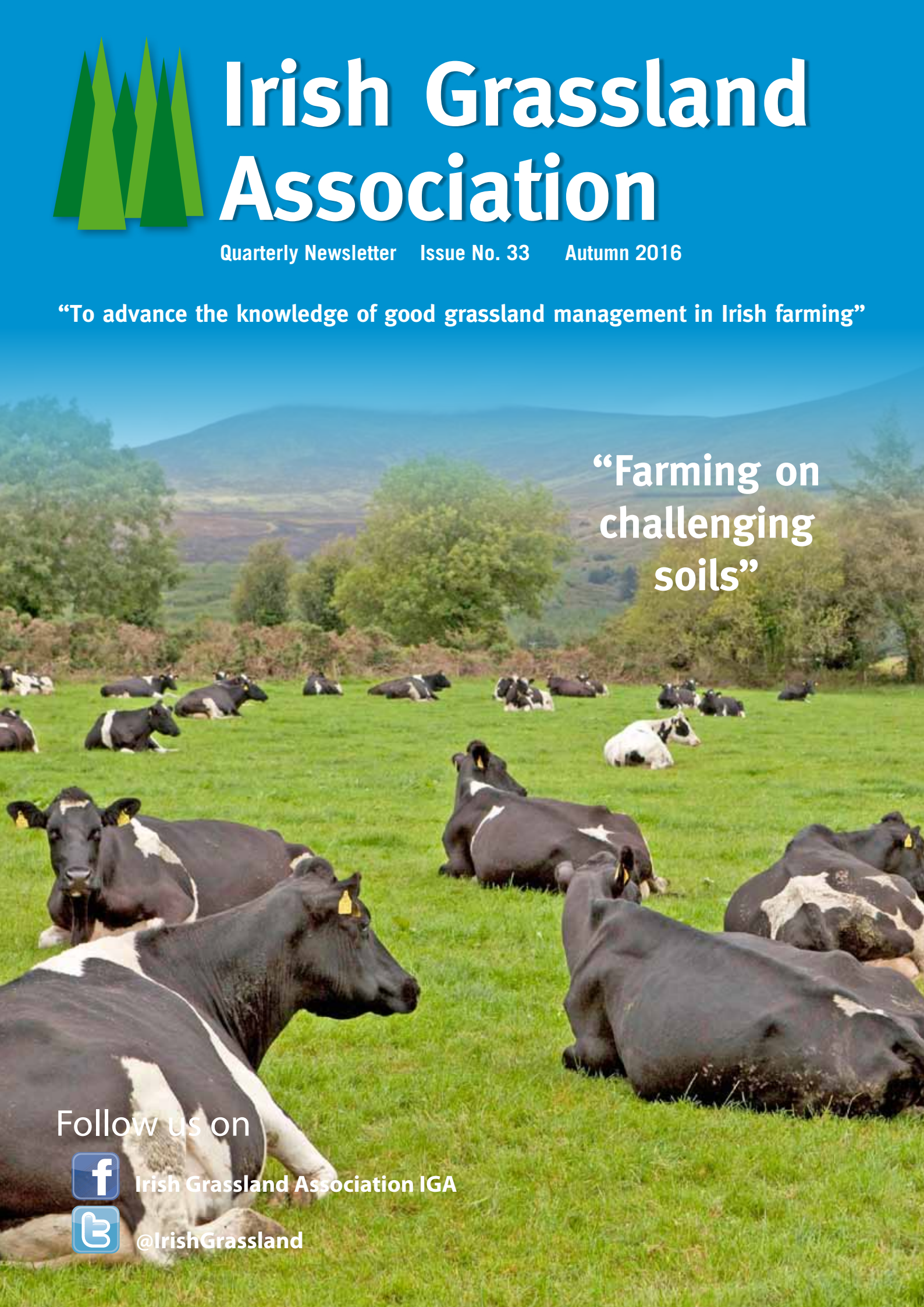
Irish Grassland Association

Quarterly Newsletter Issue No. 33 Autumn 2016

"To advance the knowledge of good grassland management in Irish farming"



"Farming on challenging soils"

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Contents

Front cover photograph by Donal O'Leary photographer.

Irish Grassland Association Editorial

Dear Member,

Paul Crosson, Irish Grassland Association Editor and Council Member

You are very welcome to the autumn edition of the Irish Grassland Association Quarterly Newsletter. In this edition our focus is on farming on challenging soils. A sizable proportion of milk produced in Ireland (up to one third) and the vast majority of beef and sheep output is generated on farms that are faced with poorly drained soils, high levels of rainfall, elevated/ undulating sites or indeed a combination of more than one of these challenges. Our very successful Dairy Summer Tour (Page 6), sponsored by AIB, visited two such farms in the south west and demonstrated how these challenges can be overcome by focussing on land drainage and reclamation and close attention to detail with regard to grassland management.

Our focus article this quarter is from Pat Tuohy (Teagasc Moorepark) who provides detailed guidelines on the correct approach to land drainage (Page 26). Pat alludes in this article to the improvements made on the farm of Sean O'Riordan and family, one of the host farmers for the Dairy Summer Tour. Of course creating the right conditions for grass growth is critical; however, it also important to manage the sward post establishment. Tim O'Donovan from SeedTech highlights the importance the post emergence spraying for grass reseeds (Page 30).

The Irish Grassland Association Student Conference has become a feature in the calendar of Agricultural students and the seventh annual conference, sponsored by FBD, will take place in Kildalton College, Piltown, Co. Kilkenny on Monday 10th October 2016 (Page 10). The conference will provide an opportunity for the students to get first-hand insight into the recently established Kildalton Sustainable Farming Platform. We would also like to bring to your attention our upcoming Dairy Conference kindly sponsored by Yara – a preview to this event, to held in Kilkenny on Wednesday 18 January 2017, is provided on Page 13.

Among the speakers at the Student Conference is John Kelly – John is also one of our Focus Farmers in this issue (Page 16), and together with Jim Parkinson (Page 14) charts the progress made on two farms which have changed enterprises. In the case of John his move has been from sheep to dairy while Jim converted from dairy to beef a number of years ago. Completing our lineup in our Farmer Focus section is our young "Year in our Wellies" farmers where we welcome our new beef farming contributor, Noel Claffey (Page 21) who combines a busy PhD programme with his farming and cattle-showing schedule.

Our opinion piece this month comes from Jonathan Forbes from Kepak Group (Page 22). Of course we are all too familiar with the farm income challenge on beef farms – Jonathan gives a meat industry viewpoint on the current state of play in the beef industry as well as providing some perspectives on the future of the industry.

We are conscious of the continuing concern surrounding the level of farm accidents and so we continue our series of health and safety articles. In this edition John McNamara (Teagasc Kildalton) highlights the dangers associated with farm machinery and the importance of all farms completing either a risk assessment or a safety statement (Page 32).

Dairy Summer Tour – milk production on more challenging soils

George Ramsbottom,
Irish Grassland Association
Council Member and Teagasc

Dairying on more challenging soils was the theme of this year's Irish Grassland Association's Dairy Summer Tour which took place on Tuesday 19th July sponsored by Allied Irish Banks. Four hundred dairy farmers attended the event based at the Green Glens Arena in Millstreet and visiting host farms near Kiskeam, County Cork and Rathmore, County Kerry. An estimated 4.4 million hectares of the land of the Republic of Ireland is classified as lowland mineral soil while a further 1.5 million hectares of land is classified as mountain and hill land. Approximately one third of the lowland mineral soil category (1.4 million hectares) is classified as wet land. As much as one third of Irish milk is produced on either heavy or elevated soils. Inclement weather conditions have the potential to add complexity, cost and risk to the milk produced on such soils.

Sean and Liz O'Riordan, Kiskeam

Sean and Liz farm at Knocknenaugh, Kiskeam, Co. Cork. This year the 80 ha farm is grazing 100 dairy cows. Overall farm stocking rate was 1.5 LU/ha with the 40 ha milking platform stocked at 2.5 cows/ha. Sean also reared 30 replacement heifers this spring and has cut pit silage on the out farms to support the dairy herd. In 2015 milk solids production was 422 kg milk solids per cow (4.21% fat; 3.65% protein). Current herd EBI is €178 (Đ51 milk sub-index; €93 fertility sub-index). Last year cows were housed part-time by October 20th and full-time by 10th November. They spent an average of 274 days in milk last year. The herd was fully dried off by the 15th December. Housing consists of slatted cubicle accommodation for both cows and replacements. The first cow calved on February 5th, the median calving date was February 29th and the 6-week calving rate was 77%. Spring 2016 was wet and cold and cows were turned out to grass full-time on March 10th but spent approximately another week indoors on and off until early April. The first rotation ended on April 28th.

The O'Riordans are participants in Teagasc's Heavy Soils Programme. The milking platform land base has been assessed and comprises 0.3-1.0 m of high clay content top and sub soils overlying stony soils on top of shale bedrock. On view at the farm walk was a paddock which has been improved using a network of shallow (1.1 m deep) gravel-filled drains. To ensure the rain drains through the tightly consolidated top and sub soils to these drains, a subsoiler was used to crack the top and sub soils to improve drainage. Adjacent to the improved paddock the audience looked at a similar paddock that was reseeded at the same time without drainage.

Dr. Pat Tuohy of Teagasc Moorepark discussed the principles underpinning improvement of more challenging soils at the event (a more detailed article on draining heavy soils with reference to the O'Riordan farm is **included on page 26**). According to host farmer Sean O'Riordan, "Draining the paddock has been very successful. What was once one of the wettest paddocks on the farm is now one of the driest. I can get the cows out on it earliest in the spring and latest in the autumn if I want to. Grass yield has increased by an average of 4.5 t dry matter per hectare per year. In fact the drained paddock is now one of the highest yielding parts of the farm". According to Teagasc's Ger Courtney, the drainage will have paid for itself within five years, "Taking a value of €200 per tonne

utilised and assuming that 3.5 t dry matter extra is utilised per hectare, that's worth €700 per hectare. It cost just under €3,500 to complete the drainage of the paddock so it will have paid for itself within five years".

Conor and Eilisha Creedon, Rathmore

Conor and Eilisha farm at Gortnagown, Rathmore, Co. Kerry on an elevated, steeply sloping farm (200-300m above sea level). The farm comprises 43 ha of owned land in two divisions. The out farm, located approximately 20 km from the milking platform, is used to rear the 18 maiden and 40 weanling replacement heifers currently being reared. The milking platform is adjusted to 26 ha. The majority of it has been reclaimed over the 1997-2005 as he sold off blackface mountain ewes and replaced them with dairy cows. Underlying 10-30cm of topsoil, a deep gravelly layer of subsoil provides good drainage once reclaimed. Similar to the O'Riordans, the farm is in a high rainfall area because of the elevated nature (200-300 metres above sea level) and aspect of the farm. It also received 1.95 m of rain last year.

Overall farm stocking rate was 2.73 LU/ha in 2015 with the milking platform grazing 97 cows (stocked at 3.73 cows/ha). In 2015 the milk solids yield was 413 kg per cow (4.54% fat; 3.73% protein) from a predominantly Friesian Jersey crossbred herd. Cows spent an average of 288 days in milk last year with 75% of the herd milked through the month of November while grazing by day, to ensure that a long lactation was achieved. Housing consists of slatted cubicle accommodation for both cows and replacements. Meal fed averaged 580 kg per cow in 2015 with 15.5 t dry matter grown per hectare on the milking platform. Current herd EBI is €178 (€63 milk sub-index; €81 fertility sub-index). The genetics of the herd is 40% Holstein Friesian; 40% Jersey; and 20% British Friesian.

This year the first cow calved on February 11th, the median calving date was February 26th and the 6-week calving rate was 96%. Cows were turned out to grass part-time from mid-February, housed full-time for a week in early March and turned out again from mid-March. The first rotation ended on April 10th, 250 kg meals had been fed up to the date of the Summer Tour per cow and no more will be fed until the autumn if grass growth continues as expected.

