



TEAGASC

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Today's Farm

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



The last straw? Fifteen-page fodder focus

Also:

- Cull cows: fatten or flog?
- Trimming the winter at both ends
- Paddocks pay off in Louth
- Kilkenny flock flourishes
- Limerick leaders
- Ten ways to cut diesel costs
- Poultry muck perfect for cereals
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COMMENT

Serving the customer



Mark Moore
Editor,
Today's Farm

The weather played cat and mouse with farmers this spring and summer, with a few dry days soon followed by yet more rain. The result is less, poorer quality, silage in store than for an average year and added financial pressures. Though difficult, in most cases the situation is manageable. Our fodder section aims to help. Teagasc staff are well placed to advise on all aspects of this crisis and farmers should not hesitate to contact Teagasc offices with individual cases.

We have engaged a survey company Behaviour & Attitudes to carry out a telephone readership survey on *Today's farm*. If you are contacted, and the survey should take no more than 10 to 15 minutes, we would greatly appreciate your views and any suggestions on how we can make these publications even better.

Ag freastal ar an gcustaiméir

Bhí an aimsir ian slad ar fheirmeoirí i rith an earraigh agus an tsamhraidh i mbliana, le beagán laethanta tirime á leanúint arís eile ag a thuilleadh báistí. Mar thoradh tá níos lú sadhlais, ar cháilíocht níos ísle, tugtha isteach ná mar a bhíonn i gceist le haghaidh meánbhliana agus brúnna airgeadais bhreise dá réir. Cé gur deacair an staid í, is minic gur soláimhsithe í. Tá sé mar aidhm lenár rannóg fodair cabhrú. Tá foireann Teagasc go maith in ann comhairle a thabhairt ar ghnéithe uile na géarchéime agus níor cheart go mbeadh drogall ar fheirmeoirí dul i mbun teagmhála le hoifigi Teagasc le cásanna aonair.



Winter feed
12 What are your options?

Cover caption | In 2009 Conor Creedon who farms at Rathmore in county Kerry was faced with limited limited silage, limited feeding space and hungry cows. Read about his ingenious solution in our fodder section, which addresses many aspects of the feed crisis.

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upcoming events

DAIRY CALF TO BEEF OPEN DAY

Profitable production of early maturing beef from grass

Date: Wednesday, 10 October 2012 at 10.30am.
Venue: Teagasc, Johnstown Castle, Wexford.

An early maturing dairy beef trial was established in Johnstown Castle 2011, for the purpose of research and demonstration to Irish dairy beef producers.

Currently, Teagasc have embarked on a joint research programme with ABP Foods, Certified Angus and Hereford Prime, evaluating the merits of Aberdeen Angus and Hereford crosses from the dairy herd.

Animals of different ages will be slaughtered across different finishing strategies. Production systems outlined at the open day will focus on optimum performance from pasture and good grazing management.

Outdoor Programme

- Overview of production systems.
- Profitability of systems.
- Animal rearing and health.
- Grazing management.
- Indoor forum after outdoor session.

BETTER FARM BEEF PROGRAMME

Teagasc/Irish Farmers Journal BETTER Farm Programme open days (BTAP qualifying events)

Date: Tuesday, 11 September 2012.
Venue: Marty Lenehan, Liggan, Ballinfull, Co. Sligo.

Date: Friday, 21 September 2012.
Venue: Cathal Crean, Woodpark, Gorey, Co. Wexford.

All beef farmers and those interested in the beef sector are invited to this open day. Admission is free and everybody is welcome.

Topics covered on the day will include:

- Farm plan and the road to profit.
- Grassland management and achieving early turnout.
- Reseeding methods, soil fertility and land reclamation.
- Ad-lib feeding bulls and carcass specifications.
- Suckler bull beef performance figures.
- Animal health.
- Breeding performance of Spring calving herd.
- Financial progress made over the past three years.
- Wide range of stock on display.



NATIONAL TILLAGE CROPS FORUM

Date: 12 September 2012.
Venue: Keadeen Hotel, Newbridge, Co. Kildare.

Conference Programme

Session 1:	Technology and margins Chairman: Jim O'Mahony, Teagasc
2.00pm	Winter Cereal Varieties for 2013 – Josephine Brennan, Department of Agriculture, Food and the Marine
2.30pm	Profit from planning 2013 crops programme – Martin Bourke, Teagasc
2.50pm	Oilseed rape disease control – John Spink, Teagasc
3.10pm	Outlook for grain market – John Bergin, RH Hall
Session 2	Forum - Sustainable use directive on pesticides Chairman: Andy Doyle, Irish Farmers Journal
3.30pm	National action plan for pesticides in Ireland – Gordon Rennick, Department of Agriculture, Food and the Marine
4.15pm	Implementing NAP for pesticides in Ireland → Panel: – Noel Delaney, IFA – Pascal Hennessy, APHA/IASIS – Pat Denn, Merchant – Jim O'Mahony, Teagasc
5.30pm	Close of forum – Professor Gerry Boyle, Teagasc



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upcoming events



Teagasc will be holding regional seminars on managing fodder in September. Watch press for details.

TEAGASC KNOWLEDGE TRANSFER CONFERENCE.

Influencing the direction and decisions of farmers through best practice in innovation support.

Date: 1 November 2012.

Venue: Aviva Stadium, Dublin.

This conference will highlight the evolution of advisory (extension) support services to farmers and the current best practice in advisory methods and services with a view to achieving efficient and effective support for agriculture.

Target Audience: Aimed at extension specialists, educators, scientists, policy makers, students, and all with an interest in knowledge transfer issues. **Contact:** Dr Tom Kelly Tom. kelly@teagasc.ie

17 October – Winter liquid milk event, Ferrycarrig Hotel, Wexford.

TEAGASC AT THE NATIONAL PLOUGHING CHAMPIONSHIPS

As usual Teagasc will be strongly represented at the Ploughing Championships. The fodder crisis will be addressed as will the steps needed to ensure financial and environmental sustainability for farm businesses.

All enterprise sectors will be represented as well as farm management, education etc.

The Teagasc stand will host the launch of several key events including the launch of the Teagasc Beef Manual and also a new Teagasc App which will assist with fertilizer management.

2012 NATIONAL RURAL DEVELOPMENT CONFERENCE

Maximising the use of rural resources

Organised by Teagasc and the Nation-

al Rural Network and will be held on Tuesday, 16 October 2012 at Johnstown House Hotel and Spa, Enfield, Co Meath.

TEAGASC SHEEP FARM WALKS

Teagasc invites all those interested, to a series of sheep farm walks.

Topics for discussion will include:

- Preparing for the breeding season.
- Animal performance.
- Marketing requirements.

• Thursday 13 September –

Venue: Westmeath – Paddy Donnelly, Balrath House, Slanemore, Mullingar – 3pm.

• Friday 14 September –

Venue: Roscommon – John Brooks, Racepark, Taughmaconnell, Ballinasloe – 2.30pm.

• Wednesday 26 September –

Venue: Sligo – James Costello, Seafort House, Beltra – 6pm.



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fodder crisis

Silage quality

Good in parts

*Strong grass growth in March, poor growth thereafter and prolonged wet conditions for most of the summer means that there is a very wide range in the quality of silages made this year, reports **Padraig O'Kiely**, Teagasc Animal and Grassland Research and Innovation Programme, Grange*

Key steps that farmers should take include the following:

- Estimate the tonnage of silage, hay or other conserved feed dry matter in storage
- Sample each batch of silage and, at a minimum, get an estimate of its standard of preservation. Have samples analysed for digestibility (DMD).
- Compare the available feed with the needs of your herd or flock. It will be important to avoid allowing any animals to lose an excessive amount of condition next winter.
- Take action sooner rather than later.

Possible scenarios

– Legacy silage

• 'Old' silage in pits or clamps can be used in the coming winter. Undamaged bales that have kept their shape should also be secure. 'Old' bales that have lost their shape or have some mould growth (as suggested by adjacent bales that have been fed) should be used as soon as possible. If mould growth is extensive, the bales may already be unusable.

– Excellent silage

• A small number of farmers who had a considerable surplus of grass made silage in dry and sunny weather in March/early April. This was leafy grass that contained no dead vegetation, and the weather conditions were perfect for silage making. This should be really excellent silage with a DMD of 80% and with very good preservation. Use it wisely.

– May silage

• Cooler than normal weather in April and May slowed grass growth and



Compare the available feed with the needs of your herd or flock. It will be important to avoid allowing any animals to lose excess condition next winter

meant that yields on many silage fields were light in late May. The silages that were made should have high digestibility (over 73% DMD) and, in most cases, will be well preserved.

– First-cut silage made in June, July and August

• A lot of silage falls into this category. Above average rainfall and below average temperatures and sunshine lead to slow grass growth, untrafficable land and grass that was sodden wet for weeks. Many meadows intended for hay production had to be harvested and ensiled.

Grass got progressively more stemmy as harvesting was deferred through June, July and August, and the amount of dead vegetation at the base of the crop gradually increased. Both of these factors reduced the DMD of the crop.

Some fields that were closed from last autumn had quite respectable yields of grass in early June, and, in some cases, these heavy crops eventually accumulated a considerable amount of dead vegetation. Expect DMD values of 67%, 58% and 55% if they were harvested in early June, late June and July-August, respectively, but there will be a wide range around each of these averages.

Fields that were grazed up until early April usually had lighter yields than normal during early June. Expect DMD values of 69%, 61%, 58% and 55% if they were harvested in early June, late June, July and August, respectively.

A small amount of silage was made from the regrowth on fields grazed until early June. Expect digestibility of 67% to 70% DMD if such grass was ensiled in early August (and preservation should be adequate where the grass was ensiled dry).

The delay in harvesting some grass crops may have allowed ragwort to grow and flower. This could present problems at feeding time where high infestations of ragwort are mixed through the silage.



Ergot is a fungus that can infect grass seed heads in overly mature pastures, producing horn-shaped dark-coloured 'ergots' up to 1cm to 2cm long in place of some of the seeds.

They survive the ensiling process and initial symptoms in livestock consuming it include lameness.

– Preservation

There will be a wide range in the preservation of 'delayed' silages this winter; some will be well preserved and quite acceptable to livestock (and the specific DMD will then determine the rate of animal performance that will be achieved) while other silages will be badly preserved.

Bad preservation further reduces the DMD of the herbage. Microorganisms that can be harmful to animals (e.g. Clostridia spp, Listeria, Salmonella) can sometimes be found on contaminated grass. If the grass undergoes a good, acidic preserva-



KEY TERMS

• **Digestibility** – This is the proportion of the silage that livestock can use and which doesn't pass out in the dung.

Dry matter digestibility (DMD) is a good measure of the feed value of forages:

Grazed grass – 78% to 82%

Leafy silage – 74% to 76%

Stemmy silage – 60% to 65%

Traditional hay – 55% to 60%

Straw – 40% to 55%.

When quality is high (higher % DMD), cattle and sheep eat more and extract more nutrients from each kilogram of feed dry matter; as a result, they grow faster or produce more milk.

• **Preservation** – If a silage is perfectly preserved, then it has retained virtually all the feed value of the grass that was ensiled. If it is badly preserved,

then its feed value has declined and stock will not perform as well.

Extremely poorly preserved silage can threaten animal health or welfare. Smell, colour, etc, can give an idea of preservation quality but measuring pH, ammonia N, through a silage test will give a more objective guide. Silage wetness is not a reliable guide as many wet silages are excellently preserved.

• **Heating or mould growth at feed-out** – When the pit silage or wrapped bale are opened for feed-out, the silage is exposed to air and can heat and go mouldy.

If this happens there can be a loss of feed value which results in reduced intake, poorer performance and possibly ill-health.

countries have found that even quite large numbers of slugs do not cause bad preservation, if the grass would have preserved well without them.

However, meadows with large populations of slugs are likely to have been wet for some time and this grass may be difficult to preserve as silage.

Swedish experience suggests that poor silage preservation is a reflection of the condition of the grass rather than something caused by the snails.

It is not yet clear if slugs affect palatability or other traits of the silage.

Heating or mould growth at feed-out

In normal winters, most silages are reasonably stable during feed-out, although drier and more stemmy silages can be prone to heating and mould growth. Heating or moulding of silage results in quantitative losses of feed, a decrease in feed value and possibly fungal spores and toxins which may, in turn, create favourable conditions for other harmful micro-organisms if they were present in the silage.

Fungi associated with diseased and decayed vegetation in the crop may speed up heating and moulding at feed-out. This reflects wet conditions for several days between mowing and harvesting.

Restricted fermentation in some silages will produce relatively high pH values. Even though this won't automatically mean bad preservation, harmful micro-organisms may be able to better survive than in silages with lower pH.

Stemmy herbage and the very heavy weight of some wet bales, even crows, may have made it difficult to avoid damage to the plastic film. If mould

growth is extensive, then such silage may be unsuitable to feed.

