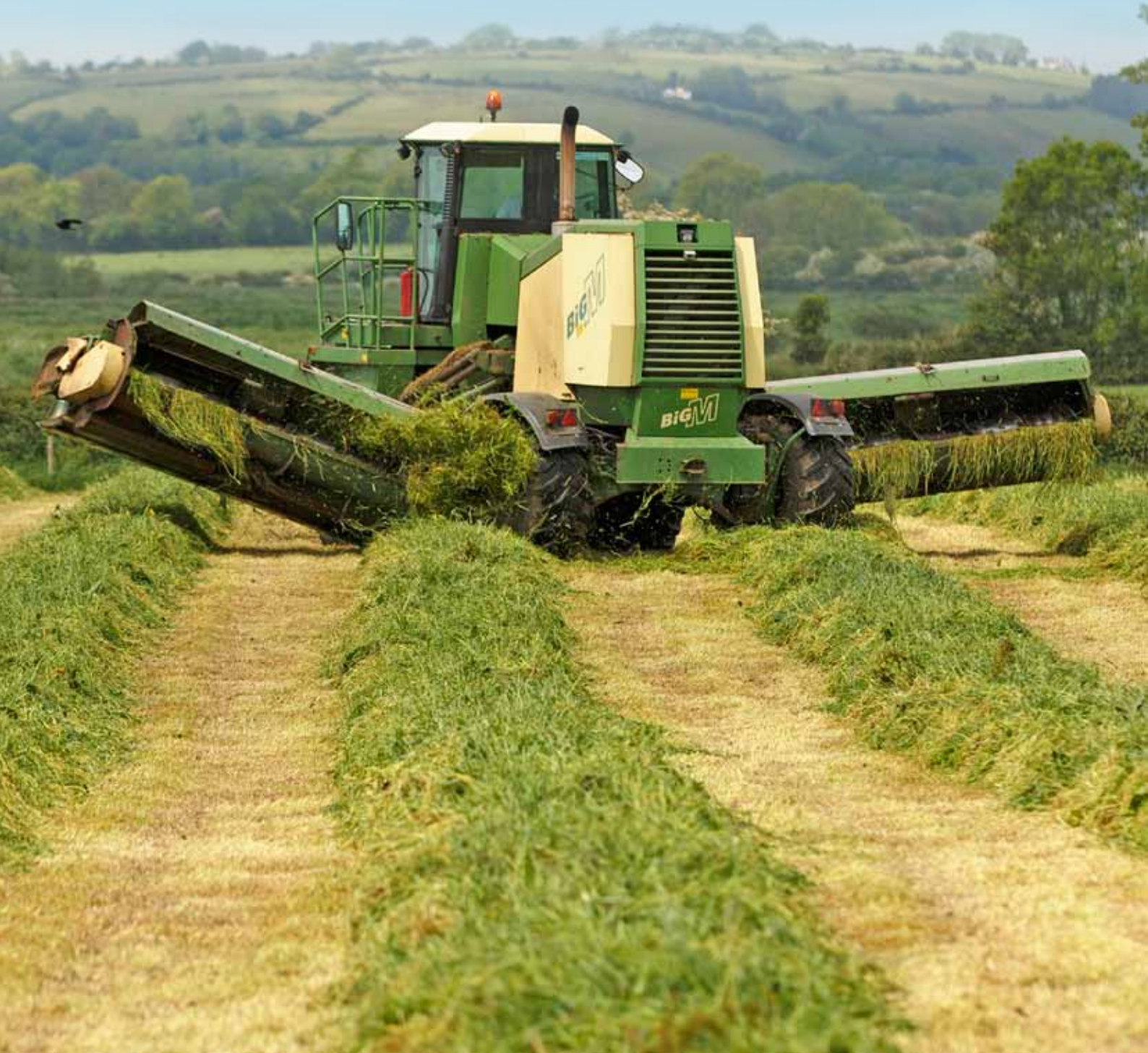
Irish Grassland Association

Members' Information Booklet Issue No. 38

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

Special focus on silage and grassland management



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Irish Grassland Association

CORPORATE MEMBERS 2018

Please contact our office straight away if you need your corporate logo updated. We want to ensure we have all logos in our summer publications up to date. Please also check your corporate web profile page on our website to ensure this content is up to date http://www.irishgrassland.com/corporate-member.asp.

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Front cover photograph by Donal O'Leary

Irish Grassland Association Editorial

Dear Member,

Rosalyn Drew
IGA Honorary Editor
and Nitrofert

Welcome to our first issue of 2018! Since our last publication all the various committees of the association have been busy arranging the coming years events.

As always the Dairy Conference in January was a roaring success with record beating attendance figures and a selection of excellent speakers. It has grown to be a "Not to be Missed Event" in the dairy farmers' calendar and plans are already underway for Dairy Conference 2019! You can read a detailed report on this years conference by George Ramsbottom & Paul Hyland on page 8.

In June 2018, the IGA will attend and support the European Grassland Federation conference in Cork. The last time this event was held in Ireland was 30 years ago. On page 7 past president of the IGA and former council member Deirdre Hennessy gives a summary of what delegates attending this event can expect. The focus of the conference is on production from grassland while incorporating the 3 pillars of sustainability – economic, social and environmental. In section 1, members can find out all about the forthcoming IGA events planned for 2018. Starting off with the Topical Event on 25th April in Tuam, Co. Galway, the theme of which will be on Grazing Infrastructure for Irish grassland farms. Dr. Stan Lalor outlines the plan for the day on page for those interested in attending.

This years' Sheep Conference is scheduled to take place on 22nd May and will follow a similar format as last year with an indoor conference to be held in the morning in the Horse & Jockey Hotel, Thurles. This will then be followed by a walk on the farm of John Large in the afternoon. Speakers at the morning session include Darren Carty of the Irish Farmers Journal, Kevin McDermott & Eamonn Wall for Sheep Ireland and Mathew Blyth, flock manager from Didling farms UK.

The Beef Conference committee have decided to focus on 3 key areas for their event – How to maximise grass growth on farms, Can the science of breeding actually increase the chances of genetic gain in the beef herd and How beef producers can connect with the final consumer. These meaty topics should prove to be of huge interest to beef producers and the IGA are expecting a good turnout to this event. Speakers on the day include suckler to beef farmer Ger Dineen, Teagasc geneticist Dr. Donagh Berry and Professor Patrick Wall.

The Dairy Summer Tour remains one of the highlights of the IGA calendar and a taster review of this years' tour is given on page 18. This years' tour is scheduled to take place on 24th July in Bandon, Co. Cork.

Meanwhile in Section 2 our Year in My Wellies contributors – Lauren Baker and Dwayne Shields, have written how they have survived the past few difficult months on their dairy and sheep enterprises. In a very interesting interview with Matt O'Keeffe, Olin Greenan gives his opinion on current areas of concern to the Irish Dairy industry drawing on his experience of farming in New Zealand.

Given the current fodder crisis that many livestock farmers are facing at the moment, the technical articles in Section 3 on silage and grassland management should be of interest. Technical experts on areas such as soil nutrition, grass varieties, grass stocking rates and silage pits have all given very sound and practical advice that should help inform farmers on how to best manage their grass supplies in difficult times.

In section 4, Dr. Aoife Osbourne of UCD reminds readers of how they can work safer during the busy summer months. Dr. Osbourne lectures in Farm Health & Safety and her article is well worth reading as it highlights areas of danger on farms that often go un-noticed until it's too late. An annual review of the farm safety Risk Assessment document should now be a priority on all farms as it is proven to reduce farm accident risk.

Finally, Matt O'Keeffe of the IGA Archive committee has put a call out to members for information on our past presidents. Please check out Matts article for further information and contact Maura in the IGA office or Matt if you have historical data of interest.

Irish Grassland Association Dinner in honour of P.O'Keeffe, Berkeley Court Hotel, Dublin, 19.11.1992 attended by Past Presidents. Front L to R: J.Bruton, R.I.Allen, P.Caffrey, P.O'Keeffe, N.Keating, N.Chance, H.Spain. Back L to R: S.Flanagan (Hon.Secretary), S.Brophy, D.Browne, B.Hussey, R.McCarrick, A.Conway, M.Murphy, P.MacCanna, M.Drennan, M.Ward, D.McCarthy, D.Fay, C.Crofts, J.O'Grady, P.Gleeson, D.Cashman, J.Harte, M.Barlow, T.Reid.

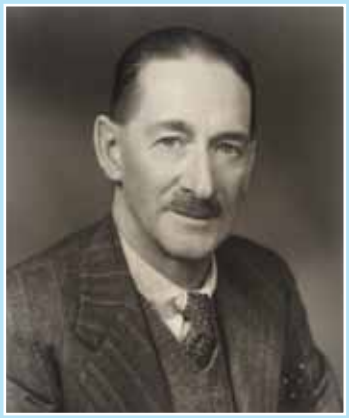
IGA Past Presidents

Matt O'Keeffe,
Irish Grassland Association
Council Member,
Irish Farmers Monthly,
Dairy Farmer

The Irish Grassland Association is updating its archives, including the compilation of short biographies on all past presidents of the association.