- Conor places huge emphasis on the number 500; 500 kg liveweight and 500 kg milk solids are two target figures he spoke about on the day. 'I'm looking closely at not just milk and fertility but also the maintenance sub index. I won't select anything less than €30 for maintenance. When I ran it through Sire Advice this spring I only found 6 bulls that were suitable".
- Farming on a high rainfall area on shallow soils Ger Courtney, Teagasc said, "Almost 1 tonne of lime was lost per hectare per annum between 2011 and 2015 on this farm. At Conor's high milking platform stocking rate phosphorus off take is 30 kg per hectare per year. Conor now soil samples every year to keep a close eye on changes in soil pH and P and K indexes".

Commenting at this year's Summer Tour, Donal Whelton Agri Advisor, AIB said, 'We were delighted to continue our support of the Irish Grassland Association Dairy Summer Tour. As always it turned out to be a most informative, stimulating and well organised event. This year's event provided a further opportunity for farmers to learn first-hand from two progressive dairy farmers who are farming on more challenging soils. The fundamentals of grass and maintaining efficiencies are key for all farmers, particularly in a period of volatile milk prices'.

Bernard Ging Irish Grassland Association President welcoming and Adam Woods Vice President of the Irish Grassland Association and the newly formed Council at the Irish Grassland Association AGM.

Irish Grassland Association Annual General Meeting 2016

Maura Callery,
Irish Grassland Association
Office Manager

The Irish Grassland Association 2016 AGM took place on the 15th September at the Heritage Golf and Spa Resort in Killenard, Co. Laois. This is an important event in the Association's calendar providing an opportunity for all members to see how the Association works. It is also an opportunity for members to become involved in the running of the Association. All members can put their name forward for election onto the Council. There are 21 elected members on the Council and the incoming President can also co-opt a further 3 council members. The Council operates on a voluntary basis to organise the events and activities of the Association throughout the year.

At the AGM Bernard Ging, Dairy Farmer was installed as President of the Association, Adam Woods, Irish Farmers Journal, was installed as the Vice President of the Association and Darren Carty Irish Farmers Journal was elected as editor of the Annual Journal and Newsletter.

L-R Mark Maxwell, Beef Farmer and newly appointed Irish Grassland Association Council Member; Christy Watson, Teagasc and newly appointed Irish Grassland Association Council Member; Bernard Ging, Irish Grassland Association President; Stan Lalor, Grassland Agro and newly appointed Irish Grassland Association Council Member and Adam Woods Vice President of the Irish Grassland Association at the Irish Grassland Association AGM.

This year four members were re-elected to the council to serve a second three year term: Jan Jensma, Rosalyn Drew, Emer Kennedy and David Cummins. Three council members were elected onto council following a one year co-opted term: Laurence Sexton, Alan Kelly and Austin Flavan. Bernard Ging President co-opted on Stan Lawlor; Christy Watson; and Mark Maxwell. It is a great reflection of the Association that so many people are interested in joining the Council.

A number of council members retired this year. They were Paul Crosson, Padraig Mulligan and Donal Patton. All of these retiring members contributed greatly to the growth of the Association during their time on Council.

A full overview of the retiring council members, the current council members and newly appointed council members will follow in our winter newsletter publication.

IGA Student Conference

David Cummins,
Irish Grassland Association
Council Member and
Department of Agriculture
Food and the Marine

The seventh annual Irish Grassland Association Student Conference will take place in Kildalton College, Piltown, Co. Kilkenny on Monday 10th October 2016. The event will be divided into two main sessions, with a morning 'conference session' and an afternoon 'farm session' in Kildalton College.

Speakers for the morning 'conference session'

Dr. David Devaney – Kildalton Open Source Sustainable Farm
Topic: 'Sustainable Farming'

After completing an Agricultural Science Degree in UCD in 2003, and a Masters in Applied Environmental Science in 2004, David undertook a PhD at the Department of Soil Science in the University of Reading. Upon completion, he took a research role with Teagasc in Johnstown Castle and worked on a project investigating the efficacy of nitrification inhibitors under Irish conditions. In 2009, he moved to England and worked with DEFRA (Department for Environment, Food and Rural Affairs) as an Evidence Specialist and in 2013 he transferred to the Environment Agency (which is one of DEFRA's delivery agencies) to work on a range of projects from tracking agricultural pollution incidents to flooding response. In January 2016 he returned to Teagasc to take up a position on the Kildalton Open Source Sustainable Farming project based at Kildalton College. His interests are varied and have been developed under the variety of posts he has worked in - this dove-tails well with the multifaceted nature of sustainable farming!

David's presentation will focus on the first operational year of the Kildalton Open Source Sustainable Farm. This platform was launched in late 2014 and underwent a year of planning and data gathering. The last year has been a time of increased activity and involves setting the groundwork for future monitoring and evaluation. The talk will investigate the criteria or indicators that will be used for evaluating progress and success. This sustainable platform is in the early stages of establishment and the talk will give an interesting insight into the setting up of a piece of work that aims to look at long term sustainability and use of farm generated data to better inform future operational and infrastructural changes.

John Kelly – Dairy Farmer
Topic: 'Grass is the pivot we should make our decisions from...'

John Kelly and his wife Caroline are dairy farming in Baltinglass, Co. Wicklow. John started his 'self-employed life' as a sheep farmer. He soon realised that he had a lot to learn and this is why he applied to be a Teagasc monitor farmer. He was hungry for knowledge and the idea of putting himself under pressure to perform appealed to him. The program was initially spearheaded by Seamus Hanrahan, a former Teagasc sheep researcher and recipient of the IGA lifetime merit award. This is where John was introduced to grass measurement and management. He was shown how to use a rising plate meter and given grazing guidelines and principles. As all the livestock's production was recorded it soon became apparent to him how big an effect grassland management had on animal performance.

It is nearly four years ago now since John converted from sheep farming to dairy farming and for him the core of dairying, like sheep farming, is grassland management. John is still amazed at how important this is and how much he is still learning about it, even though he has been measuring grass for nearly nine years. Its interaction with animal performance and profit is key to the running of a successful ruminant enterprise. This interaction should always be kept in mind when making a decision or implementing advice. Grass is the pivot we should make our decisions from. This year John is milking 150 cows and hopes to increase this to 180-190 in 2017. John's herd produced 430 kg milk solids/cow in 2015 with 290 kg meal fed/cow. He expects this to increase as the herd matures; 65% of the herd were first calvers in 2015. His SCC has averaged under 100,000 since he started milking and his empty rate was 5% last year. A full overview of John's conversion from sheep to dairy production is given on **page 16** of this newsletter.

Mícheál O'Leary - Teagasc Moorepark Topic: 'PastureBase Ireland'

Mícheál graduated from UCD with a Bachelor of Agricultural Science in 2013, where he majored in Animal and Crop Production. He completed a Masters in Animal Nutrition from UCD Lyons Estate in January 2015, and has been working on PastureBase Ireland (PBI) since January 2015 based in Moorepark. Mícheál's primary duty is to give back-up to farmers on how to use the application, while also giving advice. He is also involved in a number of trials which are run in conjunction with PastureBase Ireland, such as the Cultivar Evaluation trial.

PastureBase Ireland can be divided into two segments; it is a web based grassland management tool for farmers and it is a grassland database for Ireland. Farmers record their weekly cover and researchers in Moorepark can collate the data to identify trends in growth rates and DM production across different enterprises, regions and soil types. PastureBase Ireland has been in operation since 2013 and now there are over 1,500 farmers using the system.

Mícheál's presentation will include the findings that have been highlighted by PastureBase Ireland. He will also go through some management tips for different times of the year, and the basics of how to measure and budget grass and the benefits to be got from this.

Afternoon 'farm session' – Kildalton

Topic 1. Kildalton College – 'Farm Walk'

Kildalton College staff will provide an insight into the dairy, beef and sheep enterprises present on the Kildalton Farm.

Topic 2. Department of Agriculture, Food and the Marine (DAFM) Herbage Evaluation trials in Kildalton.

DAFM are the statutory organisation in Ireland with responsibility for the evaluation of new varieties of grass and white clover for National List/ Recommended List purposes.

The Herbage Evaluation trial site in Kildalton is one of five trial sites used by DAFM to evaluate new varieties of grass and white clover. This talk will give students an insight into the National Herbage Evaluation system, the reasons behind it and its outcomes.

We would like to sincerely thank our host Kildalton College, Piltown, Co. Kilkenny for their help and cooperation in hosting our 2016 Student Conference

Irish Grassland Association Student Conference 2016 is kindly sponsored by

FBD Trust

We would like to sincerely thank our sponsor the FBD Trust, who have sponsored this event since its inception in 2010

Irish Grassland Association

Members Dinner & Networking Evening

On Tuesday 17 January, the evening before the IGA Dairy Conference, the first 100 Irish Grassland Association members who book tickets can attend a free networking evening and dinner. The event will take place at the Conference venue, the Newpark Hotel, Kilkenny

The 2017 guest speaker is Siobhan Talbot, CEO, Glanbia PLC who will be interviewed by former Irish Farmers' Journal Editor, Matt Dempsey. She will address the topic, 'Future expectations for milk markets and milk price – a Glanbia perspective'. Members will finish up the evening with Dinner. This part of the conference is very popular and tickets have sold out within three days.

Online booking is the quickest method to secure your tickets (plus you will also avail of the best discounted conference tickets detailed below). If you have any queries you can call the Office Manager, Maura Callery, on 087 9626483.

IGA Dairy Conference 2017
The Business of Dairying

Paul Hyland
Irish Grassland Association
Council Member
and Dairy Farmer

The annual Irish Grassland Association Dairy Conference, sponsored by Yara, takes place on Wednesday 18th January 2017 at the Newpark Hotel Kilkenny. The theme of this year's event focuses on the business of dairying. Addressing the conference will be a selection of dairy farmers, agri-consultants and researchers from Ireland and abroad.

Over the past decade milk price volatility has become an increasing feature of the Irish dairy industry. Farmers who recognise the challenges it presents and adapt accordingly will continue to operate profitable and viable farm businesses. This conference, focusing on the business of dairying is divided into three parts: strategic development for the medium to longer term; tactics for the spring ahead; and budgeting for the current and future years.

Long-term business strategy: Mayo's Sean O'Donnell will describe how he operates his dairy farm; review strategies for overcoming fragmentation in dairy farming; and present his recommendations for profitable dairy farming on a fragmented holding. Dairy lecturer Dr. Karina Pierce will outline the rationale behind UCD's decision to investigate the high EBI, high yield, high stocking rate dairy farm option and review the performance of year one of their trial. Welsh dairy farmer Chris Mossman will detail his system of milk production which incorporates crossbreeding with a high stocking rate and a late start to the calving season.

Short-term spring tactics: Cork man Shane Fitzgerald will outline performance on his dairy farm focusing on the strategy employed in spring during the busy calving season to maintain a high health status and control disease. Teagasc researcher Dr. Michael Egan will report on a recent experiment at Moorepark on spring grazing and review the targets set in the spring rotation planner for different regions and soil types.

Business budgeting: Patrick Gowing, expansion consultant with Teagasc will describe his approach to business budgeting for new and expanding dairy farmers following a difficult financial year in 2016. Paul Tully will describe his path to leasing and owning his own pig business and his approach to budgeting in a volatile marketplace. Monaghan born Olin Greenan will describe his progression through the New Zealand dairy industry and his guidelines for budgeting in a volatile industry.

Early booking for Dairy Conference tickets is strongly encouraged as places will be limited and this event sells out early every year. A special 20% discounted registration fee (€40 for Irish Grassland Association members and €80 for non-members) applies to online registrations up to and including Tuesday 3rd January.

SECTION 2

FARMER FOCUS

Alyssa, Jim & Estelle Parkinson

Dairy farming to beef farming - going against the grain!

Pat Donnellan,
Irish Grassland Association
Council Member and ICBF

Whilst many producers are considering, or are in the process of converting their beef farms to dairy units, Jim and Audrey Parkinson have gone in the opposite direction by converting from dairy to beef.

The farm is situated just outside New Inn, County Tipperary. It is a well known landmark for those with an interest in livestock, with Limousin cattle dotted around the farm, either side of the motorway.