Second-cut silage made in July and August

A small amount of silage was made from regrowths that followed first-cut silage in May or early June. Expect digestibility of 68% to 73% DMD; preservation should be adequate where the grass was ensiled dry.

Grazing paddocks

There was very little silage produced from surplus grass on grazing paddocks compared with other years. Such silage would generally be above 70% DMD (and often above 75% DMD). A successful wilt is important with this grass to ensure good preservation, avoid effluent seepage and, if baled, facilitate producing cylindrical bales that retain their shape during storage. If any such bales have lost their shape they should be used soon.

Autumn regrowths

All farmers will be hoping for an autumn with prolonged grass growth and good underfoot conditions for grazing.

Although autumn regrowths can be successfully ensiled, producing silage of over 70% DMD, this leafy wet grass is difficult to preserve.

It can be a challenge to adequately wilt autumn grass since day length is shortening and the cooler night temperatures produce a heavy dew that takes several hours to dry off. However, if successful wilting is feasible, then it should be done.

If you can't wilt, measure grass sugars and, if they are low, evenly apply an additive that provides sufficient sugar or acid to the harvested grass.

tion (e.g. pH 3.9), these microbes are inhibited, while bad preservation can allow them to remain viable.

Reasons for bad preservation include:

- Grass was extremely wet and had a low sugar content when ensiled
- Grass lay in wet conditions for several days between mowing and harvesting
- Silo filling was spread over several days
- Grass was contaminated with soil due to the very wet field conditions
- Soil or faecal contamination of grass occurred due to flooding
- Extensive rotting of grass occurred pre-harvesting due to prolonged sodden conditions
- Dry, stemmy or very weathered grass can also preserve poorly.

– Slugs

Many farmers saw large numbers of slugs on the grass in sodden meadows. Researchers in Scandinavian

Liquid milk and

What to do?

Liquid milk producing cows are often at peak output during winter months, writes Joe Patton, Teagasc Animal and Grassland Research and Innovation Programme

Is there any place more depressing than an empty silage pit in autumn? Like many farmers around the country, Aidan Lawless, who manages the Teagasc liquid milk dairy herd at Johnstown Castle, Co Wexford, has one of those due to the difficult weather and growing conditions. Usually, all four pits would be full. Managing the 120-cow split-calving herd will be challenging this winter.

"First cut grass silage was taken on 27 May," said Aidan. "It was a few days late, but before the weather deteriorated. Yield and quality (74% DMD) of the crop were quite good, but our problem is that only 70% of the planned silage area was actually harvested; the remainder was grazed



Winter forage budget for Johnstown herd			
	No	Maize silage required t/DM	Grass silage required t/DM
Autumn calving cows	70	53	75
Spring calving cows	50	8	75
Replacement heifers	40	-	35
Cull cows/3 stock bulls	22 + 3	-	25
Total required t/DM		61	210
Estimated forage stocks		40	164
Balance t/DM		-21	-46

through April and May due to poor grass growth.

"With a smaller than usual second cut and some silage already fed out, we have an estimated 164t DM (720 tonnes) of silage in the pits but we need around 210t DM (950 tonnes fresh).

"We sowed 5ha of maize (Award) under plastic in good conditions on 7 April. This yielded 12t DM of high starch crop in other years but will struggle to reach 8.5 tonnes this harvest due to the weather conditions. We are planning for a 20t DM shortfall in maize silage."

What are the options?

"No single option will fix the problem," said Aidan. "We need bulk forage for dry cows, some higher quality feed for autumn calvers and we also must reduce feed demand compared with other years.

"The first step is to offload cull cows and surplus stock. This will save around 20t DM of grass silage. Herd calving interval is 384 days and 10% of the cows are recycled; we try not to keep many passengers. Also, over 90% of heifers calve at two years old; this saves significant feed compared with calving heifers at over 30 months."

Daily dry cow silage allocation will be reduced from 11kg DM to 6kg DM, with 4kg straw plus 1.5kg maize gluten and minerals fed to make up the diet. This diet comes to 11kg DM at 0.71 UFL and 11% crude protein, which should be fine for dry cows.

"Thinner cows will get an extra four to six weeks dry. This will save around 32t DM of silage, and will require 30 tonnes of straw plus nine tonnes of maize gluten. Straw works well in this situation and is a flexible product. Feed space is adequate to use this diet for dry cows.

"Our maize crop is short on both quality and quantity. We will bridge some of the gap in the diet with by-product feeds (e.g. Trafford Gold, etc). To keep things simple, we do not use these wet feeds when forage stocks are okay but this year needs flexibility.

"Maize silage in the fresh cow diet

will be reduced to around 3.5kg DM.

The full diet will be approximately 3.5kg DM maize silage, 7.5kg DM grass silage, 0.5kg straw, 5kg as fed of Trafford Gold (or equivalent), 2.5kg of a high energy blend plus a 4kg to 5kg parlour ration."

How will Aidan counter the high price of protein for the winter milking diet?

"The diet outlined above is not cheap but it is difficult to make feed cost savings with cows at peak yield indoors," said Aidan. "Minor changes to ingredients will do very little, but cost savings will be sought in two ways:

- First, feeding rates will be reduced for lower producing animals. This is done by offering a maximum 2.5kg to 3kg meal at the barrier, and then topping up in the parlour as required. We have seen in the past that too many cows are overfed by feeding large proportions of meal through the diet feeder. Parlour feeding doesn't cause problems once forage intakes and the overall diet are correct.

- The second area for potential savings is to cut crude protein in the overall diet. The focus is on keeping energy (UFL) content high and balancing the protein content using the PDI system, not crude protein. We have moved away from feeding high crude protein (17.5% to 18%) indoor diets in recent years, with good success.

"The diet outlined above comes in at 15.1% crude protein overall but UFL is 0.94 and PDI is 97g/kg; that is enough for around 32 litres. Soya is included as a source of quality protein but the levels needed are reduced using this method.

"The problem is not so much the quality of the grass silage – we just have too little of it, and the maize crop is not as good as it should be."

• The Teagasc Johnstown Castle liquid milk research herd has 120 Holstein Friesian cows calving 60% in autumn/40% spring. In 2011, the herd produced 7,290 litres per cow at 4.01% fat and 3.53% protein and utilised 12.2 tonnes grass per ha. Herd EBI is €125.

limited forage



"No single option will fix the problem. We need bulk forage for dry cows, some higher quality feed for autumn calvers and we also must reduce feed demand compared with other years" – Aidan Lawless

SILAGE SHORTAGE



What are your winter feed

What options do I have to fill a silage shortage?

Siobhán Kavanagh,
Teagasc Rural Economy and Development Programme, provides the answers

Dairy and suckler cows need 35% to 40% of their total dry matter intake as forage and beef cattle need 0.7% of their body-weight in forage. Once you have half of the usual silage requirements on the farm, you have choices: you don't need to buy silage to fill the gap, unless it's good value.

Options

There is no single option that will suit everyone and most people will follow

a combination of strategies, such as:

- Buy silage
- Buy meals
- Buy straw
- Buy wet feeds.
- Reduce the demand for feed over the winter by shortening the winter by extending the grazing season in the autumn and/or setting up for early turnout next spring; weaning suckler cows early, allowing them to gain condition which will save up to a bale per cow over the winter.
- Sow forage crops for winter grazing. It is too late for kale.

Rape, stubble turnips and redstart are all options but their yield potential will be reduced by





options?

approximately 50% by sowing in early September. It will only suit someone with stubble ground and dry ground. It is not cost effective for ploughing, tilling, sowing.

- Sell stock
 - Scan cows and cull empty cows that are in good condition
 - Meal feed cattle that can be finished off grass this autumn.

Is buying silage a good option this year?

The key risks associated with buying silage this year include low digestibility (no one will be selling their good silage this winter), poor preservation, which will further reduce digestibility and intake potential, and possible heating and mould growth at feedout.

Table 1 presents the value of silage relative to barley and soya bean meal. For example, 65 DMD bales of silage are worth €28/bale, while 55 DMD

Table 1: Value of silage, relative to barley and soya at current prices

	Value
72 DMD pit silage	€35/tonne
65 DMD pit silage	€31/tonne
72 DMD bales	€31/bale
65 DMD bales	€28/bale
Haylage	€42/bale
Straw	€15/bale

silage is worth about the same as straw. At or above these prices, silage represents poor value.

Can I reduce the forage demand of the suckler cow?

If the winter is five months long and the cow needs 1.6 bales per month, this equates to eight bales for the winter. By ensuring that the cow is in excellent condition at housing, this could be reduced by 20% or 1.6 bales per cow – 80 bales of silage saved for a 50-cow herd.

If I am short 50 bales of silage, what is that equal to in meals?

Fifty bales of 65 DMD silage (45 tonnes of pit silage) is the equivalent of six tonnes of good quality ration (high energy, 0.94 UFL, 14% CP). For dry cows this silage does not require additional balancing, apart from dry cow minerals. However, if it's being fed to young stock that require protein and minerals, you will incur additional costs of €5 to €6/bale to balance it up for minerals and protein. This makes it all the more important to not over-pay for silage as there are hidden costs associated with it.

• Example

A farmer is short 75 bales of silage

- Scenario 1**
- Assume the silage is needed for dry cows
 - Assuming the silage costs €30/bales, that's €30 x 75 = €2,250.
 - To buy nine tonnes of ration instead at €300/tonne, €300 x 9 = €2,700.
 - The silage seems like better value

but only if its feeding value is 65 DMD, and not much lower (as may be possible this year).

Scenario 2.

- Assuming the silage is needed for weanlings, where it must be balanced for protein and minerals (as per the ration).

True cost of the silage is:

- To buy the silage, €30 x 75 = €2250
- To balance it after purchase, €5 x 75 = €375
- Total cost of the bale, €2,625.

The difference between the option of buying silage versus meals becomes very small and the meals will be more predictable in terms of performance.

How much meal will I need to feed if stock have restricted access to silage?

The level of meal feeding will depend on what percentage of your winter feed is available on the farm (see Table 2 below).

What do I need to look out for when feeding restricted silage?

- Adequate feeding space is critically important to avoid some animals overeating and other animals being bullied. Some may decide to offer straw to fill the gap, along with silage and meals.
- Don't forget to feed minerals, which is particularly important with limited and/or poor quality silage
- Ensure a good supply of fresh water.
- Build up feeding rates slowly. All animals should be monitored regularly for signs of ill-thrift on this system.
- Monitor cow condition regularly. Supplementation rates may need to be increased or decreased.
- Animals adjust to the limited forage supply quite quickly, provided feeding space is adequate.

Is buying straw an option?

Rather than buying silage of dubious quality, it may be preferable to purchase straw plus concentrates.

• Next page

Table 2: Meal feeding level needed if silage is in limited supply

	50% of the silage needed is available on the farm		75% of the silage needed is available on the farm	
	kg silage needed	kg meals needed	kg silage needed	kg meals needed
Dry sucklers	20	1.5-2	30	0-1.0*
Suckler cows with calves	20	5-6	30	3-4
Dairy cow (dry)	25	3-4	38	2-3
Weanling	12	2-4	20	2-3
Stores (350 kg)	15	2-3	22	1-2
Stores (500 kg)/ in-calf heifers	20	3-4	30	2-3

*Depends on cow condition

fodder crisis

Good quality straw is preferable to low digestibility, poorly preserved silage with a risk of heating and mould at feedout.

How much straw can I give dry dairy cows?

In Moorepark in 2009, dry dairy cows were offered 50% of their normal silage allowance, 25% straw (or 3kg per day – 1 4x4 bale will feed 50 cows per day) and 3kg meals, cows gained 0.4 BCS over an 11-week dry period.

How much straw can I give dry suckler cows?

Suckler cows in good condition will eat up to 8.5kg of fresh straw (one 4x4 bale will do 18 cows per day) and require 2.5kg meals with that. Thin cows will require an additional 1kg.

What do I need to look out for?

- Straw is low in protein and minerals and must be balanced accordingly.
- Must be adequate feeding space for animals to eat at the one time.
- It is best if cows are in good body condition at drying off.

Are other forages and/or wet feeds an option?

Yes, but it's important to account for the hidden costs associated with these feeds, including dry matter differences, wastage, working capital tied up, variability in the product, machinery required for handling the products and balancing for protein, minerals and fibre.

If the prices for soya and barley are different to that quoted, where can I check the values?

You can calculate the relative feed values using different barley and soya prices, using an interactive calculator available on the Teagasc website (available to Teagasc clients). The address is <http://www.client.teagasc.ie/dbApplications/FeedValue/FeedStuffs.asp>

Can I store grains?

Storing grains on farm can be a means of reducing the concentrate bill this winter.

