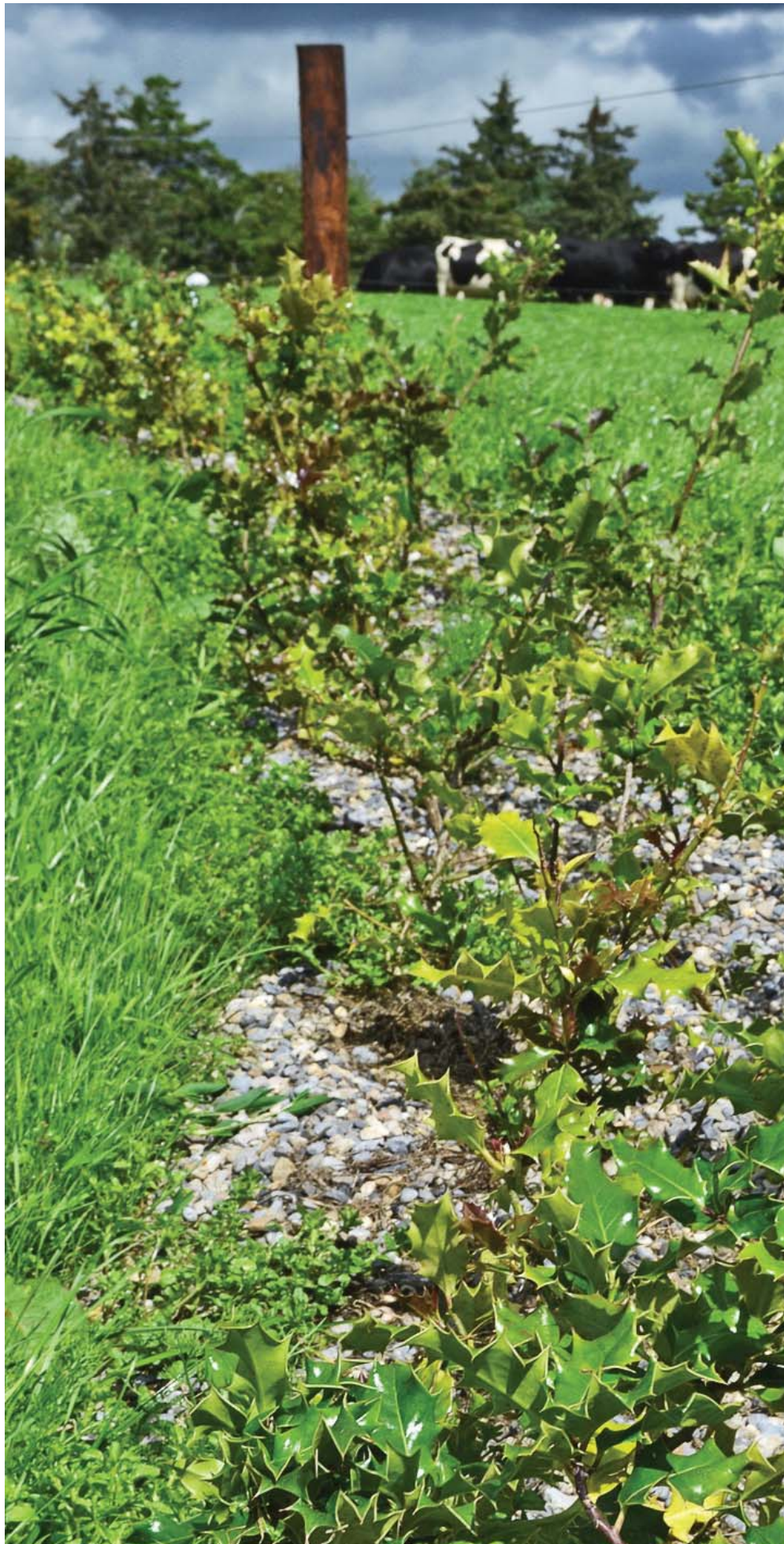
Most REPS trees were planted as whips as recommended. Standard trees are larger and normally used in urban areas for 'instant effect'. It is a shock for such a large tree to be transplanted. They are more exposed to drying winds and often need watering. They must be staked.