Herd history

Of course it wasn't always like this. Way before the motorway was even thought of, dairy cows roamed these fields. The dairy herd commenced operation there in 1982 with 70 cows which came up from Jim's home farm in Tarbert, Co. Kerry. A 10 unit herring bone milking parlour, complete with cluster removers was installed by Dairymaster. *'At the time it was a very modern milking parlour, the fact that it had even had cluster removers was a big deal back then!'* according to Jim.

The Parkinson's kept their herd at the 70-80 cow size over the following years and they supplied Dairygold in Mitchelstown. The herd was milked right through the year and an interesting local development facilitated the need for the herd to go for 365 days of the year. 'Dairygold Spread' was being made in their local plant in New Inn and this development was a great source of employment to the local area with 20-25 people working on this product alone. When the production of this product stopped in the early 90s, the herd then changed to being a typical spring calving dairy herd.

Change

Calves from the dairy herd being taken through to slaughter were only ones flying the beef flag up until the mid 2000s. However, a change away from dairy farming was being planned for a number of years. A proportion of the dairy herd had been mated to Limousin bulls over a number of years and their heifer calves were retained in the herd. So when the day finally came to sell the dairy cows, on the 19th of April 2007, 50 homebred suckler cows were already in place.

The decision to stop milking cows was primarily a *'quality of life'* decision as Jim would put it. Not being tied to the milking parlour for 7 days of every week was very appealing. Of course there is a lot of hard work involved in sucklers but you are more in control of your time than was the way with dairy farming. *'Perhaps if robotic milking parlours were well established back then the decision would have been different but that's history now and we have absolutely no regrets over the decision that we made.'*

Beef herd

Today Jim and Audrey run a 100 cow suckler beef herd and also have a beef finishing enterprise on 77 ha. The herd consists of 65 commercial Limousin cross suckler cows and 35 pedigree Limousin cows. The pedigree herd was started through the purchase of 2 pedigree females from well-known Limousine breeders Roger McCarrick and Martin McCullagh. The vast majority of the herd calves in the Autumn time. Over the last few years, all of the weanling bulls have been sold in the mart and from home with the heifers being brought through to slaughter. The bulls might be brought through to slaughter this year but this would depend on the market.

Performance from grass

Jim aims to maximise animal performance from grass, both grazed and ensiled. This is achieved by consistently producing high feed value silage and grazing leafy

pastures over a long grazing season. Cows and their progeny are turned out to pasture in mid March and are housed in mid November. Male weanlings which are not being sold at weaning graze pasture until housing and are then finished on ad-libitum concentrates until slaughter at 18 months of age.

It is important to point out that the basics of grassland management are given every bit as much attention for the beef herd as they would be given if Jim was still milking dairy cows on the farm. An extensive network of paddocks on the farm which are all serviced by superb roadways are an absolute necessity in terms of getting the maximum output from grazed grass.

Breeding - Females

The herd rates very highly on the ICBF Đuro-Star genetic evaluation system with all of the age categories of cows receiving the '5 Star' status (see above right).

The youngstock in the herd are also rated very highly for the 'Replacement Index', 5 stars again, with an average of €123 (see across).

Breeding – Males

The herd has always been very rigorous in terms of stock bull selection. One of the lynchpins in the breeding operation over the last few years was a homebred bull called 'Marlhill Craig'. A new bull that is now also starting to leave his mark on the herd is 'Woodview Gregory'.

Summary

A decision to move from one type of farming enterprise entirely to another one is not an easy one to make with many different factors having to be taken into account. Such a decision also requires planning and real commitment to see it through. However, one factor that remains a constant in every workplace is how your job is affecting your 'quality of life'. The Parkinsons are a true example of how, if properly planned, it is possible to make the switch from dairy to beef with little commotion.

Average Beef Euro-Star Values for cows on your farm

Group	Number of Cows	Replacement Index: Index Value (€)	Replacement Index: Across Breed	Carcass Weight (Kg) Across Breed	Daught Milk (Kg) Across Breed	Daught Calving Interval (Days) Across Breed
Cows						
Total Cows	95	€101	★★★★★	+18	+5.9	+1.04
Missing Stars*	0			★★★★	★★★★★	★
1st calving						
Total Cows	24	€94	★★★★★	+24	+2.2	+2.33
Missing Stars*	0			★★★★★	★★★	★
2nd calving						
Total Cows	11	€87	★★★★★	+19	+4.2	+1.71
Missing Stars*	0			★★★★★	★★★★	★
3rd calving+						
Total Cows	60	€106	★★★★★	+15	+7.7	+0.4
Missing Stars*	0			★★★	★★★★★	★★
National Avg. Cows		€80		+10	+6.81	-1.03

Average Beef Euro-Star Values for heifers on your farm

Group	Number of Heifers	Replacement Index: Index Value (€)	Replacement Index: Across Breed	Carcass Weight (Kg) Across Breed	Daught Milk (Kg) Across Breed	Daught Calving Interval (Days) Across Breed
1year+						
Total	49	€127	★★★★★	+22	+6.6	+1.66
Missing Stars*	0			★★★★★	★★★★★	★
0-1 year						
Total	49	€119	★★★★★	+23	+4.9	+1.82
Missing Stars*	1			★★★★★	★★★★	★
National Avg. Heif.		€74		+15	+4.47	-0.53

Figure 1. Marlhill Craig, 5 Stars for the ICBF Terminal Index

Figure 2. Woodview Gregory, 5 Stars for the ICBF Terminal and Replacement Indexes

SECTION 2

FARMER FOCUS

Grass pivot – my transition from sheep to dairy farming

John Kelly,
Dairy Farmer,
Baltinglass,
Co. Wicklow

Six years ago in July we hosted the Irish Grassland Association sheep walk. It is still a vivid memory for me, a day which I will always look back on with fond memories. To have so many forward looking excellent farmers and industry people on your farm does not happen too often in your lifetime. I am probably still drawing on the feedback and inspiration I received that day. One thing however I do remember saying was "Why would anybody want to stand in a milking parlour and get shit on everyday!".

I'm not sure what a traditional farming career looks like but I'm nearly sure mine isn't it. Born on a mixed farm with pigs and dry stock, to sucklers and tillage, to college, to a potato farm, to thoroughbred horses, to sheep and then dairy cows...for the minute at least. Old MacDonald doesn't have scratch on me.

With such a diverse spread of enterprises you might wonder have I turned out to be a jack of all trades and a master of none. Yes and no is the answer to this. I have been lucky, or if not lucky made it my business to work for some of the top people within each of these sectors. It is no surprise that most of these people had the same traits. They knew their business model, understood their enterprise and had excellent attention to detail.

It was from an understanding of this I started my self-employed life as a sheep farmer. I soon realised that I had a lot to learn and this is why I applied to be a Teagasc monitor farmer. I was hungry for knowledge and the idea of putting myself under pressure to perform appealed to me. The program was initially spear headed by Seamus Hanrahan, who was a sheep researcher with Teagasc and a recipient of the IGA lifetime merit award.

This is where I was introduced to grass measurement and management. I was shown how to use a rising plate meter (RPM) and given grazing guidelines and principles. As all the livestock's production was recorded it soon became apparent to me how big an effect grassland management had on animal performance. I had some good friends who were dairy farmers and my discussions on grass management grew with them over the years as I realised how similar the grazing principles were. Similar but not the same I should probably add.

One important lesson for me during my time on the monitor program was that grass management and livestock performance cannot be managed independently of each other. We are growing grass to feed the animal, not to boast to everybody how many kg DM/ha we managed to grow. Alternatively pushing animal performance to the detriment of grass is equally foolish. I often admired how so many sheep farmers had excellent stock yet they neglected their grass. Even a small correction to this balance would have helped their bottom line no end. I guess you don't get many rosettes for having a nice field of grass.

As my interest in grass management grew I started to go to dairy discussion groups to learn more. Unlike sheep groups they were measuring grass and sharing their performance figures. It was at one of these groups that a facilitator put up the target net margin of dairy farmers. None of the farmers batted an eye lid yet I was nearly fainting with shock at the back. I knew what my net margin was with the sheep and I also knew that I could never hope to get close to that of a dairy farmer. This is where the seed of thought to change enterprise began for me.

It took me three years from that time to when I started milking my first cow. I prefer not to list the amount of farms I visited or people who I talked to in that time. I visited farms from Donegal to Cork (my Cork wife said there was no point in going to Kerry!). I'm not sure that two people gave me the same advice. I spent a lot of time thinking about parlours, cow type, lifestyle, my own skills and if I would miss the sheep. Nearly all of this would fade away once I started milking.

We are milking four years now and for me the core of dairying, like sheep farming, is grassland management. It still amazes me how important this is and how much I am still learning about it, even though I have been measuring grass for nearly nine years. Its interaction with animal performance and profit is key to the running of a successful ruminant enterprise. This interaction should always be kept in mind when making a decision or implementing advice. Grass is the pivot we should make our decisions from.

Over the last few years I have started to read management books, psychology books and have completed some courses which have involved some personal development. Not because I have a "personality issue" as some people may think but because it is an area which has helped myself and my business enormously. I can't believe I didn't do something like this 10 years ago.

I read a book called "Thinking fast and slow" by Daniel Kahneman. This book explains two types of thought processes.

- **System 1:** Fast, automatic, frequent, emotional, stereotypic, subconscious
- **System 2:** Slow, effortful, infrequent, logical, calculating, conscious

This to me articulates, or if you like puts a science into, how I like to think about things. System one thinkers don't study a subject in detail and can often assume facts, not checking if they are true. System two thinkers are the opposite. They study and logically think through a problem. In reality we are a mix of both but some people can be predominately one type of thinker or the other.

For instance, since quotas have gone there has been talk that extra days in milk (DIM) is a key driver to more profit. I have heard a few times now people saying "DIM is where it is at" whatever the hell that means I'm not sure. Yet people forget, or seem to ignore, that research has shown that only extra DIM at grass increases farm profit. If it were just DIM then we would all be calving on the 1st January.

This also leads into the debate about calving date for me. The notion that there are two calving dates for the country, one in late January for early farms and another in early February for late farms is incomprehensible to me. When you look at it closely things like your farm's average grass spring growth, calving pattern, stocking rate and facilities all should determine your calving start date. When you work all these variables out for every farm in the country I guarantee there would be more than two recommended calving start dates.

There is a lot of advice out there, most of it excellent but we have to understand it thoroughly, its context and how it applies to us. With the size of some farms now it seems to me that some people are taking many €1,000 bets on half understood information. Quite often the problem with challenging the consensus or questioning advice is that you can get it wrong or come across as a bit of a fool. Yet isn't this a price worth paying if at the end you understand the research and how it affects you and your farm. The only wrong question is no question.

Today we are milking 150 cows and hope to milk 180-90 next year. Our herd produced 430 kg milk solids/cow last year from 290 kg meal with 65% first calvers. Our SCC has averaged under 100,000 since we started milking and our empty rate was 5% last year. I am not the best farmer in the country by a distance, yet I am not the worst either. Our lifestyle has improved since we started milking. The structure that the life of a dairy farmer has given me means that I plan and achieve more during a day than I ever did before. I love the technical side of farming and how it challenges you. I love the early mornings once I have dragged myself out of bed and enjoy the only quiet cup of tea I get in a house with five kids. I miss the sheep from time to time, especially time spent with my dogs hunting large groups of ewes. That is one pleasure I will always miss. And one final thing, getting shit on in the parlour isn't that bad really!

A Year in my Wellies

Jonathan Higgins, Leekfield, Skreen, Co Sligo

ACROSS THE POND

Introduction: Philip Higgins and his son Jonathan hosted an Irish Grassland Association sheep farm walk in August 2014. The event was very well received by farmers, with over 300 delegates attending the day. A notable feature of the day was Jonathan's discussion on establishing a pedigree Texel flock with the attendance welcoming a well-needed injection of youth into the sheep sector.

Two years on, Jonathan has expanded his own pedigree Texel flock, the Avondale Flock, and is juggling management of the flock with a busy schedule studying Animal Science in University College Dublin, School of Agriculture and Food Science.