There are a number of options



Table 3: Meal feeding rates for weanlings, stores and finishing cattle when feeding all straw diets to livestock

	kg straw (fresh)	kg concentrates (as fed)			Ration CP%
		0.3 – 0.4 kg/day ADG	0.5 – 0.6 kg/day ADG	1.2 – 1.4 kg/day ADG	
Weanlings (250 kg)	2	4	5	-	18
Stores (450 kg)	3	4	5	-	18
Finishing cattle (550 kg) ¹	1.2 (1 kg DM)	-	-	11	12

¹Total DM intake calculated as 1.8% of average bodyweight over the finishing period, say 600 kg, less 1kg DM for straw.

Table 4: The value of alternative forages and wet feeds

Feed	Value €/t to buy	Comments
Maize silage (25% starch)	54	Standing crop but including harvesting, allows for 12.5% wastage
Whole crop cereal silage (25% starch)	74	Standing crop but includes harvesting, allows for 12.5% wastage
Fodder Beet (19% DM)	41	Allows for labour and wastage 15%
Eornagold	107	Allows for 10% wastage
Trafford Gold	127	Allows for 10% wastage
Potatoes	49	Allows for 15% wastage and labour

Table 5: Value of feed ingredients based on barley at €250/tonne and soya at €580/tonne

	Value per tonne (€)
Maize grain	286
Unmolassed beet pulp	268
Citrus pulp	228
Soya Hulls	250
Maize gluten feed	289
Beans	248
Maize distillers grains	320
Rapeseed meal	339

including acid treatment, crimping and ensiling, caustic treatment and treatment with a urea-based additive. The first three options cost approximately €35/t, including processing, additive, working capital, storage and losses.

Treatment with a urea-based additive will cost €40 to €45/tonne. The urea treatment will raise crude protein content by approximately 4% units, but the crude protein content of the finished cereal will depend on the protein content of the cereal before treatment. For example, if the grain protein is only 8% to begin with, the resultant product will be approximately 12%.

Is the protein in urea treated grain good enough for stock?

For finishing cattle the protein quality is adequate and for suckler cows it is adequate provided the protein level

is 14% or greater. The protein content of grass silage is low and, consequently, most weanlings will require a 16% CP ration to meet protein requirements. Therefore, urea-treated grain will not meet the demand of young stock unless high feeding rates are offered (2.5kg to 3kg). There may also be an issue with the quality of the protein for young, growing animals.

How can I shorten the winter?

The possibility of extending the grazing season later into the autumn and/or turning out stock in early spring is a cost effective way of reducing the demand for feed over the winter. Autumn grassland management has an impact on spring grass.

Closing fields in rotation from early October until mid-November leaves a wedge of grass going into the winter. Fields closed in October could be grazed as early as February. Where many people fall down is grazing the farm bare before housing, leaving no grass for spring grazing.

FARM EXAMPLE

Example of a farm with only 75% of the winter feed requirement for a five-month winter

Stock	Total silage needed bales
20 suckler cows	160
20 weanlings	80
4 in-calf heifers	28
10 finishing cattle	28
Total required	296
Total stocks	222
Deficit	74 bales or 25% short of requirements

Strategy:

- Suckler cows will be weaned early so that they will be in good condition at housing and will only need 80% of their normal silage demand. Saving = 32 bales of silage
- The balancing deficit is now 52 bales of silage. The feed demand of the weanlings and in-calf heifers is 108 bales in total
- Based on the costings below, there is no difference between buying silage or meals to fill the gap.
- The weanlings and in-calf heifers will be offered half the silage they would normally get and will be fed 3kg to 4kg meals, depending on target gain. It is assumed that there is adequate feeding space.

Option 1: buy 52 bales silage

Assuming 65 DMD silage is costing €30/bale

- Cost of buying the bales $52 \times €30 = €1,560$
- Cost of balancing for protein and minerals = $52 \times 5 = €260$
- Total cost of silage option = €1,820

Option 2: buy meals at €300/t

Assuming that 52 bales is equal to six tonnes of high energy meals

- Total cost of meals option: $6 \times €300 = €1,800$



FARMERFOCUS

Conor Creedon, Rathmore, Co Kerry

When feed space and silage are limited, cows tend to forget their manners. Younger, lighter cows and heifers will certainly lose out to their larger herd mates. Faced with tight supplies of silage in 2009, Conor Creedon who farms at Rathmore near the Cork/Kerry border, came up with an ingenious solution.

Conor decided that a two-day feeding routine might help to ensure that all of the animals got a fair share: "Having thought about it extensively and consulted with my Teagasc adviser, Ger Courtney, we came up with a plan.

"On day one I put two days' worth of silage in front of the feed barrier (this was only three-quarters of what the cows would get for two days in a normal year) so that the larger animals could eat their fill and there would still be plenty for the others.

"By lunchtime on day two, all the silage was gone and most animals had eaten their share. Then I brought in barley straw which they ate until the following day.

"I had spent a lot of time thinking about it and discussing with Ger Courtney what we might do, including splitting the herd into groups, but that was impractical. It forced me to choose between buying in round bales or straw. I went for the straw which you can touch and smell and get some



idea of the quality." The cows were dry but Conor brought them into the parlour to feed roughly 2kg/day/animal. "There was extra work with cleaning the parlour, etc, but it meant I could tailor the amount of concentrate to the animal," he said.

The stats for the Creedon farm

- Ad-lib silage would be 11 grabs silage/day for 104 dairy stock, including in-calf heifers) plus 26 weanling heifers (130 animals)
- Restricted silage to 16 grabs/two days.
- Fed two by 4x4 round bales of straw/day
- Fed 2kgs conc/head/day to all stock for 70 days (1 December to 10 February)
- Fed concentrates to cows/in-calf heifers in the parlour (1.5 hours/day, including washing).

Calculate daily feed requirement – full silage

- 76 cows $\times 11 = 836\text{kgs DM}$
- 28 in-calf heifers $\times 9 = 252\text{kgs DM}$
- 26 weanlings $\times 4.5 = 117\text{kgs DM}$

- Total = 1.2t DM/day = five tonnes fresh/day = approximately 450kgs silage/grab (dry silage)

Calculate daily feed requirement – restricted silage plus straw plus meals

- Restrict to eight grabs/day $\times 450 = 3.6\text{ tonnes/day} = 0.86\text{t DM}$
- Plus 2 bales (300kgs straw/day) = 0.26t DM
- Plus 2kgs meal $\times 130 = 260\text{kgs meal/day} = 0.226\text{t DM}$

70 days reduced silage requirement by 100 tonnes

- Fed 140 bales straw (4x4)
- Fed 18 tonnes meals

CASH SQUEEZE

Plan – to avoid cash bottlenecks

Uneven cash flow can generate nasty surprises. Take action early to avoid serious financial problems later on, advises Fintan Phelan, Teagasc Rural Economy and Development Programme

Every farm in the country is experiencing problems due to the weather but the financial implications will not be the same for all businesses. To get through the financial problems generated by this tough season you should start by estimating how large the problem may be in financial terms this winter. A cash flow plan is the ideal tool.

Firstly, calculate for each month how much money is 'due to come in' and how much is 'due to go out'. If you start with an opening balance, you will be able to see when there may be a problem.

The table (facing page) is an example of how you might construct your cash flow plan. Start with the total for September 'money in' and take away the total for September 'money out'. If the result is a negative, then deduct it from the current account balance on 1/9/12. If it is positive, then add it to the current account balance. If your balance was negative on 1 September, the new money will reduce the deficit.

Put the resulting figure in the last box, 'Balance'. Continue the process, using the closing balance for September as the current account balance 1/10/12, until you get to March.

This is not an exact science but is

designed to help you to get a rough estimate of the size of any potential problem. You can get blank copies of a paper cash flow plan, so don't worry about making mistakes. Alternatively, you can get a copy of the Teagasc Cost Control Planner, which includes a computerised cash flow planning tool, as part of your Teagasc contract at no extra cost.

Once you set about completing the plan there will be questions such as:

- What is the final tax liability for last year?
 - How much winter feed do I require?
 - This will prompt you to talk to your accountant and Teagasc adviser.
- When you have your plan completed you will be in a better position to answer the following questions:
- Should you defer some spending un-



Remember, there is help available and there may be solutions to problems that currently seem

insurmountable



til summer 2013?

- Should you seek temporary finance from your bank/financial institution?
- Should you sell some stock?
- Should you defer some payments due on a loan?

You will also know how much money you will need, and when this is required.

As finance is more difficult to obtain in the current economic climate, the earlier you complete this task the better. This will ensure that you will have the money available when it is needed.

If you are under severe financial pressure, then Farm Assist may be an option; many farmers availed of this

Money in							
	September	October	November	December	January	February	March
Milk							
Cattle							
Crops							
SFP							
DAS							
Total							
Money out							
	September	October	November	December	January	February	March
Tax							
Silage							
Concentrate							
Contractor							
Vet							
Loans							
Drawings							
Other							
Total							
1/9/12							
Current Account Balance							
BALANCE							



in 2009 with the downturn in milk prices. This should be looked on as a safety net and may have a part to play in getting you over this extreme period. If you or your spouse are employed off farm for 19 hours per week and you have children, then you may be entitled to Family Income Supplement.

You can get application forms for either of these

schemes by ringing the Department of Social Protection (1890-202325).

This is an automated application form request phone number so follow the instructions. After completing the application form an inspector will visit your home – if approved. The payments can be made directly to your bank account.

Remember, you are not alone if you are facing financial problems caused by the weather. While things may be difficult at the moment, if you can assess your financial situation and take action now it may reduce the impact in the longer term.

If you want assistance to complete a cash flow plan or if you require blank copies of a cash flow sheet, then contact your Teagasc adviser. Remember, there is help available and there may be solutions to problems that currently seem insurmountable.

fodder crisis

Making up forage deficits by feeding concentrates

Mark McGee,
Teagasc Animal & Grassland Research
& Innovation Programme, Grange

Some key points about feeding concentrates:

- Compare feeds based on their net energy (and protein) values. Your Teagasc adviser can help you with this.
- It may be better to buy concentrates and feed less grass silage than to purchase expensive low-quality forage.
- Increasing the level of concentrates in the diet reduces grass silage intake.
- Increasing the level of concentrates fed to animals increases their carcassweight gains but at a diminishing rate. You get better return from the first kilo of concentrate than the second kilo, which is better than the third, etc.
- High growth potential animals respond better to concentrates than those with lower growth potential.
- Where forage offered is restricted, all animals must be able to feed at the same time (to prevent bullying). A minimum amount of roughage is vital to avoid digestive upsets.

Weanlings/stores

To minimise feed costs and exploit compensatory ('catch up') growth at pasture during the following grazing season growth of just 0.5kg to 0.6kg/day, through the first winter is acceptable. But cattle growing too slowly during winter will not be able to compensate sufficiently at pasture. So, feed concentrates as in *Table 1*.

The response of 'stores' to supplementary concentrates is poorer than for weanlings and compensatory growth is usually greater. Where silage quality is good and capable of supporting liveweight gain of about 0.4kg to 0.5kg per day, concentrates are not justified.

Where silage quality is poor, or where animals are destined for slaughter early in the following grazing season, up to 2kg to 3kg/day of

KEY POINTS

- Buying poor quality fodder may be worse value than buying concentrates
- Shop around for concentrates, feed values matter, not the names of the ingredients.
- Feed levels can be restricted, but ensure animals get the minimum needed for health, appropriate performance and good welfare.
- Consult your Teagasc adviser!

concentrates are necessary.

Suckler cows

Spring-calving suckler cows get grass silage only in winter. Where mature spring-calving suckler cows are in good body condition (BCS ~3.0+, Scale 0-5) at the start of the winter their intake can be restricted so that some of the body fat reserves are exploited. This can save 1.0 to 1.5 tonnes fresh weight of grass silage per animal.

Feeding strategies include offering moderate digestibility (65% DMD) grass silage to appetite, 'diluting' the energy value of good quality silage with straw or restricting the amount of good quality silage offered daily. Where silage digestibility is poor, concentrate supplementation will be necessary. Another option is feeding good quality straw to appetite with 2kg to 3kg of a high protein (18%) supplementary concentrate daily (*Table 2*).

If cows are not in good body condition at the start of the winter, they cannot be restricted. Monitor cow body condition score closely. This particularly applies to first-calvers and old/thin cows. Always offer a dry cow mineral/vitamin mix.

