



Today's Farm

Business, production, environment and countryside issues www.teagasc.ie



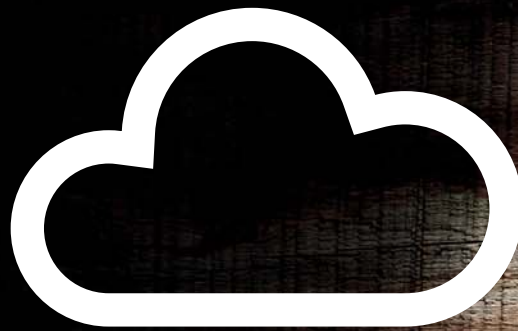
Colleges: a great component in anyone's career

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COMMENT



Mark Moore
Editor,
Today's Farm

Educational opportunities have never been better

Our article on recent graduates from the Teagasc colleges shows the dynamism and flexibility of the current education landscape. Students are no longer held back by a “false start” in the education system.

Sam Belton, a graduate of the Teagasc College at the National Botanic Gardens freely admits he wasn't an enthusiastic scholar at secondary level. But, during his time on a FETAC Level 5 course at the Botanic Gardens, his keenness to learn flourished. He went on to do an undergraduate degree and then a Masters degree. Having completed that, he will soon begin work on a PhD.

Sarah Claxton completed a degree in psychology before returning to Kildalton where she graduated with the FETAC Level 6 course in dairying. Opportunities to study two or more subject areas, return to the academic track if that suits you, and to progress to high academic achievement regardless of where you started are better than ever. Good that it is so.

Is fearr ná riamh na deiseanna oideachais atá anois ann

San alt a scríobhamar fúthu siúd a bhain céim amach le déanaí ó Choláistí Teagaisc, léiríodh cé chomh spleodrach agus solúbtha atá cúrsaí oideachais faoi láthair. Níl scoláirí faoi laicis a thuilleadh ag iarraidh in aisce sa chóras oideachais.

Admhaíonn Sam Belton, duine de chéimithe an Choláiste Teagaisc i nGarraithe Náisiúnta na Lus, nach raibh sé díograiseach i mbun scoiláochta nuair a bhí sé ar an meánscoil. Ach le linn dó cúrsa leibhéal 5 de chuid Chomhairle na nDámhachtainí Breisoideachais agus Oiliúna (CDBO) a dhéanamh i nGarraithe na Lus tháinig fosc mór chun foghlama air. Bhain sé bunchéim agus céim mháistreachta amach ina dhiaidh sin agus is gearr anois go dtabharfaidh sé faoi chéim dochtúireachta.

Chuir Sarah Claxton céim síceolaíochta i gcrích sular fhail sí ar Chill an Dátúnaigh mar ar bhain sí cáilíocht amach le cúrsa déiríochta CDBO ar leibhéal 6.

TILLAGE
September is soil-sampling season
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Cover | Sarah Claxton from Co Waterford completed a degree in psychology before becoming a dairy farmer. In our story on education, we feature students who have had a diverse range of experience before entering Teagasc agricultural or horticultural colleges. See pages 31 to 33.

TALKING TIMBER

Teagasc invites all forest owners to its timber marketing events, where you will get the opportunity to meet with timber buyers, as well as harvesting contractors and foresters, giving you a better appreciation of how the timber-selling process works and how to maximise timber value.

- Tuesday 8 September: McWilliam Park Hotel, Claremorris, Co Mayo.
- Tuesday, 15 September: Mount Wolseley Hotel, Tullow, Co Carlow.

ORGANIC WALKS

A nationwide series of national organic farming open days will take place from summer 2015 to spring 2016. Teagasc, the Department of Agriculture, Food and the Marine and organic organisations invite all farmers and members of the public to see organic farming in practice and to meet and speak with the producers and sector's experts.

- Fri 11 September, 6pm: George Stanley, Castlefleming, Errill, Portlaoise, Co Laois (sheep and cereals).
- Weds 16 September, 6pm: Oliver Kelly, Ballinroan, Kiltegan, Co Wicklow (field-scale vegetables and sheep).
- Wed, 30 September, 2pm: Kenneth Keavey, Greeneearth Organic Farm, Caherlea, Carrundulla, Co Galway (horticulture and direct sales).
- Tues 20 October, 2pm: John Curran, Moyreghan, Fordstown, Navan, Co Meath (beef and sheep).

CONFORMATION ASSESSMENT

A number of conformation and athleticism assessment evenings will



The Teagasc national organic farm open days will include visits to beef farms across the country.

take place in September and October. Dates and locations are listed in Table 2. The fee will be €20. All events run from 7pm to 9pm. To book online, please visit: www.teagasc.ie. For more information on the evenings please

contact Wendy Conlon on 087-9879083 or you can email wendy.conlon@teagasc.ie.

HAZARDOUS WASTES

Teagasc has teamed up with the Environmental Protection Agency (EPA), the Department of Agriculture Food and the Marine (DAFM), local authorities, WEE Ireland, the European Recycling Platform (ERP) and Enva Ireland Ltd to operate 10 collection centres for the collection of farm hazardous waste across the country in October and November. This provides farmers with an excellent opportunity to dispose of their hazardous wastes in a manner that protects human health, livestock and the environment.

Waste types collected, charges applied, dates and locations are listed in Tables 3 and 4.

- Each waste type must be clearly identifiable, segregated and packaged to avoid leaks during transport and offloading.
- Only identified wastes will be accepted; wastes which cannot be

Table 1: Teagasc transferring the family farm clinics

Date	Venue
Wednesday 30 September	Tullamore Court Hotel, Tullamore Co Offaly
Thursday 1 October	Cork Mart, Fermoy, Co Cork
Friday 2 October	Parkway Hotel, Dunmanway, Co Cork
Monday 5 October	Breaffy House Hotel, Castlebar, Co Mayo
Tuesday 6 October	Springhill Court Hotel, Kilkenny
Thursday 8 October	Clanree Hotel Letterkenny, Co Donegal
Friday 9 October	Keaden Hotel, Newbridge, Co Kildare
Monday 12 October	Abbey Court Hotel, Nenagh, Co Tipperary
Tuesday 13 October	Devon Inn Hotel, Templeglantine, Co Limerick
Wednesday 14 October	Raheen Woods Hotel, Athenry, Co Galway
Thursday 15 October	Landmark Hotel, Carrick-on-Shannon, Co Leitrim

Table 2: Conformation and assessment evenings

Date	Venue
Tues 8 September	Captain David O'Brien, OBG Stables, Athlone, Co Westmeath
Thurs 10 September	Tiernan Gill, Ballina, Co Mayo
Tues 13 October	Clement McMahon, Hilton View Stud, Scotshouse, Co Monaghan
Thurs 15 October	Jack and Edward Doyle, Naas, Co Kildare
Tues 27 October	Greg Broderick, Ballypatrick Stables, Thurles, Co Tipperary

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identified or clearly labelled will NOT be accepted.

- Waste engine and hydraulic oils should not be mixed with any other substances, including vegetable oil.
- Mixed wastes will NOT be accepted on site.
- Farm plastics such as silage wrap, fertiliser and feed bags and clean triple rinsed pesticide containers will NOT be accepted.

This is an excellent once-off opportunity for farmers to safely dispose of their hazardous waste and we encourage farmers to avail of it. See Table 4 for further details.

For further information on the farm hazardous waste collection centres, visit www.teagasc.ie/events/ or www.epa.ie. Or you can LoCall 1890 33 55 99. More detailed information will be

published in the Teagasc environment quarterly newsletter in October.

PLOUGHING CHAMPIONSHIPS

As usual, Teagasc will have a major presence at this year's National Ploughing Championships. Our theme this year is "Moving Forward With Teagasc".

The exhibit will focus on the many tools and partnerships, which Teagasc uses to generate new research insights, offer a range of education options and provide advisory services.

There will be a number of advisors, educators and scientists on the Teagasc stand, so if you have a specific query or just want to say hello, please drop by.

Table 3: Hazardous waste collection dates and locations

Date	Location
Tuesday 20 October	Mountrath Mart, Co Laois
Wednesday 28 October	Ballymahon Mart, Co Longford
Monday 2 November	Ennis Mart, Co Clare
Friday 6 November	Tuam Mart, Co Galway
Monday 9 November	Tullow Mart, Co Carlow
Saturday 14 November	Castleisland Mart, Co Kerry
Tuesday 17 November	Cahir Mart, Co Tipperary
Friday 20 November	Deeside Agri Country Store, Ardee, Co Louth
Wednesday 25 November	New Ross Mart, Co Wexford
Friday 27 November	Bandon Mart, Co Cork

Collection centres will open from 9.30am to 3.30pm

Table 4: Hazardous waste

Waste type collected	Charges
Pesticides and biocides; veterinary medicines and animal health-care wastes; needles and syringes; waste paints; aerosols; corrosives (acids, detergents); oil and air filters; oily wastes; brake fluids; brake pads; antifreeze; adhesives; coolants; grease cartridges; creosote	All charged at €2/kg (excl. VAT at 13.5%)
Contaminated empty plastic containers (which would have contained, for example, pesticide; biocides; dairy hygiene products; paints; waste oil; antifreeze; creosote, etc). Container sizes will include one-litre; five-litre; 10-litre; 15-litre; 20-litre; 25-litre and 205-litre	€4/kg (excl. VAT at 13.5%)
Waste engine oil and waste hydraulic oil, including their containers which are used for the transport of these waste oils to the collection centre	Free of charge
Waste electronic and electrical equipment (WEEE) (e.g. TVs, computers, fridges, freezers, power tools, kettles); all batteries and fluorescent lamps, including CLFs	Free of charge

Table 5: College open days (further open days will be held in March 2016)

Date	College
Thursday 1 October 2015 Open day 2pm to 4.30pm Tours ongoing	Botanic Gardens College of Amenity Horticulture National Botanic Gardens, Glasnevin, Dublin 9. Principal: John Mulhern. Phone: 01 8040201. Email: botanic.college@teagasc.ie
Thursday 1 October 2015 Open day 10.30am to 2pm Tours ongoing	Gurteen Agricultural College, Ballingarry, Roscrea, Co Tipperary Principal: Mike Pearson. Phone: 067 21282. Email: info@gurteencollege.ie
Friday 2 October 2015 Open day 10am to 1pm Tours ongoing	Ballyhaise Agricultural College, Ballyhaise, Co Cavan Principal: John Kelly. Phone: 049 4338108. Email: ballyhaise.college@teagasc.ie
Friday 2 October 2015 Open day 10am to 1pm Tours start at 10am and 11am	Kildalton Agricultural & Horticultural College, Piltown, Co Kilkenny Principal: Paul Hennessy. Phone: 051 644400. Email: reception@kildaltoncollege.ie
Tuesday 6 October 2015 Open day 10am to 3pm Tours ongoing	Mountbellew Agricultural College, Mountbellew, Co Galway Principal: Tom Burke. Phone: 0909 679205. Email: tvburke@iol.ie
Friday 16 October 2015 Open day 11am to 2pm Tours ongoing	Clonakilty Agricultural College, Darrara, Clonakilty, Co Cork Principal: Majella Moloney. Phone: 023 8832500. Email: clonakilty.college@teagasc.ie
Thursday 3 December 2015 Open day 10am to 2pm Tours ongoing	Pallaskenry Agricultural College, Pallaskenry, Co Limerick Principal: Derek O'Donoghue. Phone: 061 393100. Email: info@pallaskenry.com

dairying

A new device, the 'Grasshopper', makes grass cover measurement easier and more accurate. **Mark Moore** reports

New technologies promise us a better future (lower costs, better connectivity, more efficiency, more leisure time, etc), but there's always a price. To access these goodies we must pay for the gizmo and spend time mastering the technology. Little wonder most of us wait for the new arrival to really prove itself.

But a point arrives where it becomes a no-brainer to adopt the technology. Around 1986, a mobile phone cost a fortune and weighed about the same as a bag of sugar. Once Nokia produced a small, light, simple device, a tipping point was reached and the benefits so hugely exceeded the costs that only "laggards" held back.