Because of the financial incentives, almost half of the trees in AEOS were chosen as standard trees. These trees will be fine provided farmers realise that extra care and attention are needed. By contrast, whips settle in readily and normally catch up on standard trees within a few years.

Farmers who have applied for AEOS 2011 and are awaiting approval, should plan ahead and source trees provisionally. Trees should be planted in early spring to avoid possible drought conditions later.

Hedgerow planting

Over 7,000 farmers in REPS4 committed to plant a total of over 2,600km of new hedgerow. Circular 2/2010 also altered the timescales for hedgerow planting. Half must be completed by the end of the second calendar year,



For farmers awaiting approval under AEOS 2011, now is the time to plan provisionally. Consider a holly hedgerow such as this one planted under AEOS 2010.



with the remainder completed by the end of the third calendar year.

For example, farmers who joined REPS in June 2008 must have at least half planted before 31 December 2010 and all planted by 31 December 2011. Farmers who joined REPS in June 2009 must have at least half planted before 31 December 2011 and all planted by 31 December 2012.

Under AEOS 2010, farmers agreed to plant another 1,000km of new hedgerow last spring. Farmers awaiting approval for AEOS 2011 should learn from the past experience of other farmers. In some areas of the country, there is great interest in growing stockproof hedgerows with a dense base created by pruning back to within 100mm (4") of the ground.

Strips of used silage plastic laid on the surface control weeds and retain water and nutrients. The new hedgerow can then thrive at ground level. While a big effort is required at planting, there is little work to be done subsequently, except to trim or pull back and walk down vegetation. This is easily done, but essential, as bent grasses for example can close over the new hedgerow.

In AEOS 2010, work on the non-productive capital investment must be completed by the end of June 2011. AEOS Capital Claim Forms can be submitted now. There is no deadline at present. Some farmers are disappointed at the return on their investment in planting trees and hedgerows, compared with that expected.

One option worth considering by

Because of the financial incentives, almost half of the trees in AEOS were chosen as standard trees

those planting hedgerows in AEOS 2011 is to choose a holly hedgerow. While holly plants are more expensive, the cost will be covered by AEOS. Holly hedgerows are slow growing, but can be a suitable option to screen farmyards.

Over the five-year period of AEOS 2010, 120km will be laid and 340km will be coppiced. One fifth of the work has to be done by 31 December 2011 (no receipts involved). Over the period of REPS4, more than 1,100 farmers will lay 280,000km and 3,600 will coppice 1,000km of hedgerow.

*Catherine Keena, Teagasc, Crops, Environment & Land Use Programme

soil fertility

Beware of declining soil fertility

Mark Plunkett*, Stan Lalor*, Teagasc, Johnstown Castle & Eamonn Grace, B & T Dairy Adviser, Carlow

Over the last decade there has been a steady decline in national fertiliser usage from 1.7 million tonnes in 2000 to about 1.1 million tonnes in 2009. Nitrogen use has fallen from 407,000t in 2000 to 306,000t in 2009, with a slight recovery to 362,000t in 2010. P and K use during the same period shows a more dramatic decline of 60% and 45% respectively with a recovery in 2010.

Figure 1 shows the proportion of soil samples analysed through Teagasc in the different soil indices for phosphorus (P) over the last 10 years. From 2001 – 2008 the proportion of soils in each P Index was relatively stable. However, since 2007-08 there has been an increase in soils at Index 1 and 2 (low fertility) and a decrease in soils at Index 3 and 4 (high fertility). The proportion of soils in Index 4 has decreased from 30% to 22% in the last three years.

It makes sense, financially, to

reduce nutrient applications to Index 4 soils and there are benefits for the environment too. However, soils tested in the last three years at Index 3 have also declined from 28% to 25%.