There are a couple of gaps in the information on some of the early presidents and information is sought on them. Specifically it is proving difficult to track down relatives or associates of O'Grady, who served as IGA president in 1955/56. He may be Darby O'Grady who farmed at Bruff in Limerick. Likewise there are blanks in biographical details for William Mitchell, a Leixlip farmer (1950/51). We are also missing details for Ballyboughill, Dublin farmer Rob McCulloch (1953/54) and WA Smith, who worked in the Agricultural Institute (1956/57). Dr. Larry O' Moore also worked in An Foras Taluntais and was IGA president during 1960/61 and more information is sought on his career.

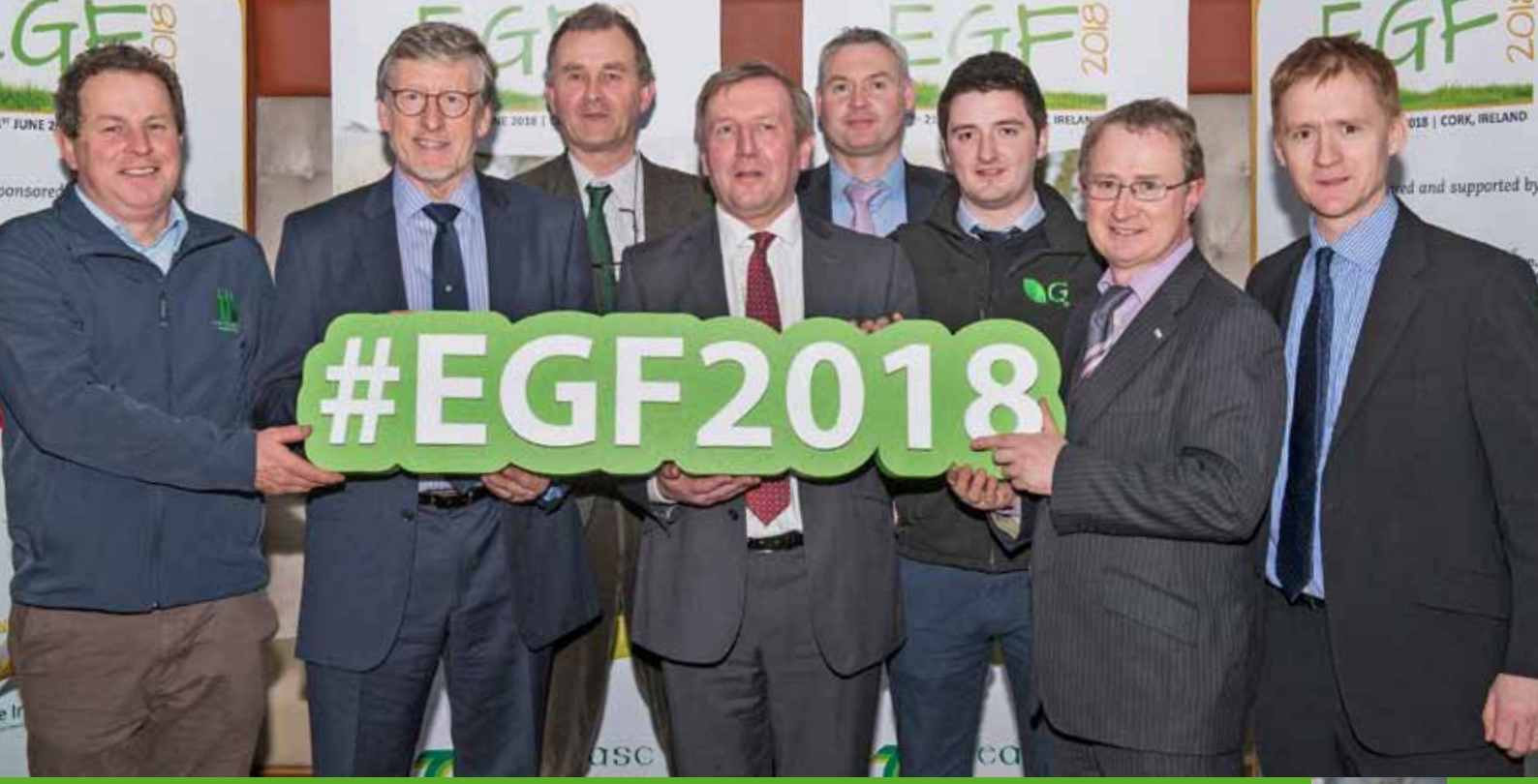
The IGA presidents list is a 'Who's Who' of Irish agriculture. It includes such luminaries as Tom Walsh, Dan Browne, Matt Dempsey and Padraig Walshe.



The O'Morochoe
The first President of the Irish Grassland Association

The first president was the titular head of the O'Morochoe clan, The O' Morchoe. Arthur O' Morchoe served in the British army before returning to farm in Wexford. He served for three terms from 1946 to 1949, the only president to hold the office for more than one year.

Uniquely, ER and John Richards-Orpen, father and son, served as IGA presidents, in 1951/52 and 1961/62 respectively. The hope is that a full biography of all of the past IGA presidents will be available for publication on our website by next Autumn.



The 2018 European Grassland Federation Conference comes to Ireland

Deirdre Hennessy
Teagasc

The 27th EGF General Meeting will be held at the Rochestown Park Hotel in Cork from the 17th - 21st June 2018. The EGF was last held in Ireland in 1988.

The overall theme of EGF 2018 is 'Sustainable Meat and Milk Production from Grasslands'. The conference will focus on production from grassland incorporating the three pillars of sustainability - economic, social and environmental. It will provide an opportunity to consider new methods of increasing grass utilisation in ruminant diets while enhancing ecosystem services, as well as incorporating smart technology and big data reservoirs into grassland resource management. A significant development for EGF 2018 is the introduction of a Knowledge Transfer theme.

Globally, demand for milk and meat products is increasing. Grassland provides the main feed source for ruminant production in many parts of the world. In Ireland, grazed grass is the cheapest and best quality feed for milk and meat production. Ruminants convert grass in to protein digestible by humans in the form of milk and meat. Research and science based innovations can help optimise grass based production systems in terms of economic, social and environmental sustainability. EGF 2018 will focus on creating a sustainable legacy for all involved in the grassland industry in Ireland and internationally.

The conference will have six specific themes:

- Resilient plants for grass based ruminant production systems, adapting grassland systems to the dynamics of climate and resource availability.
- Appropriate livestock for grasslands, key characteristics of animals adapted to and suitable for grasslands.
- Environmental influences on grassland systems – consequences of climate change, mitigation strategies, and impacts on ecosystems.
- Social and economic impacts of grass based ruminant production.
- Big data and smart technologies in grassland.
- Knowledge transfer to stakeholders.

Invited speakers include a number from Teagasc (Pat Dillon, Michael O'Donovan, Laurence Shalloo and Catherine Stanton) and European Research Centres in France, the Netherlands, Switzerland, Germany and Northern Ireland.

The conference will be a mix of plenary presentations, offered oral and poster presentations, as well as a visit to Teagasc Moorepark. Conference delegates will also have a choice of five technical tours visiting dairy, beef and sheep farms including former Irish Grassland Association President and current Grassland Farmer of the year, Eddie O'Donnell, the Department of Agriculture, Food and the Marine grass evaluation site in Fermoy, GoldCrop and Ornua in Mitchelstown.

Full details of the conference and registration are available on www.egf2018.com.

Conference speakers, Yara event sponsors and some of the Irish Grassland Association team

Efficiency first and then expansion at Irish Grasslands Association sold out Dairy Conference

Paul Hyland, IGA Dairy Conference Chairman & Dairy Farmer and **George Ramsbottom,** IGA Council member & Teagasc

Efficiency first and expansion second was the message delivered to the 650 strong audience at the Yara sponsored Irish Grasslands Association annual dairy conference. The conference took place on Wednesday 17th January at the Charleville Park Hotel, Co Cork.

Milking 160 cows producing 480 kilos of milk solids in 2017, David Kerr who farms near Ballyfin, Co. Laois said that the Irish dairy industry is at a tipping point. 'Some farmers could do with a few less cows. The biggest challenge to your profitability isn't the world market, it's yourself', he advised. Farm manager, Kevin Ahern, described managing the 230-cow Shinagh dairy farm owned by the four west Cork dairy processors. 'I can't justify having a second full-time person on the farm. Student and relief help during the calving and breeding period is what I employ at peak times. Relief milkers are employed for the rest of the season with most of the machinery work and the heifer rearing contracted out as well'.

Kevin Ahern and David Kerr

Teagasc's Pat Clarke detailed a survey of over 1,000 farmers in 70 discussion groups around the country in his paper addressing labour efficiency. 'On average farmers work 47 hours per cow per annum, while the most efficient 5% work 22 hours per cow'. Based on Pat's analysis of the two farmer speakers, both are in the top 5% for labour efficiency. 'Both farmers employ seasonal help during the busy calving season, employ contractors for silage making and have adopted the contract rearing option to simplify the running of their dairy farms '. Continuing Pat said, 'The key areas where small changes make a big difference centre around calving and calf rearing, the milking process and grassland management'.