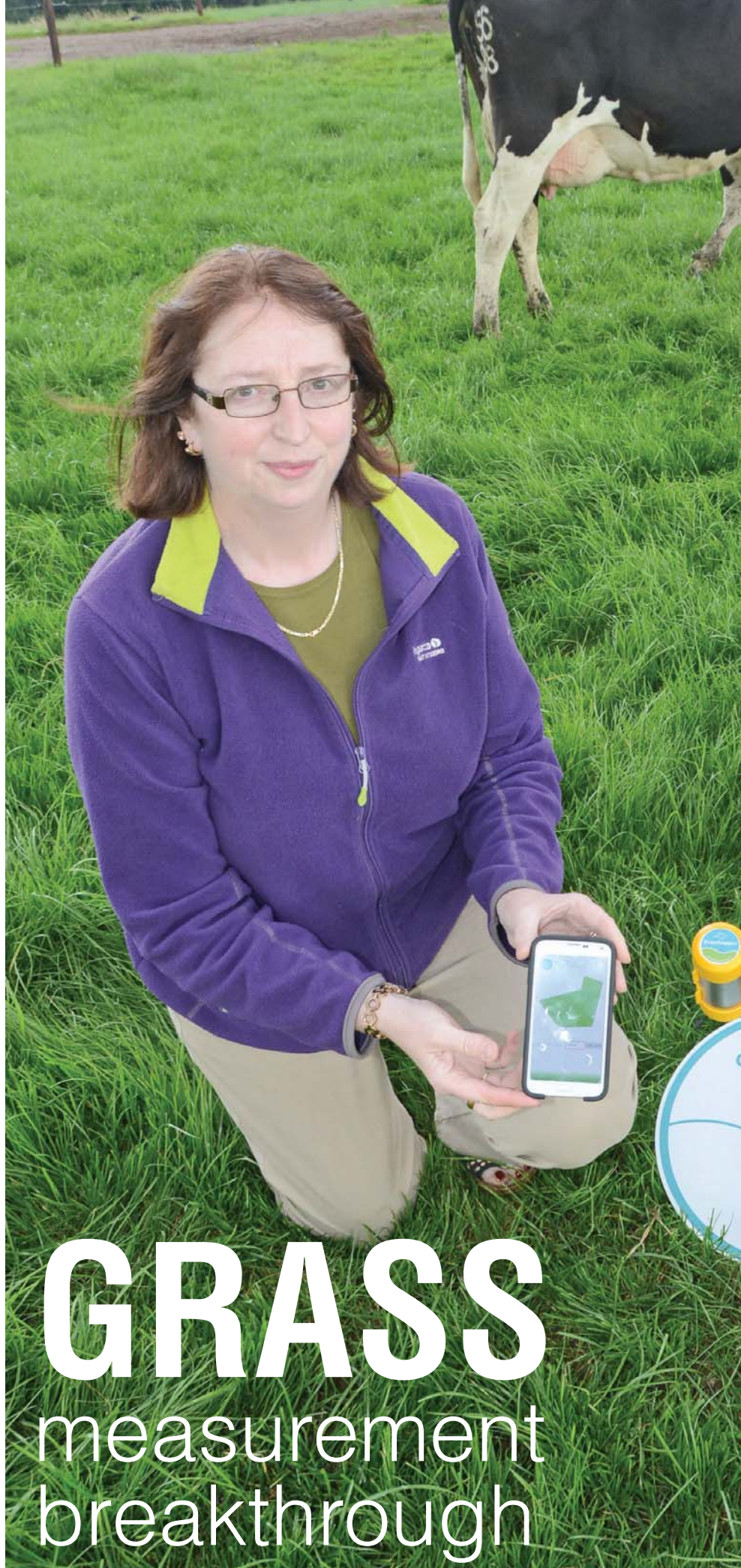
I believe a new piece of technology, the Grasshopper, brings grass measurement to just such a tipping point. Virtually every dairy farmer and the majority of beef and sheep farmers are aware of the benefits of grass measurement and management but the sheer "clunkiness" of using some traditional technologies have prevented them from actually doing the measurement.

The benefits are considerable. Grazed grass is highly nutritious and costs a fraction of the equivalent feed value in the form of grain. Productive pastures are Ireland's key competitive advantage. Our soils can be managed to produce tonnages of dry matter in the high teens. But our changeable climate means grass growth can vary to an alarming degree. Measuring grass growth and matching the covers to the needs of the herd or flock is not easy; getting it wrong is expensive.

Main methods

Until recently, there were two main methods of measuring grass covers: the first involves using a quadrant to measure a unit of area, clippers to harvest the grass down to a given height and portable weighing scales to weigh the grass collected. A calculator is then handy to work out the corresponding yield per hectare.

This is a highly accurate technique, but it's a laborious and fairly time-consuming task if you are to take a representative number of samples from a paddock.



GRASS

measurement breakthrough

Bernadette O'Brien and Diarmuid McSweeney at Teagasc Moorepark.



The other widely used system is the rising plate meter, which consists of a disc about the size of a generous dinner plate with a vertical rod through the centre of the disc leading to a handle.

The plate is weighted and the plate meter is pushed down vertically so that the plate lands flat on the grass. The height of the grass recorded by the plate meter indicates the level of grass cover.

Neither of these measurements gives any indication of the level of moisture in the grass.

Both systems rely on the farmer choosing a representative "route" through the paddock and also taking enough "harvests" or "readings" to ensure he is getting a really accurate picture of the cover present.



Continued on page 8

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This is easy enough in fine weather but less so in driving rain. Many farmers will “get their eye in” by doing measurements and then judging the quantity of grass by observing closely, while walking through the paddock. This method can be quite accurate when carried out by some individual farmers and if the specific area is done consistently by the same person. However, in other instances, the estimation may not be as accurate as measurement with a plate meter or by cutting and weighing.

Complication

The complication of measuring grass covers has resulted in a relatively low uptake of this technology. Only a minority of farmers measure covers regularly during the grazing season.

The Grasshopper can make measuring covers and using the results to manage grass a lot easier.

The Grasshopper looks similar to a conventional plate meter (which in itself is a very well proven and accurate device) but fixed on the shaft it has a small cylindrical box pointing down towards the plate meter. The sensors and software in this box are what will revolutionise grass cover measurement.

With a conventional plate meter, a grass cover will push back against the disc on the rod/shaft and the farmer will note the height of the grass from the point on the shaft where the disc rests. In the new system, a sensor measures precisely the distance between itself and the plate meter disc. Simply put, the closer the disc to the sensor the greater the cover.

“ Dairy farmers have taken the lead in grass measurement, but producing and managing high-quality grass is equally relevant for beef producers

The sensor does a couple of other very useful things too. It records where in the field the sample was taken and displays the route the farmer has followed in taking his recordings. The device will communicate with a smartphone or tablet to display the ideal route to follow.

A package to survey paddocks and display paddock maps with real-world coordinates in real time has also been developed, whereby a specific paddock map may be displayed on a



The Grasshopper is very beneficial in measuring covers and using the results to manage grass.

smartphone. The grass height and/or yield data of that paddock may then interact with data such as grass DM, number of cows and grass DM to be allocated/cow.

Results from these calculations will indicate the fence line position on the phone screen, which would provide the intended grass allocation for the cow herd. Thus, it will have the potential to inform the operator of exactly where to place the fencing wire within the paddock, in order to achieve an accurate and precise grazing allocation. “If the farmer wishes to use the grass measurement data for grass budgeting on a whole farm basis (e.g. PastureBase Ireland), this normally requires him to manually enter the results into a computer,” says Bernie O’Brien at Teagasc Moorepark, but now “the Grasshopper has the ability to do this task for him,” she continued.

“Technology should be low-cost, reliable, robust, flexible, easy to maintain and update, and provide information that can be immediately converted into a management action. The Grasshopper does that,” she said.

Evaluation of the Grasshopper is being led by Bernie at Teagasc Moorepark as part of the EU project “ICTGRAZINGTOOLS”, with a focus

on optimising the competitiveness of grass-based milk production systems.

There are four partners involved in the project, research organisations in Ireland (Teagasc), France (Institute de l’Elevage) and Switzerland (Agroscope) and one small, medium enterprise based in Shannon, Co Clare, Ireland (True North Technologies).

Beef production

There are advantages for beef producers too. Dairy farmers have taken the lead in grass measurement, but producing and managing high-quality grass is equally relevant for beef producers. “Our ability to grow and graze highly nutritious grass is our competitive advantage,” says Adam Woods.

“Technology which can make management of swards easier by reducing the burden of writing down and entering data will be a great help. We will be using the Grasshopper at Teagasc Grange and Athenry in the near future.”

Virtually every Irish farmer grows grass and virtually every Irish farmer has a mobile phone. Hopefully, technologies such as the Grasshopper will mean that grass cover measurement and management will become as widespread as the mobile phone.



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Bayer CropScience

Dairy expansion –

The recent visit of a group of top UK dairy farmers provides an interesting and independent view of dairying in Ireland

Joe Patton

Dairy Specialist,
Teagasc Animal and Grassland Crops
Research and Innovation Programme

Ireland's aim to increase national milk output by 40% to 50% over the next five years has attracted international attention. UK dairy farmers are among the most interested overseas observers, which is no surprise, given our close links and the scale of dairy trade between the two countries. The risks and opportunities for expanding Irish dairy farms, as well as the contrasts between the two industries, were well-debated during a recent visit of the North Devon farmers' group to dairy herds in counties Meath and Monaghan.

The visiting group comprised 15 dairy farmers whose operations are located across a 25-mile pocket from Barnstaple to the western fringe of Exmoor, in the dairying heartland of Devon. There is a wide variation of production systems represented in the group: from block spring-calving/ grazing to intensive indoor systems delivering at least 10,000 litres per cow. The herd size averages 220 cows, but it ranges from 120 to over 1,000 animals.

Dave Budd, who works as a consultant with the Dairy Group Ltd and facilitates the group, explains: "Discussion around the merits of different systems frequently arises, but especially when milk price is falling. We have the full spectrum within this group which adds to debate. There are a few reasons for this – first is the fact that members sell to numerous milk purchasers who each have different pricing schedules to influence milk supply pattern.

"Also, annual rainfall is actually very variable across the farms. Due to altitude, rainfall can range from 900mm to almost 2m on the uplands. Personal preference also plays a role – some people are motivated by



at least 10,000 litres of milk per cow, while others see grazing as a skill to be mastered."

Dave added that cutting feed costs is a common aim. "All of the guys recognise that feed is their single biggest expense. Getting more from forage should help to cut costs – our own data shows that. The 'high forage' message seems to be a mantra for Irish dairy farmers, so we are interested to see how they put that into practice, and also if that aim is likely to change now that the opportunity to produce more milk per farm has become an option."

After a good initial discussion, the group made its way to Kilmessan, Co Meath, and to the farm of Peter and David Farrell. Here, they saw a herd at the latter stage of conversion from year-round calving to a compact spring system. Peter outlined the reasons for the switch "We had been milking around 100 cows in the typical liquid milk set up here, calving from September to April, feeding TMR over the winter, grazing for the summer. "There was some beef on the farm as well, so we had no problem making ourselves busy." Low milk prices in 2009 helped prompt a re-

a UK perspective



Joe Patton (left), John Clinton (second left) and the North Devon farmers' group.

UK V IRELAND COMPETITIVENESS

Competitiveness of Irish and UK dairy farms

In relation to competitiveness of milk production in Ireland and the UK, it is important to remember that competitiveness relates not just to costs of production per unit of output, but also the value of milk produced. Based on this concept, using cash costs as a percentage of output, as the indicator of short-to medium-term competitiveness, Irish dairy farms appear the more competitive. For example, based on a report published by the European Commission in 2014, cash costs (as a percent of output) were 11% lower in Ireland compared with the UK.

The UK pound is regarded as "strong" against the euro. This makes UK imports relatively cheaper and exports relatively more expensive, which may give eurozone exporters (like Ireland) an advantage on export markets (though the UK is not a major dairy exporter). In the long run, exchange rates are cyclical. In the last 10 years, the euro has been as low as about €1.05 against sterling against the current level of €1.41/£1.

– Fiona Thorne

appraisal. "I suppose it was a glimpse into the future of how market fluctuations could hammer your cashflow on a higher cost unit. Feed, machinery costs and unpaid labour demand were the biggest problem here, so the solution of moving to a grass-based system was obvious."

Peter and David have now expanded to 180 spring-calving cows, with the last autumn-calving batch finished in 2014. The herd EBI is €140 and some Jersey genetics are being introduced to drive progress with solids and fertility. The Farrells have invested in cubicle accommodation, slurry stor-

age, and a 24-point milking parlour in the yard, while soil fertility, reseeding and roadways have been upgraded. Grass growth and utilisation now drive both technical decisions and cashflow in the system.

Mike Chugg, the only group member who is a new entrant to dairying, said Peter's example shows that grazing will not deliver if it is considered only as a response to low milk prices. "The swards and infrastructure on this farm have taken years to develop. They are the product of skilled grass management and good planning. Anyone who thinks that turning a

few stale cows out to grass will improve margins in a low price year is mistaken. This is clearly a long-term project."