After calving, cows in average body condition can be fed moderate to high digestibility grass silage to appetite for about four to six weeks, provided they are then turned out onto high



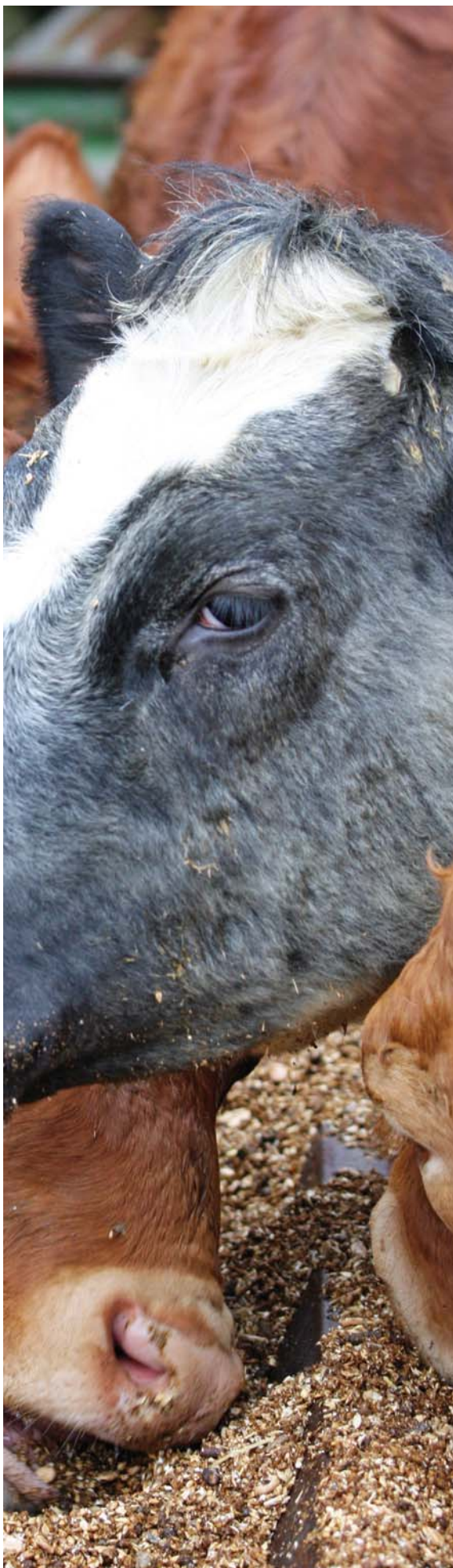


Table 1: Concentrate supplementation (kg/day) necessary for weanlings to grow at ~0.5 kg live weight per day when offered grass silage of varying dry matter digestibility (DMD)

Weanlings	Grass silage DMD (%)			
	~60	~65	~70	~75
Concentrate (kg/day)	2-3	1.5-2	1.0-1.5	0-1

Table 2: Feeding options for pregnant spring-calving suckler cows in good body condition score at the start of the winter and offered grass silage varying in dry matter digestibility (DMD) or straw

Silage	DMD	Feeding practice
	70	Silage restricted to ~85% of intake
	65	Silage fed to appetite*
	60	Silage fed to appetite + 0.5kg concentrate daily*
	55	Silage fed to appetite + 1.0 to 1.5kg concentrate daily*
Good straw		Straw fed to appetite + 2 to 3kg of ~18% crude protein concentrate daily

*Thin cows are offered an additional ~1.5kg concentrates daily

Table 3: Concentrate supplementation rates for finishing steers

Finishing steers	Grass Silage DMD (%)		
	~65	~70	~75
Concentrate (kg/day)	7.0-8.0	5.5-6.5	4.0-5.0

quality grazing pasture. This is critical for good reproductive performance. If silage digestibility is poor; then 1kg to 2kg concentrate supplementation is required daily. Cows in poor body condition after calving will require additional concentrates.

First-calvers need concentrate supplementation after calving, in all cases, until turnout to pasture. Where silage quality is moderate to good, feed 1kg to 2kg meal and where silage quality is poor, feed 2kg to 3kg meal, daily.

Finishing cattle

Even high quality grass silage is incapable of sustaining adequate growth rates to exploit the growth potential of most cattle so concentrate supplementation is required. Each one-unit decline in digestibility of grass silage requires an additional ~0.33kg concentrate daily to sustain performance in finishing cattle.

Concentrate supplementation rates for finishing steers to achieve circa 1kg liveweight per day with grass silage varying in digestibility are shown in *Table 3*. For finishing heifers (lower growth potential) daily supplementation is reduced by about 1.5kg to 2kg and for finishing bulls (higher growth potential) rates should be increased by 1.5kg to 2kg.

“ You should always shop around for concentrates, feed values matter, not the names of the ingredients

Where silage digestibility is poor (e.g. DMD 60%) and/or in short supply, and animal growth potential is high, consider feeding concentrates ad lib to finishing cattle.

When feeding concentrates ad lib it is critical to ensure:

- gradual adaptation to the concentrates,
- a minimum roughage inclusion (~10% of total DM intake) in the diet for rumen function,
- that meal supply never runs out
- that a constant supply of fresh water is provided.

Avoiding overly long finishing periods and ensuring that animals achieve minimum carcass fat score without impairing carcass value are ways to reduce feed requirements and costs.

Protein supplementation and concentrate type for finishing cattle

• Weanlings and finishing steers, heifers and bulls generally do not require protein supplementation when fed barley-based concentrates and high quality silage. However, cattle are likely to respond to supplementary protein in barley-based concentrates when the grass silage has moderate to low digestibility and/or low protein content, as is prevalent this year. This applies to weanlings and young bulls, in particular.

• It doesn't matter what the ingredients of the concentrate are so long as you have an accurate measure of its net energy/protein content. Research at Teagasc Grange has shown that cattle offered concentrates formulated to have similar energy and protein levels but contrasting ingredients had similar intake, growth, feed efficiency and carcass traits. The message is to shop around!

10 WAYS TO SAVE ON FUEL

All farms use fuel either directly, or indirectly by using contractors and fuel costs impact directly on farm profits. But is there anything we can do about fuel costs?

The answer is yes, but we need to be careful to avoid having a negative impact, writes

***Dermot Forristal,**
Teagasc Crops
and Environment Land Use
Programme*



1

Know how much fuel you use

Record all purchases of green and white diesel and allow for any changes in stocks at the end of the year to get a picture of overall fuel use.

This is the starting point for fuel savings. Remember, when comparing with others, on a fuel cost per litre of milk produced, to allow for differences in contractor use and other farming system differences.

If you can allocate the fuel use to different operations by using a dispensing meter when filling tractors, or the tractor's own information system, then you can target the more fuel hungry operations.

2

Eliminate fuel hungry tasks

- Walk or use a bike, quad or small tractor rather than taking the 5t 160hp tractor to herd the animals.
- Use tighter grazing management to reduce the need for topping (cows don't use diesel).
- Are routine field rolling/spiking or other tasks necessary?
- Avoid unnecessarily frequent trips with vehicles on and off the farm by through careful planning. These can be a huge time and fuel waster.

3

Accurately assess the costs of renting land at a distance, particularly small fragmented pieces

Fuel use for transport for herding, topping, fertilizer spreading and particularly silage haulage can be considerable.

A recent study on tillage farms indicated that distant land blocks cost from €22 to €150/ha extra in machinery costs compared with farming at the home base.

10

The 4 x 4 commercial jeep

The 4x4 is extremely popular on farms and there is no doubting its versatility, but they are generally expensive to run.

The fuel consumption of a 4x4 is from 60% to 100% more than a small 2wd commercial vehicle or modern diesel car. If you have one, be careful how you use it.

Use a car for long road journeys. Choose your car and jeep carefully; while not perfect, the standard fuel consumption figures allow comparisons to be made.

9

Tractor or truck

Despite the availability of high road speed gearboxes, tractors are not particularly fuel efficient on the road.

Trucks are far more efficient to move loads, with a lower consumption for every tonne moved per kilometre.

Where there is not a field element attached to a transport job, trucks can be cheaper, even when green diesel fuel costs are considered.

8

Tyre choice

A sinking wheel increases rolling resistance and fuel consumption. Similarly, excess wheel slip wastes energy moving soil. Fit large enough tyres and operate them at the correct pressures to reduce power loss.

7

Drive efficiently

In addition to matching the tractor and implement, where possible, shift up a gear and reduce the engine speed.

Use the economy pto speed (e.g. 540 at 1,400 rpm) where possible for fertilizer spreading, spraying, topping, etc.

Aggressive driving, particularly where power demand is low (road transport, etc), will waste fuel and wear other components.

Turn off the engine when you are not using it.

“

The fuel consumption of a typical 4x4 can be 60% to 100% more than a small two-wheel-drive commercial vehicle or modern diesel car

6

Select individual machines on your farm carefully

There can be big differences in fuel consumption between tractor models. Ask for the 'specific fuel consumption figures' (usually g/kwh), which is the amount of fuel used per unit of power produced.

The best figures are those from an independent OECD test. For example, an efficient tractor may use 240 grams of fuel for every kW of power produced whereas a less efficient model could use 280g/kWh – 18% more.

A 12% difference in fuel use in an 80kW tractor could amount to €1,500 per year if the tractor is worked for 1,000 hours at power-demanding tasks. Unfortunately, interpreting the manufacturer's own literature can be a challenge. We need to become much more analytical in our approach to tractor fuel use; we cannot rely on advertising campaigns or impressions from the time between tank fills.

4

Select machinery systems on your farm carefully

Some mechanised systems use much more fuel than others. Pick-up wagons, for example, use approximately one third less fuel than a precision-chop harvester.

Conventional plough-based grass reseeding, which works the soil to 22cm depth, will use more than twice as much fuel as a surface seeding method working to 7cm depth.

5

Match the tractor to the task

There is a general move to bigger tractor power units on farms without necessarily having the work to justify them.

While this can add unnecessary depreciation costs, the frequent mismatching of tractors to the task can result in a lot of fuel wastage.

A 100kW (140hp) tractor will use much more fuel working a haybob, topper, transport box, bale handler, or small trailer than a 50kW model.

Cull cows

Finish or flog?

*A rise of almost €500 between cull and finished cow value will be needed to justify finishing cull cows this winter, writes **George Ramsbottom**, Teagasc Animal and Grassland Research and Innovation Programme*

This significant rise is based on current prices of forage and feed and the performance of cull cows recorded by Willie Minchin at Teagasc Moorepark with a group of Holstein Friesian spring-calving cull dairy cows. A substantial number of cull cows are slaughtered annually in Ireland. In 2011, it totalled 330,000 head or just over one fifth of the national cattle kill. Of these, more than 60% were dairy cows.



Cull cow performance	
Liveweight gain (kg/day)	0.91
Carcase cold weight (kg)	325
Silage and meal intake	
Silage intake (kg DM/cow)	1,145
Meal intake (kg DM/cow)	335
Costs of finishing a cull cow	
Cost of silage, priced at €27/tonne fresh-weight, and meal, priced at €300/tonne freshweight	€271
Other costs (€/cow)	€100
Farmer margin (€/cow)	€100
Total costs/cow	€471

According to Joe Burke of Bord Bia, cull cows are usually processed and exported, principally to France, Scandinavia and the Netherlands.

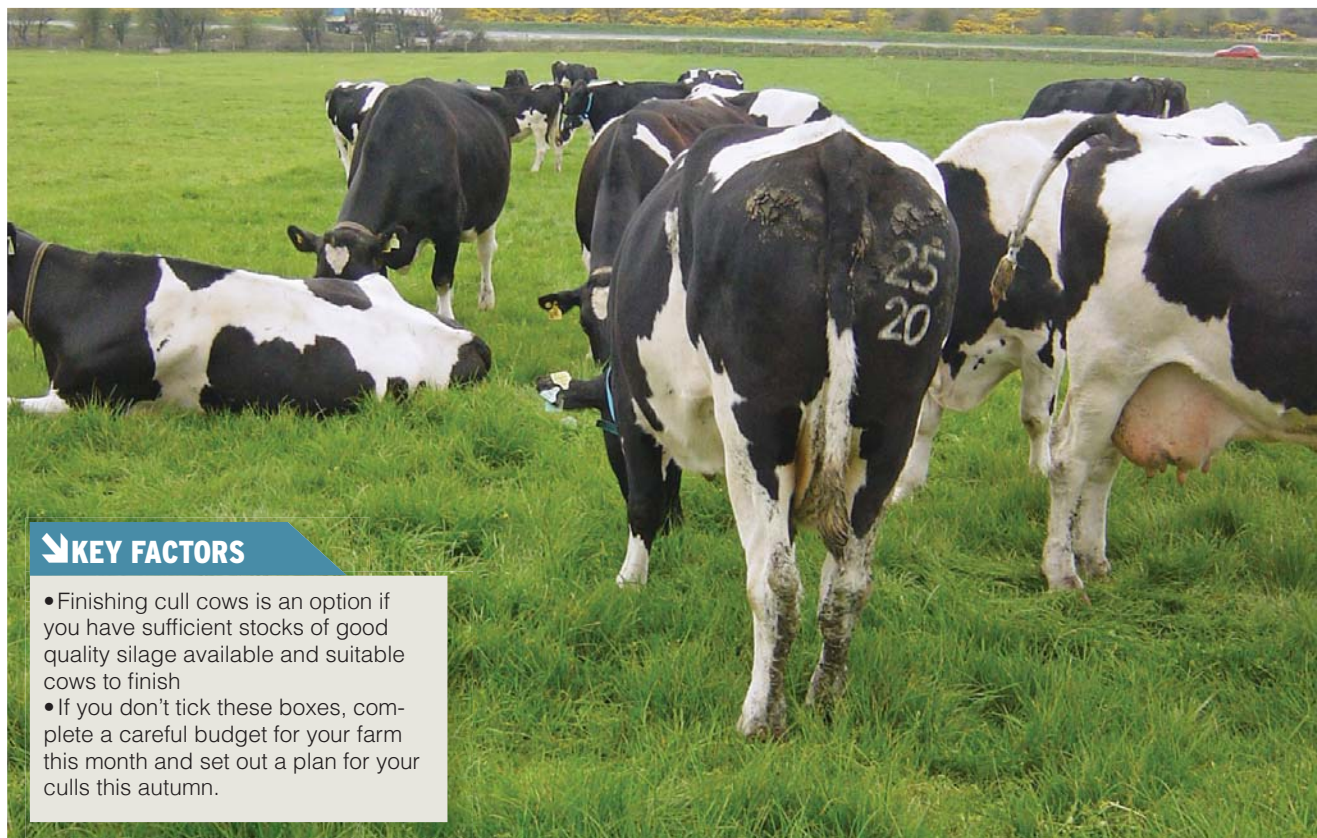
Targets for dairy culls are:

- Heavy weights – carcass weights of over 280kg
- Reasonable conformation – grade P+ or better
- A good cover – fat class of 3+, 4- or 4=

Weight and conformation issues continued to arise with cull cows in 2011. Around one in five carcasses are under-finished and the same proportion is of poorer conformation (P= or P-conformation grades). For one reason or another, many farmers are not bothering to finish their culls before sending them to the factory.

Research shows that finishing a cull cow at a heavier weight improves carcass weight, conformation grade and fat class, resulting in a big jump in the value of the animal. At current (August 2012) prices, this means an increase of 17c/kg carcass weight from approximately €3.33/kg for a P+2+ to €3.50/kg for a O+3=. For these reasons Bord Bia's Joe Burke recommends not selling cows 'straight out of the parlour'. The six million dollar question for the farmer is: 'Will it pay me to finish them or should I sell them straight away?'

At the start of Willie Minchin's experiment at Moorepark, cows averaged 597kg liveweight and 2.6 body condition score. In other words, the



KEY FACTORS

- Finishing cull cows is an option if you have sufficient stocks of good quality silage available and suitable cows to finish
- If you don't tick these boxes, complete a careful budget for your farm this month and set out a plan for your culls this autumn.

cows had a big frame but were thin. Silage quality was excellent (74% DMD and 29% dry matter) and the ration fed was a three-way mix of barley, gluten and citrus, with 3% minerals. The *table* summarises the results of the group of cows fed 3kg meal per day over a 109-day finishing period. The cows used in this experiment were healthy, i.e. no lameness/mastitis problems. Cows with such issues would not perform as well as the culls in the Moorepark experiment.

Weather-related challenges have to be considered this year:

- Grass supply will be behind target and grazing conditions are poorer on many farms, particularly on heavier soils, this autumn. Data from farms completing eProfit Monitors shows that the grazing season of 2009 (the last bad weather year) ended an average of one week earlier than in 2010. Under such circumstances the option of selling rather than finishing cows must be considered.

- Silage stocks are lower and silage quality is poorer on many farms this year.

- Feeding additional meals to reduce the quantity of silage required to finish the culls could add costs rather than increase profit; e.g. feeding 6kg meal to reduce silage intake would add over €50 per cow to feed and forage costs

- The silage fed in the experiment was excellent. An extra 100kg meal is required with 'typical' silage (67% DMD). This would add another €30 per cow to finishing costs.




Feeding additional meals to reduce the quantity of silage required to finish the culls could add costs rather than increase profit


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Trim the winter

Good autumn grassland management can help to reduce the effect of the poor silage making conditions this summer, advises Deirdre Hennessy, Teagasc Animal and Grassland Research and Innovation Programme

The aim of all grassland farmers should be to extend the grazing season for as long as possible. Good grazing management will reduce the need for silage and concentrates and will yield benefits in spring 2013. Autumn management is key to grass availability next spring.

Two key goals:

- To maximise the proportion of grass in the diet of grazing livestock this autumn
- To set up swards to be productive next spring.

Building farm cover

Generally, grass growth rates begin to decline in August and will fall below feed demand during September. On most dairy farms, feed demand will not begin to decline until October or November when dairy cows are dried off for the winter and removed from the grazing platform.

Dairy farmers should aim to have lactating cows grazing until mid to late November. To ensure that grass can make a significant contribution to the dairy cow diet into November, a 'bank' or reserve of grass must be built up. This is achieved by increasing rotation length from mid-August to greater than 30 days by mid-September, where possible.

Rotation length can be increased by reducing stocking rate on the grazing platform as silage ground comes back into the grazing rotation. If no silage ground is available to come back into the grazing area, stock, other than milking cows, should be removed



Good grazing management will reduce the need for silage and concentrates and will yield benefits in spring 2013



Consider strip grazing in wet weather, particularly in heavy covers. Strip grazing will help to maximise grass utilisation and avoid spoiling and trampling of grass.

from the grazing platform to other areas of the farm.

Consider drying off low yielding cows, heifers or cows in poor condition, or cows that are due to be culled, to reduce the stocking rate on the grazing platform.

Highest covers

The highest average farm cover should be achieved in mid to late September. A farm cover of up to 1,125kg DM/ha is manageable in mid to late September as grass quality does not deteriorate as fast at this time of the year as in the spring or summer.

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

below feed demand.

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

Once 'ceiling yield' (i.e. the point at which no increase in herbage mass is observed on the paddock) has been achieved, herbage mass and quality are maintained for four to six weeks. If pre-grazing herbage mass increases above 2,500kg DM/ha, other stock, e.g. dry cows, heifers, should be used to graze these paddocks to ensure that milk production is not compromised.

Paddock closing strategy

' at both ends

The final grazing rotation for the year should begin on 10 October in the south of Ireland. Every paddock grazed from this day should not be grazed again until spring. Every day's delay in closing from 15 October reduces spring grass supply by approximately 15kg DM/ha.

In the northern part of the country, or in slow grass growing areas, closing may begin earlier (two to three weeks) as this will compensate for lower over-winter and early spring growth.

The '60:40' rule will ensure that the farm is well set up for grass growth over winter and in early spring; this is crucial to ensure grass availability at turnout next spring. The target is to have at least 60% of the farm closed by the end of the first week of November and to graze the remaining 40% from then until housing. By sticking to this rule the optimum target farm cover of approximately 220kg DM/LU at closing can be achieved.

Ideally, the paddocks you plan to graze first in spring should be closed first in the autumn. These paddocks

should be those closest to the parlour and/or the driest areas of the farm which will facilitate early spring turnout.

Swards should be tightly grazed in autumn to ensure that old material does not remain in the sward over winter, leading to decay of herbage and tiller death. Grazing swards tightly at closing will ensure that light can penetrate to the base of the sward to promote tiller production over winter, thus ensuring a productive sward in spring.

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

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

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

If we get a wet autumn it may be necessary to skip out of the rotation

and graze lighter covers. Heavy covers are difficult to graze out properly in wet weather. Consider strip grazing in wet weather, particularly in heavy covers. Strip grazing will help to maximise grass utilisation and avoid spoiling and trampling of grass.

On-off grazing

If wet weather persists or if ground conditions are soft, on-off grazing can help to ensure that grazed grass continues to be the main forage in the lactating cow's diet without causing detrimental damage to sward surfaces and subsequent sward quality and growth.

There are several possible strategies: you can turn cows out for three to four hours after milking and then return them to the shed until the next milking. Alternatively, you can allow cows to graze by day and then house them at night.

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



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Paddocks paying off in Co Louth

Hugh Rooney, Teagasc, Dundalk

The grazing plan for Tommy Lambe's Louth farm is as neat and ordered as a Monopoly board. Like characters in the game, cattle move steadily from paddock to paddock but, ultimately, Tommy's the winner as the cattle perform exceptionally well in his low-cost, grass-based system.

Tommy buys steers and heifers between September and November and finishes them off grass the following summer. His philosophy is: 'Make the grass do the work'.

"We've moved gradually from having relatively large paddocks to smaller and smaller divisions over the years," he said. "The benefits are clear. You constantly have fresh grass for animals. They are always eager to move to a fresh paddock."

Annual plan

This year Tommy and I put a structured plan in place to 'paddock' all the grazing areas of the farm. The first

“ We've moved gradually from having relatively large paddocks to smaller and smaller divisions over the years. The benefits are clear. You constantly have fresh grass for animals. They are always eager to move to a fresh paddock

thing was to decide on the paddock size. Tommy wanted to have groups of 25 bullocks or heifers and he wanted them to be in the paddock for no more than three or four days.

The size of paddocks was calculated as follows 25 bullocks x 600kgs = 15,000kgs of liveweight per group.

During March/April when the silage fields are closed off, higher stocked farms are stocked at 2,500kgs of liveweight per ha. Medium and lower stocked farms are stocked at 2,000kgs and 1,500kgs, respectively.

Liveweight

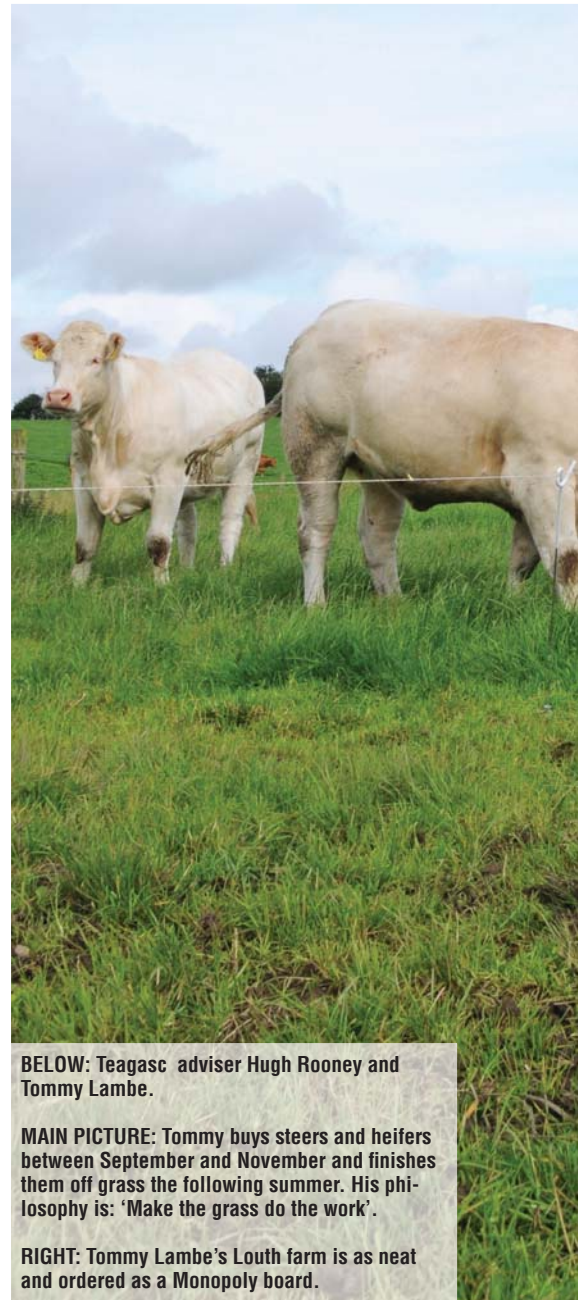
So Tommy's 15,000kgs of liveweight/2,500 = a grazing area of 6ha for each group. It is recommended that each group has between six and eight paddocks per group. Tommy opted for seven, so 6ha/7 = 0.85ha paddocks

We measured the blocks of land and divided them into 0.85ha blocks. This was made possible by an existing road through the middle of a large block of land adjoining the yard.

Water pipes were easily laid using an attachment on a mole plough which meant that no digging was needed. Troughs were put in to make sure that each paddock had access to water. By simply moving an electric fence the same troughs can be accessed from two to three paddocks.

Tommy's next step was to work out how much grass cover was in each paddock. When we first started to measure the grass we used a plate meter, but by the time we had walked the farm twice, Tommy's eye was as accurate as the plate meter. He now walks the farm himself weekly to estimate the amount of grass on the farm and how many days of grass he has ahead.

a	b	c	d	e	f
Wt of animal kg	No. of Animals	Total wt of group a x b	Area = Total wt/ stocking rate High - 2500 kg LW/ha Med - 2000 kg LW/ha Low - 1500 kg LW/ha	No. of paddocks wanted	Area needed = d / e
600kg	25	15,000kgs	15,000/2,500= 6ha	7	0.85ha (2.1 acres)



BELOW: Teagasc adviser Hugh Rooney and Tommy Lambe.