Soil Index 3 is the optimum for grass/tillage crop production. Therefore a decreasing trend in Index 3 soils is undesirable. The numbers of low fertility soils – at Index 1 & 2 – has increased.

The number of soils at Index 1 has increased from 15% to 23% while soils at Index 2 have increased from 26 to 30%.

Trends in soil potassium (K) levels over the same period are shown in figure 2. Similar trends have occurred, although not as dramatically. Soils in Index 1 have been relatively stable at about 10% of the total. Soils tested at Index 2 have been steadily increasing since 2008 and currently account for 41% of soils tested through Teagasc.

Soils tested at Index 3 have been in the range of 27% to 30% and are currently at 28%.

The number of soils tested Index 4 has declined significantly since 2008 and now represent about 20% of our soils in 2011.

Figure 1: Soil P trends in Teagasc soil samples 2001-2011

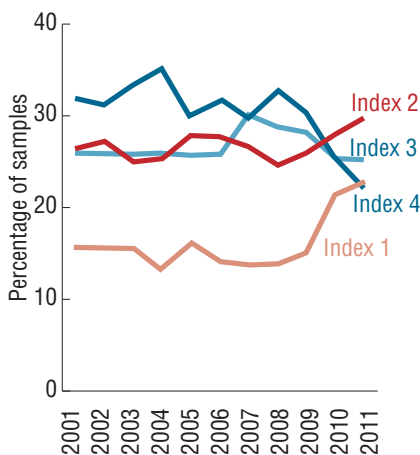
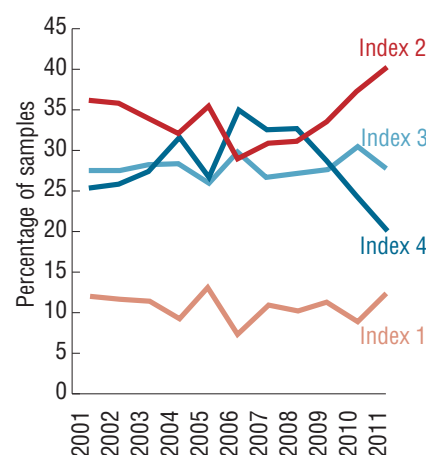


Figure 2: Soil K trends in Teagasc soil samples 2001-2011



Case study



Soil fertility management in action

Philip Donohoe is a dairy farmer in south Carlow and works closely with Eamonn Grace, B & T dairy advisor at Teagasc, Carlow. Eamonn and Philip implement an annual fertiliser plan based on soil results and livestock numbers. Philip has an intensively stocked dairy farm at 2.38LU/ha in 2006, rising to 2.62LU/ha currently. He is planning to increase cow numbers. Cow performance is high, with an average of 1,060kg milk solids/ha/yr produced over the last four years. Philip is aiming to maximise milk produced from grazed grass with a modest inclusion of meal annually (approx. 145 – 290 kg/cow/ year).

One third of the farm is cut for first-cut silage and surplus grass is taken out as round-bale silage. Slurry is recycled on silage ground to replace P & K removed at harvest time. The farm was soil tested in 2006 and retested in 2009 as shown in table



Table 1: Percentage of soil samples in Index 1, 2, 3 and 4 on Donohue's Farm

Index	2006		2009	
	P	K	P	K
1	0	0	0	6
2	0	8	41	35
3	15	23	47	29
4	85	69	12	29

Philip has an intensively stocked dairy farm at 2.38LU/ha in 2006, rising to 2.62LU/ha currently

Implications of low soil fertility

1. Soils in P Index 1 will produce about 1.5t/ha grass dry matter less than soils maintained at the target soil Index 3. This is worth up to €345/ha. Early spring growth is particularly affected by low soil P, while silage yields are very sensitive to soil and fertilizer K levels.
2. Low fertility soils will have an increased need for grass reseeding as more productive rye grasses / clovers will be less persistent on low fertility soils.