Crookstown, Co. Cork dairy farmer Michael Bateman called on dairy farmers to rise to the challenge of focusing on whole farm profitability in a post-quota era. The target set is to achieve a net profit of €2,500 per hectare farmed which is achievable by focusing on adopting the latest technologies advocated by Teagasc around grassland and genetics. The analysis of the 2017 financial performance of a small group of dairy farms showed that some dairy farms are already achieving the €2,500 target on the whole farm.

A number of reasons were identified which reduced whole farm profitability.

- Land rental: Approximately 1/3 of the land

Laurence Shalloo Teagasc, Eva Ross Yara Sponsors, Jan Jensma IGA President, Michael Bateman IGA and Tadgh Buckley (AIB) session Chairman

farmed was rented – all of the land included in the €2,500/ha target is owned so this would have the effect of lowering the comparable net profit margin.

- Enterprise mix: In achieving the €2,500/ha target, all of the land farmed is engaged in milk production – approximately one quarter of the land farmed by the sample analysed was occupied by animals other than cows (mostly replacement heifers). Among the sample analysed, while the overall stocking rate of the group was 2.54 LU/ha, the cow stocking rate on the milking platform was 2.99 cows/ha.
- Grass utilised by the sample was 11.3 t DM/ha, while high, was still lower than target of 13.0 t DM/ha.

According to Moorepark's Laurence Shalloo, 'If farmers are serious about leasing land from others, then they have to be prepared to lease less accessible sections of land to others as well – an option that is both tax and economically efficient'. Continuing he said, 'Improving efficiency rather than expansion is the most viable option for the majority of Irish farmers. For the most efficient, replication of their existing system rather than system change is the more profitable route to take'.

Other speakers included Teagasc labour expert Pat Clarke. Dr. Pat Dillon, Teagasc Moorepark and Waterford dairy farmers Pat Ryan, Cappagh and Esther Walsh, Tourin Farms joined in a panel discussion chaired by Jack Kennedy, Assistant Editor of the Irish Farmers' Journal to describe best practice in organising and managing farm labour.

Pat Dillon Teagasc, Eva Ross Yara Sponsors, Jack Kennedy (IFJ) session Chairman, Jan Jensma IGA President, Ester Walsh Dairy Farmer & Pat Ryan Dairy Farmer

YARA

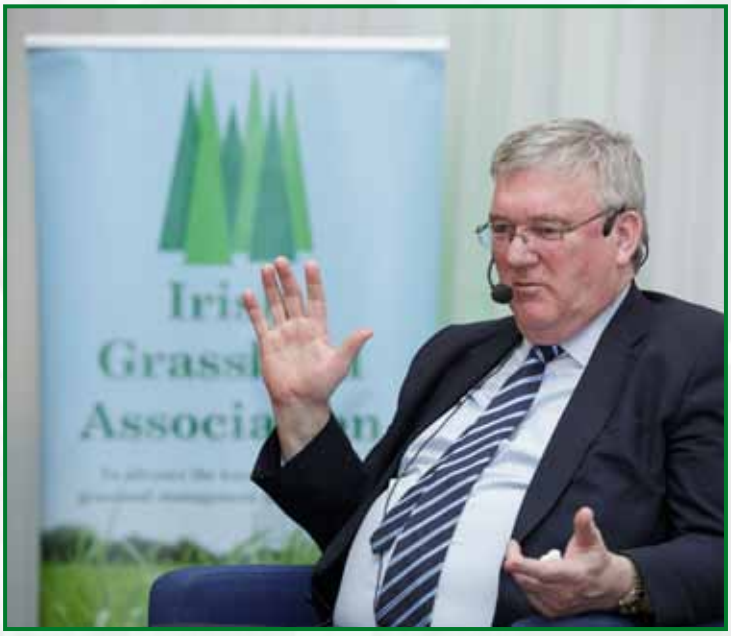
We would like to thank our sponsors YARA for their continued support

Irish Grassland Association Members Networking Evening

Paul Hyland, IGA Dairy Conference Chairman & Dairy Farmer and **George Ramsbottom,** IGA Council member & Teagasc

On the evening before the Conference (Tuesday 16th January), 100 Association members attended an event ahead of the Conference. The 2018 guest speaker, Pat McDonagh, Founder and CEO of Supermacs was interviewed by former Irish Farmers' Journal editor, Matt Dempsey.

Pat described how he has grown his business to over 100 outlets, employing part- and full-time employees from 21 different countries. Echoing what was said the following day Pat talked about the importance of cost and labour efficiency before replicating the business at other sites.



We would like to thank our sponsors YARA for their continued support

YARA

James and Kathleen Turner IGA members

Tom Hennessy Terra Services event sponsor, Billy Gilmore host farmer and Stan Lalor IGA event Chairman.

Setting a farm up for Grass – IGA Topical event 2018 will focus on Grazing Infrastructure

Gabriel Trayers, Teagasc

Mary McEvoy
Irish Grassland Association Council member and Germinal Seeds

2018 Topical Event

Towards the end of 2017 we completed a short member survey asking you what events you would most like to see for the coming year, following the feedback we received it has being decided to run an event focused on grazing infrastructure.

The event will focus on grazing infrastructure to improve grass utilisation. It will be held on Wednesday 25th April on the farm of Billy Gilmore, Tuam, Co. Galway, commencing at 10.30 am sharp.

The event will be free for anyone interested in attending. The objective of this event is to demonstrate options and costings for improving grazing infrastructure on farm and will focus on water, fencing, paddock layouts and roadways with the ultimate goal of achieving higher grass DM production and improved utilisation of grass.

The event is being kindly sponsored by Terra Services.

Host Farmer – Billy Gilmore

Billy Gilmore is a well-known former participant in the BETTER Beef Farm program. Billy and his son Martin farm in partnership in Cortoon, just 10 km outside Tuam in Co. Galway. Billy farms just over 55 hectares which is fragmented into 10 parcels. It comprises of owned and rented lands which are relatively dry, however approximately 20 ha could be described as heavy and liable to some flooding in winter/spring. In the past 2 years the farm has changed from suckler cows and selling weanlings to contract rearing heifers for a local dairy farmer and the Newford herd in Athenry. In 2018 there will be 116 yearlings reared with another 26-30 coming in May. Billy also has a sheep enterprise, lambing 160 ewes this spring. The farm stocking rate has increased considerably since 2009, from 1.2 LU/ha to approximately 2 LU/ha at present. Since 2009, gross output has increased from €789/ha to €1425/ha with a corresponding increase in gross margin from €538 /ha to €1395 /ha. Billy has focussed on a low-cost grass-based system in order to keep variable costs low.

Some of the changes Billy has implemented on his farm to achieve this improved performance include, weekly farm walks, optimum pre-grazing yields and grazing to a residual of 3.5 cm resulting in more high-quality grass in the diet and better utilisation of this grass. Ultimately, he has achieved this by splitting large fields into paddocks with better placement of water troughs allowing for easier grazing management and better control of grass on the farm. The paddock system allows easier management of the stock on the farm.

At the event, Billy will discuss the decisions he

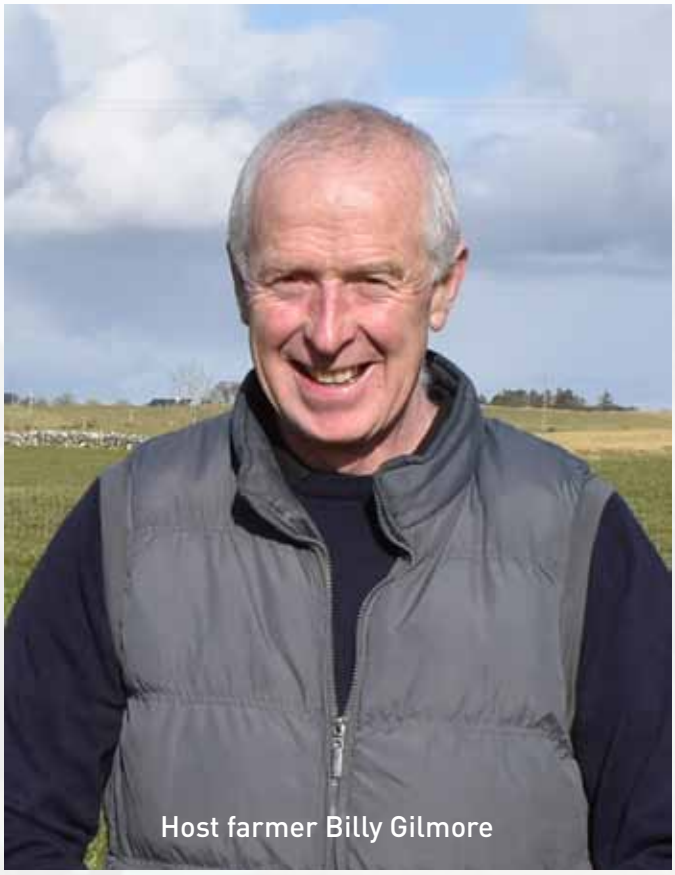
made regarding paddock size and fencing options. Through improving the infrastructure on his farm and the associated increase in grass production and stocking rate, Billy has been able to reduce the amount of land he rents.