New year, new country

Greetings from Illinois! As mentioned in one of the previous articles I am taking part in an exchange semester in the University of Illinois. I arrived on 15 August. My hope is not only to experience how agriculture is taught in the US but also to get an idea of how farming systems work here. Ireland relies on exporting so it's important to know how other agriculture sectors operate around the world. The University and my apartment are situated in the city of Urbana, South Illinois but I hope to be able to head into the countryside to see some of the large farms soon.

Back on the home farm things have been very busy over the last few weeks. This year's pedigree lambs were the first group to be weaned on the 1st of July and have since been split into rams and ewes. The ewe lambs are on grass only until next year when they will be used as replacements. The ram lambs are on 0.4 to 0.5 pounds of creep per day at present and the plan is to keep them and sell them as hoggets this time next year. Both groups were dosed for worms with Noromectin and given Cobalt B12 and pour-on to prevent fly strike. The mature ewes and hogget ewes and rams received Flukiver for liver fluke. The hogget rams and ewes got Noromectin and Cobalt B12.

Looking at the commercial flock, weaning of the mature ewes began in the first week of July with the reminder of the ewes and the hoggets following in the second and third week. Once the ewes were dried up we culled around 20 of

A Year in my Wellies

Jonathan Higgins, Leekfield, Skreen, Co Sligo

them due to old age or mastitis. The rest of the ewes were foot bathed in zinc sulphate and had their feet trimmed before being split into 2 groups.

Group (1) - ewes with a good BCS. These ewes were given Zanil to protect against rumen fluke and Flukiver for liver fluke before being put in restricted pasture.

Group (2) - hoggets and low BCS ewes. These were given both fluke doses a few days apart and Cobalt B12 and Noromectin for worms. They were then placed on good pasture.

All lambs were weighed and split into 4 groups - factory lambs 35 kg plus, lambs 35 kg and under, ewe lambs suitable for breeding and hoggets' lambs (the latter had been on a little creep). All groups got Cobalt B12, Noromectin wormer and pour-on to prevent fly strike.

To date we have sent 45 lambs in three batches to the factory. Last week all remaining ewe lambs suitable for breeding were put together in a group of 150. We hope to keep 80-90 and sell the rest as breeding ewe lambs in the mart. The group of hoggets' lambs were continued on concentrates after they were weaned. All the lamb groups are on rotational grazing blocks of around five to 10 days per paddock.

We are a number of weeks away from the start of mating with lambing in the main flock beginning about March 10th. Ten pedigree ewes will be AI'd for lambing on the 20th of February using Sheep Ireland's new Ramplus Scheme for next year. The remainder will be running with the stock ram.

Thankfully we have all our fodder supplies saved due to the good growing conditions at the start of the summer with 37 acres in the pit and 80 round bales taken from the rotational grazing. There is also some pit silage remaining from last year and we have already purchased straw for bedding during the calving and lambing season.

It was a busy week before the Bonniconlon Show. I was preparing the sheep for it and it turned out to be a successful day!

My next article will also be from Illinois so hopefully I will have some news of what life and agriculture is like.

A Year in my Wellies

Bryan Hynes, *Clarin Farm, Clarinbridge, Co Galway*

ATTENTION TURNS TO AUTUMN MANAGEMENT

Introduction: Bryan Hynes started farming in partnership with David Neilan in May 2013. Cow numbers had been increased gradually in advance of the abolition of milk quotas and 130 cows were milked in 2016 at a stocking rate on the milking platform of about 3.2 cows/ha.

Land type can be described as dry, free draining soils with limestone rock lying not far beneath the surface. This gives an opportunity for grazing early and late in the year but does present the risk of paddocks burning up and growth slowing significantly in a dry summer. A high percentage of the farm has been reseeded in the last two to three years in line with the herd expanding.

Farm update

Many farmers in the west of Ireland will not be of the same opinion but for us the last three months since my last article have been close to ideal. The summer months are often a lean period here for grass supplies with growth coming to a halt during periods of low rainfall and higher temperatures. This time last year we were feeding silage to overcome drought conditions, the picture is a lot different this year and the farm has really performed with frequent rainfall in recent weeks.

For example, grass growth for the last week of August was 75 kg DM/ha and this was the lowest since early spring. Growth rates in the previous weeks were 96 kg DM/ha and 108 kg DM/ha; additionally grass growth was over 100 kg DM for much of June. This has really put us in a strong position and allowed us to replenish winter fodder reserves which looked good at the start of the year but were depleted in March and April. Along with taking surplus high quality baled silage off the milking platform, we harvested our third cut of silage on 60 acres (24 ha) of the out-farms on 30 August. Swards were about 2,000kg DM/ha to 2,200kg DM/ha so it should be top quality silage.

We have left this at the front of the pit so it is easy accessed and perfect for feeding to cows as a buffer feed from October onwards. Having a 15% to 20% surplus over our winter-feed requirement will hopefully allow us to limit meal input to 1.5 kg per head from October onwards. We have not fed any meal since June and are happy with how cows have performed. They are currently milking about 17.5 l at 3.72% protein and 4.64% fat (1.5 kg milk solids).

Grass quality is good and cows are currently grazing the 20% of the milking platform taken out for surplus silage the first week of August. This left us tight for a few days but put us in a great position regarding grass quality.

Depending on how weather goes, we plan to keep milking mature cows until mid-December. We are weighing up a few options and it is likely we will transfer cows we identify for culling to once-a-day milking or segregate for extra concentrate feeding in November. This worked well last year and generated a good return. First-calvers will be dried-off early, probably at the start of November, as we find this works very well in letting heifers grow into themselves and mature into cows.

They will be grazed on 40 acres of the out-farm that we have earmarked for extended grazing, along with in-calf heifers. The plan is to let paddocks grow into a cover of about 2,000 kg DM/ha to a max of 2,200 kg DM/ha and use strip wires to improve utilisation.

We are now firmly into autumn management and strip wires are becoming part of daily management in building and grazing heavier covers. We are putting the first wire up this week to allow cows 24 hour grazing areas. Once covers hit 2,000 kg DM/ha we will use 12 hour grazing to optimise grass utilisation.

The farm is in a good position with an average cover per cow of 290 kg DM/ha on the milking platform at the end of August, and with a stocking rate of 3.2cows/ha, an average farm cover of 930 kg DM/ha. Growth to end of August was about 13 t/ha on the milking platform with a focus on applying fertiliser and using surplus paddocks to replenish winter fodder supplies and good summer growth greatly helping. 40 units of urea were applied about a month ago and we will go with another 40 units in the last round. After that, watery slurry will be applied after grazing up until 15 October. This works well in putting a bit of life into paddocks over the winter months.

Commercial research participation

The farm has also joined up to the Teagasc clover trial element taking place on commercial farms. After seeing the preliminary results it was a straightforward decision. We are working closely with Mike Egan who has been excellent in getting it up and running. We followed cows grazing in July and August and stitched in 1.5 kg clover seed per acre of five varieties – AberAce, Aberherald, Buddy, Chieftain and Iona. It will be next year before we see any results but it is something we are looking forward to seeing how it goes.

A Year in my Wellies

Noel Claffey, *Kilbeggan, Co Westmeath*

SHOWING CATTLE AND MANAGING GRASS

Introduction: Noel Claffey farms 140 acres (100 owned and 40 rented) with his father Tommy. Both Noel and Tommy have off farm employment with Noel in his third year of a PhD with Teagasc Athenry and UCD. His research aims to uncover the effects of production factors on various meat quality attributes of Irish lamb. At home, the farm operates both beef and sheep enterprises. The beef herd consists of 60 suckler cows with calving split between autumn and spring. Progeny are predominantly sold as weanlings. The herd consists primarily of Limousin and Simmental crossbred cows most of which are mated to a Charolais stock bull. Approximately 25 cows are selected for AI each year to either breed replacements or, in the case of highly terminal cows, to breed show quality calves.

Farm update

The summer is a busy period on- and off-farm as the show season kicks off in June. This is a novel aspect to our farm with animals competing in a show almost every weekend. This leads us to travel much of Ireland to agricultural shows and is an excellent opportunity to showcase stock as well as providing a very enjoyable social outlet for farmers. When the summer shows concluded the attention turns to winter fatstock shows and sales where the animals are either sold or retained for breeding. Autumn born weanlings have been weaned and are been prepared for sale while spring born weanlings will be weaned later in the autumn.

As both our beef and sheep systems are very much dependant on the quality of the stock produced, the quality of the grass they receive is of upmost importance. In addition we want to help achieve as much cheap gain as possible from grass. A key tool for us is weekly farm walks to keep the help control grass supply and quality. As the summer comes to a close attention also turns to winter feeding. Our main silage harvest was taken on June 5th and in addition strong grazing and excess paddocks were removed when required.

The sheep flock is made up of 130 early lambing ewes with lambs aimed at the Easter market. The flock predominantly consists of Suffolk ewes bred to terminal Texel sires, with replacements bought in. As we operate an early lambing system our ewes are prepared for mating on high quality aftergrass with rams introduced on the 7th of August. The aim is to begin lambing on January 1st next year.

Perspectives on the Irish beef industry

Jonathan Forbes,
Group Procurement Manager, Kepak Group, Clonee, Co. Meath.

In Ireland and Europe, and indeed globally, there have been considerable long terms changes in social and economic trends and attitudes over the last few decades. Rising social liberalism, the ever increasingly busy world, the rise of social media and information technology, economic factors, environmental factors, human health agendas and food scares have all had an impact on consumer demand. These adjustments and shifts in trends have changed consumer demand and their preferences over the years. Consumers are increasingly seeking high quality, affordable products that have been produced ethically; that are good for one's health and well-being and that are convenient to prepare. Value continues to be a number one key factor for consumers when they are making purchasing decisions. A recent Bord Bia study shows that 67% of consumers consider price to be more important than brand when shopping. Consumers are leading busy lives and food is central to achieving that balance in life and it is often one of the first elements that people look towards when trying to maintain a healthy, balanced life.

For the meat industry many of these trends and shifts in consumer behaviour have driven change in beef processing and in carcase specification. The industry has evolved from a reliance on carcass-based sales to one of partnerships with blue chip retailers and high end restaurants who are seeking high quality, consumer portioned Irish prime beef. Ireland exports 90% of the beef we produce into a diverse range of markets and customers. Different markets will require various different products and specifications. For instance, the UK market is dominant especially for forequarter, round cuts and manufacturing beef, while France, Germany and Italy demand a higher proportion of steak cuts and round cuts. Ireland's exported beef comprises approximately 15% steak cuts, 18% round cuts, 8% in carcass form and the balance is beef for manufacturing.

At retail level, shoppers are seeking value for their money and making purchasing decisions based primarily on price point. Meat eating quality and portion sizes are considerable factors in this decision making too. This in turn impacts on carcase specification in terms of cattle weight, age, conformation and fat cover. In addition, provenance, traceability and brand trust are all ever growing in importance also. Retail and wholesale customers now require 100% Bord Bia Quality Assured products as a pre-requisite. Retail and foodservice supply chains are becoming far more integrated as consumer preferences are placing more demands on supply; nowadays customers know much more about the products they are consuming in terms of how it was produced, where it was produced and the "story" of the product.

Breed branding of Irish beef is in growth also as retailers are keen to differentiate their offering and this has been reflected in the rising demand for premium breed brands such as Angus and Hereford over the last number of years. Kepak was the first meat processor to form a processing and marketing alliance with the Irish Angus Producer Group in 1997 and since then the Angus group has grown from only six members to over seven thousand members today. Kepak also formed a processing and marketing alliance with Irish Hereford Prime in 2013 and this collaboration has been hugely positive and we are seeing fantastic growth in this category. Farmers are responding; these 'native' breed inseminations are increasing by 20% per annum.