MAIN PICTURE: Tommy buys steers and heifers between September and November and finishes them off grass the following summer. His philosophy is: 'Make the grass do the work'.

RIGHT: Tommy Lambe's Louth farm is as neat and ordered as a Monopoly board.





“When I know the covers, I can make decisions well in advance and avoid running into trouble,” said Tommy. “This year I started putting cattle out to grass in late February as covers were good, and grazing conditions were ideal, but by late April and May it was a different story; the weather got very cold and wet and growth almost came to a standstill.

“Some cattle were re-housed and others were fed silage outside to slow up the rotation in order for grass covers to recover. By the end of May grass growth took off again and grass became hard to control.

“By walking the farm and calculating how much grass was there against how much grass was required to meet demand, paddocks could be taken out for silage. These paddocks were back in the system in a number of weeks. This meant that I didn’t have to go into very heavy covers for grazing and the quality of the sward could be maintained.”

Tommy pays particular attention to ensuring that paddocks are grazed out well, down to at least 4cm where possible.

He doesn’t have lower priority stock like dry autumn cows to clean out paddocks so he sometimes finds it useful to go into the paddock the day before the cattle are due to be moved and mow the paddock. The disk mower removes any tufts of grass that might be there and the cattle spend about half a day eating these before moving on.

Quality regrowth

The result is better utilisation of grass and this provides the platform for excellent quality regrowth for the next rotation. Last year Tommy decided to sell his standard topper as he couldn’t get it to top low enough and replaced it with a disc mower which he finds great as it cuts lower and cleaner.

“The only way to accurately measure gain from grass is to weigh cattle,” said Tommy. Early this year Tommy invested in a weighing scales, which is neatly integrated into his cattle handling facilities. The results are impressive.

Tommy weighed cattle on 23 March and 60 days later, on 22 May, the heifers averaged 1.56kg/day and the bullocks 1.5kg/day.

“Like a camera, the weighing scales doesn’t lie,” said Tommy. “Even in a difficult year like this one, it’s clear that animals are performing well on grass. The paddocks play a big part in that.”

Tommy closed off some fields last October to give the grass a chance to rest and build up a cover so that cattle could be put to grass as early as possible in the spring.



Keeping your

A tighter focus is boosting profits on this Kilkenny sheep farm, writes Teagasc adviser Terry Carroll

In 2011 Brian Nicholson retired from his position of prop forward with Portlaoise Rugby Club. Clearly, Brian has a great ability to channel his efforts; if you don't focus before a scrum 'hit', you'll get fleeced. Soon after, he took up triathlons. His relish for a challenge is certainly not in doubt.

It's these characteristics which lead Brian to take stock of the farm business he runs with his wife, Alison, at Tullyvolty, Johnstown, Co Kilkenny, and decide to make some changes.

"We were running a number of enterprises – cattle, sheep and tillage – but the Teagasc eProfit Monitor showed that only the sheep were making a reasonable profit," said Brian. "We were constantly busy but not getting the time to do anything exceptionally well so I felt it was time to focus on the sheep, get greater scale and aim for really good performance from a single enterprise."

The 108ha grassland farm (100ha adjusted) is that rare thing in the midlands these days – a full-time, exclusively-sheep, commercial farm.

Situated on the Kilkenny/Laois border, this relatively dry, medium clay farm is divided into two large blocks either side of the Johnstown/Rathdowney road.

"I took over the farm from my late grandfather in 2007," said Brian. "At the start we had 30 suckler cows and finished all progeny, 300 sheep and 15ha of spring barley. The rest are gone now while sheep numbers have risen to 900 ewes/ewe lambs."

The Nicholsons lambed down 500 mature ewes in spring 2012, starting on 9 February; the lambs from the start to St Pat-



rick's Day were born in an outdoor lambing system.

These lambs were all sired by Texel rams and from Mule (Blue – Leicester X) dams. The vast majority of these lambs were born from ewes of four years or greater with lamb birth weight ranging from 5.8kg to 4.44kg for singles to triplets, respectively, with twins in between at 5.1kgs.

No concentrate supplementation was given to either the lambs or their mothers following lambing. "We managed ewes and lambs in two distinct groups from lambing onwards," said Brian. "The larger group, those rearing twins, were grazed separately from those rearing singles."

Growth rate

Lamb growth rate for the twins was 296g/day for the first seven weeks, giving lambs of about 20kgs. Singles grew at 372g/day, giving 24kgs weight. The lambing rate was 1.66 lambs reared/ewe to ram with 40% of lambs sold to the end of August plus 210 replacements retained. This leaves under 400 lambs present. Lambs are sold to ICM Camolin and are averaging 20.5kgs and grading R2/R3 so far.

"The 200 ewe lambs began lambing from about 16 March," said Brian.

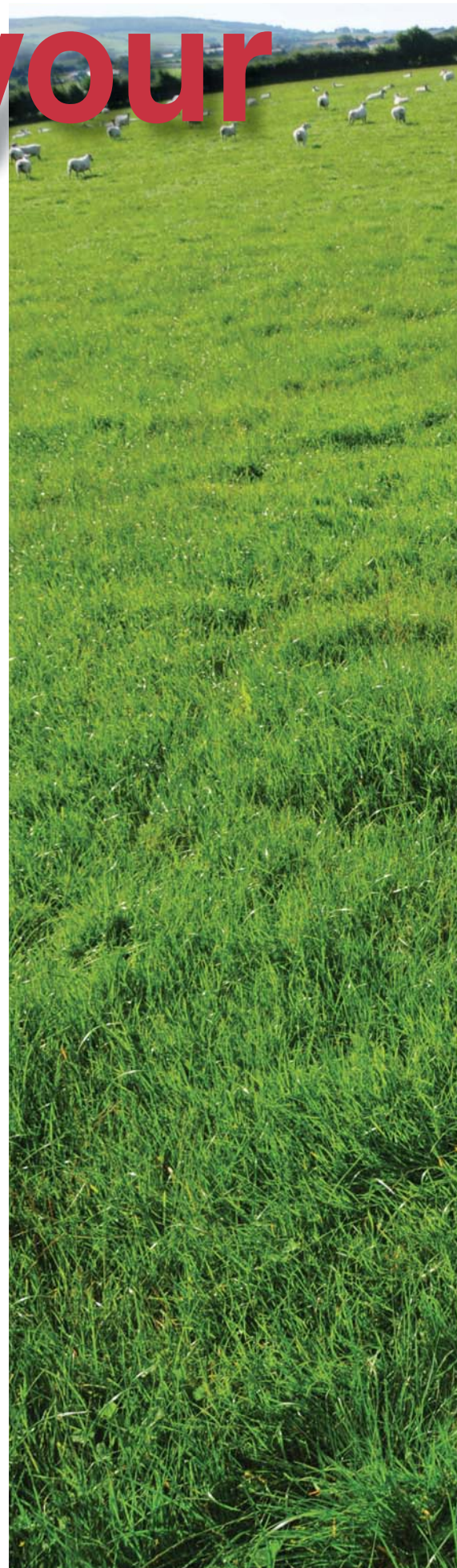
"Following turnout, yearling ewes were co-grazed with mature ewes, with no supplementation for either ewes or their lambs." Average lamb growth rate from these ewe lambs was 203g/day for twins and 247g/day for singles, giving 14kgs and 17kgs, respectively, at seven weeks of age.

"Overall, there are about five sheep groups during the grazing season, rotated around a paddock system with silage and hay both conserved for own flock as well as for sale, depending on grass supplies/surplus etc.

"The plan is to increase the number of paddocks to 35 to maximise grass growth and utilisation, which becomes even more important as stocking rates increase.

We used very little fertilizer in 2012 with just half a bag of urea nitrogen used in March; some more may be needed. The farm was fully soil tested this spring and any lime deficiencies will be corrected as well as some fields with low P readings."

Nine hundred ewes will lamb down in the 2013 lambing season; 580 mature ewes



eye on the ball



Brian Nicholson:
 "The plan is to increase the number of paddocks to 35 to maximise grass growth and utilisation, which becomes even more important as stocking rates increase."

will be let to the ram with 320 ewe lambs (replacements and purchases) also being mated.

"Our aim is to increase to about 12 ewes/ha, giving a flock size of over 1,200 ewes," said Brian. "This will give an organic nitrogen stocking rate of under 170kgs N/ha."

Currently, housing has been confined to two sheds, but a number of former cattle sheds are being converted for sheep.

Potentially, there is accommodation for over 900 ewes.

Sheep handling facilities are top class on the main grass block but a second unit is being considered across the road.

Breeding policy

"The target for the flock is to maintain a high weaning rate per ewe, (i.e. over 1.6 lambs reared per ewe joined), so the target litter size for the flock is between 1.9 and two," said Brian. "Previously, all replacements were purchased as ewe lambs (Mule) each autumn. Last year, the replacements were 70% homebred (Texel x Mule) and 30% purchased."

Belclare rams will be used on the Texel X Bluefaced ewes. Texel rams will be used on the Mules. Ile de France will be used on the ewe lambs.

The financial performance for 2011 shows a gross margin of over €600/ha from the eProfit Monitor results, or over €120/ewe based on close to 450 ewes.

BETTER farm

The Nicholsons are very committed to increasing output and profitability on this farm. They have joined the Teagasc Sheep BETTER farm programme, which will involve ongoing recording of flock performance on all aspects from lambing rates and weights to financial performance.

Indeed, already this year, there have been significant savings on parasite control through faecal egg counts determining the necessity or not to dose.

A detailed farm plan has been drawn up by the Nicholsons in conjunction with Teagasc specialists, particularly Ciaran Lynch and myself.

Keep an eye on the Nicholsons family farm as it will be very interesting to see the performance figures generated with these very capable and, above all focused, sheep farmers.

Limerick Leaders

The Kilmallock Suckler Discussion Group have increased calf output by an average of 0.11 calves per cow in just one breeding season.

In December 2010 Teagasc adviser Derek O'Donoghue invited farmers to Deebert House, Kilmallock, with a view to forming a beef discussion group. The Kilmallock Suckler Discussion Group and the Kilmallock Cattle Discussion Group (primarily store to beef) were the healthy offspring of that meeting.

The members

Regular meetings and visits to each others' farms proved enormously beneficial and many new friendships have been formed. In 2011 the Kilmallock Suckler Group had 11 meetings, nine were on-farm, and to date there have been eight meetings in 2012.

The focus

At the first meeting, held in 2011, members were asked to work in small groups for half an hour and come up with a list of what they wanted to achieve from participation in a Teagasc discussion group and which topics were of most interest. While there were many topics raised, the two main ones were breeding and grassland management while the overriding objective from all focus groups was, naturally, to improve income.

Monthly meetings

"Monthly discussion group meetings deal with issues arising at the time and, more importantly, prepare us for the likely issues that may arise between now and the next meeting," said George Howard who farms near Kilfinnane.

"The basic principles of good grassland management and best practice in cattle breeding are always to the fore," said Derek O'Donoghue. "The adoption of HerdPlus from ICBF by group members has been fundamental to setting benchmarks, not only for each individual but also to allow for comparison and progress within the group."

Production system & herd size

Group members operate a number of systems. There are both autumn and spring calving herds and some have both. About half of the members sell weanlings, with the remainder equally split between selling yearlings/stores and finishing to slaughter.

Irrespective of production system, each member is striving to increase the number of calves/cow/year while at the same time increasing overall calf value. Combined, these will increase output value. Once value is optimised increasing cow numbers can be considered.

Group beef calving report

The group calving report, generated by ICBF, compares the key measurements of efficiency such as calving interval (days), calves per cow per year, % females not calved, % dead at birth, % dead at 28 days, as well as giving the calving spread across the year.

This report covers the 12 month period, 1 July to the 30 June of the following year. The most recent report covers the 12 months to the end of June 2012 and comparing this to the report up to the 30 June 2011 shows marked improvements within the Kilmallock Suckler Discussion Group, see *Table 1.1*

The results

- Calves per cow per year increased

“ Taking the value of the extra calves at a 'dropped calf price' of €300 per calf, the extra calf output is worth at least €1,200 per group member on average.



from an average of 0.80 to 0.91 among the group, representing a significant increase over the 12 month period of 0.11 calves per cow per year.

With an average herd size of 40 cows in the group, this represents an extra four calves per member on average, or a total of 88 extra calves on the ground this year right across the group. Taking the value of the extra calves at a 'dropped calf price' of €300 per calf, the extra calf output is worth at least €1,200 per group member on average

At an average 0.91 calves per group member, the Kilmallock Suckler Group is well ahead of the average of 0.79 calves per cow nationally. Next year the goal is to exceed the 0.95 calves per cow target.