Event Programme

Leading experts will give advice on a range of topics relevant to the infrastructure of the farm which will result in improved grass utilisation. An important aspect of the event will be highlight the various options available regarding water, roadways, fencing and paddock layouts and a breakdown of the various cost options associated with each of these. There will be something for everyone at this event.

Topics specifically covered on the day will include:

1) Introduction and Farm Background: Host farmer, Billy Gilmore and his Teagasc Advisor Gabriel Trayers will outline the history of the farm including grass production and utilisation, farm layout and soil fertility profile. Animal performance targets will also be discussed.
2) Infrastructure considerations: Catherine Egan from Teagasc will describe good practice guidelines and options and financial costings for improving grazing infrastructure including water, fencing, paddock layouts, roadways etc. Host farmer, Billy Gilmore will also describe decisions he made relating to the farm infrastructure including, the options available to him and the reasons for his decisions as well as describing how the system works for his farm. There are several low-cost options to improve farm infrastructure and increase grass utilisation and these will be the key focus of this discussion.
3) Bridget Lynch from UCD will discuss summer grassland management to maximise grass utilisation. Topics discussed will include ideal grazing covers, grass allocation, and target rotation lengths to achieve performance targets for various animal groups.



Host farmer Billy Gilmore

The event will start at 10.30 am sharp.

The farm is located North-East of Tuam and will be well signposted off the N83.

This is a FREE event. Everyone is welcome to attend

Please contact the Irish Grassland Association for further details or keep up to date with our website **www.irishgrassland.com** for more details of this and all our events.

We would like to thank our sponsors TERRA SERVICES

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IGA Sheep Conference & Farm Walk Preview

Ciaran Lynch,
IGA Vice President & Sheep Committee & Teagasc

This year's IGA sheep conference will take place in the Horse and Jockey hotel in Co Tipperary on 22nd May. The format will be similar to previous years with an indoor conference in the morning followed by a farm walk in the afternoon. Registration for the conference will commence from 9:30am with the conference starting at 10am and proceedings wrapping up for 5pm.

For the indoor morning session there is an excellent line up of speakers. First up Darren Carty livestock specialist with the Irish Farmers Journal and former IGA council member will look at the sheep industry in depth and the changes that have occurred over the past 10 to 15 years. From this he will outline the gains that have been made and the potential challenges that may lie ahead as the industry moves forward. Following this Kevin McDermott and Eamon Wall, programme managers for Sheep Ireland, will discuss the main milestones achieved over the first ten years of the sheep Ireland programme and reveal what the future may hold for Irish sheep breeding. Wrapping up the morning session will be Mathew Blyth, Flock manager from Didling farms Ltd., based in West Sussex UK. Mathew will discuss the management of the 1000 ewe flock, grazing rotations, use of alternative forages and how incorporating the latest technology has helped him manage and improve their flock performance.

Following lunch the buses will transport the attendees to the farm of John Large for the afternoon session. This will provide conference delegates an opportunity to see the farming system and hear in more detail how John operates his enterprise.

Farmer Profile

John and his family live in Gortnahoe, located just inside the borders of Co Tipperary. The home farm is located on the outskirts of the village and is the base for a busy Sheep and Suckler beef system. The farm also encompasses a further two blocks of ground that add up to an 80ha operation.

Forward thinking

John has always adopted a progressive approach to new initiatives helping drive the sheep industry forward. John is one of the Central Progeny Test (CPT) flocks working with Sheep Ireland and was one of the original participants in the programme since it began back in 2010. This wasn't his first venture into helping breed improvement; previously he participated in a number of Teagasc on-farm ram evaluation trials. Aside from breeding initiatives he has embraced the grazing challenge having previously also hosted one of the Grass10 Programme sheep walks.

Away from the farm, John also sits on the board of Sheep Ireland as a farmer representative. In the midst of it all, he also manages to find the time to write for the Farming independent on a monthly basis.

Sheep system

The sheep system makes up the main part of the farming enterprise, running a closed flock which comprises of 630 mature ewes and 160 ewe lambs that are also joined. Stocked at approximately 12 ewes per hectare, with all progeny excluding replacements taken to finish this is a high output system.

As part of the CPT Programme all the mature ewes are artificially inseminated. This process takes place in two phases in mid-October with a two day interval in-between each. In total, four different ram breeds Texel, Suffolk, Charollais and Belclare were used on the flock. Following the round of AI, the ewes are divided into three groups and natural service is used with rams being introduced to cover the repeats. The replacement ewe lambs on the farm are also joined with the ram which will coincide with the repeats from the AI in the mature ewe flock. A key focus on the farm has been to ensure these lambs are well grown prior to mating aiming to reach a target weight of 48 kg at joining. These ewe lambs are joined for two cycles with all rams on the farm being removed by the start of December, enabling the lambing to be wrapped up by early April. The focus on ensuring ewes reach target has been paying dividends, pregnancy rates for the group this year are 86.5 % with those pregnant carrying on average 1.24 lambs.

With so many ewes lambing in such a compact period the start of March is a busy time on the farm. Extra staff is drafted in for lambing with Sheep Ireland technicians present during lambing to help record a variety of information on both ewe and lamb performance. All progeny from the AI rams will be tagged and recorded at birth and their performance and health data recorded throughout the season. A selection of female progeny from each of the sires used is retained for breeding enabling the capture of maternal data. This information is recorded in the sheep Ireland database and forms part for the genetic evaluations for the sires used. It also provides an invaluable resource for the industry as it provides much needed on farm commercial data.

Another challenge posed by having such large numbers lambing at one time is the need for sufficient amounts of grass at turnout. John has focused efforts to ensure sufficient ground is rested from October on to have reserves built up for spring. Increasing the amount of divisions on the farm and

investments in fencing infrastructure has aided in this process. Achieving high levels of performance of grass is key for this flock, with the high stocking rate good levels of performance are needed to keep hit drafting targets. With three separate farm lets to manage good grassland management skills are key to achieving this. To keep supplies in check in the middle of the grazing season heavy covers are removed as baled silage. This has the added benefit of providing high DMD silage for both the sheep and beef systems on the farm during the winter period.

Focusing on efficiency and performance of the flocks is a key aspect of management, and drafting lambs is no exception. Once they start to approach finish weights, lambs are assessed and drafted every two weeks with lambs weighted and assessed for fat cover. John aims for a 20 +kg U or R3 carcass. To achieve the desired level of finish John will introduce concentrate supplementation from August. Rather than blanket feeding, all lambs are batched according to weight on the farm with those over 40 kg supplemented. Forage rape is also grown and used to finish a proportion of lambs in October and November.

Beef system

The beef side of the farm is another considerable operation. This is based on a 35 cow autumn calved sucker herd. Replacements for the suckler herd are purchased. To further keep the grazing system and resources streamlined, all bull calves from the herd are sold as weanlings in the spring. The heifers are carried over to the following year and finished off the farm. Good grassland management is central to the beef side in order to achieve performance. This system is operating at 2.4lu per hectare achieving an output of 774 kg per hectare.

This event has been kindly sponsored by MDS Animal Health and Mullinahone Co op.

Thomas Connors host farmer, Liam Egan Mullinahone Co Op, Tom Murray MSD Animal Health and Jan Jensma IGA President

Irish Grassland Association Beef Conference 2018 Preview

Christy Watson
Irish Grassland Association
Beef Conference Chairman
and Teagasc

The Irish Grassland Association Beef conference will take place on Thursday May 24th in the Clonard Court Hotel, Dublin Road, Athy, Co. Kildare. This event is kindly sponsored by Mullinahone Co Op and MSD Animal Health.

This year the conference will focus on three areas:

- Maximising grass growth on beef farms.
- What the science of breeding can do to increase the chances of genetic gain in the Beef herd .
- Beef producers –connecting with the final consumer.

Morning Session

The Irish Grassland Association are delighted to have suckler to beef farmer Ger Dineen speak at this years' conference. Ger was the Beef Enterprise Grassland farmer award winner in 2017 . In his presentation Ger will outline how he achieved a beef output figure of 999 kgs live weight per hectare on a heavy farm, by targeting grassland management to grow and utilise high quantities of grass.

Teagasc Research Geneticist Dr Donagh Berry will try to answer the question 'Will breeding the best with the best always give you the best?'. The science behind animal breeding can be a complex subject and in his presentation Donagh will explain the role that science has in delivering on the breeding decisions made at farm level.

The importance of beef producers making connections with the final consumer will be discussed by Professor Patrick Wall. Professor Wall is a Vet and Medical doctor and is uniquely qualified to comment on the issues that interest both the primary producer and consumer. In his presentation, Professor Wall will discuss the importance of establishing good connections between the primary producer and final consumer in order to achieve sustainability.