Sustainability is also a theme that is coming through from

consumers more and more in recent years. Kepak's sustainability journey continued in 2012 as a founding member of Origin Green. Origin Green is the world's first Sustainability Programme to be operated on a national level and the programme functions at farm, industry and now retailer and foodservice level. In 2015 Kepak Core, our sustainability charter, was developed to manage our various corporate sustainability initiatives. Kepak Core is essentially Kepak's blueprint for achieving growth in a sustainable way. The four pillars of the Kepak Core strategy are Agriculture, Resource Efficiency, People & Communities and Health & Nutrition. To date, through Origin Green and Kepak Core we have had a number of very positive achievements. For example, we have achieved zero waste to landfill from our Athleague, Clonee, Longford and Kilbeggan sites and our Clonee site now operates on 100% renewable energy. Sustainability initiatives and collaborative projects are important for all stakeholders in our sector and will undoubtedly feature even more strongly in the future following the recent EU announcement on the Member State carbon sharing targets for 2030. The EU objective is to develop a low carbon economy; affordable energy for all consumers; increased security of the EU's energy supplies; reduced dependence on energy imports- all designed to stimulate new sustainable opportunities for economic growth and jobs.

With regards to the future of the Irish beef sector, there are a lot of factors at play. The recent Brexit vote will undoubtedly have an impact on our exports into the UK. Ireland has a strong trading relationship with many UK retail and wholesale customers, with 42% of Irish food exports shipped into the UK each year. Currently Ireland has a 70% share of UK beef imports. Following the Brexit vote, Sterling weakened considerably, meaning that Irish imports became more expensive and less competitive. It is not possible at this stage to say what exact impact Brexit will have in the longer term. There is a possibility that after Article 50 (this the EU article which formalises the exit of a Member State) is triggered, the UK may make a move to source Beef from countries such as Brazil, Argentina and New Zealand. It will be very important for Ireland to secure the best possible trading agreement with the UK and to develop alternative market access opportunities.

A positive outlook for beef can been seen in the increasing world population coupled with a forecasted doubling of the world's middle class by 2020. Both of these factors will be positive for Irish beef production into the future and it is important the food industry continues to develop premium positions in these growing markets. Other factors which will be at play that will impact on future trends and performance of the industry are the increase in the dairy herd, the challenges faced by the suckler herd, CAP payments for Irish farmers and overall profitability of farming models.

Our national suckler herd is of vital importance to the beef sector in Ireland. The sector faces a number of challenges, particularly lack of farm scale and low profitability on many suckler farms. It is important that the suckler herd is supported as it is the main source of our prime raw material contributing very substantially to the national economy due to its high usage of indigenously produced raw materials. Many factors impact on farm profitability and currently there are areas where value is being lost, for instance in over trading of cattle, health and mortality, genetics, and loss of performance over the lifetime of the animal. The genetic potential of the national herd is hugely important and this area has received due focus in recent times through work completed by ICBF and the recent Beef Data Genomics Programme. There is a significant variance in financial performance across Irish suckler farms. Data from the 2014 Teagasc Profit Monitor results show the gross margin was Ð966 per ha on the top third of suckler to beef farms which was 82% higher (€434 per ha) than those on the average farms. On suckling to weanling/store farms gross margin per ha on the top third of farms was almost double that of the average farms (€721/ha compared to €363/ha) Data is showing that the more successful farmers have a higher output and stocking rate. Similar trends are showing in the non-breeding farms where the top third of farms had a gross margin per hectare of €1075 compared to €572 on the average. A similar picture is also evident from the BETTER Farm Programme. In general the more successful farmers tend to work towards producing cattle that are suitable for the market and are focussed on efficiencies in grassland management, health, daily live weight gain, genetics and making the most of resources on farm.

In the future, supply chain alignment will be key in terms of the continued successful development of the sector. For instance, farmers and processors need to produce what the market demands and retailers need to channel consumer insights and future trends back to the farmer and processor.

Autumn grazing management on beef farms

Ned Heffernan,
Education Officer,
Teagasc, Mullingar,
Co. Westmeath

"Grazed grass is the cheapest feed on beef farms and offers the most potential to increase profitability. Increasing grass utilisation, farm stocking rate and grazing days are the main drivers of increased efficiency".

In recent years this statement has become the mantra of successful grassland managers and their advisers. However, beef farms currently have low stocking rates, with the top third of National Farm Survey (NFS) cattle farms stocked at 1.7 livestock units (LU)/ha and the average stocked at 1.1 LU/ha. At these stocking rates there is considerable scope to have a high proportion of grazed grass in the animal's diet, however, total grass removal (herbage utilised) is low due to the low grazing demand. Indeed, grass utilised is low nationally at approximately 4.8 t DM/ha.

To begin examining where grass utilised can be increased on individual livestock farms an understanding of grass budgeting, or at the very least being able to identify correct grass covers, is essential. Being able to calculate the supply of grass on the farm and the demand for grass by livestock should underline the grassland management decisions made on every livestock farm. If there is a deficit of grass on the farm, remedial action can be taken. In contrast, if there is an oversupply, building further covers excessively will impede good grass utilisation in the final rotation. Measuring grass will also provide vital information such as target pre-grazing covers and autumn post grazing covers.

The importance of relating general advice and grassland management principles to your own particular operation should also be strongly emphasised. Soil type, stocking rate, level of infrastructure and grassland management skills must always be considered. What will work on one farm may not always be suitable on your own farm.

At the same time farmers should use the targets achieved by other farmers to benchmark what they themselves can achieve, These target are readily available from sources such as Teagasc advisers and the farming publications; for example, what is being achieved by Teagasc/Farmers Journal BETTER beef farm participants is printed weekly in the Farmers Journal.
At present on many beef farms there is considerable scope to build up covers of grass to be utilized into the autumn. Growth has been particularly good into late August with growth rates of over 60 kg DM/ha recorded on many farms and ground conditions had remained reasonable. Clearly this can change quite quickly and recent rainfall will clearly have a detrimental effect on grazing conditions.

Autumn grassland management
Teagasc analysis of good quality, well-managed autumn grass shows:

- DMD is high at +80% because the fibre content remains digestible.
- Energy content is 80-85% of the value of spring grass at 0.85-0.90 UFL per kg DM.
- Sugars content is lower than for summer grass.
- Crude protein content is high at 21-23%.

As in spring, the focus of autumn grazing management is to increase days at grass and increase animal performance, but also to set the farm up on the final rotation to grow grass over winter and provide grass the following spring. Grass budgeting, or a good knowledge of correct grass covers, is essential. There are two key periods in autumn:

1. The period of autumn grass build up
2. Managing the final rotation.

Autumn grassland management - key points

- Rotation length should be increased – where target rotation length in mid-August is 28 days, this increases to 35 days in mid-September.
- Highest farm cover should be achieved in mid to late September.
- The first paddock required for spring grazing should be closed on 10 October - in slower grass growing regions closing may begin earlier.
- 60% of the herbage available for grazing next spring will be grown once these paddocks have been closed.
- Each 1 day delay in closing from 10 October to 11 December reduces spring herbage mass by 15 kg DM/ha/day.
- Have at least 60% of the farm closed by the end of the first week of November
- All paddocks should be grazed to a post-grazing height of 4 cm during the last rotation to encourage winter tillering.

Farm focus - autumn grassland management

Mac Murphy and Teleri Thomas run a pedigree Limousin suckler herd in Clonguiffin, Longwood, Co. Meath under the Keltic Banner selling pedigree bulls and heifers. Over the last five years Teleri and Mac have placed a strong focus on grassland management, including correcting soil fertility and pH, reseeding some of the less productive swards and incorporating rotational grazing into the grazing system. Teleri has been measuring grass and using the Teagasc grassland programme PastureBase Ireland to help her to make informed decisions around grassland management. Identifying the supply of grass has allowed her to remove surpluses as bales while also maintaining the quality of the sward.

Teleri feels that this year has been an excellent year for managing grass and this is reflected in the quality of the swards particularly in the reseeded swards which have been top dressed with nitrogen in the last few weeks. Although the stocking rate of 2 LU/ha is higher than many beef farms, it is obvious that there is a very good supply grass on the farm. Indeed Teleri has allowed grass covers to build in recent weeks in preparation for autumn grazing.

Heavy covers on the farm are been grazed by autumn calvers with a daily allocation given to ensure the sward is grazed down well. Heavier covers are more difficult to graze out well and there is an element of making the cows eat it down before being moved on. Ideally grass covers should not exceed 2,500 kg/DM/ha as utilization will decrease rapidly with higher yields of grass.

Although these pre-grazing covers may seem high, it is suitable for autumn grazing as quality remains very good, and can be maintained for four to six weeks. However, if covers increase any further, quality will be reduced, because of rotting at the base. It is important to graze these heavy covers to a low residual as carrying heavy covers over winter has a very bad effect on pastures. Trials by Teagasc Moorepark show that heavy winter covers result in very thin pastures in the following years.

These autumn cows are in good body condition and only need to be maintained. A simple reel and wire is used to allocate this grass and the positioning of the drinker is the only obvious drawback.

Farming on challenging soils – the Teagasc Heavy Soils Programme

Pat Tuohy,
Teagasc Moorepark,
Fermoy, Co. Cork.

The Teagasc Heavy Soils Programme was established in 2011 to look at the limitations associated with farming on poorly drained grassland soils. Ten farms across 8 counties (Limerick, Kerry, Cork, Clare, Tipperary, Mayo, Cavan and Monaghan) are participants in the programme. The aim of the programme is to find the most cost effective and efficient means of increasing profitability on poorly drained soils. The programme has been examining all aspects of the farms involved in terms of system inputs & productivity, management practices and financial performance. Two major issues have been brought to light, namely land drainage design and poor soil fertility status.

Land Drainage
The purpose of land drainage is to remove excess water from the soil as quickly as possible. How best to achieve this will vary with soil type. There is a need therefore for a better understanding of the underlying causes of drainage problems and of the design and implementation of appropriate drainage systems to resolve these problems. We must move away from the short-sighted approach that a broadly similar drainage system can be installed in every wet field regardless of soil and site conditions. An assessment of soil type and its drainage status is a vital first step.

Objectives of land drainage
In poorly drained soils the rate of water infiltration at the soil surface is regularly exceeded by the rainfall rate due to:

- Low permeability in the subsoil (or a layer of the subsoil)
- High watertable due to low lying position and poor/poorly-maintained outfall
- Upward movement of water from seepage and springs

To achieve effective drainage the works will have to solve one or more of these problems. The objective of any form of land drainage is to lower the watertable providing suitable conditions for grass growth and utilization. A controlled watertable promotes deeper rooting which improves productivity and improves load-bearing capacity of the soil.

When planning any drainage programme, the potential of the land to be drained needs to be first assessed to determine if the costs incurred will result in an economic return through additional yield and/or utilisation. Some thought is needed in deciding the most appropriate part of the farm to drain. From a management point of view it is better to drain that land which is nearer to the farmyard and work outwards, however it may be more beneficial to target areas with high potential for improvement. This ensures a better return on the investment.

Drainage investigations
Knowledge of previous drainage schemes in the area, and their effectiveness will often provide an insight. A number (approx. 1 per ha) of test pits (at least 2.5 m deep) should be excavated within the area to be drained to investigate. These are dug in areas that are representative of the area as a whole; consider digging in wet and dry areas for comparison sake.

As the test pits are dug, the faces of the pits are observed, soil type should be established and the rate and depth of water seepage into the test pit (if any) recorded. Visible cracking, areas of looser soil and rooting depth should be noted as these can convey important information regarding the drainage status of the different layers. The depth and type of the drain to be installed will depend on the interpretation of the characteristics revealed by the test pits.

Two principle types of drainage system are distinguished:

- Groundwater drainage system: A network of piped drains exploiting permeable layers
- Shallow drainage system: Where movement of water is impeded at all depths

Figure 1. Test pit excavation

Groundwater Drainage System

Strong inflow of groundwater or seepage from the faces of test pit walls, indicate that layers of high permeability are present. Under these circumstances the use of a piped drainage system (at the depth of inflow) is advised to capture and remove this water, thereby controlling the watertable.

Shallow Drainage Systems

Where a test pit shows no inflow of groundwater at any depth a shallow drainage system is required. These soils with very low permeability throughout are more difficult to drain. Shallow drainage systems aim to improve the capacity of the soil to transmit water by fracturing and cracking the soil. They rely on soil disruption techniques, namely; mole and gravel mole drainage and sub-soiling.