Labour input

Peter finished by noting that he now has a lower labour input for 180 cows than he had with 100. "I can finally be on time for hurling training."

The group advised him that based on what they had seen on television, he would be much safer to stay milking the cows.

» Continued on next page

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The group was also interested in visiting a lower input spring-calving herd, so on the second day they made the short trip north from Navan to the farm of Damien McEntee in Co Monaghan. Here, they saw a 320-cow crossbred herd grazing on a typical drumlin landscape. On the day, the herd was delivering 1.80kg milk solids on 1kg meal, with close to 90% of the herd submitted to AI in 24 days breeding.

Damien outlined the development of the herd, from around 60 cows in 2007. He strongly emphasised that his strategy was to grow to a bigger version of the same system, i.e. compact spring-calving with maximum grass in the diet, a long grazing season and using concentrate to supplement deficits, not to drive per-cow performance.

This was achieved by increasing the growth potential of own land, plus the use of lease arrangements. "I have no interest in stacking more cows on the grazing block than it can feed – that is a recipe for ramping up costs due to feed, machinery and concrete. We have tried to keep capital spend in the yard to a minimum. We have adequate winter housing, but my aim is to have cows in there for as few weeks as possible. Our best return on investment is available out in the paddocks."

Damien's spring-calving production system prompted much discussion about the consequences for the seasonality and milk pricing structures. Much of the milk supplied by the UK farmers is being traded on A and B contracts, where a fixed volume (and pattern) is traded on "A" prices returned by core markets, and "B" prices from spot-trade prices. In

most cases, there was an incentive/penalty weighing against summer

milk, though the extent of this was unclear across the group.

However, Toby Ansdell, who himself runs a spring block-calving operation, pointed out that the basic structure of the market makes comparisons difficult. "The UK needs nearly seven billion litres of liquid milk a year, that's half our milk from 1.8m cows.

"Seasonality is an issue for us. We've seen now that Ireland only needs about 500m litres in total, from what could be 7.5bn litres of annual milk. It's a totally different situation, and one which makes block calving very favourable on farms like this."

Peter Edgeworthy agreed. "The system is not only favourable here, it's also probably necessary to keep Ireland competitive at its level of exports. I'm enthused and also a little frightened by the level of potential on these farms. We were told that the region we visited today would be considered relatively marginal land – what I've seen is decent soil, low annual rainfall and huge capacity for grass growth."

The final group visit on the trip was to John Clinton, Carlanstown, Co Meath. John is milking 470 cows in a split calving operation, and supplies liquid milk on contract to Glanbia. John further emphasised that breeding for fertility and milk solids was key to his long-term policy of developing a high forage system with simplified management.

Herd milk protein has risen on this farm from 3.28% in 2009 to 3.49% in 2014, driven by improved EBI and grazing management. On the day, the herd was averaging 26.5 litres at 4.04% fat and 3.45% protein, on 2.2kg parlour concentrate.

The group members remarked on the quality of roadways in place to facilitate 470 cows grazing, and the fact that the herd is fed grass as the only forage. They pointed out that comparable herds in the UK would likely be buffer feeding forage at milking time



for similar milk performance.

To conclude, Dave Budd summarised some key messages from the farm visits. "We visited southern Ireland 13 years ago and then we saw efficient 60- to 80-cow herds turning a decent profit. The host farms on this trip may now be at a different scale; it was noticeable though how the core principles of cow fertility and good grazing remain very important. Can this be retained when the full reality of quota abolition hits? It remains to be seen.

"We were struck by the confidence that the host farmers had in the EBI breeding. That is a core strength,



Tony Dallyn.

Farmer profile

Tony Dallyn farms near Barnstaple in north Devon. He owns 700 acres and rents another 750. He milks 1,000 cows who calve year-round. His land is about 800ft above sea level and receives 70in to 75inches of rain each year from the prevailing westerly winds. Tony's wife Jo Finerty has Irish roots (her parents came from Sligo); the couple met when Jo came to work on the dairy farm.

Tony's herd consists of 900 Holstein cows yielding approximately 8,250

litres and 100 Jersey cows whose role is to boost milk solids. Heifers calve down at about 28 months. Tony's milk is mainly used to make cheese at a DairyCrest plant in Davidstowe.

"We get paid a bonus for fat and protein... which is calculated on a matrix," says Tony. "The mood in the industry here is a bit depressed at the moment. There is a huge variation in the milk price across the UK. It's very much a free market and unless you have a contract with a buyer, there's



Members of the North Devon farmers' group.

Key lessons for us

- There is huge variation in milk pricing structures in the UK, which can lead to confusion around the optimum system, and impede technical efficiency. A relatively simple payment formula helps farmers to manage their costs.
- Good cow fertility is essential.
- Any comparison of farm output and profit must be rigorous and use clearly defined measures. Performance should be assessed across the total area farmed not just the land grazed. Likewise, production must be averaged across all cows on the farm. Milk delivered per cow in the herd is a better benchmark of performance than milk recording averages.
- Sourcing and retaining quality labour will be a significant barrier to performance in expanded dairy herds in Ireland. Pay and working conditions must be competitive with other industries. This is an area where UK farmers have much greater experience.

along with the fluency in the language and concepts of grass measuring.”

He urged caution on some issues: “Our farmers are finding it more and more difficult to retain quality labour, as the opportunities outside the industry are many. Your guys will need to consider who is going to milk the extra cows before embarking on expansion. Also, it is very easy to underestimate the full capital cost of growing the dairy business – there is no room for wishful thinking. Our host farms were working to well-costed business plans, so they will go forward with relative confidence.”



Good cow fertility is essential no matter what the milk production system is

no point producing milk,” he adds.

Tony and his colleagues were impressed by cost per litre as low as 20c/l on some farms they visited. Feeding three tonnes of concentrate per cow, on average, Tony's is not a low-cost system. “We would like to get more milk from grass but our high rainfall and soil types make it difficult to graze during large parts of the season.”

– Mark Moore

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Soil-sampling season

Testing your soil's fertility is always wise and now there's even a discount

Mark Plunkett

Teagasc Crops Environment and Land Use Programme, Johnstown Castle

Results for soil samples analysed through Teagasc show that approximately 90% of samples have sub-optimal fertility status – soil pH, phosphorus (P) and potassium (K). This poses a serious threat to our ability to produce high yields of quality grass and grain and to maximise our competitive advantage from grazed grass. High grain yields are essential for profitable cropping and good quality grass is the most cost-effective feed stuff for our livestock enterprises.

The majority of Irish soils are naturally acidic. The key principle in managing soil fertility is controlling soil acidity by applying lime regularly. Soil test results show that 60% to 65% of our soils currently require lime to increase soil pH to the target of pH 6.3 for grassland or pH 6.5 for tillage crops. Lime is also a cost-effective soil conditioner and very effective at releasing nutrients stored naturally in the soil.

For example, our soils contain between 3,000kg and 10,000kg of N in the soil organic matter. Where soil pH levels are maintained close to the optimum, up to 80kgN/ha/year can be released for plant uptake. Phosphorus is the most expensive nutrient per kilo due to the limited sources worldwide. Therefore, it is critical that both soil P and freshly applied P are utilised as efficiently as possible.

“ Aim to put a three- to five-year liming programme in place and target lime applications to fields with the lowest soil pH levels



Soil test results show that 60% to 65% of our soils currently require lime to increase soil pH to the target of pH 6.3 for grassland or pH 6.5 for tillage crops.

This can be achieved by applying organic manures to replace expensive fertilisers or by selecting appropriate compound fertilisers to supply the range of nutrients required in the right quantities. However, a liming programme must be put in place before you can reap these efficiencies.

Lime should only be applied on the basis of a recent soil test report. It will recommend the rate of lime needed based on the soil pH and the soil type. Aim to put a three- to five-year liming programme in place and target lime applications to fields with the lowest soil pH levels. It is good practice to rotationally apply lime to between 20% and 25% of the farm annually.

September is the ideal month to develop (or update) a fertiliser plan to guide lime and fertiliser applications that will begin next spring. An up-to-date set of soil test results for the

fields on the farm is required for this.

Autumn is also a good time to consider lime applications on both grassland and tillage farms. Lime spread at this time of the year will have a good opportunity to work and adjust soil pH to the target level before fertilisers and slurries are applied in the spring.

September discount on soil testing

For the month of September, Teagasc is offering its clients six soil samples for the price of five for early delivery to the soil-testing laboratory. This will ensure that up-to-date results are available to plan lime applications, make best use of valuable manures and ensure that money is well spent on the correct type and rate of fertilisers. A soil sample is a relatively small cost at 0.50c/ac/year and will provide specific information on a field-by-field basis on your farm to maximise both grass and grain production annually.

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* All Ireland Animal Disease Surveillance Report 2010.

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Winter barley – basics underpin positive trend

The highest yields can only be achieved if the basics are correct

Ivan Whitten

B&T tillage advisor, Teagasc, Naas

Growers were pleasantly surprised to achieve over 10t/ha (4t/ac) this year. Over the last five years, winter barley yields have averaged a healthy 8.8t/ha. Focusing on the basics and getting them right will help to maintain the trend.

Long-standing winter barley growers are enjoying the yields of the past few years, but have also seen poorer years. Shay Grace, who farms near Clane in Co Kildare, says: "The two-row winter barley Cassia under continuous cereals achieved 10t/ha this season, while Tower on the fresher fields achieved yields of 11t to 11.5t per hectare. Both were direct-drilled. Newer growers may not have reached the top yields and lessons can be taken from this year's experience. The highest yields can only be achieved if the basics are correct. Key areas include site selection, soil fertility and pH, seedbed preparation, time of sowing, seeding rates, weed control, etc."

Sowing date and seeding rate

Trials show that the optimum sowing date for winter barley is from mid-September to early October (earlier in northern parts of the country), but local conditions, soil type and experience will dictate the start and end date of this window.

“ Long-standing winter barley growers are enjoying the yields of the past few years, but have also seen poorer yielding years

Barley doesn't have the ability that wheat has to compensate for lower plant numbers in the spring, so there's less room for error. In order to achieve an optimum plant population of 1,000+ shoots/m² next spring, the seed rate at sowing has to be adjusted to take into account changes in expected establishment. Sowing date, seed vigour, soil type, cultivations, pest and disease damage will influence establishment rates.

Thousand grain weight (TGW) has by far the most significant effect on seeding rates. This varies from year to year and between varieties and batches of the same variety. Find out the TGW before you make a decision on the seed rate.

Adjust the seeding rate according to the time of sowing and the expected establishment rate. Two-row varieties should be sown in the range 280 to 320 seeds/m² and hybrid six-row varieties at 200 seeds/m². Once a suitable variety has been chosen, seed rate can be worked out using the calculation shown in Figure 1.

Soil fertility and crop off-takes

Fertiliser is one of the main production costs associated with growing winter barley. A fertiliser spend of up to a tonne of green grain (equivalent) is not uncommon. Bear in mind that this harvest's crops of 10t/ha will have generated off-takes of 38kg/ha phosphorous (P) and 115kg/ha of potash (K). The Graces plan to apply five bags per hectare of 0/7/27, plus Wolftrax Manganese on to the stubbles with 6.25 bags of 18/6/12 + sulphur going on St Patrick's Day.

Shay says: "Any field that needs a bit of sharpening up will get 0.6t/ha of Dynamo chicken litter pellets." All of the wheat and oilseed rape straw is chopped to allow for stubble cultivations in advance of the Grace's Claydon drill.

To get the best return from this level of spend, target winter barley into fields with a pH of 6.7 or greater and where the risk of take all is low. Extra P and K will be required to build soils at Index 1 and 2. Use current soil tests (five years or less) to identify fields that require lime this autumn.





Michael and Shay Grace.



The Claydon drill.

Figure 1: Seed rate calculation

$$\frac{\text{Target plant population (plants/m}^2\text{) } \times \text{ thousand grain weight (g)}}{\text{Expected establishment}}$$

Risks associated with early drilling

Winter barley has no more tolerance to take-all than winter wheat, particularly when drilled in September. Experience has shown huge yield losses from this root disease as early drilling maximises take-all development. Poor rotational position (third and fifth after a ley; second and fourth after a break crop; after long-term spring barley) early planting, high pH, no consolidation post-sowing, etc will encourage take-all.

The highest incidence of take-all will occur when a number of these factors coincide.