Afternoon farm visit

The afternoon session will be held on the O'Connor family farm near the village of Moone in South Kildare. The farm is run as a partnership by Monica, Tom and their son Thomas. This is a truly mixed farm with four enterprises on the farm comprising Beef, Sheep, Tillage and Pigs. In 2015 Thomas was the winner of the FBD Young Beef Farmer of the year competition.

The beef enterprise will be focused on during the farm visit, comprising 90 Suckler cows with all male progeny finished as bulls under 16 months and heifers at 21 months. Each year 200 additional cattle are purchased for finishing comprising both young bulls and heifers. The unique feature of this farm is the way the O`Connors paddock graze the cattle in large groups during the grazing season.

- 90 Suckler cows and four breeding bulls are grazed together as one group in two hectare paddocks.
- Up to 77 young bulls have been grazed in one group for the grazing season.
- Up to 100 heifers are grazed together in one group.

Grassland management is excellent with all the farm laid out in 2 ha paddocks, with the provision for subdivision in all paddocks. The three pillars supporting excellent output are to be seen on this farm namely: Breeding, Grassland Management and Livestock Management. The O`Connors are achieving an annual stocking rate of 3.3 livestock units per ha and a beef output of 1,498 live weight per hectare. Grass utilised in 2017 was 11.5 tonnes of dry matter per hectare.

This is an event not to be missed with a combination of an excellent indoor session and a farm visit where the results of excellent grassland management are to be seen on a commercial beef farm.

Host Farmer Thomas O'Connor

For further information about the event contact Maura Callery at (087) 962 6483 or visit the Irish Grasslands Association website at www.irishgrassland.com

Dairy Summer Tour – focus on high profit and high return dairying

Michael Bateman,
IGA Events Chairman &
Dairy Farmer
George Ramsbottom,
IGA Council member
& Teagasc

The Irish Grasslands Dairy Summer Tour focuses on high profit and high return on investment milk production when it visits two grass based dairy farms at Shinagh Dairy Farm and Rearour, Aherla. The event, sponsored by AIB Bank, takes place on Tuesday July 24th. The major focus of this year's event is achieving a high whole farm profit and converting a leased farm to milk production to achieve a high return on investment. Maximising the use of grazed grass in the cows' diet will feature prominently on both farms.

Speaking at the launch of the event, Michael Bateman chairman of the Tour said, 'Since milk quota removal, commercially focused dairy farms have the opportunity to specialise in dairying and maximise the profitability and returns on their dairy farm. This focus continues the theme of January's Dairy Conference where the twin topics of achieving a net profit of €2,500 per hectare farmed and/or a return of 15% or more on assets invested through the leasing route were highlighted. With this in mind, the Irish Grassland Association invited two milk producers – one farming on a mostly owned farm and achieving a high profit per hectare farmed and the second managing a converted fully leased unit yielding a high return on the conversion investment made to host this year's Dairy Summer Tour'.

Kevin Ahern, farm manager at Shinagh Dairy Farm, Bandon, Co. Cork was invited to host the tour with a focus on achieving a high return on investment on this leased farm. Kevin manages this 78 hectare leased farm since it was established in 2011 by the four West Cork Co-ops. All of the land leased comprises the milking platform with the 232 strong dairy herd stocked at 3.0 cows/ha. The farm grew an average of 17.1 tonnes dry matter per hectare in 2017. During the conversion phase, 2.1 km of roadways were laid, a 20 unit milking parlour constructed and a slatted shed converted to a 200 cubicle shed with sufficient slurry storage to accommodate the rapidly expanding herd. Most of the land has been reseeded over the past five years. Improving soil pH and P&K indices is on-going. The herd produced 397 kg milk solids per cow (4.54% fat; 3.79% protein) on 320 kg meal last year with 1,200kg of milk solids produced per hectare.

Conor and Josie Kelleher farm at Rearour, Aherla, Co. Cork. They farm 57 ha, practically all of which is owned. With an average of 142 cows grazing the

farm in 2017, the milking platform stocking rate was 3.4 cows/ha. The farm grew over 16 tonnes of grass dry matter per hectare in 2017. Conor's herd produced 527 kg milk solids per cow (4.50% fat; 3.75% protein) on 830 kg meal that year.

Common features of both farms are the following:

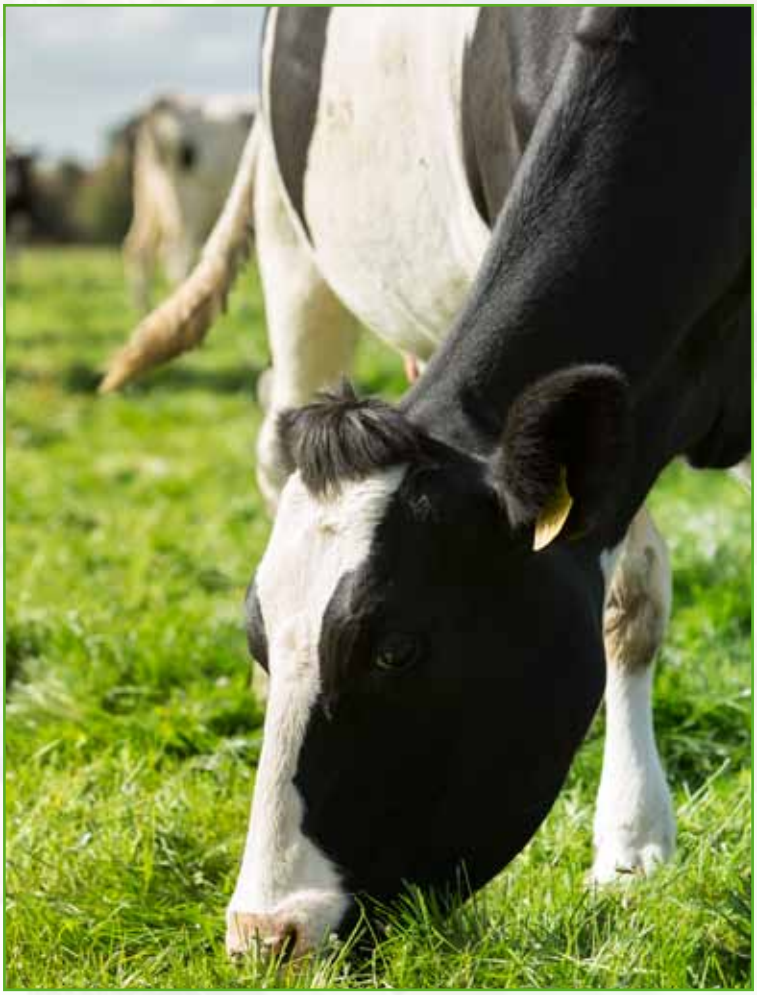
- Breeding the right cow – both farmers believe that highly fertile, high EBI cows are most suited to grass-based milk production;
- Their focus on soil improvement through improving soil fertility;
- Their financial focus – both carefully plan cash flow on a monthly and multi-annual basis.

Commenting at the launch of this year's Summer Tour, Donal Whelton, AIB Agri Advisor, said, 'We are delighted to continue our support of the Irish Grassland Association Dairy Summer Tour. This year's event is a further opportunity for farmers to learn first-hand from two progressive, financially driven dairy farmers. The fundamentals of grass utilisation and maintaining efficiencies are key for all farmers, particularly in a period of volatile milk prices. Learning how both farmers managed to successfully achieve such high returns in different circumstances will be an important lesson from the day's event".

For further information about the event contact Maura Callery at (087) 962 6483 or visit the Irish Grasslands Association website at www.irishgrassland.com