Collector drains, which are installed across the slope at 0.8 – 1.0 m deep, are required for all shallow drainage systems. Depending on the topography and slope, the collector drains will be at a spacing of 10–40 m. A larger spacing reduces costs but results in a much higher chance of failure. The disruption channels themselves are drawn at right angles to the collectors (up-slope) at spacings of 1.0-1.5 m and a depth of approximately 0.4-0.5 m. Stone backfill for collectors should be filled to within 250 mm of the surface to ensure interconnection with the disruption channels when installed afterwards.

Figure 2. Drainage trench excavation

When a drainage scheme has been completed, the layout should be drawn and noted on a farm map. This map can then be used as a guide when maintaining the works, as well as a record of the works. Land drain outlets should be regularly cleaned and maintained especially if open drains are cleaned/upgraded as this will result in blockages at the drain outlets. The use of a concrete or un-perforated plastic pipe over the end of the drain pipe, minimum 1 m in length, will protect the outlet from damage and will make locating and maintaining it easier.

Drainage design on Sean O'Riordan's farm

As is standard procedure, a site investigation in association with the farmer and local advisor was carried out as the first step in the design process. This involved walking the site and noting outfall conditions, field slope as well as existing drains (in-field and open) and natural water-courses. The next step involved digging soil test pits on the site. The profile uncovered (Figure 6 below) contained a high clay content subsoil. There was increased stone content with depth and bedrock (shale) at depths of 2.5 to 3.0 m. There was some inflow of groundwater at depths of 1.0 – 1.2 m but this was not consistent in all soil test pits. This water movement indicated that a groundwater drainage system at this depth could be beneficial. However, as it was not consistent throughout the site, other means of drainage would need to be employed to ensure a successful outcome. The layer at 0.3 – 1.0 m depth is a heavy clay with no apparent natural cracking. It was classed

Figure 3. Mole plough showing cylindrical foot and expander

SECTION 4 TECHNICAL FOCUS

Figure 4. Gravel Mole plough showing hopper

Figure 5. Single leg winged sub-soiler

as poorly permeable and would require the intensity of drainage provided by a disruption technique (mole or gravel mole drains or sub-soiling) being supplemented by a network of collector drains. Mole drainage was not feasible on this site due to the large amount of stones present. Given the high cost associated with gravel mole drainage and the level of groundwater discharge naturally facilitated by suitably deep collector drains, it was decided that sub-soiling the site would be an adequate method of subsoil disruption.

The final phase of the site investigation involved measurement and mapping of the site. This would allow for field levels and geometry to be established. A laser-level survey was used to assess falls and provide guidance on the most appropriate positions of field drains.

It was decided to install a series of collector drains across the main field gradient at a spacing of 15 m (see Figure 7). While the drains act predominantly as conduits for surface water being collected, the in-flow of groundwater at 1.0 – 1.2 m depth in certain areas of the site allows for groundwater drawdown. For this reason all collector drains were installed to a minimum depth of 1.1 m. The existing open drain at the eastern side of the site was cleaned and deepened to a depth of 1.5 m to act as an outfall for the new field drains. The drains consisted of an 80 mm corrugated perforated PVC, with a gravel aggregate envelope (10 - 40 mm grade) backfilled to within 0.3 m of the soil surface (to ensure maximum connection to the disturbed (sub-soiled) soil and topsoil) and thereafter backfilled with soil.

Sub-soiling was carried out with a single leg winged sub-soiler to improve permeability of the upper layers and increase the level of infiltration of surface water into the soil profile and ultimately into the collector drains. The collector drains were installed first. Sub-soiling was carried out at a depth of 0.6 m and a spacing of 1.5 m when good weather ensured dry soil conditions and allowed for the maximum level of soil disturbance. The depth and spacing of sub-soiling was set to ensure maximum fracturing and disturbance of the soil.

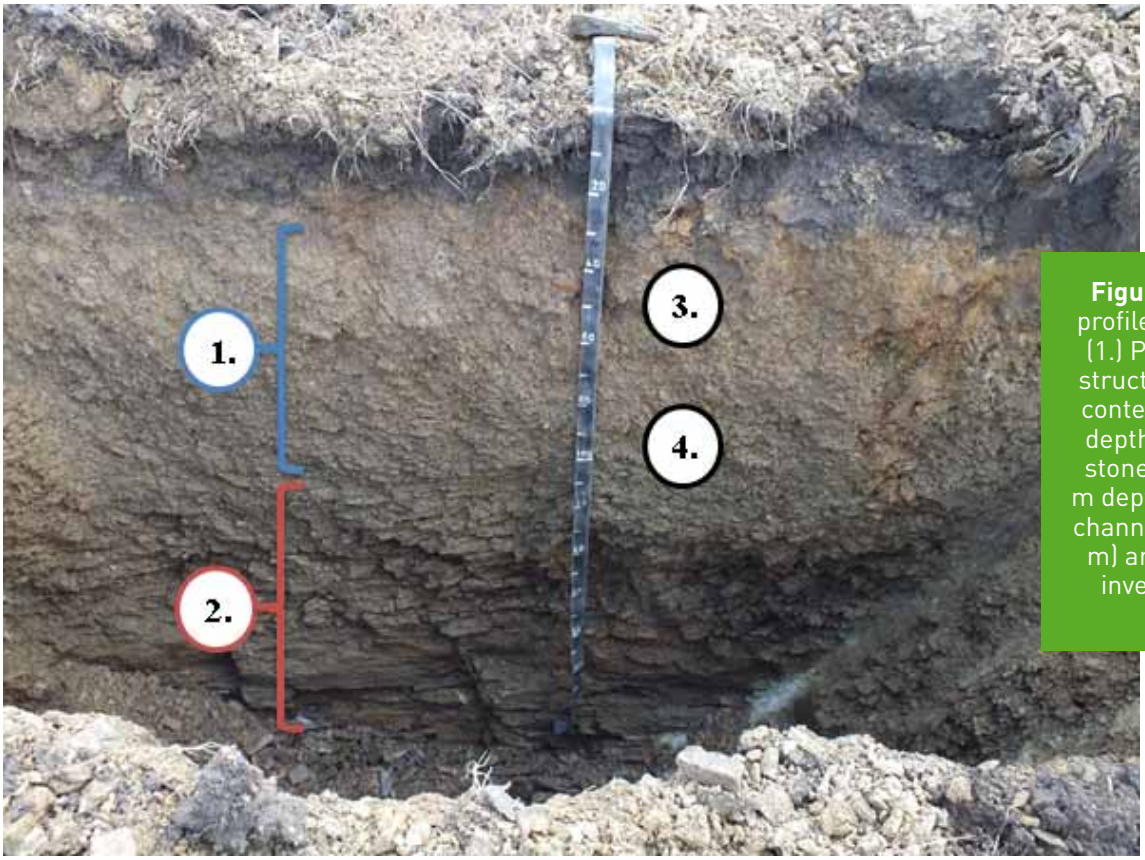


Figure 6. Typical soil profile at Kiskeam site; (1.) Poorly permeable structureless high clay content soil (0.3-1.1 m depth), (2.) increasing stone content (1.1-2.5 m depth), (3.) sub-soiler channel invert level (0.6 m) and (4.) field drain invert level (1.1 m).

A Planned Approach To Improving Soil Fertility

Sean O'Riordan did a comprehensive soil analysis of his 40 ha milking block in Jan 2014. In total 38 soil samples were taken. The results showed an average pH of 5.77 with 29% of samples below a pH of 5. Only 44% were above a pH of 6.

Table 1. Change in pH status on the O'Riordan farm

	Average pH
2014	5.77
2015	5.82
2016	6.17

Sean applied 96 tonnes of ground limestone in 2014 and a further 84 tonnes in 2015. Annual sampling has taken place on the farm and in Jan 2016 average pH had risen to 6.2 with only 11% below pH 5.5. Sean is farming a high clay content soil near Kiskeam, Co Cork with an average annual rainfall of 1.7 m. Lime loss via drainage is one of the key loss pathways on this farm

Analysis of Sean's grass measurements 2014 and 2015 show that those paddocks that had a pH of 5.5 in 2013 and increased to a pH of 6.3 in 2015 produced 2 tonnes DM/ha more grass in 2015. This indicates an immediate economic response of €260/ha payback for each €60 spent on lime. Correcting pH on these clay soils is vital as low pH adds to the problem of a naturally high phosphorus (P) fixation capacity soil type. While progress in correcting phosphorus deficiency is slow, an immediate impact on grass production is achieved by correcting the lime deficiency.

The intensive soil analysis undertaken in Jan. 2015 highlighted the extremely low P status of Sean's milking block. Average P reading was 1.91 mg/l or a low Index 1 P Status. Sean's fertiliser plan indicated that 1,900kg chemical P could be applied in 2014 (45 kg/ha) and Sean set out a plan to apply this P on a little and often basis over the grazing season. This level of P application did increase the P status in the samples taken a year later. However P status fell back to Index 1 P when farm was resampled in Jan 2016 (Table 1).

Table 1. Change in phosphorus status on the O'Riordan farm

	Average P levels (mg/l)
2014	1.91
2015	4.39
2016	2.76

Detailed chemical analysis of the heavy clay soils (David Wall, Teagasc Johnstown Castle) indicated that the phosphorus retention capacity on Sean's farm was 40% higher than other clay soils which have less acidic underlying bedrock material. This high P retention clay soil is typical to the south-west region, particularly North Cork, West Limerick & North Kerry.

In effect the fertiliser P applied, surplus to off take (2015 was a good grass growing year), was being fixed by the soil which had a very poor P reserve. Normally the additional P would be expected to build up P status.

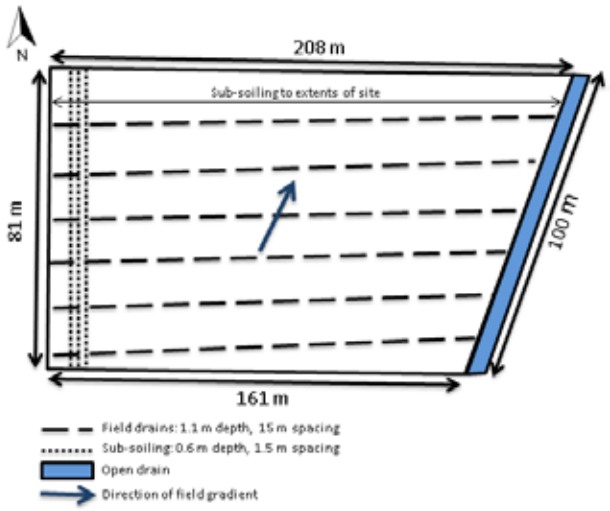
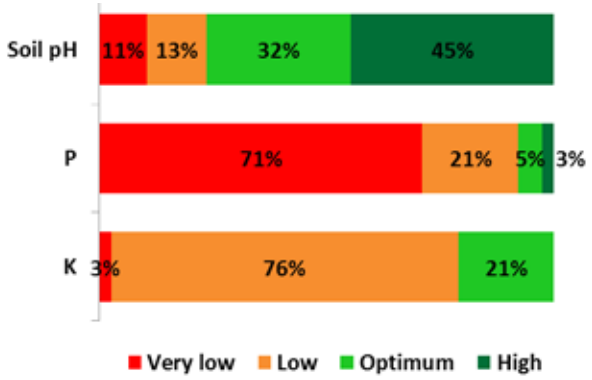


Figure 7. Field map of drainage works on the O'Riordan farm



It is crucial that Sean continues to fully utilise his phosphorus allowance. This requires prioritising spending on fertiliser ahead of other lower return farm costs e.g. excessive concentrate feeding. Otherwise the 5-7 year time frame that Sean has to travel in achieving optimum soil fertility and grass production will be slower and more costly in the long run.