Planting crops early increases the risk of BYDV because the crop will be exposed to autumn aphid migration for longer. Also, aphids have more time to reproduce on the crop in warmer autumn weather. Control of autumn infections is important as they can lead to yield losses of around 2.5t/ha.

As resistance to grain aphids has been found in a number of Irish sites, carefully managed control is important. The earlier a winter barley plant is infected, the more severe the symptoms and damage. A gap of four to five weeks between ploughing and sowing, or a herbicide to kill the previous crop volunteers, is the best way to prevent infection resulting from a “green bridge”.

“We routinely dress our winter barley seed with Redio Deter and this takes the crop through the most vulnerable seedling stages as it controls aphid vectors for six to eight weeks,” says Shay Grace. “A follow-up spray goes on at GS 25, along with Flight 3.0 l/ha and IPU 1.0 l/ha. This mix has

achieved very good annual meadow grass (AMG) in the last two years.”

Weed control

Good AMG control is important as it establishes quickly in warm autumn soils. Unlike for wheat, there is no grass weed herbicide option available in the spring. Poor grass weed control will lead to AMG competing with the crop for nutrients. During a wet harvest, AMG will delay harvesting by choking the combine and increasing moisture levels.

As many growers switch to seed dressing to control aphids, an earlier weed control strategy can be used. Pre-emerge options for AMG control include Firebird 0.3 l/ha, plus IPU 1.0 l/ha or Defy 2.0 l/ha, IPU 1.5 l/ha and Diflufenican (DFF) 0.1 l/ha.

The standard treatment of DFF 0.25 L/ha + IPU 1.5 l/ha is a good economical option on “fresher” ground. However, on longer term tillage, ground Fumitory, Groundsel and Poppies can escape. Switching to Flight 3.0l/ha, plus IPU 1.0 l/ha, offers a more broad-spectrum broadleaf weed control option, as well as good AMG control.

Optimism

Winter barley is gaining a lot of attention for its impressive yields and may attract new growers. Experienced tillage farmers such as Michael Grace are convinced: “I will be growing Tower and Cassia again this autumn and if a new block of land was leased, I would like to grow a crop of hybrid Quadra winter barley.” Whether newcomer or old-hand, attention to the basics is key to stellar winter barley yields.

Lambs and trace elements – results from Athenry study

Researchers at Teagasc Athenry have recently completed work on the effects of trace element supplementation on lamb performance post-weaning

Tim Keady¹ and Seamus Fagan²

¹Animal and Grassland Research and Innovation Programme, Teagasc, Athenry, Co Galway

²Regional Veterinary Laboratory, DAFM, Athlone, Co Westmeath



The study started in mid-July and finished when the last lambs were drafted for slaughter in December

Grazed grass, when offered as the sole diet, can sustain high levels of lamb performance.

However, many producers are unable to finish lambs from grazed grass alone. Grassland management and parasite control are key but trace element (mineral) deficiency can also be an issue in some sheep producing areas in Ireland. At Athenry, we recently completed research on the effects of trace element supplementation on lamb performance post-weaning.

Trace element deficiency

Trace element deficiencies can be inherent (low concentrations in the soil) or induced (uptake is restricted by another trace element). Deficiencies may be expressed either in a clinical (symptoms present) or subclinical (no obvious symptoms) form. However, subclinical deficiency may reduce lamb performance and, thus, can be economically important.

We know that the concentration of trace elements in pasture varies during the grazing season. The main relevant trace elements are cobalt, selenium, copper and iodine. Cobalt deficiency is the most common.

Cobalt is required by animals in the production of vitamin B12, which is essential for the metabolism of a rumen volatile fatty acid (propionate). This is an important energy source

for ruminants. Symptoms of deficiency include loss of condition, poor fleece quality, ears become dry and scaly (photosensitisation), loss of appetite, runny eyes with tear staining on the face, and higher worm counts (due to immune suppression).

Uptake of cobalt by plants from the soil can be restricted by high concentrations of manganese and by high soil pH.

As cobalt is not stored in the body and is needed in the rumen, a continuous supply is required throughout the grazing season for vitamin B12 production. Vitamin B12 is absorbed from the small intestine and stored in the liver.

Selenium deficiency is associated with poor lamb performance and white muscle disease. Selenium is also important for immune function.

Athenry study

A recent study at the Athenry Research Centre evaluated the effects of supplementation with cobalt, either alone or in combination with vitamin B12 and selenium, on lamb performance post-weaning.

At weaning, lambs were divided into three groups and received either no supplementation or were supplemented with cobalt or a combination of cobalt, vitamin B12 and selenium. The lambs received their treatments, by drench, every two weeks. The lambs were grazed as one flock to remove any possible effects of grazing management on lamb performance. In addition, all lambs received the same anthelmintic treatments.

The study started in mid-July and finished when the last lambs were drafted in mid-December.



 **Tips**

To improve lamb performance post-weaning, it is important to:

- Use good grassland management practices.
- Implement an effective parasite control regime.

If a trace element deficiency is suspected based on clinical signs, it needs to be identified by:

- Blood samples (currently there is no blood sample for cobalt).
- Tissue samples (liver for cobalt deficiency).

Soil sampling can be a poor/ inadequate indicator of trace element deficiency in lambs because:

- Trace elements can restrict the uptake of others by plants, e.g. manganese interferes with the uptake of cobalt.
- Soil pH effects mineral uptake, e.g. a high soil pH limits cobalt uptake by herbage.



Noel McNamara and Tim Keady at Teagasc Athenry.



Continued on page 20

» From page 19

The effects of treatment on lamb performance are presented in Table 1. In the first seven weeks of the study, trace element supplementation had no effect on the daily liveweight gain. However, as the grazing season progressed, supplementation with cobalt – offered either alone or in combination with vitamin B12 and selenium – increased lamb weight gain.

Trace element supplementation increased lamb drafting weight and carcase weight by 1.75kg and 1.35kg, respectively. It is notable from these results that there was no benefit to including vitamin B12 and selenium with cobalt in the drench under conditions of the Athenry farm.

Blood samples were taken from the lambs that were drafted for slaughter on 4 November and 16 December and the results are presented in Table 2. This shows that lambs on all treatments were in the normal range for blood copper, selenium and GSHPX (glutathione peroxide).

Furthermore, of all the lambs that were blood sampled only one lamb had blood copper concentrations (9.3 mmol/l) below the normal range (9.3 – 19 mmol/l), while 10% of lambs were above the normal range. Similarly, only four lambs had blood selenium concentrations below the normal range (0.75 – 3.0 µmol/l); the lowest was 0.61 µmol/l. However, including selenium in the trace element mixture increased blood selenium concentration.

Measure

Currently, there is no accurate measure for blood cobalt concentration available in Ireland. As cobalt is stored in the liver in the form of vitamin B12, the best indicator for cobalt status is liver cobalt concentration. The effects of treatment on liver and kidney composition are shown in Table 3. Lambs that did not receive any supplementation had a lower concentration of cobalt in the liver, below the normal range.

Supplementation with cobalt alone or in combination with vitamin B12 and selenium increased liver cobalt concentrations. Inclusion of vitamin B12 tended to increase liver cobalt concentration relative to the cobalt only treatment.

Kidney selenium levels were also measured. Including selenium in the drench had no effect on kidney selenium concentrations. Lambs which had been supplemented with cobalt alone or in combination with vitamin B12 and selenium had higher liver copper concentrations, which may be due to higher herbage intakes.



Grazed grass, when offered as the sole diet, can sustain high levels of lamb performance, but many producers are unable to finish lambs from grazed grass alone.

Table 1: Effect of trace element supplementation on lamb performance

	Treatment		
	Control	Cobalt	Cobalt + B12 + selenium
Liveweight gain (g/day)			
12 July to 26 August	179	179	172
26 August to 23 September	169	193	237
23 September to 4 November	81	150	159
4 November to 16 December	113	212	172
Weight at drafting (kg)	45.6	47.2	47.5
Carcase weight (kg)	19.1	20.3	20.6

(Keady, Fagan and Hanrahan 2015a)

Table 2: Effect of trace element supplementation on blood composition

	Treatment		
	Control	Cobalt	Cobalt + B12 + selenium
Copper (mmol/l)	16.7	15.5	16.0
Selenium (µmol/l)	1.0	1.0	1.7
GSHPX (units/ml)	154	162	292

(Keady, Fagan and Hanrahan 2015b)

Table 3: Effect of trace element supplementation on tissue composition

	Treatment		
	Control	Cobalt	Cobalt + B12 + selenium
Liver			
Cobalt (µmol/l)	0.17	0.73	0.99
Copper (µmol/l)	1.45	1.81	1.66
Kidney			
Selenium (µmol/l)	17.8	17.5	16.8

(Keady, Fagan and Hanrahan 2015b)



CONCLUSIONS

- At Athenry, supplementation with cobalt increased lamb performance.

- The benefit to supplementation was greater later in the season.
- Including vitamin B12 and selenium with cobalt did not significantly increase lamb performance relative to the cobalt-only treatment.

LEFT: Seamus Fagan, Regional Veterinary Laboratory, Athlone.

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A group approach in Mayo

Marketing groups are key to maximising returns from sheep enterprises

Frank Hynes

Sheep Specialist, Teagasc Animal and Grassland Research and Innovation Programme

John Noonan,

Teagasc B&T sheep adviser, Mayo

Tom and Maura Staunton live near Tourmakeady, in a picturesque location overlooking Lough Mask where they've reared three boys and three girls. Over the past 35 years, much of Tom's time has been devoted to finding innovative ways of maximising the returns from his sheep business. Establishing, with others, and active participation in, a number of marketing groups has been key.

Farming

Tom farms 66ha: 36ha owned and 30ha rented. He classifies 40ha as average to good quality with the remainder regarded as rough grazing. "We keep 350 Blackface mountain ewes and 90 replacements, as well as a flock of 20 Bluefaced Leicester ewes which are used to produce rams for sale."

When replacements and rams are included, this leaves a stocking rate across the whole farm of more than seven ewes per hectare. "Our ewes are Mayo cross Lanark type and we scan about 70 days after ram turnout and we typically scan at 1.6 lambs per ewe mated. We separate the ewes that do not show up as in-lamb at that stage and run them with a ram for a number of additional weeks. This gives an extra crop of lambs and increases the

overall lamb crop for the farm.

"Our main sheep enterprise is the production of Mule ewe lambs of about 45kg to 50kg liveweight for the special breeding sales in August. They breed in their first year and consistently command a premium price. We castrate male lambs and the weathers are sold as either forward stores or fattened for slaughter."

Groups

Mayo Mule and Greyface Group

In 1984, Tom became involved in a project which aimed to produce quality productive ewes for lowland sheep farms. The project was supported by the Department of Agriculture and ACOT (now Teagasc). Local Mayo Blackface ewes were mated with Bluefaced Leicester rams. A special sale was organised to sell the female progeny. The initial sales had approximately 100 specially-bred ewe lambs. The Department of Agriculture remained involved for four years, after which the project was handed back to the farmers, who received ongoing help from ACOT.

The reputation of the breed has grown steadily. There are now approximately 4,000 annual sales, including

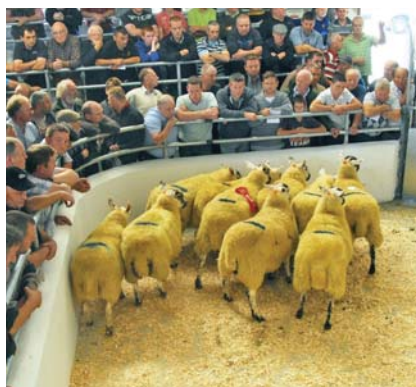


Figure 1: Farmers working together to market their livestock is key to maximising returns.



Over the past 35 years, much of Tom Staunton's time has been devoted to finding innovative ways of maximising the returns from his sheep business.

ewe lambs and ewe hoggets. These take place at Aurivo Mart, Ballinrobe on two separate dates during August and September each year (Figure 1.). In 2014, breeding stock was purchased by buyers from counties throughout Ireland. "There are 51 members in this group," says Tom. "All of the sheep sold at these sales are produced by these farmers in the local area. Seventy per cent of the members produce and sell ewe lambs with some also selling ewe hoggets. The remaining 30% of farmers sell ewe hoggets that they have purchased the previous year as ewe lambs at these sales."

The Mule/Greyface group is run by a committee which uses every opportunity to promote its produce by taking sheep for display at shows such as Tullamore, Clonmel, etc. The committee records all buyers at sales and they are invited back the next year. The group celebrated its 30th anniversary last year (2014) and members are proud to be selling a high-



Success factors

Tom identifies a number of features of all three groups.