Action

1. Establish soil fertility on your farm through regular soil testing every 3 to 5 years.
2. Target livestock manures (Slurry / FYM) to fields with the lowest soil P & K levels to help build soil fertility to soil Index 3.
3. Apply lime as recommended on your soil test report. Where soil Mg levels are low apply Magnesium limestone.
4. Develop a fertilizer plan to build soil fertility levels to soil Index 3 for maximum production. Be prepared to invest in P and K.
5. Soil fertility is a long-term investment and needs to be reviewed every 3 to 5 years to plan future fertiliser applications.



It is important to note that when comparing soil test results that samples are taken from the same areas, at the same time of the year

*Mark Plunkett and Stan Lalor: Teagasc, Crops, Environment & Land Use Programme

1. In 2006 the results showed the farm was extremely fertile with most fields at Index 3 and 4 for P and K. In 2009, Philip re-tested the soils to monitor the effects of having applied no P and K fertiliser in the previous three years based on 2006 soil results.

As expected in the absence of P and K fertilizer, the soil P and K levels declined between 2006 and 2009 (Table 1). Soils at P Index 4 decreased from 85 to 12%, soils at P Index 3 increased from 15 to 47% and soils at P Index 2 increased from 0 to 41%. A similar picture is seen for soil K levels as soils at Index 4 decreased from 69 to 29%, soils at Index 3 increased from 23 to 29%, soils at Index 2 increased from 8 to 35% and soils at Index 1 increased from 0 to 6%.

Philip has learned two valuable lessons from this process. Firstly, through soil testing in 2006 he has been able to make major savings in P & K fertiliser inputs (€70 -110/ha) while continuing to operate a high output intensive dairy system. Secondly, by re-sampling his soils for analysis, Philip has identified the parts where soil P and K levels now need to receive additional fertilizers in order to maintain soil fertility and productivity.

Currently a combination of Urea/CAN plus 18-6-12 plus cut sward is applied to satisfy nutrient requirements during the growing season, with slurry being returned to silage ground to meet the higher P and K requirements of those swards. Philip is planning to re-sample the farm in 2011 to monitor if his revised fertilizer strategy is now sufficient to maintain soil fertility, and adjust again where necessary.

It is important to note that when comparing soil test results that samples are taken from the same areas, at the same time of the year and to the correct soil sampling depth in order to draw sound conclusions. It is best to look back at previous soil test results and compare with new soils results to assess how appropriate your fertilizer management has been, and to put an effective fertilizer programme in place for the coming years.

Now is a good time to take soil samples and establish soil fertility levels. This will provide the basis to correct soils with low lime, P or K levels and put in place one of the key building blocks to maximising grass production.

Thinking about

It's not an easy option but, managed well, the crop can yield healthy returns



Michael Hennessy,
Teagasc Crops,
Environment & Land
Use Programme

Generally, winter barley growers are happy with this year's harvest and, for some, it has restored their faith that they can grow some of the highest yields anywhere. The average yield across all acres grown is the best measure of the crop's suitability to the farm or, indeed, the grower. It's easy to remember fondly the field which yielded 11t/ha (4.5t/ac), but the one yielding 7.5t/ha (3t/ac) tends to be forgotten.

Analyse differences

Growers should ask why were there such large differences between the best and worst fields on the farm given the same management. Certainly, the dry months of April and May influenced plant growth and nutrient uptake, but land quality stands out again this year as one of the main reasons for the differences. Heavy land, in general, yielded better than lighter land due to better moisture retention ability and a greater ability to make soil nutrients available to the growing plant through the season.

It's reasonable to say you can't make bad land into good land but there are some management decisions which can enhance the existing quality of

“ Repeated applications of manure over time can transform 'tired' fields. Attention to lime, P&K levels and the timely use of nutrients will also help to stimulate the crop and increase yields



the land you have (light or heavy, good or poor). Organic manures (in any form, e.g. dung, slurry, poultry manure, green waste, etc.) have the ability not only to supply nutrients, but also increase water and nutrient holding capacity of the soil.

The benefits won't be seen instantaneously but repeated applications of manure over time can transform 'tired' fields.