Key messages from Sean's experience

- Do a comprehensive soil test of all paddocks at least every two years.
- Correct lime deficiency based on lime requirement. On heavy soils, limit lime application to two tonnes/acre in any single application.
- As a guide, where average farm pH is below 5.8 apply one tonne of ground limestone per cow in the herd in year 1.
- Use your soil results to set up a fertiliser plan and know the total amount of P fertiliser you are allowed spread.
- Split your P allowance applying 50% in spring and remainder in July. Apply on a little and often basis.
- Prioritise lime/fertiliser spending above other lower return costs.

Control weeds in your re-seed

Tim O'Donovan,
SeedTech,
Ballymountain,
Co Kilkenny.

This summer has afforded plenty of opportunities for reseeding and despite the low milk prices a certain level of reseeding has been carried out. Soil temperatures have been above average and where moisture was not limiting, new leys have been rapid and even to establish. However, these same conditions are also favorable for weed seeds to germinate. A good burn-off with glyphosate (Round-up etc) only takes care of the old sward and whatever weeds were present – above ground. Remember there were thousands of weed seeds in the top few inches of your field that have been waiting for this chance to grow. These weed seedlings may seem small and inconsequential now but like night follows day, these small weed seedlings will take the good out of all your ploughing, leveling, picking stones etc. Luckily there are sprays available that will, very successfully, remove these weeds from your new grass field and have a long lasting effect.

Should I spray or not?

Considering a re-seed costs about Đ250/ac to establish and that the sward will be there for 10 years or more it is a critical decision whether or not you should apply a weed spray. In the vast majority of cases, applying a weed spray a few months after re-seeding is the cheapest and most effective spray you can apply to that grass field. This is especially the case where you had docks, creeping thistles etc. growing in the old grass or you have clover in your grass mix. Perennial weeds (docks, creeping thistles, buttercups, dandelions etc.) are programmed by nature to recover from cutting, grazing, hard winters, dry summers etc. They all develop a massive root system to store food until it is needed. This is how they can emerge each spring and out-compete grass no matter how well it is managed. So what can you do to tip the scales in your favour? Perennial weeds do have an 'achilles heel' – it's that they are weak to establish from seed. If the first month after re-seeding was a 100m sprint, a charlock or fat hen would be over the end line before the dock and creeping thistle had their shoes laced! Compare the root on a seedling creeping thistle to the root system on the mature plant below it. It is not rocket science to see that you will need a whole lot more chemical to control a mature weed compared to its seedling. Recent Teagasc dock trials have shown that the effectiveness of post re-seeding spray has lasted 5 years. The key finding from these trials was that once the docks were successfully removed at seedling stage, the grass took over the job and prevented new dock seedlings from establishing for 4 years!

What are worst weeds and when can I tolerate them

Annual weeds – charlock, chickweed, fat hen, redshank etc.

- Low populations of annual weeds will not affect the establishment of the new sward. Where they survive the first grazing - topping or cutting can eliminate them.
- High populations of annual weeds (especially charlock & chickweed) can compete against the establishing

grass. Chemical control is a good option in this situation as the gaps left after these annual weeds die off on the autumn are ideal places for docks to germinate and grow over the winter months. Chickweed is especially problematic and should be controlled in most situations.

Perennial weeds – docks, dandelions, creeping buttercup, creeping thistle etc.

- Low populations can be tolerated especially in an intensive grazing situation. It is rare for any weed to become problematic in a well managed grazing field. Soil drainage, fertility and grazing management will influence whether a problem occurs in the future. For example, poaching favours dandelions and buttercups becoming established while high levels of potassium favour docks becoming established.
- In a silage field, under an extensive grazing system, where clover is sown or where these weeds are numerous my advice is to apply a herbicide to the new ley.

Get the basics right

The first point of weed control in new leys is to have an even, vigorously growing sward. Seedbed preparation, soil fertility and seeding rate are key points to get right. There has been much research carried out on the competitive effects of grass (and clover) on weeds. A competitive sward will enhance the effect of any herbicide applied and fill in the gaps when the weeds die back. Remember there are more weed seeds just waiting for the opportunity to grow so it is essential to have your grass and clover there covering the ground first.

When to apply herbicides in a new ley

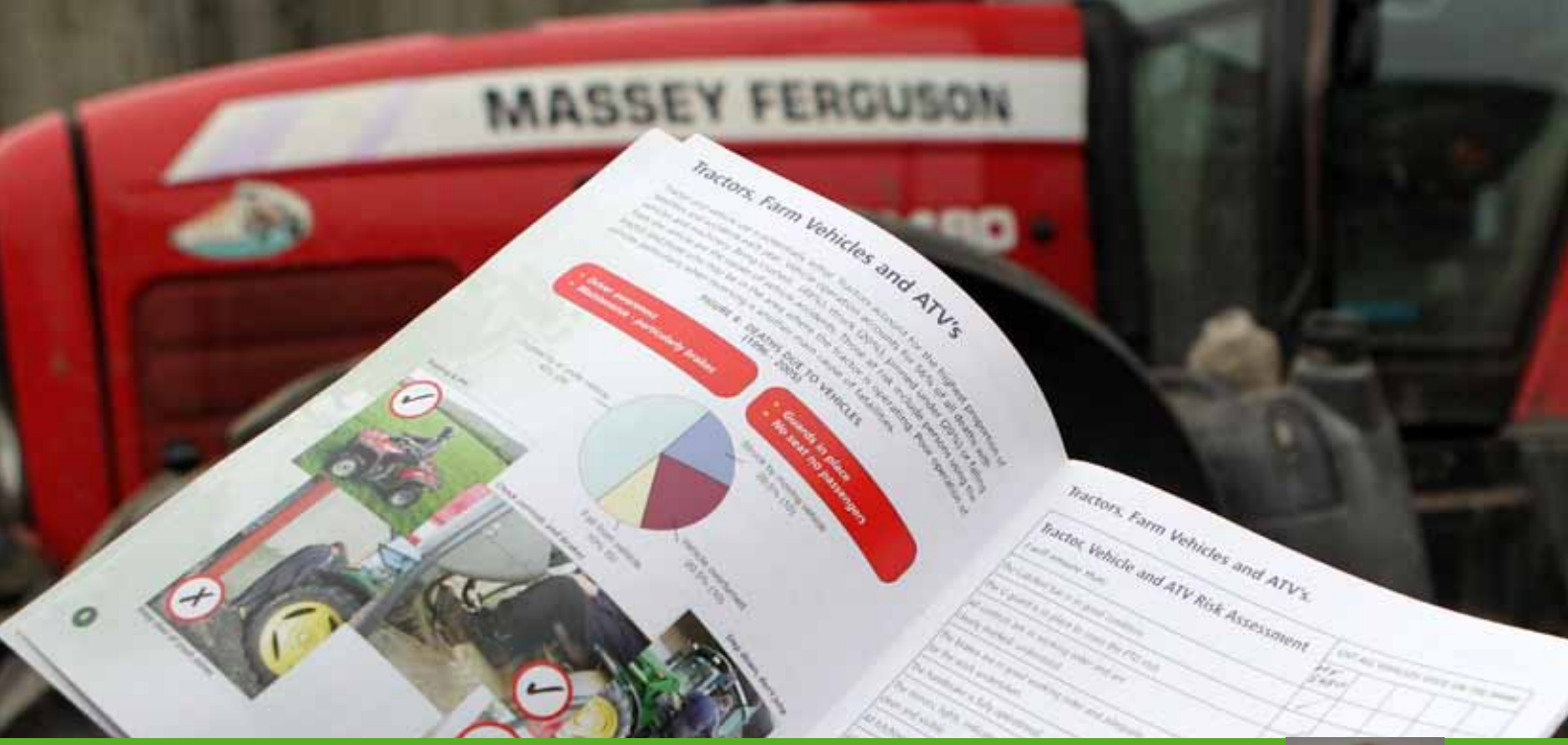
Weeds in new leys are best controlled when they are small (6-8 weeks after re-seeding) and actively growing. The herbicide is better absorbed by the weed leaf and works better and faster when the weed is growing strongly. You can expect very good results from applying any of the herbicides in the table shown when they are sprayed onto small, actively growing weeds. Also follow the product label instructions when applying all plant protection products and remember to keep the appropriate Cross-compliance records. Use good water rates (200-300 l/ha) and ensure your sprayer is working correctly. Worn nozzles can seriously affect the spray pattern and leave weeds unsprayed. Spray when the clover has at least one trifoliate leaf and the grasses have at least 2-3 leaves.

What product to choose?

A list of the main herbicides cleared for use in new leys are in the table here. The main choice will be made by whether or not you have clover in your sward. Having clover should not hinder the level of weed control expected as a well timed clover-safe spray can be very effective. If clover is not in the sward, then the options available are more comprehensive especially if you have a heavy weed burden. If you have weeds emerging from old roots (e.g. creeping thistle, docks etc) it will be difficult to achieve good control with a clover-safe spray and you may have to switch to other options.

Herbicides in New Leys 2016

Trade Name	Clover Safe	Pack Size	Rate/ha	Comment
LegumexDB Undersown Clovex DB Plus etc	Yes	5 l	7 l/ha	Controls most soft weeds but weaker on chickweed.
LegumexDB + Triad	Yes	5 l 5 tabs	5.0 l/ha + 10 g/ha	Best broad spectrum clover-safe option. Add Triad to the tank first and then Legumex DB
Underclear	Yes	10 l	7 l	Similar weeds controlled as Legumex + Triad
Starane2, Binder, Hurler, Reaper	No	1 l	0.75 l	Use where docks and chickweed are numerous. Apply from 3 leaf grass stage



Preventing accidents with farm tractors and machinery

Dr John McNamara,
National Health and Safety Specialist, Teagasc,

The alarmingly high number (30) of farm workplace deaths in 2014 sent shock waves through the sector. In 2015, fatal accidents returned to the mean level (18) while in 2016 to September 1st, 12 farm deaths have taken place.

Farm deaths and serious injury cause tragedy, pain and suffering, disability and farm business loss. It is incumbent on all in the sector to do everything to prevent accidents.

To reduce fatal farm accidents a considerable focus must be placed on tractor and machinery use on farms as consistently about 50% of accidents are attributable to this cause. Ten-year data show the following trends:

- For vehicles, being crushed (67%) is the most frequent cause of death followed by falling from the vehicle (12%), overturning (14%) and being struck (7%).

- For machinery, being crushed (38%) or struck (35%) are the most frequent causes of death followed by PTO (11%) and machine entanglement (11%) and falls from machines (3%).

The Irish fatal accident data contrasts considerably with that from the USA. In the USA, 50% of tractor-related deaths are due to tractor overturning while this has greatly reduced in Ireland. In Ireland also, PTO and driveshaft entanglements have greatly reduced. Thus in Ireland, the remaining causes of tractor and machine deaths are 'human-machine' contact.

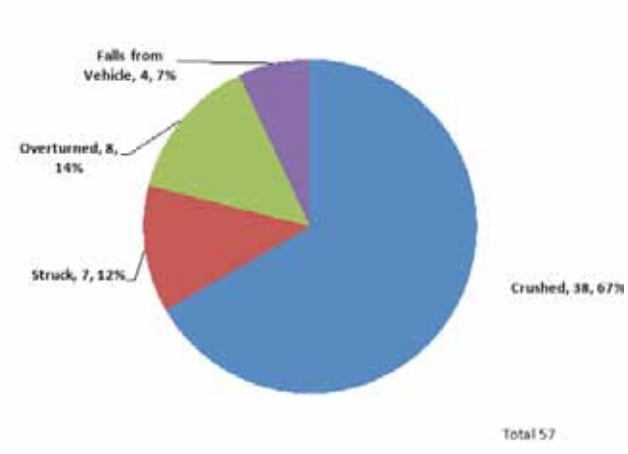


Figure 1. Deaths due to tractors and farm vehicles 2006 – 2015

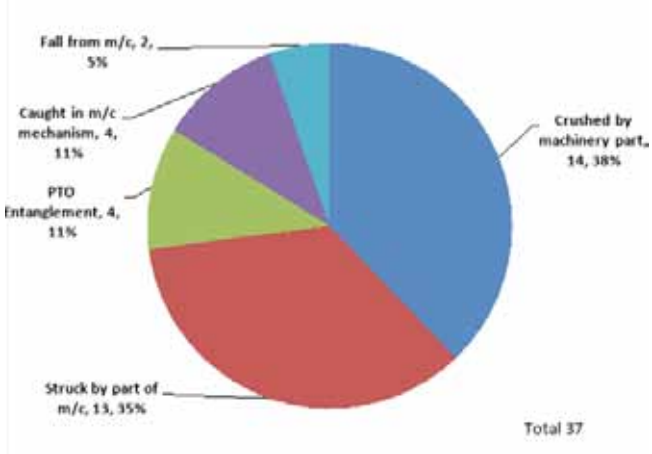


Figure 2. Deaths due to machinery 2006-2015

In psychology there is a term called 'dread risk'. Humans dread catastrophic events and seek to avoid these. A good example is PTO entanglement which leads to gruesome injury. In contrast, who dreads the movement of a relatively slow moving vehicle?