How was it done?

"Doing lots of small things right rather than one single big change is



the key to getting it right,' according to Donie Ahern, group chairman. "We try to focus on the small things bit by bit as we go through the year and then it does not seem such a bit challenge.

"HerdPlus also has been a great benefit, not just for the group calving report, but also in helping select better breeding stock through the use of the Euro Star Index."

Derek O'Donoghue, facilitator to the group, strongly endorses this perspective.

"The group has the primary focus of increasing profitability, and at the end of each meeting members should be going home with a number of key messages which, when implemented, will lead to improved efficiency and ultimately improved profitability."

Donie Collins, group member who farms at Banogue near Croom, cites the whole area of managing maiden heifers as a good example. "At our

Table 1.1: Kilmallock Suckler Group Report (Group Averages)

	July 2010 to June 2011	July 2011 to June 2012	Change
Calving interval (days)	395	378	-17 days
Calves/cow/year	0.80	0.91	+0.11 calf/cow/yr
% Females not calved	14	5	-9 %
% Dead at birth	4.9	6.1	+1.2%
% Dead at 28 days	5.5	6.3	+0.8%

Source: ICBF

meeting in February 2011, we discussed the management of breeding heifers and the consensus was that they should be turned out to grass immediately on silage ground, primarily to get them cycling.

"I tried this and all heifers were cycling when I left off the bull on 1 April. As a result my heifers calved in a tighter pattern than normal this spring, are of good size, and all except

one are back in calf'."

Derek O'Donoghue agrees with Donie, but emphasises that this is only one piece of the jigsaw and that to get a good outcome all the pieces need to be in place. This is why monthly meetings are of enormous benefit as there is never more than a four-week interval and the calendar year, from turnout to calving down, is covered at all the critical time periods.

Lessons from a difficult

What lessons can be learnt from 2012 and are there any tips for cereal crops

Tim O'Donovan
Teagasc Crops and Environment
Land Use Programme

As always, it is important to complete budgets for each crop you intend drilling.

Teagasc budgets for harvest 2013 will be available at our National Crops Forum on 12 September in the Keeden Hotel, Newbridge and online at www.teagasc.ie.

We also have an excel calculator that does the sums for you, allowing you to spend the time adjusting inputs and crop returns. One lesson from the 2012 harvest is to not oversell your crop. Don't let the rise in harvest prices put you off selling a proportion of your crop forward for next year. Forward selling on the strength of a good crop budget adds a great deal of certainty to your business.

Seed

One direct consequence of the wet summer is the high levels of ear disease (mainly Fusarium) in most cereal crops. Wheat seems to have been affected worse than barley as wheat ears open up more when they are flowering, increasing the risk of infection.

Aside from lowering grain quality, Fusarium reduces seed vigour and causes a crop to establish slowly and poorly. Of course certified seed will be guaranteed to germinate to the national standards, however, it is likely that a lot of seed will have to be imported, raising its cost.

Farmers considering importing seed themselves need to take account of the lower rates of Latitude applied to British seed.

Our milder, wetter winters present an increased take-all challenge compared to Britain. Growers who

home-save seed should be aware of the consequences of Fusarium infected seed and get a seed health test done before dressing their seed. Oak Park trials have demonstrated that barley suffers more than wheat if plant stands are thin.

Variety choice & drilling date

2012 made it clear that the foundation of good disease control is variety choice. In one Teagasc trial in Kildalton, where variety choice and spray rates were looked at, it seemed that the more disease resistant variety was worth an extra spray or the difference between an SDHI and a straight triazole. Either way, it saves you money. Location and date of sowing should also influence variety choice. Earlier sowing increases the risk of take-all as well as leaf diseases next spring.

Aphids

BYDV was very common in winter crops in 2012, especially barley. In general, it was found that where sowing was early and a second spray was not applied or mistimed, for whatever reason, the symptoms were worst.

Where the seed dressing Deter was used and followed up with a well-timed aphicide (at two-four leaf stage) there was little or no BYDV symptoms.

One worrying development in Britain is the detection of spray resistant aphids. Currently there is a large testing programme ongoing to determine the extent of aphid resistance in Britain. No testing has been com-

pleted in Ireland. Advice is unchanged from previous years.

- Crops emerged by 15 October – apply two contact aphicides or Deter seed dressing and one follow-up aphicide.
- Crops emerged after 15 October – apply a contact aphicide at the two to four leaf stage.

Contact insecticides include: Cypersect, Decis, Karate, Sumi Alpha, or Toppel etc.

Slugs

With good seed expensive and scarce, it is prudent to bait for slugs the day you drill. Assess the threat based on what you find and treat accordingly. The normal threshold is that when three or more slugs are found under traps (25cm diameter or width) over a two day period. A small heap of layers' mash or muesli is good bait. See *Table 1*. There are differences between pellets in terms of how they with-



year

being currently drilled?

stand rain. In general, cheaper pellets break down within a week or so with more expensive ones lasting up to a month. If you have a slowly emerging or late sown crop then you need the longer lasting pellet, whereas the cheaper pellet works effectively early on in the season as an insurance option. Deter seed dressing will prevent grain hollowing by slugs.

Winter wheat and winter barley herbicide options for 2012

An early **post-emergence** herbicide application tank mixed with aphicide at the two to three leaf stage has served Irish growers well and will be the main option chosen by growers this season. In trials carried out by Bryan Mitchell in Oak Park, this timing also gives the most chance of successfully using reduced rates especially when crops are competitive. The main choices are outlined in *Table 2*.

Pre-emergence options mainly suit min-till growers, early sown wheat and fields where grass weeds are numerous or that may not be easily travelled in the late autumn. The seed treatment Redigo Deter compliments this strategy as it gives good control of aphids for six to eight weeks after sowing. Seedbeds need to be fine and firm to get the best residual control in this situation.

The main choices are outlined in *Table 3*.

Table 1: Slug pellets for 2012

Product	Active Ingredient	User rate/ha (kgs)
Draza Elite	Methiocarb	3
Barclay Pathfinder 5	Methaldehyde	5
Farmco Slugs	Methaldehyde	5
Metarex RG	Methaldehyde	5
TDS Major	Methaldehyde	5
Slug Out 5	Methaldehyde	7.5
Wipeout Advanced Slug Killer	Methaldehyde	7.5
Ferramol Max	Ferric Phosphate	7

Table 2: Winter barley & wheat herbicide post-emergence options applied at the 2-4 leaf stage

Products & Rates (L/ha)	Comments
0.25 L Diflanil/Hurricane + 2.5 L IPU (Equal to 1.25 L Cougar and 1.25 IPU)	Most popular general option. Suitable for most crops in 'cleanish' ground. Weak on fumitory, cleavers & poppy. Sensitise emerged wild oats. If higher DFF is needed, Hurricane can be used up to 0.5 L/ha.
3.0 L Flight + 1.0 – 1.5 L IPU	Very good all-rounder. Better on fumitory, cleavers and poppy than DFF options. More persistent on grasses and useful effect on wild oats. Weak on groundsel (use SU in spring).
2.0 Defy + 0.1 Diflanil/Hurricane	Good option for high AMG situation. Better BLW control when used early/pre-emerg. Useful effect on wild oats. Weak on poppies, fumitory and mayweed if applied late. Apply this option pre-emergence on barley.
0.5 – 0.7 L Bacara	Good AMG option. Avoid overlaps.
0.8 L Alister (Wheat only)	Strong grass-weed herbicide with no residual grass control. Good option for brome fields but may need follow-up in spring.
0.265 kg/ha Broadway Star + 2 L Stomp	Strong brome option as well as the main broad-leaved weeds.
2.5 L IPU (autumn) + half rate Cameo/Harmony Max (spring)	Good option for late sown crops. Many options available for spring component.
0.5 - 0.75 L CMPP	Mixer added to the autumn options if weeds are getting large. Use if volunteer beans or OSR are numerous.

→ Reassess options four weeks later and when spring growth commences.

→ Alternative options are included in the Teagasc Guide to Autumn Herbicides on www.teagasc.ie

Table 3: Winter barley & wheat herbicide pre-emergence options

Products & Rates (L/ha)	Comments
0.3 L Firebird	Good residual activity on grass weeds esp. AMG for BLW's – must be used early.
4.0 L Flight	Very good all rounder. Better on fumitory, cleavers and poppy than DFF options. More persistent on grasses and useful effect on wild oats. Weak on groundsel (use SU in spring).
2.0 Defy + 0.1 Diflanil	Good option for high AMG situation. Better BLW control when used early/pre-emerg. Useful effect on wild oats. Weak on poppies, fumitory and mayweed if applied late. Apply this option pre-emergence on barley.
1300 g ai/ha pendimethalin Stomp, Stomp Aqua, Prop (Max rate varies with each pendimethalin product so check labels)	Broad spectrum. Good on Fumitory, cleavers and AMG. Mix with IPU. BASF claim less staining with Stomp Aqua



tillage

Poultry manure pays

Mark Plunkett,
Teagasc Crops & Environment Land Use Programme, Johnstown Castle, Co Wexford
Conor Dobson,
Teagasc, Dundalk, Co Louth

Louth farmers John and Karl McCrohan have been applying broiler manure to maize and winter and spring cereal crops for over a decade. As a result, they have eliminated the need for bagged P and K and more than half the nitrogen used by their crops comes, free of charge, from the soil profile.

“We’ve reduced costs by approximately €165 to 225/ha,” says John. “We’ve invested in manure storage means and we can now take in manure all year round from local poultry producers and others in neighbouring counties.”

Farm experience

“Soils are sampled once every three to five years to monitor soil P and K levels and manure is applied based on soil results,” says Conor Dobson, tillage adviser from Co Louth. “In the past, low soil zinc and manganese have been a problem on the farm but the poultry manure has alleviated that problem.”

Manure applications

Winter cereal crops (wheat and barley) receive 6 to 9t/ha of poultry manure at sowing time based on soil P and K levels. This supplies all of the crop’s P and K requirements.

Winter crops receive 60kg of N/ha in early March to meet early

“ A Richard Western twin disc machine helps to ensure even application. It is fitted with low ground pressure tyres and a hydraulic boundary spread mechanism



requirements. Once soil temperatures increase, the soil organic matter supplies the remainder.

“We study the crops at flag leaf stage to judge whether they need additional N,” says John. “There can be embarrassing moments during the year and, sometimes, there is a temptation to apply more bagged fertilizer as N release from the manure can be slow to kick in, depending on the year. But it’s better to hold out rather than having a lodged crop at harvest time.” Winter crops receive two well-timed applications of plant growth regulators to prevent lodging.

Spring crops receive 6 to 8t/ha ploughed in plus 30 to 50kg N/ha of bag fertilizer N at sowing time. Maize needs a lot of nutrients and gets 8t to 11t/ha plus 50kgN/ha bag fertilizer at sowing time.

Maize performs very well with crop yields in the region of 45t/ha of fresh material.

Manure management

The poultry manure is stored in the middle of receiving lands on the farm before application. This means manure can be taken in all year round

and is in place for efficient application.

“Several months’ storage helps reduce the smell at application and the manure is slightly broken down (composted) which helps to spread it evenly,” says John. “More importantly, it reduces the risk of botulism.”

A Richard Western twin disc machine also helps to ensure even application. It is fitted with low ground pressure tyres and a hydraulic boundary spread mechanism for uniform headland spreading. Manure is applied over a 16m to 18m spread width and is quickly ploughed in to reduce smell and maximise nitrogen recovery. “We regularly weigh loads of manure to be sure we are putting on the correct rate,” says John.

Harvest results

At the time of writing, the majority of the winter barley had been harvested on the farm with an average grain yield of 8.4t/ha (3.4t/ac) at 18% MC and 66kph to 68kph (bushel weight). Winter barley straw was of excellent quality with 25 to 30 bales per hectare. Winter wheat crops have good yield potential with little lodging..



Winter wheat

 Analysis

Time to take soil samples

Soil analysis is the most cost effective tool for optimising fertilizer and manure applications. High fertilizer prices and nutrient legislation are restricting the usage of phosphorus fertilizers on many farms. An up to date soil test report will provide a sound footing to tailoring fertilizer/lime requirements on a field by field basis and ensures maximum potential return from the spend on fertilizers.

Now is the ideal time to take soil samples from either tillage or grassland soils.

For grassland, soils request a standard soil test; for tillage soils, request an S4 test which includes trace element analysis. Contact your local adviser to organize the taking of soil samples over the coming months.

Make sure that fields are sampled correctly and take note of the following:

- For sampling purposes, divide the farm into fields or areas of between 2ha and 4ha.

- Follow a 'W' soil sampling pattern to ensure that the sample is representative of the entire field.