Conor Kelleher
Host Farmer

Kevin Ahern
Host Farmer



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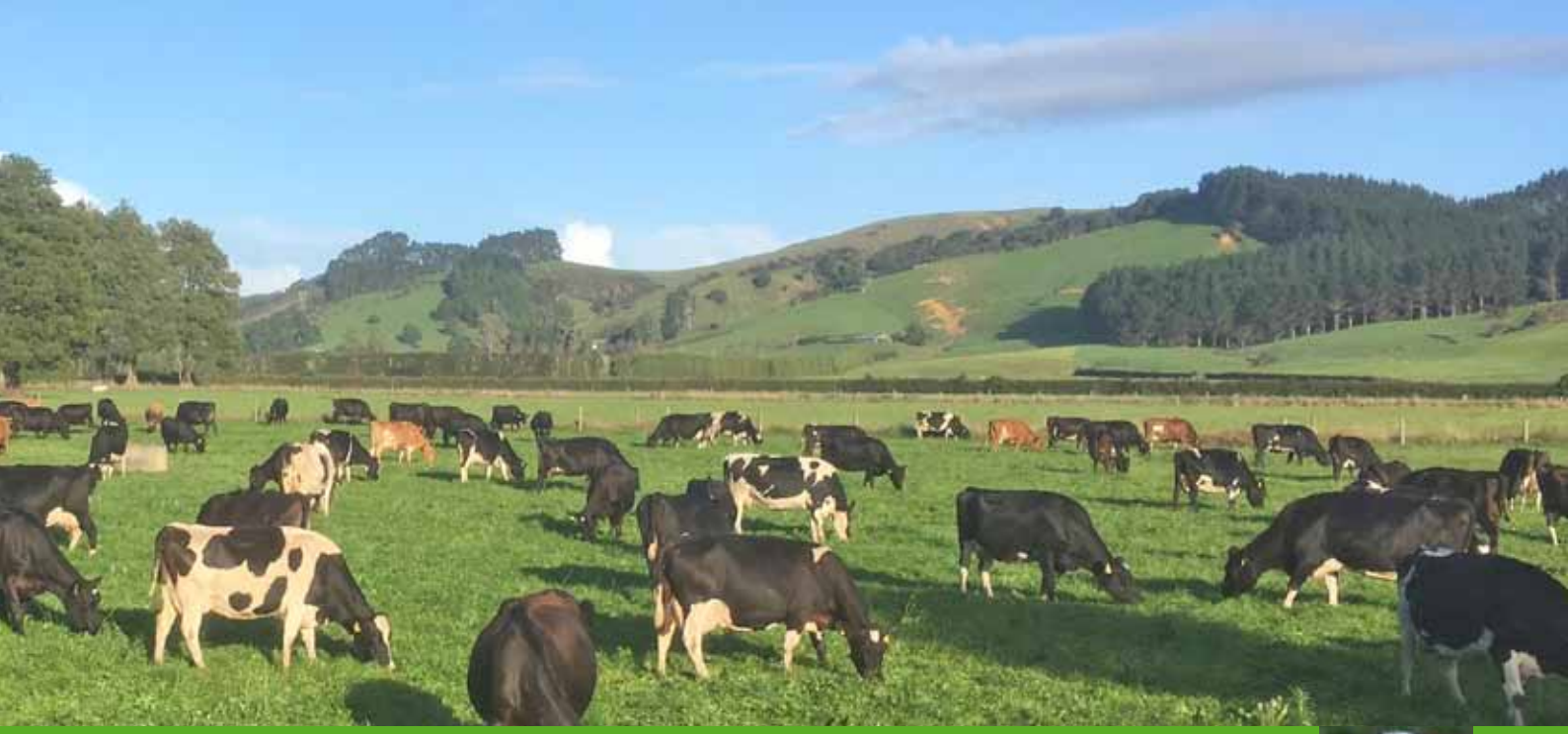


Comparisons and contrasts with New Zealand

Matt O' Keeffe,
Member IGA Council.
Editor, Irish Farmers Monthly.

Olin Greenan, a Monaghan man who is dairy farming in New Zealand, shares his views on how Ireland should manage the story around the growth in milk output.

No room for complacency

"To some extent the problems we have experienced recently in New Zealand relate to the fact that we have not been telling our story properly. We are still living with the belief that the crucial role we have played in the New Zealand economy is enough to create a positive attitude amongst the general public. There has been some complacency that because we produce milk from pasture, that the public will appreciate the value of dairy farming. But we can no longer take that for granted. The changing perception of dairying is a global issue and we are not immune from its effects. At the most extreme, the vegan hate campaign, driven by big posters and social media, has done milk producers a lot of harm. Changing diets means that some consumers are questioning the role of dairy in the diet."

A public disconnection

"We have neglected to tell our story properly and to put forward the positive benefits of both dairy farming and dairy products. So we can't take markets and consumers for granted any longer. We have no equivalent in New Zealand of Origin Green and the industry is beginning to realise that we need to adopt a similar strategy for New Zealand food products. That would allow us to use scientific fact to tell our story positively and effectively. There has been a disconnection with the public and we have to change that. It's hugely important that ireland doesn't make that mistake."

A water warning

"One example of not being proactive is the belief that is now widespread that New Zealand dairy farmers have polluted our water and reduced its quality. The reality and fact is that New Zealand rivers and lakes, for the most part are well within global limits in terms of water quality and easily stand up against water quality standards in the EU and Ireland. But that message has been lost and Ireland needs to make sure the same doesn't happen there."

Animal welfare questions

"There have been stories and videos of young NZ calves being treated badly. Again, that did a lot of

harm to the reputation of farmers, the vast majority of whom treat all their animals well. In general 'bobby calves' are an issue as there is a limited commercial market for male calves with a lot of Jersey breed in them. We are searching for solutions that will be viable as well as acceptable to the public. I am a firm believer in the role of crossbreds in New Zealand dairy farming but we have to make sure that the welfare of all of the offspring of those crossbred cows is of a high standard. If Ireland wants to grow its crossbred herd in the years ahead then there needs to be a clear strategy on how to manage the male calves that have limited commercial value. We cannot afford to do anything that shows the industry in a negative light."

Managing people

"There is, I think, work to be done in Ireland on the people factor. One issue where the New Zealand dairy sector has put a lot of thought and effort is in how staff that work on farms are managed and treated. It's something that will become more and more important in Ireland as dairy farms expand. There is more of a positive culture around staff in New Zealand because we have had large herds and more hired staff for longer than in Ireland but that is changing quickly. In New Zealand we prioritise training and advancement opportunities. Staff are highly valued and ongoing training of staff is the norm. I have first-hand experience of the kind of advancement routes that are available for people coming into New Zealand dairying, where there is the potential to build up a herd, lease farms and eventually even acquire a farm. That kind of advancement potential is limited in Ireland and it's something that needs to be developed, if at all possible, in order to entice ambitious young people into the industry."

Attracting staff

"On all New Zealand dairy farms where staff are employed there are detailed rosters that satisfy the personal need of staff members. Hours worked per week and well planned holiday times are all part of a staff schedule. That kind of staff management is really only developing on Irish dairy farms. It's important for two reasons. If staff are not well looked after they will not work well and they will leave. It also puts out a negative story about working on dairy farms. That's bad for recruiting staff and it is bad from a public perception of the industry."

Debt

It has always been the case that many New Zealand dairy farms carry a lot of debt. The taxation system encouraged this to some extent, because a farm

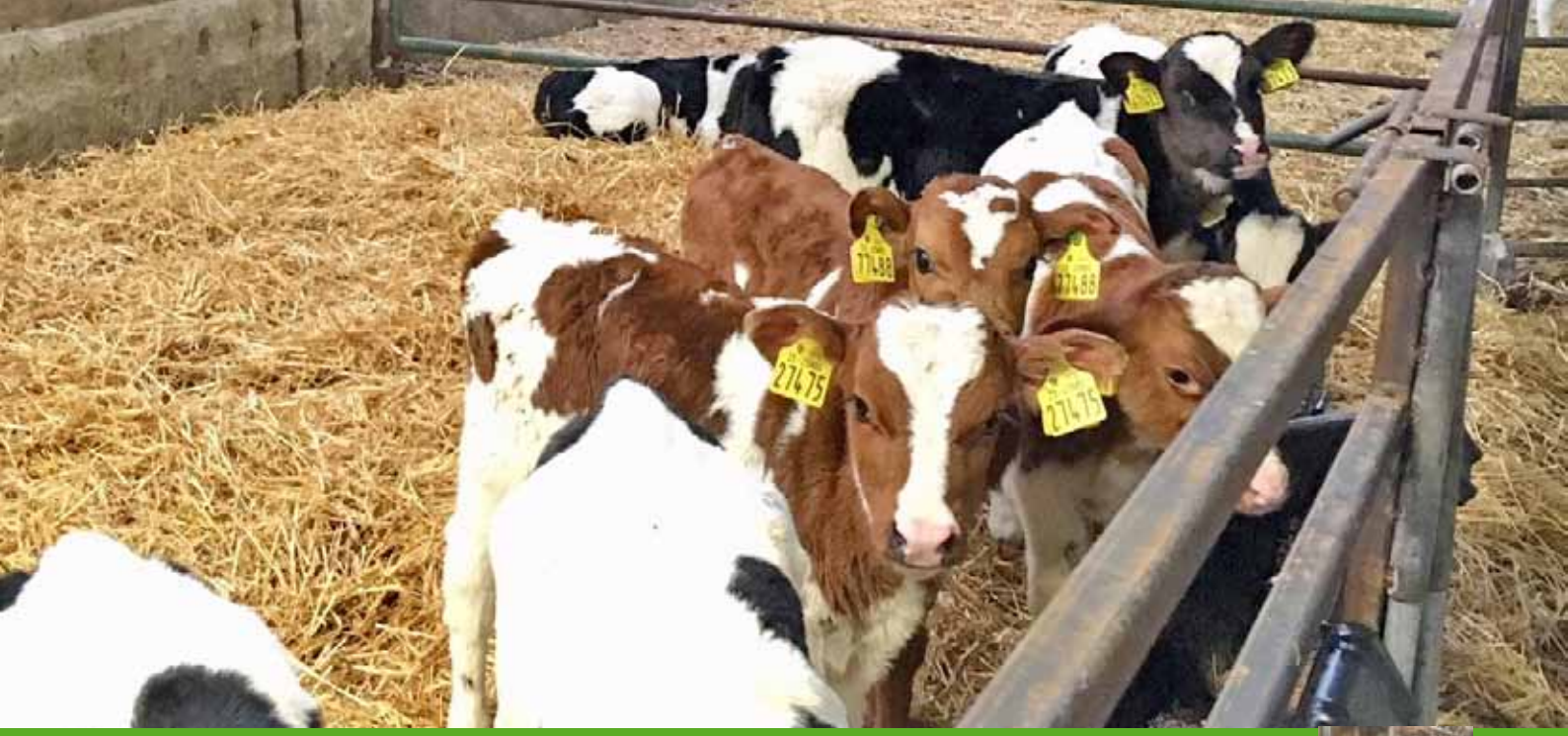
could be built up in value, then sold without a capital gains tax being imposed. Olin has a few words of caution for irish dairy farmers investing heavily in expansion: "Pouring concrete on the basis of a ten year land lease has to be managed and planned carefully to make the effort and expense justifiable. Perhaps there should be some kind of recognition in leases of the investment put into the land by the lessee. Heavy debt loading on a per cow basis could leave some people with their fingers burnt if it isn't managed properly. But it's the same as iny investment. If the figures stack up properly then the investment can be justified. There is no overall set of guidelines for dairy investment in Ireland no more than there is, or has been, for New Zealand dairy farms. It depends on individual circumstances, but expansion for the sake of it is not a sound approach, just presuming that more litres will mean more profit."