- Quality stock. Ewes must be in good body condition.
- Farmers taking pride in the stock they produce.
- Commitment: Rules are set out and rigorously enforced.
- A strong committee leads the activities of the group; all members benefit.
- Detailed analyses of lambs produced and supplied by each member are carried out.
- Strong marketing efforts, with records kept on all buyers.
- Regular use of media and other opportunities to promote the produce.
- Keeping abreast with technological changes, including an internet site for all three groups.
- People involved like the enterprise they work in and remain committed to it.

For the future

Tom says that, in order to remain successful, the groups need:

- Strong leadership to drive progress.
- Innovation and vision to identify new opportunities.
- The ability to learn from mistakes.
- To be wary of complacency.
- To seek constant improvement.
- To treat all members equally.
- To encourage technology adoption, with support from Teagasc and others.

value product worth a premium of €40 to €50 over its male counterparts.

South Mayo Lamb Producer Group

In addition to breeding stock, Tom produces lambs for slaughter. These include the male lambs plus the females that do not make the breeding grade. "Myself and a number of other farmers felt we were not being adequately rewarded for producing top-quality lambs so, in 1987, we established the South Mayo Lamb Producer Group." This group currently has 186 members supplying over 12,500 lambs annually. A committee of 12 negotiates for the members who gain through quality bonuses; subsidised transport costs; better concentrate prices; and a co-ordinated approach to selling pet lambs.

Mayo Mountain Blackface Group

In 2004, a separate group – The Mayo Mountain Blackface Group – was set up to provide buyers of Blackface

sheep with a sale that offered quality sheep in substantial numbers. More than 1,800 females were sold at premium prices in 2014. The group has diversified and grown to 240 members, selling 10,500 lambs annually. Areas addressed by the group include markets for light hill lambs, finding buyers for store lambs for further feeding, selling lowland factory lambs and sales of purebred Mayo Blackface females as replacements on lowland and upland farms throughout the country.

"We cooperate with the Mayo Connemara Blackface ram group established in 1961, when they have their annual sale with the breeding sale on the last Saturday in September," says Tom.

This group operates under a committee of 10. Similar to the Mule/Greyface group, a premium price is achieved for breeding stock. The group promotes the Mayo Blackface mountain breed as a purebred ewe

and as a dam for producing crossbred ewes for lowland farmers.

There is a MALP programme in the area run by Sheep Ireland. This involves farmers from the Mayo-Connemara breed recording programme, the Mayo Blackface Mountain group and non-group members all working together to enhance, protect and improve the native sheep in the region.

The three groups operate under one umbrella known as the Lake District Sheep Producers. This group provides administrative support, with two part-time staff. "The admin staff play a key role," says Tom.

Limited income

"Income from hill sheep is limited," concludes Tom Staunton, "especially where the amount of available lowland/grassland is limited. By maximising output through careful management and with a full industry working together, the future can be bright for everyone."

Changes in the Stars

The changes to the Eurostar index will help the beef industry. Beef breeders will benefit by studying the implications for their own herds

Aidan Murray
Beef specialist, Teagasc Animal and Grassland Research and Innovation Programme

In recent years, we have become familiar with the Eurostar index for beef cattle, which outlines the potential economic benefit from selecting one animal over another, be they male or female. The overall aim is to breed from the best or, as the index describes them, four- and five-star animals.

We know from national data that four- and five-star females are more fertile, have shorter calving intervals and wean heavier calves than one- and two-star animals.

There has been concern within the beef sector that our national suckler herd was continually gaining on the terminal traits and that we were moving in the wrong direction with maternal traits.

The solution to address this takes a two-pronged approach. Firstly, we have had the emphasis on the new Beef Data & Genomics Programme (BDGP), which is targeting the selection of the top females as replacements. The use of genomics and genotyping will help improve the reliability of each animal's proof on the index and, ultimately, genetic gain.

The second thing that has happened is that ICBF set up a Eurostar review group to evaluate the existing index. The group delivered its findings in May and recommended that:

- The economic values used in the index be updated.
- Construction of the maternal index be altered to reflect the increased emphasis on the female traits.
- The index presentation will be simplified for females to reflect their replacement value. Commercial females should have a star rating across all beef breeds displayed and no "within breed" values should be displayed.

These proposed changes have been

Table 1: Changes in the replacement index weightings

	Old	New
Calving traits	19%	16%
Docility	4%	4%
Beef traits	25%	21%
Feed intake	23%	18%
Fertility	17%	23%
	100%	100%

accepted by the board of ICBF and, since the beginning of August, animals have been assigned their new evaluations based on the revisions to the index.

What do the changes mean?

Table 1 outlines the changes that have been applied to the revised replacement index to reflect the increased emphasis on the maternal traits.

Calving traits, feed intake for cows and heifers, milk and fertility all make up the cow's traits.

The most significant changes in the replacement index on the cow traits is for milk which has gone from 12% to 18%. This will be captured via maternal weaning weights.

The emphasis on fertility has also increased. Traits such as age at first calving, calving interval and survival get a heavier weighting.

Docility weighting remains unchanged at 4%, while there is a reduction in some of the terminal or beef traits, feed intake and calving difficulty.

The net effect of all this is to increase the value of those females that are likely to rear heavier calves, calve at a younger age, go back in calf regularly and survive longer in the herd.

How new replacement index will look

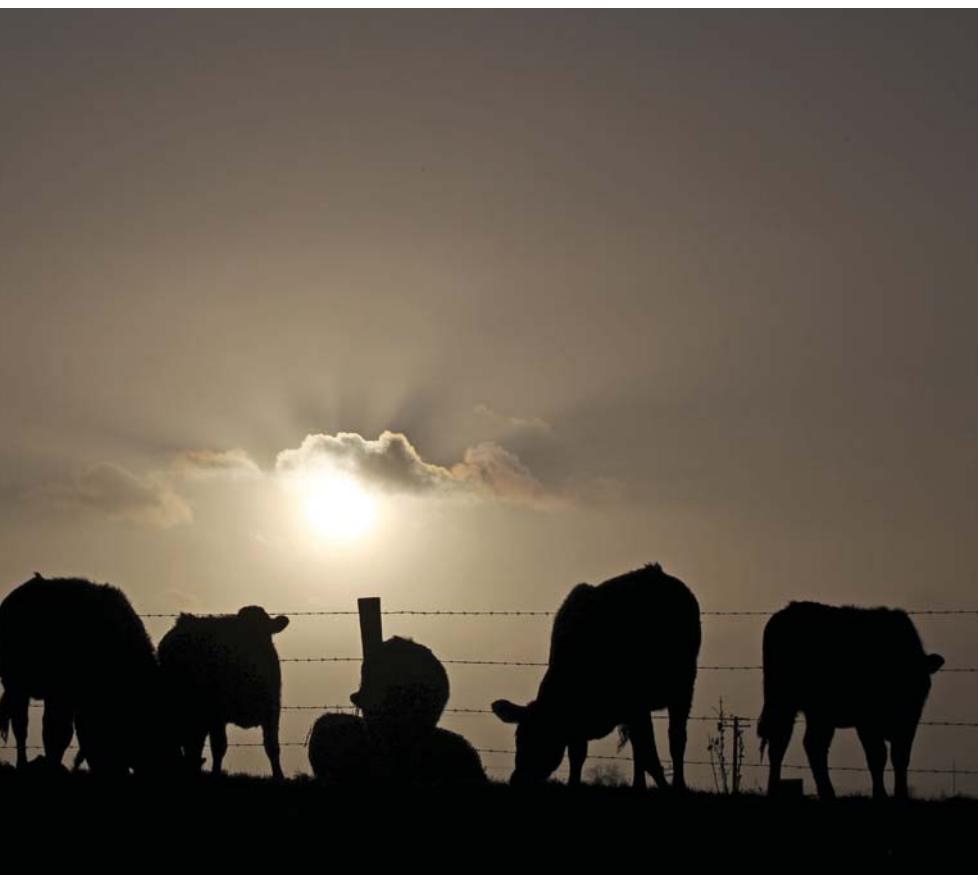
Many of you who have signed up for the BDGP will have received a Eurostar report from ICBF on the Eurostar evaluations for animals in your herd in the last few weeks.



Calving traits, feed intake for cows and heifers, milk and fertility all make up the cow's traits



The Eurostar index is a management tool that will help us to make better breeding decisions through the animals we select.



overall replacement index to hone in on the traits that need to be improved. If you want to improve calving interval, you might select an animal with a negative value for daughter calving interval. Equally, if you want to improve growth rate, then select animals that are four- and five-star for carcass weight. Always bear in mind that low reliability figures mean that the values could fluctuate considerably, but with genomics reliabilities will improve by 20% to 30%.

BDGP and the new index

By identifying the next generation of four- and five-star replacements that will progress you and the national herd, the new index will be an integral part of achieving the targets of the BDGP. It will also identify the bulls with both terminal and replacement traits. It is important to look at the ICBF Eurostar report for your own herd. You need to determine from your current base of cows and heifers if you will be in a position to breed the required four- and five-star heifers for the programme.

Your current cow base with a suitable stock bull or AI may well breed suitable heifers. But there are about 30% of herds out there that will have to identify and source heifers from other suckler farmers or crossbred animals from dairy herds. Using and understanding the Eurostar index will be key to achieving this.

The Eurostar index is a management tool that will help us to make better breeding decisions through the animals we select. Will the index continue to change over time? Of course it will. Because it is used to predict future profit, it will evolve over time to reflect the importance of the various traits and economic values we place on these traits as markets and input costs change.

So, what is different in the new report for your females compared with what was there before? The first thing to notice is that you will only receive a replacement index value and there will be no terminal value given.

The other point is that the replacement value is now on a per-progeny, per-lactation basis, whereas in the old index the value was calculated per progeny over the lifetime of the animal. This was worked out over approximately five calvings. Because the index is now per lactation, the new values will mean animals will have

lower values than previously.

There will be no more half stars shown. So, for example, a heifer with a three-and-a-half-star replacement value will be rounded up to become four-star.

The female listed in Table 2, for example, with a replacement value of €158 is saying that female progeny retained for breeding from this animal would leave €158 more per lactation than female progeny retained from an animal with a replacement index of zero.

It is important to drill beneath the

Table 2: Eurostar report

Economic indices	Euro value per progeny	Index reliability	Star rating (across all beef breeds)
Replacement index	€158	29% low	★★★★
Key profit traits	Index value	Trait reliability	Star rating (across all beef breeds)
Expected progeny performance			
Calving difficulty (3% and 4%) Breed avg 4.25%, all breeds avg 4.98%	+5.3%	27% (low)	
Docility (1-5 scale) Breed avg -0.01, all breeds avg 0	Scale	(Average)	★★
Carcass weight (kg) Breed avg 14.25kg, all breeds avg 22.98kg	+17kg	38% (low)	★★
Carcass conformation (1-15 scale) Breed avg 1.35, all breeds avg 1.86	+1.82 scale	34% (low)	★★★
Expected daughter breeding performance			
Daughter calving diff (3% and 4%) Breed avg 6.45%, all breeds avg 6.15%	+8%	21% (low)	
Daughter milk (kg) Breed avg 3.58kg, all breeds avg 0.31kg	+1.5kg	48% (average)	★★★
Daughter calving interval (days) Breed avg -1.01 days, all breeds avg -0.32 days	-3.33 days	27% (low)	★★★★

Inheritance: plan for a smooth transition



By seeking expert advice and achieving a good family discussion when planning to transfer the farm, a fair outcome can be reached and the greatest pitfall of all – intestacy – avoided

James McDonnell
Financial Management Specialist,
Teagasc Rural Economy and
Development Programme

about transferring control and inheritance is about transferring assets, we will focus largely on inheritance in this article, but the two are often closely linked.

There are good tax incentives to promote early farm transfer, but this is a personal decision for every landowner.



Family involvement in planning for inheritance and succession is essential

Transferring the family farm is so much more than just a simple business transaction. There are a number of complex issues to be addressed, including:

- That the family home is normally inseparable from the business.
- There may be a number of family members/siblings/children to be catered for.
- If the transfer is during the owner's lifetime, he/she may need to continue drawing an income from the business.
- Creating an arrangement that respects the different opinions of family members.

Remembering that succession is

Expert advice

Consult your solicitor and your tax advisor/accountant and the Department of Social Protection in relation to your pension and other entitlements. Good advice will make the task less daunting. All of the experts working in this area give the same advice – PLAN (see sidebar). If done in good time, this will help you to avoid the pitfalls which could reduce the value of the assets to be transferred.