Attention to lime, P&K levels and the timely use of nutrients will also help to stimulate the crop and increase yields.

Market prospects

Prospects for grain prices are far from clear but many of the market analysts are predicting lower prices.

Forward prices are available for next year and taking a forward price in a falling market is often a good bet. As it stands, margins as predicted for 2012 by Teagasc are lower than 2011. In our assumptions we reduced grain price by €10 per tonne to €150t (at 20% moisture content) and increased

growing costs by €24/ha (€10/ac), which sees the projected margin for an 8.6t/ha (3.5t/ac) crop of barley at €220/ha (€89/ac) or a fall of €123/ha (€50/ac) compared with this year.

This should remind growers that expensive land rental may not add to the bottom line, given these figures. These margins are only comparable to a good yield of spring barley but winter barley has the upper hand as there is considerable scope for significant increases in yield compared with spring barley.

Six or two row?

The 2011 harvest has seen high yields of both two and six-row varieties but almost all the very high yields came from the six-row varieties and were achieved with very good bushel weights.

Six-row varieties such as Leibniz and Amarena performed extremely well and should be candidates for the very high yielding fields for next year. This does not discount two-row varieties, with many yielding in excess of

winter barley?



National Tillage Crops Forum

The National Tillage Crops Forum will be held in the Keadeen Hotel, Newbridge, Co Kildare, on Wednesday 7 September from 2pm. All are welcome.

The national forum will again provide growers with the opportunity to hear the latest market predictions and learn about new developments. At the event, Department of Agriculture Cereal Variety Testing Staff will talk about the up and coming varieties and signpost their advantages and disadvantages.

Potential margins for the coming year and, specifically, oilseed rape establishment, also will be discussed.

Eimear Gallagher, Teagasc food researcher, will give an insight into developments in breadmaking, while industry experts will outline market prospects for next year.

The forum will close with discussion from a panel of industry representatives from processing, merchants, advisers and growers, who will be on hand to guide growers on the best ways to add value to their grain and to answer questions from the floor. Looking forward to meeting you there.

10t/ha (4t/ac) with excellent quality.

Yield is not the only component growers should look at when selecting a variety for next year as straw quality and disease resistance should be high on growers' minds.

It's surprising, given some of the very high yields achieved this year, that there was very little lodging.

Growers cannot become complacent and varieties such as Leibniz, Amarena and Boost are tall and require extra management compared with Saffron or Cassia.

Disease levels, particularly of rhynchosporium, were very high in winter barley crops from mid-February and early March.

Saffron, in particular, showed very high levels of disease and many growers rightly applied fungicides earlier than normal to combat the disease.

April and May were extremely dry and disease levels reduced, whether or not the crop was sprayed early, and it will be interesting to see if treated crops yielded much better than untreated crops in trials.

Lesson learned

What we have to take from this year's experience is that the level of disease present in February and March had the potential to do significant damage to crops and, but for the dry conditions in April and May, the situation could have been very difficult in many crops.

Choose varieties carefully when planting after barley this year as significant levels of disease can carry over from this year's crop.

In these situations, avoid rhynchosporium susceptible varieties such as Saffron and Cassia so that varietal resistance (in varieties such as Anisette, Amarena, Leibniz, etc.) can play its part through the season.

Planning to drill

As for ordering seed and planting winter barley, start planning now. Where take-all is not a significant risk, plant barley in the last week of September (it can run a little later in southern counties).

Where take-all is a risk, then delay

sowing by a week or 10 days at the most.

The addition of a seed dressing (e.g. Latitude) to reduce take-all has not proven beneficial in Oak Park trials and should be applied in only the most extreme cases.

Growers should concentrate on increasing the P and K level in the soil and make sure the crop has adequate P and K through the season.

Yield is determined by grain numbers so establishing a good plant population will stand to the crop in the long term. Aim to drill 280 to 300 seeds/m² of winter barley.