Concentrate on grass

"As far as I can see, there has been a real effort with the expansion on Irish farms to continue maximising the role of grass. Pasture management is improving and more tonnes of grass are being produced and eaten. For a few years, high milk prices in New Zealand tempted some dairy farmers to chase yield and output. It worked to a limited extent but didn't add greatly to profits and when prices fell a lot of people with high overheads were badly exposed financially. That's something Irish farmers need to be careful about."

Farm safety

Unfortunately Olin does not have a good farm safety message for Ireland. "Deaths and serious accidents are a cause of great concern in New Zealand, though the situation is slowly improving. Increasingly, legislation is being considered in an effort to bring down farm accidents. Large corporate farms have higher legal responsibilities placed on them and more safety training for staff than smaller farms. Directors of large corporate farms have can be held responsible where any negligence is proven."



A Year in my Wellies

Lauren Baker, Killeen, Birr, Co Offaly.

We are dairy farming a kiwi cross herd in Birr County Offaly. My partner Jeremy is currently working with my parents and 3 full time staff. This year I am working off farm with Glanbia as I was keen to gain some experience in the wider industry. We have literally just come out the other end of storm Emma and luckily we got away without any harm caused. Everyone on the farm really did an amazing job. It just shows the dedication of the staff on the ground and their devotion towards the care of the animals and the extent they will go to in order to make sure the stock are well fed and looked after in such harsh weather conditions.

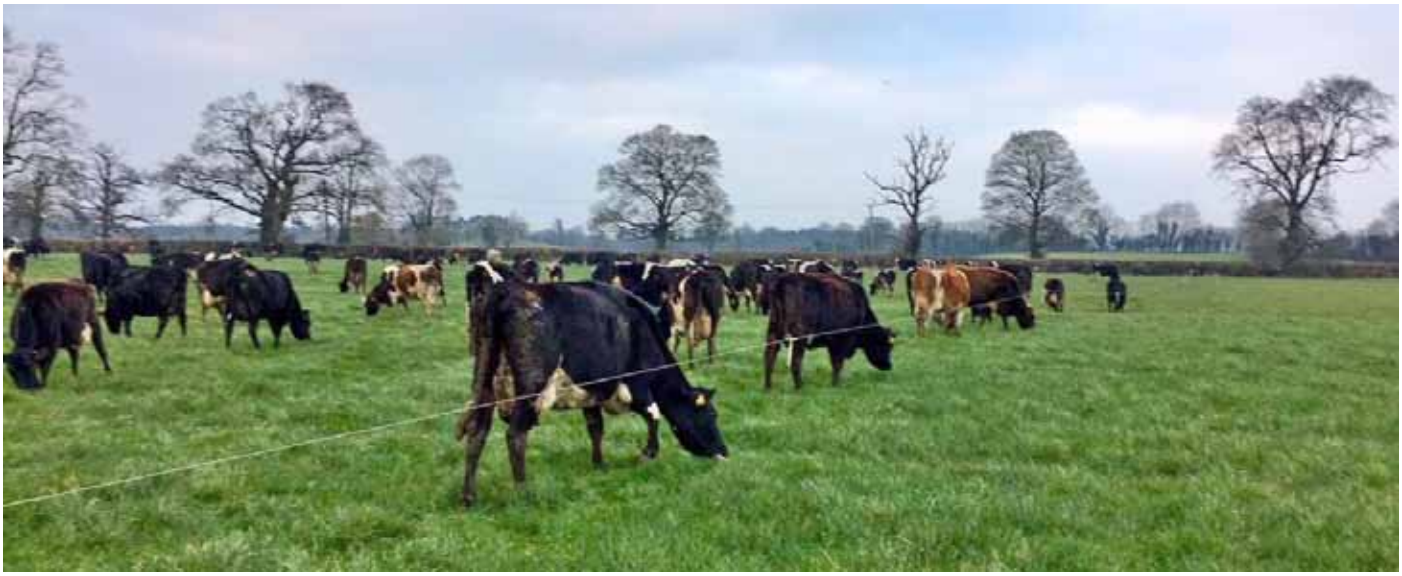
We currently have four full time staff working on the farm. My partner Jeremy is managing for his second season. Keith Fitzachary is a graduate from the Teagasc professional diploma in dairy farm management and having completed his work placement with us last year has signed up to another season with us. Cian Jobe is currently doing the Teagasc dairy management course and is working with us for his work placement before qualifying as a dairy farm manager this year. Colm Fitzpatrick is a Gurteen college graduate who completed his 12 week placement with us last year and has returned to work with us full time this year. Jeremy, Keith and Cian have all spent between 6 months and a year working on dairy farms in New Zealand (and Colm is planning to spend some time in New Zealand this year). They all have a passion for grassland management and the New Zealand style of farming so it is no coincidence they all get on very well. As I mentioned since returning from our two months travelling I have started working off farm, so I won't be taking any credit for the work done on the farm this spring I am simply just reporting back on the goings on of the last few months.

Calving season

There was 486 animals scanned to calve down this spring, the cows Jeremy carried over from last year are now also part of the milking herd. This was an exciting spring for us as we got to see the results of our first breeding season done by ourselves and it is also Jeremy's first year having some of his own cows milking. We had 66% calved by the 5th March and our due date was to be the 8th of February.

Grassland Management

We target to have 30% grazed by March 1st, this year we had 32% grazed. The cows were housed day and night during the storm getting out to graze last night (8th March) for the first time since the bad weather hit. The ground conditions are currently far from ideal; the melting snow has