There are good tax incentives to promote early farm transfer, but this is a personal decision for every landowner. To complete this task, while looking after all of your dependants

Table 1: Example of how an estate is distributed on intestacy

Surviving relatives	Their share of the estate
Spouse and children	Spouse gets two-thirds; children share remainder
Spouse and children	Spouse gets entire estate
Children and no spouse	Children share entire estate
Father, mother, brothers and sisters	Each parent gets one half
Parent, brothers and sisters	Parent gets entire estate
Brothers and sisters	All get equal shares
Nephews and nieces	All get equal shares



Key messages

PLAN

P = Preparation: Organise your thoughts and have a discussion early with the family. An open conversation is required with all those involved, so that misunderstandings can be avoided.

L = Legacy: Plan how the “farm” is going to be passed on. From both a tax and a legal point of view, early planning is the key to reducing potential cost issues.

A = Action: Make appointments with the professional experts you require to make informed decisions.

N = Now: This is the time to get this item off the “to-do” list. Government policy could change significantly over the course of a few budgets. If your decision is delayed, it may be more difficult to achieve your wishes in the future.



fairly and your own future income in the most tax-efficient way, while fulfilling the requirements of the law, is not easy.

If you don't have a will, ask your solicitor to prepare one. It should be updated every few years as the tax laws and family circumstances can change significantly. A will should be in place even where you have decided not to transfer the farm until a family agreement is reached.

There are also a number of tax issues to be considered. On lifetime transfer of farm assets, capital acquisitions tax (CAT), capital gains tax (CGT) and stamp duty are the taxes for which a return must be filed. Reliefs may be claimed from each of these taxes.

With the drop in property values over the past few years, the threshold of each relief has also dropped, so care must be taken in planning the transfer to reduce any tax bills.

Family discussion

Family involvement in planning for inheritance and succession is essential. The family discussion should take place early, not on the eve of a 35th birthday (a key date in terms of succession) or by the bedside of a dying parent.

A key aim must be to have an open conversation with the people involved,

so that misunderstandings can be avoided. Some topics you can discuss with the professionals in attendance include:

- Writing a will/forming trusts.
- Starting the conversation within the family.
- Income security after retirement and pensions.
- The Fair Deal Scheme and its pitfalls.
- Options to cater for other siblings.
- Forming a partnership with your children.

Where relationships are difficult, a professional mediator can help.

Fairness

Farmers are often asset-rich, but cash-poor. Where there are a number of children to be “looked after”, there is sometimes an expectation that the farm should be divided equally in monetary terms, meaning if one child is getting the farm a cash payment must be made to other siblings. This system could put the farm out of business as the debt-carrying capacity of the business could be very low. So, how then can a parent treat all the children fairly? Fair may not always mean equal.

Providing one child with a decent education and another with a site and a third with the farm may be a fair result.

What is fair? Is a fair share an equal

share? It all depends on the situation. Here are some questions that you should answer as part of the process of figuring this out.

- How large is the farm and what is the extent of the farm business?
- How many siblings are to be catered for?
- What are the circumstances of the siblings (in education, emigration, work, etc)?
- What long-term support is required for family members?
- What is the income-generating capacity of the farm?
- What other assets are part of the succession plan?
- How are the parents to be looked after?

Intestacy

If you die without making a plan or will, you are “intestate” and, by default, the State will implement its plan, which may not be in line with your wishes.

The rules of intestacy mean that the farm/assets will be divided among a number of your next of kin. This often results in family disputes and the outcome could result in the disposal of the business (see Table 1).

This autumn, Teagasc will continue its “Transferring the Family Farm” series of meetings. See events, pages 4 and 5, for full details.



New knowledge transfer groups

There are many benefits associated with being a member of a beef group

Aidan Murray
Beef specialist,
Teagasc Animal and Grassland
Research and Innovation Programme

The Department of Agriculture Food and the Marine (DAFM), as part of the new Knowledge Transfer Programme, has announced a new knowledge transfer (KT) groups programme.

The programme will initially allow for the establishment dairy, beef and equine groups, with sheep groups following in early 2016.

The initial tranche of the budget is targeting 600 KT beef groups, with around 9,000 farmers participating over three years. The programme builds on the success of the BTAP

programme, but there are a number of changes.

The DAFM has already sought expressions of interest from qualified advisors/facilitators who want to facilitate KT groups and, so far, 356 have been approved for beef. These facilitators have now been requested to propose the number of groups they want under the programme.

All proposed groups will be screened and weighted by DAFM and facilitators notified as to whether they can proceed. Once facilitators get the go ahead, they will contact farmers who want to participate and submit their names and herd numbers to the DAFM. The expectation is that groups will start holding their first meetings as KT groups in early November. The programme will be open to both exist-



Draw up animal health measures targeting areas such as calf health and biosecurity

GROUP PARTICIPATION

Teagasc commissioned an independent study into the value of discussion groups in 2014 and the findings highlighted a number of benefits to group members.

Group members tended to have higher stocking rates and achieved higher prices per head for stock sold. Even though group members had higher output and higher costs (€/ha), they still had a net margin of €95/ha higher than those who were not in groups. When the data was examined in detail, group members were shown to be achieving more days at grass and higher liveweight gains with their stock.

Farmers in groups improved their management practices by sharing information with other farmers and finding solutions to problems. They found it beneficial to compare their own farm against others in the group and they benefited from the positive attitude of being part of the group.

Many of the group members also said that the social interaction of meeting with other farmers was an unexpected, but important, benefit of group membership.

The terms and conditions for the KT groups programme will be available in early September from DAFM. If you are interested in continuing with your existing group or you want to become a new member, then it is important that you make contact with your advisor/facilitator, if you haven't already done so. They will be able to discuss your own suitability for the programme and outline the exact requirements.



ing and new group members.

As mentioned earlier, the new KT programme differs from the previous discussion group programme of BTAP. Gone are the tasks that you were used to under BTAP, but there is still a focus on profitability, breeding, animal health and environmental sustainability. The programme is also designed and costed to allow for more one-to-one time between the farmer and the facilitator/advisor.

Farmer requirements

Farmers participating in the programme will be required to:

- Attend five knowledge exchange (group) meetings and/or four meetings, plus one DAFM-approved national event.
- Complete a farm improvement plan

in year one in conjunction with their facilitator/advisor. This plan will continue to be updated in years two and three of the programme.

- Draw up animal health measures targeting areas such as calf health, biosecurity, etc, in conjunction with an approved vet who has undergone DAFM training for the programme.

The Farm Improvement Programme will require farmers to complete an eProfit Monitor, a breeding plan and/or a grassland plan or carbon navigator. If a farmer is already in the Beef Data and Genomics Programme, then they will have completed a carbon navigator, so the grassland plan will apply.

Farmers will receive €750 per year as part of the programme, which will run for three years. The programme

will also cover the costs of the facilitator/advisor but farmers are expected to pay directly for the animal health measures component.

As the current Sheep Technology Adoption Programme (STAP) ends in October, it is expected that the new sheep KT groups will start early in 2016. Farmers with both beef and sheep will have to decide whether to opt for a beef or sheep group because under the new programme, you cannot participate in both. EU regulations governing dual funding are the reason that farmers cannot be in both beef and sheep groups.

Another point within the new programme is that you cannot use a nominee to attend the group meetings. This may be an issue for some. Group size will have to be 12 to 18 members.

equine groups

Let's
get
talking

Equine groups can participate in the knowledge transfer programme

Declan McArdle
Equine Specialist,
Teagasc Rural Economy
and Development Programme

The inclusion of equine groups in the knowledge transfer programme presents a fantastic opportunity for horse breeders to share information that will make an impact at farmgate level. So many breeders dream of breeding the next global superstar, but how many are actually making informed decisions to achieve their goals? I believe this programme is a significant step forward in supporting the industry and has huge potential to make a real difference in the sector.

Currently, there are a number of equine discussion groups around the country. Those involved reap the benefits of acquiring and sharing knowledge and experiences and being part of a group where ideas can be exchanged and discussed.

One such person quick to see the potential of the programme is Andrew Hughes of Ennisnag Stud.

Andrew has developed his stud farm in Co Kilkenny over the past 10 years to a herd comprising 16 quality mares. He has been extremely selective in sourcing some of the best show jumping blood lines in the world.

This has taken immense time and research and he travels regularly to the continent to view and assess up-and-coming sires and their progeny. Some of his mares come from families where the mare line has bred multiples of 1.60m horses.

"The industry is constantly evolving and up-to-date information is the key to success," says Andrew. All of his mares are either from performance-rich families or they themselves have



Andrew Hughes is a strong advocate of breeders learning from each other.

Key messages

- Participants must be at least 18 years of age.
- At the time of making the application and for the duration of the programme participants must hold an equine-registered premises.
- Participants will be identified with a unique number for the duration of the programme.
- Participants must have a minimum of two broodmares (aged between two and a half and 20 years of age) for the breeding of sport horses that are registered in their own name for the period of the programme in an EU-approved studbook.
- Participants must present their nominated mares for inspection carried out by an appropriate EU approved studbook before the end of year one. Mares already inspected are not required to be inspected again.
- Participants must complete the Farm Improvement Programme using the HSI online knowledge transfer equine system and ensure that data is registered throughout the programme.
- Participants in the knowledge transfer equine programme shall be required to attend a minimum of five knowledge transfer group meetings per year, or at least four meetings and no more than one Department-accredited national event.

competed at 1m 60 level.

"I see on the continent that they share information so much it's unbelievable and when I travel to Holland I get so much more out of the trip from the information I get. I think it's time we take the Teagasc template from other enterprises that works so well and implement it in the horse industry and get people working together, instead of working as individuals. We don't know everything and it's a bad day when you don't learn something new."

The objectives of the knowledge transfer programme are to:

- Assist the development and transfer of knowledge on key aspects of farmers' businesses, including profitability, environmental sustainability, breeding and animal health measures in relation to sport horse production.
- Raise awareness of issues relating to farm health and safety and farm succession.

The topics covered will include, among others:

- Profitability and financial management.
- Grassland management and sustainability.
- Animal health measures.
- Farm health and safety.
- Farm succession planning.

Each participant must complete a farm enterprise improvement plan with his/her DAFM-approved knowledge transfer facilitator.

The farm enterprise improvement plan will be tailored for the individual participant following one-to-one consultations and group discussions and shall consist of the following: participants must complete a breeding plan in year one and update on an annual basis. The initial programme is of three-year duration and participants will receive a payment of €750 per year. Group size must be between 12 and 18.

For details on the programme, contact Teagasc equine specialists Declan McArdle on 087-6831876 or Wendy Conlon on 087-9879083.



Darren Hughes and his father, Francis.

Colleges a great component in the making of a career

Four college graduates tell us about their desire to apply what they have learned at third-level to their work on farms or in further research

Increasingly, applicants with extensive work experience or previous educational achievement are enrolling in Teagasc agricultural and horticultural colleges. This enriches the learning experience for all students. Our featured graduates all took a circuitous route to the colleges. Having tried other things they had come to realise farming or the natural sciences were their passion. They all share a desire to apply their learning on farms or in further research.



Darren Hughes from Tydavnet, Co Monaghan, completed the Level 6 Specific Purpose Certificate in Farm Administration (Green Cert) at Ballyhaise College.

After finishing secondary school, Darren went to the University of Ulster and completed a BSc honours in business studies in 2010. He started and currently runs marketing firm D & K Hughes Marketing Ltd but coming from a dairy farm kept a keen interest in agriculture.

In September 2012, Darren decided to follow this interest and enrolled in the full-time Level 5 Certificate in Agriculture course in Teagasc, Ballyhaise. "I had made up my mind that I wanted to farm and the course was starting that September in Ballyhaise, so the timing suited me. Ballyhaise is only 45 minutes from home, so I was able to attend as a day student and still help out on the farm in the evenings."

Darren is a senior county footballer playing midfield with Monaghan and it was no surprise to the staff in the college that he brought the leadership that he shows in sport to the classroom. In particular, he showed great interest in the leadership module, adding to class and group interactions in sharing his experiences and giving direction to less experienced classmates.

Darren completed the Level 5 in June 2013, and as with the majority of Teagasc students progressed on to the part-time Level 6 Specific Purpose Certificate in Farm Administration (Green Cert). "This course was ideal for me as it allowed me to return home to farm full-time, as well as continue with my education. It involved attending Ballyhaise on 25 days between September and June."