My research indicates that farmers predominantly see farm safety of tractors and machines as involving 'pto and machine entanglements' whereas the reality is that **most fatal accidents occur due to being 'struck, crushed or a fall'**. We need to communicate the real causes of accidents throughout the farming sector as otherwise 'risk communication' literature tells us that accident levels won't fall. In summary, a lot more safety vigilance is needed when in proximity to moving vehicles/ machines.

Legal duties
The Safety, Health and Welfare at Work Act, 2005 and associated regulations govern safety, health and welfare at work (SHWW) in all workplaces including farms. The Health and Safety Authority (HSA) has the role of providing advice and guidance on how to comply with the Act and to enforce its provisions when deemed necessary.

The Act requires that safety, health and welfare be secured "so far as is reasonably practicable". This means that the level of risk presented by a particular hazard must be assessed and adequate control measures implemented to prevent injury. Controls can be physical or organisational in nature.

The Safety, Health and Welfare at Work (General Application) Regulations 2007 set out specific physical or organisational requirements related to SHWW.

Employers under the law hold the predominant duties to protect the SHWW of their employees and anyone else affected by work activity. These duties include providing and maintaining: (1) a safe place to work; (2) safe plant and equipment and; (3) safe systems and organisation of work.

Employees have duties to comply with SHWW legislation by co-operating with their employer, taking care to avoid injury or ill-health; reporting any defects which might be dangerous and using all items in a safe manner.

Risk assessment
The Safety, Health and Welfare at Work Act, 2005 allows employers including farmers with '3 or less' employees to prepare a Risk Assessment as a component of a Code of Practice. When calculating number of employees an 'employee' is considered to include a farm operator and any employees who are employed on a full time basis including family members. The calculation does not include casual staff or contactors employees.

A Risk Assessment and Code of Practice have been prepared for the Agriculture sector and are available on the HSA web site. An electronic version of the Risk Assessment is available at www.farmsafely.com . This version is operated by an independent server and is completely confidential to the user.

Teagasc provides half-day training on completing the Risk Assessment document. Completion of the Risk Assessment document is also a requirement for both Quality Assurance and TAMS11 grant payment.

Farms with 4 or more employed persons must prepare a written *Safety Statement.* This must:

- Identify the hazards and assess the risks.
- Set out the control measures being implemented to safeguard safety and health.
- In the case of employers it must set out the co-operation required from the staff and the names of persons who have specific health and safety responsibilities e.g. checking fire safety equipment. The Safety Statement must be updated on a regular basis.
- A template for a Safety Statement with examples is available on the H.S.A. Web site.

The H.S.A. recommends that where a Safety Statement is required, that a Risk Assessment be completed first followed by the Safety Statement.

Tractor and machine maintenance
It should be clear from the description of the legislation in place that high standards of tractor and machine maintenance are required. A checklist of the key requirements can be obtained in the Risk Assessment document. All guards and safety devices in particular must be kept in place and functioning. Good maintenance needs to be backed up by careful operation. Never allow unsafe practices continue, particularly with tractors and machinery.

Revised standards for agricultural vehicles on public roads
The new revised standards for Agricultural Vehicles which includes trailers and attached machines became law on 1st January 2016. The revised standards are based on recent legislation which updated previous law first introduced in 1963. The purpose of the standards is to enhance the safety of road users. A booklet on

Figure 3. Ensure all power drives are completely guarded.

the revised standard can be downloaded from the RSA website at http://www.rsa.ie/en/RSA/Your-Vehicle/Vehicle-Standards/Agricultural-Vehicles/ Key requirements of the new legislation include:

Braking – More powerful braking systems will be required for agricultural vehicles operating at speeds in excess of 40km/h. Most of the correctly maintained tractors which have come into use in the past 30 years already meet these requirements. **Lighting and visibility** – Agricultural vehicles will need to be equipped with appropriate lighting systems, flashing amber beacons and reflective markings. **Weights, dimensions and coupling** – New national weight limits have been introduced. These will enable tractor and trailer combinations which are "un-plated" to continue in use at limits which are safe for such vehicles (unplated means that a plate giving the manufacturers' specifications, e.g. weight, is not attached to the equipment). Plated tractors and trailer combinations will benefit from being able to operate at higher weight limits of up to 24 and 34 tonnes for tandem and triaxle agricultural trailers, respectively, provided they meet certain additional requirements.

Conclusion.
Tractors and machinery are associated with 50% of fatal farm accidents. A continuing focus is needed to prevent fatal and serious accidents. A considerable array of well-illustrated prevention documents is available from the HSA and the Road Safety Authority (RSA). In addition to high maintenance, constant vigilance is necessary to keep accident levels to the minimum.

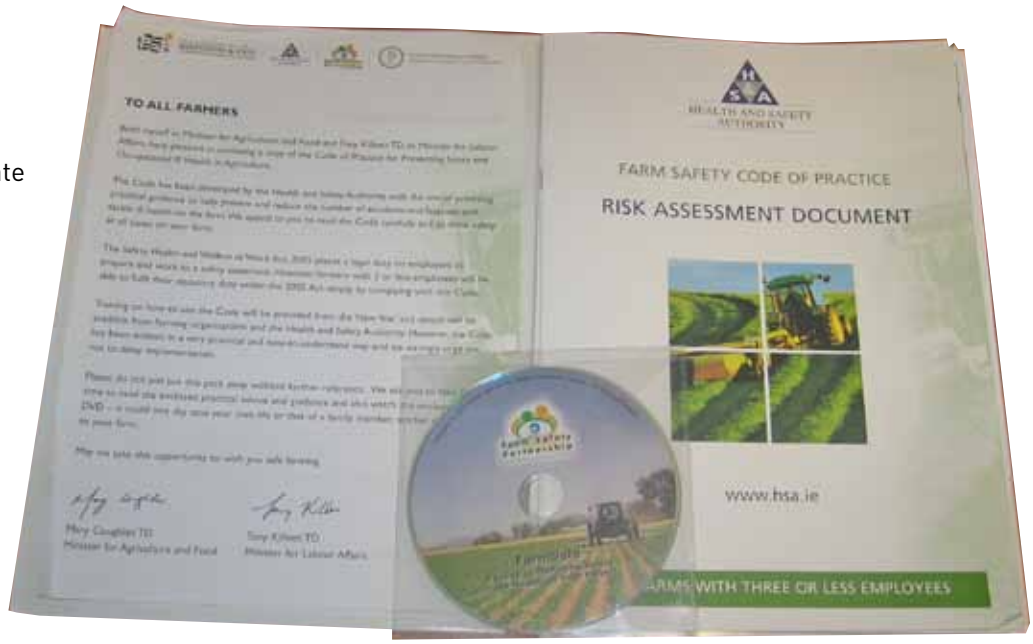


Figure 4. Complete and update your Farm Risk Assessment.

DATES FOR YOUR DIARY 2016

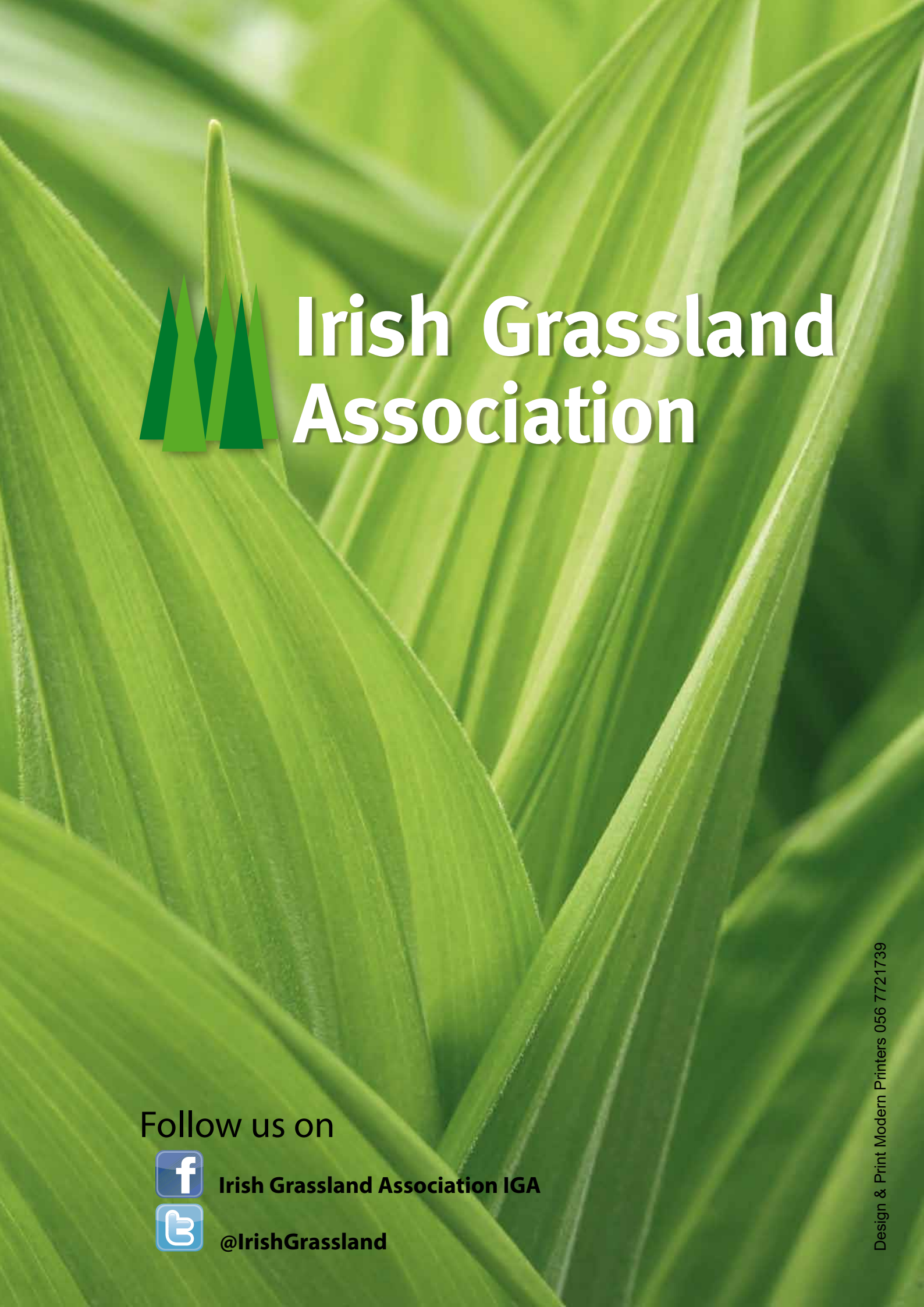
Sponsored by FBD Trust

Irish Grassland Association
Student Conference
Sponsored by FBD Trust
Monday 10th October 2016
Kildalton Agricultural College

Irish Grassland Association
Members Networking Evening & Dinner
Tuesday 17th January 2017
Newpark Hotel Kilkenny
MEMBERS ONLY EVENT - PRE REGISTRATION IS ESSENTIAL
100 spaces FREE to the first 100 members who book to attend the Dairy Conference

Irish Grassland Association
Dairy Conference
Sponsored by Yara
Wednesday 18th January 2017
Newpark Hotel Kilkenny

YARA



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