This will give a seeding rate of anywhere from 140kg to 200kg/ha (10 to 12.5st/ac), depending on variety TGW and establishment rate. In all cases, remember to check the lime status of the field and it may also be worthwhile to apply phosphate in the autumn where soils are below 6ml/L (index 2 or below).

Crops may also benefit from potash in the autumn.

Botanic Gardens

Beware the wheelie bin!

Safety in the garden

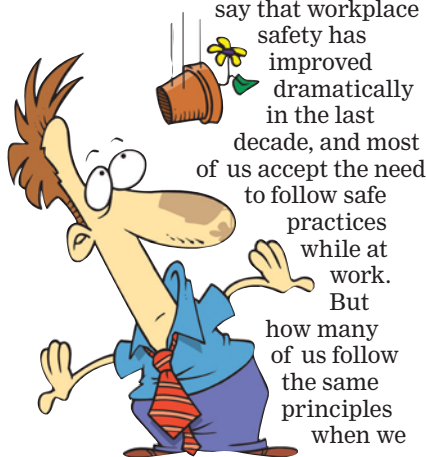


Eileen Woodbyrne
Teagasc Education Programme, Botanic Gardens

It is not easy to find national statistics on accidents in domestic gardens in Ireland. However, the Royal Society for the Prevention of Accidents in the UK has conducted a survey of home accidents which resulted in hospital attendance. The situation here is likely to be comparable. In 2002 - the last year for which data are available - almost 18% of UK home accidents occurred in the garden, greenhouse, shed, patio or driveway. So what were the most common causes of accidents in the garden? One might immediately think of some potentially dangerous items – lawnmower, chemicals, sharp tools – but some of the offenders are a little surprising.

List topper

The lawnmower did, indeed, top the list, with a national estimate of more than 6,500 victims requiring hospital treatment. Some of the other items on the list were perhaps less predictable: outside bins, including wheelie bins, accounted for over 5,500 incidents; spades, forks and shovels together, over 5,500 incidents, and flowerpots over 5,000. Secateurs and pruners were responsible for almost 4,500 incidents, hedgetrimmers came in at just over 3,000 incidents and hoses/sprinklers almost 2,000. It is fair to



say that workplace safety has improved dramatically in the last decade, and most of us accept the need to follow safe practices while at work. But how many of us follow the same principles when we



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

are busy in our own gardens?

As a timely reminder, before you embark on your autumn tidy-up in the garden, you might want to think about some of the following tips:

- Risk assess your garden, in the same way as you would your farm or workplace.
- Observe the manufacturer's guidelines in the use of all power tools.
- Avoid using electrical items in wet weather.
- Use a residual current device (RCD) with electrical tools.
- Tidy as you go – don't leave tools, hoses or other items lying around.
- Dress appropriately – sturdy boots/shoes (ideally with steel toe caps), gloves if necessary, and avoid wearing loose clothing when using machinery.
- Use appropriate personal protective

equipment (PPE) when using chemicals or machinery; depending on the task, you may need eye protection, hearing protection, gloves, hard hat, mask or suit.

- Choose the appropriate tool for the task. Maintain tools and machinery in good order and store them safely.
- Use appropriate manual handling techniques when lifting, carrying or moving heavy or awkward items – including the notorious flowerpots!
- Change jobs frequently, especially if tasks involve bending or stooping.
- Store chemicals appropriately. Remember that 'organic' or 'environmentally friendly' does not mean that a chemical is safe for children to handle).
- Always keep chemicals in their original containers and follow the instructions.
- Handle fuels carefully and store them appropriately. Allow machines to cool down before refuelling.
- Be particularly careful when working at heights, and use the appropriate equipment to gain the height you need. If using a ladder, ensure that it is in good condition and that it is long enough – don't climb to the very top of the ladder and don't overstretch.
- Wash your hands frequently, and especially before eating or drinking.
- Assess your ability to carry out a task; if in doubt, seek help or call on a professional rather than risking your own safety.

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1. Dermot Mackie, CAVI conference proceedings October 2009