As part of this course, Darren joined a college-based dairy discussion group, kept financial records for 12 months based on his home farm. In June 2013, he completed a two-week farm management module, where he prepared a six-year farm business plan for the family farm.

"The second year where I completed my Green Cert, showed me the importance of farm management. I completed our farm's e-Profit Monitor, which I found very interesting and useful. Since completing my training with Teagasc, I am in the process of setting up a partnership with my father. I have joined a dairy discussion group facilitated by our local Teagasc dairy advisor. I have begun to practise what I learned in Ballyhaise, both with the help of my advisor and of other farmers in the discussion group."

» Continued on page 32



Notes

- It is never too late to return to a subject you are passionate about.
- The Irish education system is flexible and wherever you start your progression will be limited only by your ability and enthusiasm.
- There are now great opportunities in agriculture and the life sciences and an agricultural or horticultural college is a great place to start.

Sarah Claxton, who farms in partnership near Stradbally, Co Waterford, finished the Advanced Certificate in Dairy Herd Management in 2013 at Kildalton Agricultural College.

A degree in psychology at WIT was Sarah's first step in higher education before she decided to attend Kildalton and complete the FETAC Level 5 and then the FETAC Level 6 Advanced Certificate in Dairy Herd Management. "My parents, Andrew and Jennifer, are still quite young and Dad thought it would be a good idea to gain another area of expertise."

Sarah says that a good understanding of the mind and what makes people "tick" is useful when dealing with people particularly in stressful situations. "In the future, farmers will be

“ I really enjoyed my time at Kildalton, particularly the second year when breeding, grazing management, farm management, animal health, etc, were covered in great detail

working in partnerships to make best use of resources and gain economies of scale," she says.

That's certainly the case for Sarah, who manages a 370-dairy cow herd, which is owned by a partnership including herself, her parents and several other farmers who contribute land or animals in return for a share of the profits. "We had been dairy farmers up until 2000 and a partnership was a good route to get back in," says Sarah, who has a fantastic rapport with the cows which have Friesian and Jersey blood.

"I really enjoyed my time at Kildalton," says Sarah, "particularly the second year when breeding, grazing management, farm management, animal health, etc, were covered in great detail. The students had hands-on responsibility for a herd of 40 animals and we got an excellent grounding in how to run a dairy herd."

Sarah spent two three-month practical placements with dairy farmer Michael Wall near Dungarvan. "I learned a vast amount from Michael," she says. "The opportunity to see other farms and farming systems is a huge advantage.

"You come out of college bursting with enthusiasm," says Sarah. "And you also have the skills to be a dairy farmer." Her aim now is to get the cows to consistently yield their body weight (500kg) in milk solids at a stocking rate of three cows to the hectare.



Sam Belton from Dublin graduated from a FETAC Level 5 course at the Teagasc College in the National Botanic Gardens.

Sam freely admits that biology was the only subject in secondary school, which really fired his enthusiasm. After leaving school, he decided to leave academia and spent a year as an apprentice plasterer. He soon realised that plants, rather than plaster, were his passion.

"Following acceptance on to the FETAC Level 5 Certificate in Horticulture in the National Botanic Gardens, I had the chance to study a diverse range of plant-based subjects under excellent teaching staff with masses of experience in their respective disciplines.

"One area that I particularly enjoyed studying was protected crop production and the environmental challenges (i.e. pests and diseases) associated with it, a subject that was taught by Dr Paul Fitters. The freedom to pick a subject of my choosing (once feasible) for my final year thesis project led me to study how the greenhouse whitefly interacted with tomato plants to affect trichome density (a type of plant hair



that functions as a defence mechanism against grazing herbivores)."

Having found his niche, Sam excelled academically and pursued a BSc in Horticulture (Level 7), offered by WIT through the Teagasc College of Amenity Horticulture.

"While working on my final year project, I really got a chance to appreciate the value of being able to study with both WIT and Teagasc (in the National Botanic Gardens). I was able to work with Dr Michael Gaffney, a Teagasc

Sam Belton feels that his time spent in the Botanic Gardens gave him an excellent foundation on which to build an exciting career in crop plant research.



Sarah Claxton farms in partnership in Waterford.

Ronán Siochru from Dingle, Co Kerry, completed the Advanced Cert in Dairy Herd Management at Clonakilty Agricultural College in May 2013.

How best do you maximise the potential from a 70-acre suckler farm on the Dingle Peninsula, as far west as you can go in Ireland? This is an area once described by National Geographic as "the most beautiful place on earth".

This is the conversation that Ronán Siochru of Burnham, Dingle, had with his father in 2011, after returning from several years working in London.

Ronán had decided that he was fully intent on farming. However, both he and his father had reservations that their 60 suckler cows would deliver adequate income in the future.

The seed was sown and Ronán became fully committed to changing the farm enterprise to milk production. He started the Level 5 Certificate in Agriculture in September 2011 and then progressed on to the second year of the Advanced Cert in Dairy Herd Management.

"I knew education and support was key to get the conversion from the sucklers to dairying up and running. The course was very beneficial to me and helped me to gain the knowledge and technical skills required to run a successful dairy business in the future.

"As part of my education, I completed

two 12-week work placements, both on dairy farms. The first was in Co Meath with Diarmuid Lally and the second was with Andrew Fitzgerald, Camp, Tralee. It was while on my first placement in Co Meath that I started to buy dairy heifers calves."

Since then, Ronán has gradually replaced the farm's suckler cows with dairy stock, largely by purchasing high-genetic merit heifer calves from local dairy farmers. Over half of the 60 calves which were purchased had an EBI of over €200, with €158 the average for the bunch.

Investment in roadways, cubicle sheds, etc, has been substantial. The main investment was a 14-unit Dairy-master parlour along with a 10,000-litre bulk tank.

"I am a member of a local discussion group and really enjoy the learning experience it is giving me, along with being able to benchmark performance against the others," said Ronán.

"Should any expansion opportunities come up in the future, I will be prepared to take them on while my main focus will be maintaining the highest level of efficiency. I know there are still plenty of challenges to overcome, but I am extremely positive about the future of dairying in Ireland."

See dates for college open days during September and October on page 5.

horticultural research officer, from whom I gained an immense amount of knowledge, both in terms of scientific methods and entomology in crop production."

Sam's next step was to undertake a taught Masters in plant biology and biotechnology at UCD. He is studying another aspect of plant interactions, one in which cyanobacteria interact and live within *Gunnera* (giant rhubarb) host plants. *Gunnera* thrives in wet areas, such as along the bank of the river Tolka in the grounds of the Botanic Gardens. The relationship generates benefits for both species.

Currently, Sam is planning to continue his work on cyanobacteria-*Gunnera* interactions in UCD and will begin a four-year PhD scholarship, funded by the Irish Research Council in October. Subsequently, he says he would like to stay in this area of research, perhaps by seeking a post-doctorate research position, which may also include teaching. "Overall, I feel my time spent in the Botanic Gardens gave me an excellent foundation on which to build an exciting career in crop plant research."



Ronán Siochru has gradually replaced the farm's suckler cows with dairy stock, largely by purchasing high-genetic merit heifer calves from local dairy farmers.

Researchers providing answers

Teagasc will host three major conferences on catchments, soil fertility and biodiversity

Tim Hyde

Teagasc Crops, Environment and Land Use Programme

Policy decisions in relation to soil nutrient and fertility management and biodiversity will have an increasing effect on farmers in the coming years. Teagasc is highly active in these areas and, this autumn, a raft of new information will be publicised in particular through three major conferences.

CATCHMENTS

Sustainability is central to the new 2025 Agri-Food Strategy as it is in Food Harvest 2020, which was built on the idea of smart, green, growth.

The Agricultural Catchments Programme (ACP) has organised an international conference exploring the latest developments in catchment science and how they relate to sustainable farming and agri-environmental policy. The conference will be held in White's Hotel, Wexford, on 28 to 30 September. There will be two days of indoor sessions and a choice of field trips on day three. It follows a successful conference held in Dublin in 2011 at the end of phase one of the ACP.

Reporting on progress made

At the conference, Dr Paul Murphy will report on the outcome of research on trends in phosphorus over a three- to four-year period in the Timoleague catchment. This catchment is dominated by dairy farming and is a good example of an intensively farmed milk production area on good, free-draining soils – over one-third of the land is being farmed under derogation. So, it's an excellent place to study the sustainability of intensive dairying and to monitor the effect of changing farm practices and increasing output.

Soils were intensively sampled in 2009/2010 and again in late 2013. During this time, water quality in the main river was monitored, seasonal ecological surveys were conducted and nutrient use and production were monitored.

This catchment had the highest occurrence of soil P index 4 fields in the ACP catchments, with 32% of fields at this excessive status in 2009/2010.

By 2013, this figure had fallen to 24% and the proportion of fields at index 3, where they should be for good grass growth and cow health, had increased from 27% to 36%.

There was little change in the number of index 1 and 2 fields, but these fields showed an increase in the average P test level indicating that farmers were building them up slowly. Overall, there was a small surplus of 2.4kg/ha per year of P across the catchment – low by comparison with other intensive milk production areas internationally. Equivalent to 89% of the P that was spread left the farms in produce (mostly meat and milk), giving a very high level of P use efficiency.

Profitability maintained

Importantly, production records showed that expansion occurred on the catchment dairy farms between 2010 and 2012, with more land and an increased number of dairy cows in milk production.

Within the study period, dairy farmers remained comparable to the top 10% economic performing specialist dairy farmers nationally; the stocking rate was 2.48 LU ha⁻¹ (2.47 LU ha⁻¹ nationally), 1,125kg milk solids ha⁻¹ (1,045kg milk solids ha⁻¹ nationally) and 450kg milk solids per cow (428kg milk solids per cow nationally).

– **Ger Shortle**, manager,
Agricultural Catchments Programme,
Teagasc, Johnstown Castle



SOIL FERTILITY

A soil fertility conference on fertiliser for growth in grassland farming systems will take place on Friday 16 October at the Clonmel Park Hotel. There will be a cost of €20 to cover lunch and coffee.

Soil fertility levels on farms have declined dramatically in recent years, as a result of reductions in fertiliser usage. From 2006 to 2009, national phosphorus (P) and potassium (K) fertiliser use on farms fell by approximately 45%. In 2009, national P and K fertiliser use was at its lowest level for more than two decades and this is still having knock-on effects in terms of poor grass and crop yields on farms.

Currently, data from soil samples analysed by Teagasc, indicate that 90% of grassland soils have less than the optimum balance of pH, P and K status. These low levels of soil fertility pose a significant threat to achieving increased productivity and profitability as farmers strive to expand their systems.

Grazed grass is the cheapest feed input on drystock and dairy farms and investing in soil fertility will pay dividends in terms of increasing the carrying capacity of the farm through increased grass production



The soil fertility conference will focus on lime strategies for correcting soil pH.

and offsetting more expensive feed-stuffs that would otherwise need to be imported.

This conference will focus on a range of aspects relating to soil fertility and nutrient management for achieving optimal grass growth and quality, including:

- Lime strategies for correcting soil pH.
- Nutrient requirements for grass silage swards.
- Selecting nitrogen fertiliser types – CAN versus urea.
- Value of organic manures for grassland.
- Fertiliser supply chains and prices.
- On-farm experiences with fertiliser planning.
- New fertiliser planning tool “NMP Online”.

Those attending on the day will hear from a range of invited speakers from the farming, research, advisory and industry communities. In addition, the newly developed fertiliser planning tool NMP Online will be launched by the Minister for Agriculture, Food and the Marine Simon Coveney and Teagasc Director, Prof Gerry Boyle

This multi-functional online fertiliser planning tool promises to revolu-

tionise fertiliser-planning and nutrient management on farms and boasts many user-friendly outputs, such as farm maps showing soil test results or field-specific organic manure and fertiliser application plans. Following its launch, NMP Online will be available to those with an interest in maintaining the fertility and productivity of soils.

– Dr David Wall,
Teagasc, Johnstown Castle

BIODIVERSITY

A biodiversity conference titled “Farmland Conservation with 2020 Vision” will take place on Wednesday and Thursday, 21 and 22 October in the Killeshin Hotel, Portlaoise.

The EU Biodiversity Strategy to 2020 aims to halt the decline of biodiversity and the degradation of ecosystem services by 2020. The Food Harvest 2020 strategy highlights the need to develop effective methods for biodiversity conservation as part of the development of sustainable production systems. A key aim of this conference

is to address how the agriculture sector has responded to these and other policy objectives, and how prepared the sector is for similar policy objectives post 2020.