- Ensure soils are sampled to 10cm sampling depth, especially on grassland farms.
- Take separate samples from areas that differ in soil type, previous cropping history, slope, drainage or persistent poor yields.
- Avoid any unusual spots such as old fences, ditches, etc.
- Do not sample a field for P and K until three to six months after last application of fertilizer P and K (now is a good time to soil sample).
- Where lime has been applied, allow a time lag of two years before sampling for lime requirements.

Also, remember continuous tillage soils that have not been tested for soil organic matter must be tested by 31 December to meet farm cross compliance requirements.



Harvesting winter barley

Broil 18m

Botanic Gardens

Location, Location, Location

Trees are like property; they are of greatest value when located in just the right spot. Now's the time to plan your winter planting. Even in small numbers, trees can deliver multiple benefits, writes Dorothy Hayden, Teagasc Education Programme

Late summer is an excellent time to start thinking about planting on the farm. Trees still have their foliage and it's much harder to choose trees during the winter months. Visit your local nursery or garden centre soon to view them in their full glory. Also, take a close look at trees around your locality to familiarise yourself with the different species and appreciate the variety of features they offer.

Plan

Random planting will not yield a pleasing effect in the long run so it's vital to have a well thought-out plan and a vision of how the farm might look in 20, 30, or even more years time. Try to visualise the impact of field corners which have been planted or hedgerows with specimen trees along their length.

Trees can have a wonderful unifying effect around the farmhouse and buildings and tree-lined roads and avenues have great aesthetic appeal as well as providing valuable wildlife corridors and habitats. There is no doubt that trees evoke a sense of place, soften the harshest of landscape features and connect all the different elements in the countryside.

Flood relief

On a practical note, trees are extremely useful, both on a landscape and farm scale. Flooding can be partially mitigated by trees, particularly

if planted close to streams and rivers. They will also help to control erosion, especially on elevated sites. Trees provide welcome shelter for animals and crops alike and shade for stock when summer makes a brief appearance, while also encouraging wildlife.

A ready supply of firewood is easily attainable with successive plantings and coppicing of species such as ash.

Where to plant?

There's a tree for every location, so old arguments of it being too wet here, very dry there and excessively exposed over there, don't hold! With proper selection, ground preparation and good aftercare, you can establish trees successfully in most locations.

Careful species selection is critical. Poorly sited trees may not thrive and will look out of place. This is where you may need some professional advice from your local Teagasc forestry adviser.

Native and naturalised trees can be relied upon to survive harsh winters and blend in with existing trees growing in the landscape. Observe which trees are locally abundant and looking well in your area. More than likely, such trees will be suited to your location. Mature specimens will give you a good idea of their eventual height, spread and shape and, ultimately, their suitability for various locations on the farm.

However, matching trees to suit your



specific soil and microclimate conditions is vital for successful establishment and subsequent growth. Ideally, you should dig a trial hole at each of your different locations to examine drainage, soil depth and composition. Most species, particularly broad-leaves, require free-draining, non-compacted soils, of adequate depth, i.e. in excess of 65cm and moderate fertility.

Drainage

In damp locations and where intermittent water logging is a feature, choose species such as downy birch, alder, willow, pedunculate oak, aspen, bird cherry, spindle, sycamore or hornbeam. Alternatively, silver birch, beech and Scots pine prefer dry locations.

Free-draining soils offer plenty of scope for species choice, so you can indulge in your preference for foliage texture, colour and tree form.

Soil fertility and pH

Poor fertility, moderate compaction or stony conditions can be overcome by selecting 'pioneer species' such as mountain ash/rowan, alder, birch, willow and pine. Where soils are quite acidic, oak, alder buckthorn,

Selection: of native and naturalised trees and large shrubs

Native trees and large shrubs	Ash, pedunculate oak, sessile oak, silver birch, downy birch, crab apple, mountain ash/rowan, whitebeam, scots pine, hazel, wych elm, wild cherry, bird cherry, yew, willow, aspen, hawthorn, blackthorn, spindle, alder buckthorn, purging buckthorn, juniper
Naturalised trees	Beech, hornbeam, field maple, horse chestnut, lime, larch, sweet chestnut, sycamore, poplar, norway maple



Native and naturalised trees can be relied upon to survive harsh winters and blend in with existing trees growing in the landscape.

rowan, holly, horsechestnut, scots and lodgepole pine, bird cherry, Norway spruce and blackthorn can be used.

Many conifers only reach their full potential in more acidic conditions. Alkaline soils, on the other hand, favour alder, wild cherry, crab apple, purging buckthorn, wych elm, hazel, hornbeam, field maple, hawthorn, lime, spindle, Norway maple, whitebeam, willows and sycamore. Blackthorn is equally happy in both situations.

Soils that are neutral or slightly alkaline make your choice easier as many species, particularly broadleaves, thrive under such conditions.

Exposure

Exposed locations will always pose a challenge to tree establishment so it is particularly important that you choose wisely. Pedunculate and sessile oak, holly, Norway spruce, Scots pine, sycamore, ash, wych elm, hawthorn, rowan, lodge pole pine and willow are among those which will suit, the latter seven also tolerating harsh coastal conditions.

A few other useful species for seaside locations are Norway maple, whitebeam, most pines and blackthorn.

Shelter

Wide shelter belts give the most protection from wind, but remember that the aim is to slow down and filter the wind rather than blocking it completely. Therefore, broadleaves or a mixture of broadleaves and some conifers are most effective. Where shelter is urgently needed, fast growing species such as sycamore, rowan, alder, birch, wild cherry, hazel, Norway maple, lodgepole pine and willow can be planted, with other slower growing species underplanted in time.

Remember to orientate the line of the shelter belt at right angles to the prevailing wind. Plant the lowest growing species on the windward side and gradually build up to the tallest trees beyond the centre of the shelter-belt, finishing with smaller-growing species to the leeward side. In effect, this will give a wedge-shaped band of trees filtering and deflecting the wind over the top and thus avoiding damaging gusts.

Light and shade

Perhaps you have a shady corner or wish to underplant beneath existing trees? While most trees do best in full sunlight, there are those that will tolerate varying degrees of shade. These

include, beech, hornbeam, yew, holly, hazel and field maple.

One of the most important things to consider when planting trees is to include long-lived species in your selection for posterity. Yew, oak, sycamore, lime and sweet chestnut are among the longest living, capable of reaching 300 years or more, while beech, hornbeam, Scots pine and Norway maple can live in excess of 200 years under ideal conditions.

If you are in a position to plant quite a few trees, grant aid is available from the Forest Service for areas as little 0.1ha for broadleaves with a minimum band width of 40m. Contact your Teagasc forestry adviser for details.



Careful species selection is critical. Poorly sited trees may not thrive and will look out of

place. This is where you may need some professional advice from your local Teagasc forestry adviser

Seaweed instead of soya?

As prices for livestock feed soar, a potential new protein source lies just off our shores, writes Maria Hayes, Teagasc Food Programme, Teagasc Food Research Centre, Ashtown

Farmers along Ireland's 7,500 kilometre coastline have known for millennia that seaweed is an excellent fertilizer. But seaweed also has the potential to provide a healthy boost for humans and valuable protein for livestock.

Already, fish farmers use feeds which include seaweed species such as *Palmaria palmate*, prized for their protein content. With soya prices rising due to poor weather conditions in the US, increasing demand, and the strengthening dollar, high protein seaweed could also become a component in ruminant feed.

Sheep on North Ronaldsay, Orkney, Scotland, survive under extreme conditions with the brown seaweed *Laminaria digitata* as their sole feed. Herds of Aberdeen Angus cattle in Australia have been fed kelp, another seaweed, with owners reporting decreased annual herd health costs, increased fertility and improved calving and milking. Irish researchers are working to unravel the secrets of seaweed.

HUMAN HEALTH BENEFITS

Scientists at Teagasc, Ashtown, are part of 'NutraMara', a research programme established to identify novel functional foods and bioactive ingredients from sustainable marine resources including seaweeds.

Functional foods provide the consumer with health benefits that go beyond basic nutrition. They are targeted primarily at humans but could also be applied to animal nutrition. NutraMara includes a number of research partners and is carried out under the Sea Change Strategy with the support of the Marine Institute and the Department of Agriculture, Food and the Marine.

The NutraMara programme has shown that, potentially, protein rich seaweeds such as Dulse and Porphyra (common name Sleabhac or Laver) species may be used in the development of low cost, highly nutritive diets and as an alternative to current protein crop sources such as soya bean. In the 12th century, monks are recorded as having fed seaweed to the poor. Research is revealing why the



Protein rich seaweeds such as Dulse and Porphyra species may be used in the development of low cost, highly nutritive diets and as an alternative to current protein crop sources such as soya bean.

monks were wise to do so.

The Teagasc researchers have developed a number of isolation, characterisation and quantification methods for seaweed-derived proteins, amino acids and peptides. They have also developed bioassays to identify health benefits from seaweed protein extracts.

For example, novel peptidic inhibitors of the enzyme renin, an enzyme important in the regulation of blood pressure in humans, were isolated from sustainable red seaweeds provided by NUI Galway. These inhibitory peptides are currently being assessed in cereal-based products for human consumption.

Protein quality

The protein content of Dulse varies between 9% and 25%, depending on the season. Valuable amino acids such as leucine, valine and methionine are well represented in Dulse. In Porphyra species, the amino acid profile is similar to those reported for

leguminous plants such as peas or beans – ideal animal feed.

Limited harvesting is hampering the development of seaweeds as a protein source. Dulse is harvested in small quantities in Ireland – just 100 tonnes per year. This is largely due to difficulties associated with harvesting the seaweed and the availability of harvesting licences. Increased production of seaweed could be encouraged by assisting the industry to culture high yielding species such as *Laminaria digitata* and *Palmaria palmata*. Sometimes it's hard to recognise potential so close to home.

• NutraMara (Grant-Aid Agreement No. MFFRI/07/01)



is carried out under the Sea Change Strategy with the support of the Marine Institute and the Department of Agriculture, Food and the Marine, funded under the National Development Plan 2007-2013.



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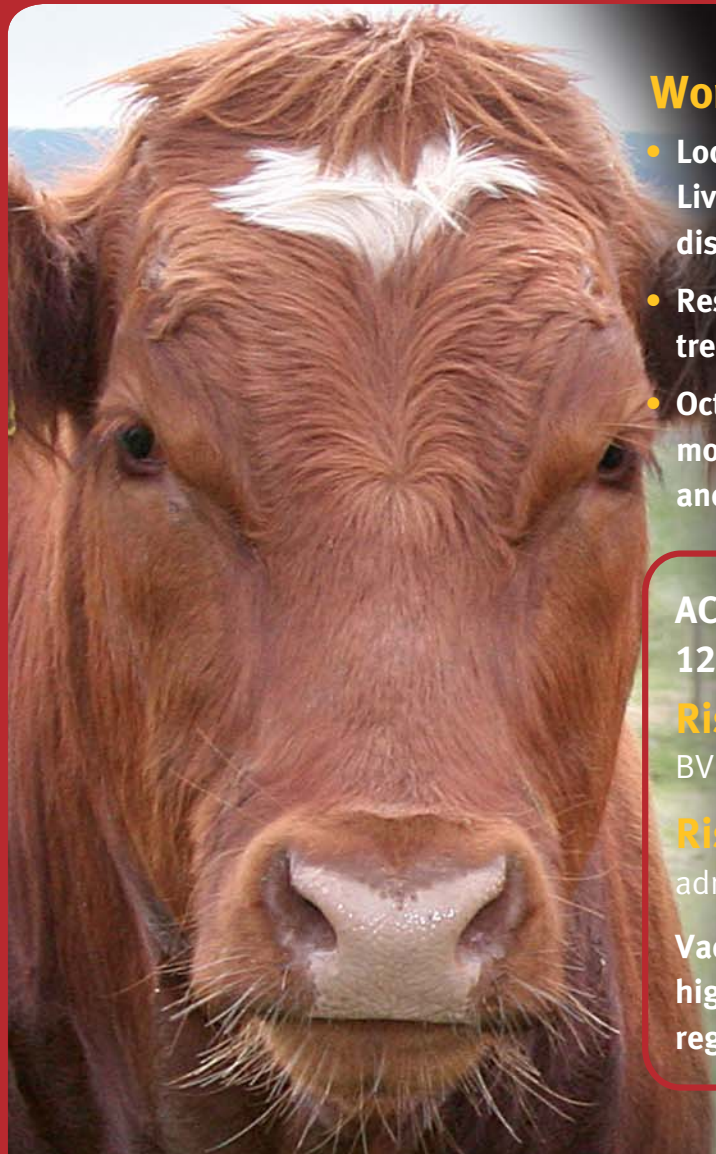
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References:

1. Ryan and O'Grady 2004
2. Regional Veterinary Laboratories-Surveillance Report 2009



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