Invited speakers and presentations include:

- Prof Alan Matthews (Professor Emeritus of European Agricultural Policy, Trinity College Dublin): *Could European agricultural policy do more to promote biodiversity?*
- Dr Brendan Dunford (Burren Life Programme): *Starting from scratch – the story of one locally-led scheme.*
- Prof Davy McCracken (Scotland’s Rural College): *High nature value farming declines: who cares?*
- Dr Judith Zwieller-Fischer (Swiss Ornithological Institute): *A credit point system for assessing and enhancing biodiversity at farm scale and beyond.*
- Alistair McVittie (Scotland’s Rural College): *Economics of ecosystems services.*

Further details in relation to conference, including registration details, can be found at www.teagasc.ie/events.

– Daire Ó hUallacháin, research officer (functional ecology), Teagasc, Johnstown Castle

Further details in relation to the three conferences, including registration details, can be found at www.teagasc.ie/events

Falcon Cluster

This Westmeath forestry group has collaborated in the production of a custom-designed 'forwarder'

Liam Kelly
Teagasc Forestry Development Officer,
Mullingar

"Following a group meeting in early 2013, I mentioned that I was looking at purchasing a machine especially to extract broadleaf timber from my woodlands," says Bill Connell. "I felt we needed a machine that was smaller than the large forwarders, yet larger than the small-scale forwarders that were currently on the market."

Bill is a member of the Westmeath Farm Forest Group, which was established in 2009. To date, at least 140 forest owners have engaged in meetings or events organised by the Teagasc-facilitated group. A steering group of forest owners drives the group. Members have carried out thinning jointly as part of a "cluster".

"Having our own machine would ensure that all timber would be extracted even in the case of small sites and where all timber is going to the firewood market. The following day, I

received a number of enquiries from other members to say that they were interested."

They met to discuss the idea. The members agreed that "one of the driving forces among many others was that some of their plantations were coming to the end of their premium payments and the plantations needed to provide an actual income". Therefore, all timber needed to be capable of being extracted "in a safe manner", says Bill, who had already been in discussion with Falcon Forestry, a division of Hand Engineering, based in Dromone, Oldcastle, Co Meath, on the need for such a machine.

Darragh and Marcia Hand, of Falcon Forestry, outlined that they were in the design phase of building such a mini-forwarder. Following discussions, a sub-group of seven members, called the Falcon Cluster, was formed to purchase a mini-forwarder. This required a large leap of faith, both in terms of finance and the trust and confidence in each other to succeed. The group approached Westmeath Community Development Limited, the local LEADER company, and following negotiations secured funding to help stimulate the project. However, the members had to provide matching finance and self-fund the project until the LEADER money came through.

With funding secured, the project got under way to manufacture the machine that the group required. Each member brought his own experi-

ence and skillset to the project, with each taking active roles at different stages. The group met regularly at the workshop, to discuss the build and requirements of their machine with the developer. The group was very impressed with Darragh, the design engineer, as they found that he had an innovative mind and that he took a keen interest in the machine and their requirements.

The group had different specifications with safety paramount. For example, the glass in the cab is ballistic, i.e. bulletproof to prevent objects such as twigs or branches breaking through. Many challenges lay ahead until everyone was pleased with the final product and the Falcon Mini Forwarder F40 (the first Irish- or UK-built forwarder) was ready. Tracks were included to help machine traction in difficult conditions.

Marcia Franklin-Hand, director and co-founder of Falcon Forestry, said: "The Falcon forwarder is capable of extracting up to four tonnes per journey. It has a ground clearance of 50cm and is equipped with 500mm wide flotation tyres and a wrap-around



Six of the members of the Falcon Cluster outside the workshop. From left: Peter Downes, Pat Lynch, Vincent Nally, Bill Connell, Brian Semple, Richard Branigan, as well as some family members. Missing from picture: Eugene Carr.

FORESTRY IN WESTMEATH

Westmeath has approximately 8% forest cover with 14,105ha (Forest Service statistics 2013). Private ownership accounts for 9,123ha of forestry in the county with the majority planted since 1990 (Ireland's Forests – Annual Statistics 2014), involving over 300 growers. Broadleaf accounted for 35% in this period, while the average for the rest of the country was less than 20%.

Broadleaves species mainly include sycamore, ash, oak, beech and alder. Norway spruce is the predominant conifer planted due to frost risk. Many plantations have both broadleaves and conifers. The average conifer plantation is less than 10ha and it's less than 7ha for broadleaves. With the sporadic and relatively sparse nature of forestry in the county, future management will be difficult.

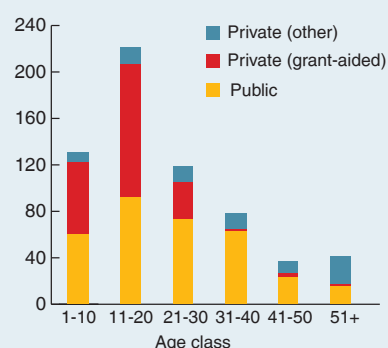
The majority of the crops are in the 11- to 20-year age class, similar to the national forest age class (Figure 1), when first thinning at least should take place. Further good forest practice normally involves regular thinning on a three- to five-year rotation after the first thinning operation has been carried out.



The Falcon forwarder was officially launched on 25 August 2014 on woodland belonging to one of the members in Delvin, Co Westmeath.

Figure 1

Forest age-class distribution by ownership



Technical specification

Model	Diesel KDI2504M
J1940 power hp (kW) 1	55 (41)
Transmission	Variable Hydraulic 2 Speed
Power	12V, 60A
Loading capacity	4,000kg
Crane	Farma 5.3
Max reach	5.3m
Lifting capacity at 5m	500kg
Turning angle	360 degrees
Rotator	Continues rotation

rubber track system, with steel pads, giving it an overall track width of 600mm. The track system reduces the nominal ground pressure, making the Falcon suited to even the most sensitive sites minimising the risk of rutting and soil damage. The German Kohler diesel engine won Engine of the Year 2012. With an engine which is fuel efficient and has low emissions, the Falcon is built for our future.”

The Falcon forwarder was officially launched on 25 August 2014 on woodland belonging to one of the members in Delvin, Co Westmeath, by Mairead McGuinness, MEP.

Overall prize

The machine helped Falcon Forestry win the overall prize in the Innovation Awards at the National Ploughing Championships 2014. It also collected the agri-engineering startup award.

The Falcon Cluster is delighted with its new asset. Two of the members' sons undertook specific operator-training to ensure that they were capable of driving the machine safely and efficiently. Having two drivers

means that the machine can be kept working. Details on issues such as insurance for the use of machine also had to be worked out. This, along with many other skillsets, meant that all the members were able to step up to the plate when different challenges appeared.

They have found the Falcon F40 to be capable of bringing out over 50m³ of timber per day under normal circumstances. They have also found it to be extremely economical. Timber presentation is important in order for the machine to be fully efficient. To date, it has mainly worked within the forests of its own members. However, in the future, it will be looking at taking on contracts to remove timber for other forest owner group members.

The members, many of whom did not know one another prior to the setting up of the Westmeath Farm Forest Group, have become friends in the process and hope to build other projects based on their experience.

It's remarkable what a collective group with a common goal and interest can achieve. The Falcon has truly flown.

Blackberry season

Foraged from a hedgerow, or grown at home, the blackberry is a super fruit

Colm Dockrell
Teagasc College,
National Botanic Gardens

Never eat wild blackberries after Saint Michael's Day, 29 September. Folklore, of questionable provenance, alleges that the devil spits on the wild fruits on this day. Cast out from heaven by St Michael, he landed in a thorny patch of the wild fruit and returns each year to curse the plants. Today, we have domesticated types and we can enjoy this delicious fruit without fear of thorns or satan.

The cultivated blackberry *Rubus fruticosus* is a close relative of the wild blackberry or very thorny bramble. The blackberry plant is a hardy perennial that can live for many years. Most blackberry cultivars are biennials – they grow vegetative canes initially and, in the second year, these vegetative canes become fruiting canes and are removed from the plant at the end of the picking season.

The terms primocane (vegetative) and florican (fruiting) are used to describe the growth and fruiting habit of blackberries and other members of the genus *Rubus*.

Growing requirements

The blackberry plant prefers to be grown in full sun, but it will tolerate partial shade. It is tolerant of a wide range of different soils though best results will be achieved in deep, organic-rich and water-retentive soils that are free draining. As blackberries can remain productive for over 20 years, perennial weeds must be removed before planting.

Cultivars

A well grown blackberry plant can produce over 5kg of fruit in the second and subsequent years after planting. Some of the older cultivars are very thorny, vigorous and sometimes not very productive.

Ruben is a relatively new type of blackberry that is an excellent choice for the garden, given that it is a true



Blackberry plants growing in good conditions will quickly fill up the space allocated.

primocane type, flowering and fruiting on canes produced in the current year and producing fruit of exceptional size and flavour.

Karaka Black produces very large black fruit on thorny and fairly vigorous stems. This cultivar also produces fruit of exceptional size and flavour over a long picking season from early July onwards.

Loch Ness, introduced in the 1980s, was one of the first fully thornless blackberries bred in the UK. It gives high yields of large glossy conical fruit. Other very good cultivars include Adrienne, Chester, Helen, Kotata and Loch Tay.

Planting and support

The blackberry is a vigorous plant that requires lots of space. Modern cultivars are best grown on a permanent trellis constructed using strong timber posts and four parallel tiers of high-tensile galvanised wire spaced 45cm apart. Choose healthy, certified, potted plants.

The spacing between the plants will vary from 2.5m to 4m, depending on the vigour of the cultivar, the expected cane length and the method of training used. Plants growing in good conditions will quickly fill up the space allocated.

Training and pruning

After planting, regardless of the size of the plant, the cane should be cut back to a bud just above soil level, so that any small yield of fruit in the first year is sacrificed. This is to ensure good growth of primocanes, which will fruit a year later. During the first growing year, these new canes are either tied or weaved on to the supporting trellis.

In second and subsequent years, new emerging primocanes are trained above or below the fruiting canes. At the end of the picking season, those fruiting are removed completely and the primocanes are secured on to the trellis where they will fruit the following year. In the case of an all primocane cultivar such as Ruben, training is much more straightforward as all canes are cut back to ground level at the end of the picking season and new canes are tied on to the trellis as they emerge the following year.

Blackberries are one of the more trouble-free fruits. Birds may be a problem and, in wet summers, the fungal disease downy mildew can cause losses, especially where the density of canes is excessive. As with all fruits, blackberries are a plus in anyone's diet... and there's no need to stop eating them on 29 September.

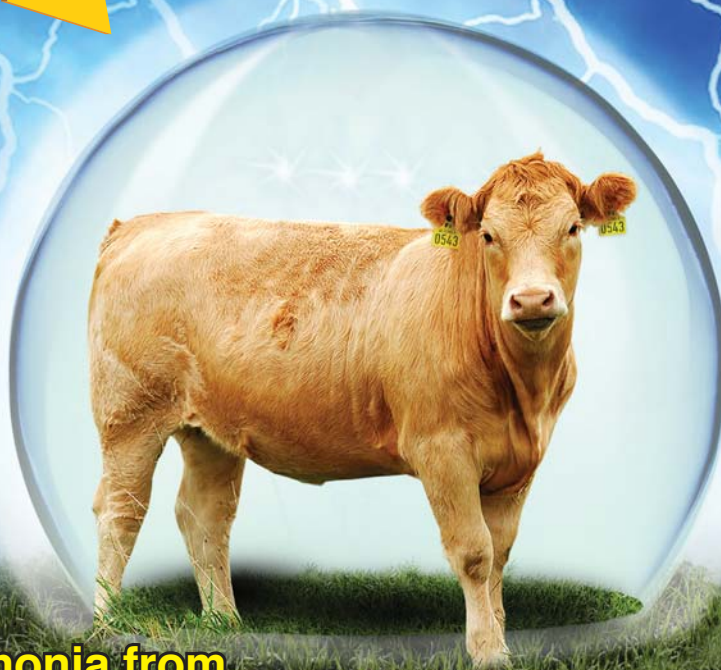
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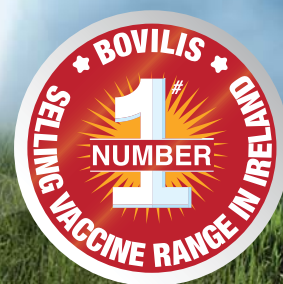
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* Mannheimia haemolytica

GFK sales data July 2015

§ Anon 2012. AFBI/DAFM All-Island Animal Disease Surveillance Report 2012

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