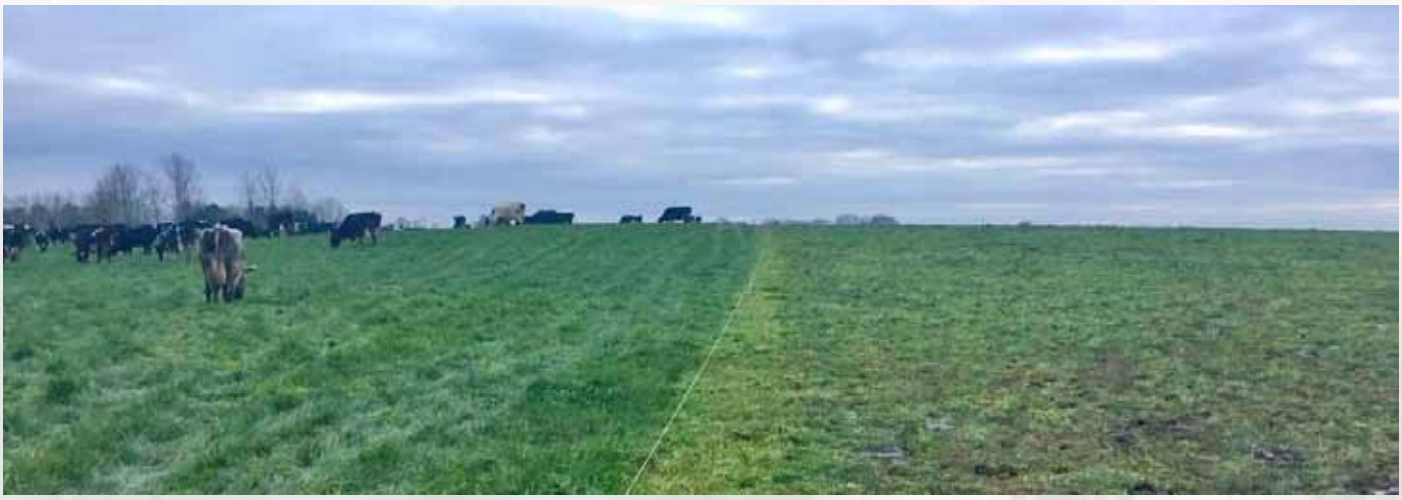


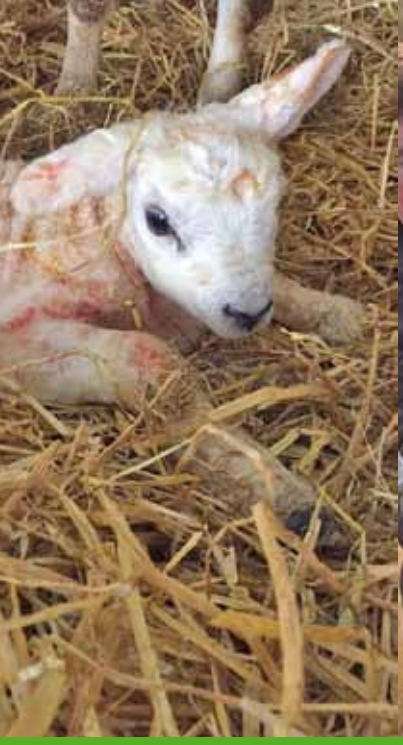
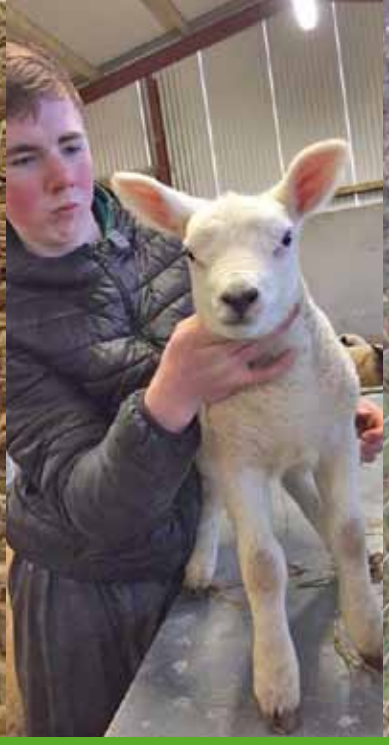
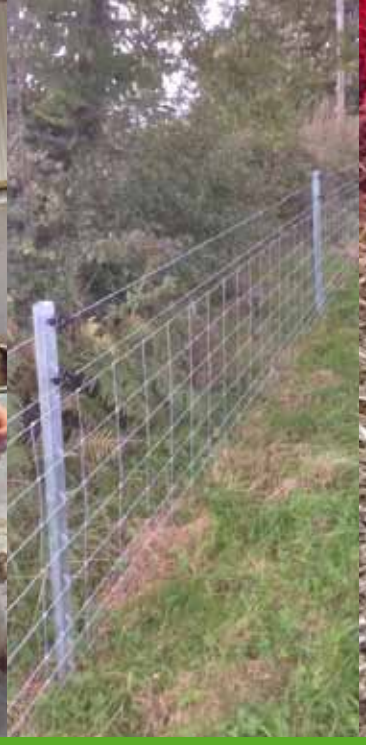
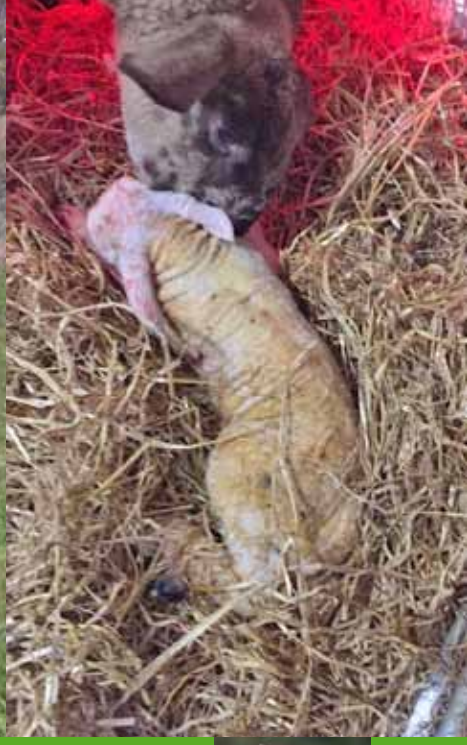
left very undesirable grazing conditions with wet ground and a lot of water logging. The guys have been very disciplined with getting the cows out to grass, on off grazing during the wetter times and always trying to get them out for as many hours of the day as possible, previous to storm Emma we had been out day and night consistently for a few weeks. We will stay on 12 hour grazing the whole way through spring to maximise utilisation and prevent damage. We generally get our first batch of calves out to grass around Paddy's weekend or just before, we are now hoping the bad weather won't hold this off too much as we like to get the first batch of calves out sooner rather than later.

We like to have space inside for the younger calves and like to give the whole shed a full clean out half way through calving to reduce the spread of bacteria.

Preparation for breeding season

We are putting a big focus on our bulling heifers this year as we found last year's bulling heifers were a weak point of ours, they came out of the shed after winter slightly under the weight we had hoped they would be and felt they were slightly behind for the majority of the year. Next on the agenda will be breeding 2018 so preparation for that will soon be underway!



A Year in my Wellies

Dwayne Shiels, Letterkenny, Co. Donegal

Farming a lowland sheep flock just outside Letterkenny, with my father George and brother Gerard. I am also a second year PhD student with Teagasc Athenry, SRUC in Scotland and the University of Edinburgh. I'm carrying out research on ewe and lamb behaviours in the periparturient period, and their effects on lamb mortality and subsequent lamb performance.

A busy & difficult spring

Spring has been both busy and difficult so far, despite weather being unfavourable and adding to the workload it has been a very productive start to 2018. My trial: "Ewe age at lambing versus previous lambing experience" started at Teagasc Athenry in early February and I am also relief milking for a local dairy farmer in Athenry since last October, not to mention the busy spring at home.

The year began with ewes returning from their winter grazing in early January for housing. This allowed the ewes grazing at home to stay out an extra two weeks to clean off the last of the fields to be closed. Ewes were housed and dosed for liver fluke using Flukiver. Although all ewes were in exceptional condition, I treated them again 4 weeks later using Trodax as I was worried about the very wet autumn we had and the high incidence of fluke nationally. I also erected 1000m of Clipex fencing under the TAMS scheme in early January on the land away from the house. This was a job that had been put off for a number of years and was glad to finally get around to it.

Next on the agenda was scanning the mid- season lambing ewes in mid-January. Although scanning percentage is back slightly on last year. These ewes have still scanned very well at 1.92 lambs per ewe joined with the ram. This included ewe lambs, and we had a total of 5 barren. This can be mainly attributed to the prolificacy of the Milford ewe and coupled with a good flush of grass available last November at mating.

Lambing finished in early February for the pedigree Texel ewes, pedigree embryos and a few commercial ewes that we hope to produce some lambs for the summer shows from. The pedigree lambs are around 6 weeks old now and are all performing well. Over all I am very happy with this year's crop of lambs so far with the quality far exceeding previous years. The ewes lambed very well with minimal loses. The investment in proven female lines is definitely starting to pay dividends.

The two rams we purchased last year have 'clicked' well with our ewes and exceeded our expectations. These ewes and lambs were finally let out to grass with some almost a month old in late February, and had to be housed again for a few days as 'the beast from the east' brought a very cold spell at the end of the month. We had plenty of grass available but with unfavourable weather conditions I decided they were better off inside. This has proved to work out well, we took our 40 day weights for Sheep Ireland performance recording and some single lambs are doing between 400-500g/day.

Lambs are being creep fed and will continue to be for the summer until sale time comes around. I have drenched these lambs with a Growvite mineral drench and gave them their first shot of Heptivac-P on the first of March and received their white wormer for Nematodirus last weekend (12th of March). This is a dangerous period for all lambs 6-10 weeks that are starting to graze more grass now. The mild weather following the sharp cold spell there is ideal conditions for a hatch.

The attention now turns to lambing the Milford and commercial ewes. These will begin to lamb from the 1st of April onwards, two weeks later than normal as I have a trial as part of my PhD running in Athenry during the month of March. We are expecting a few busy days as I decided to sponge the ewes this year to tighten the lambing spread. I worked out very well with 85% of them holding to first service. While sponging offers the advantage of a compact lambing it puts pressure on labour and facilities. We will be hoping for some good weather in early April to allow immediate turnout. Preparation is key however and we are getting set up well in advance. The lambing pens have been cleaned and disinfected after the Texel ewes and are set up again ready for lambing. Easter has fallen well this year, I will be finished lambing in Athenry and Gerard will be on Easter holidays also so that will be a big help.

I started feeding these ewes three weeks ago, with sinlges, twins and triplets currently on 0.3, 0.5 and 0.7 kg/head/day respectively. We are feeding a 19% CP ewe nut containing 210g/kg of soya along with good quality haylage (76%DMD). The ewes have been given their Heptivac P shot and scraped with Scabivax for orf last weekend and I am very pleased with how they are handling.

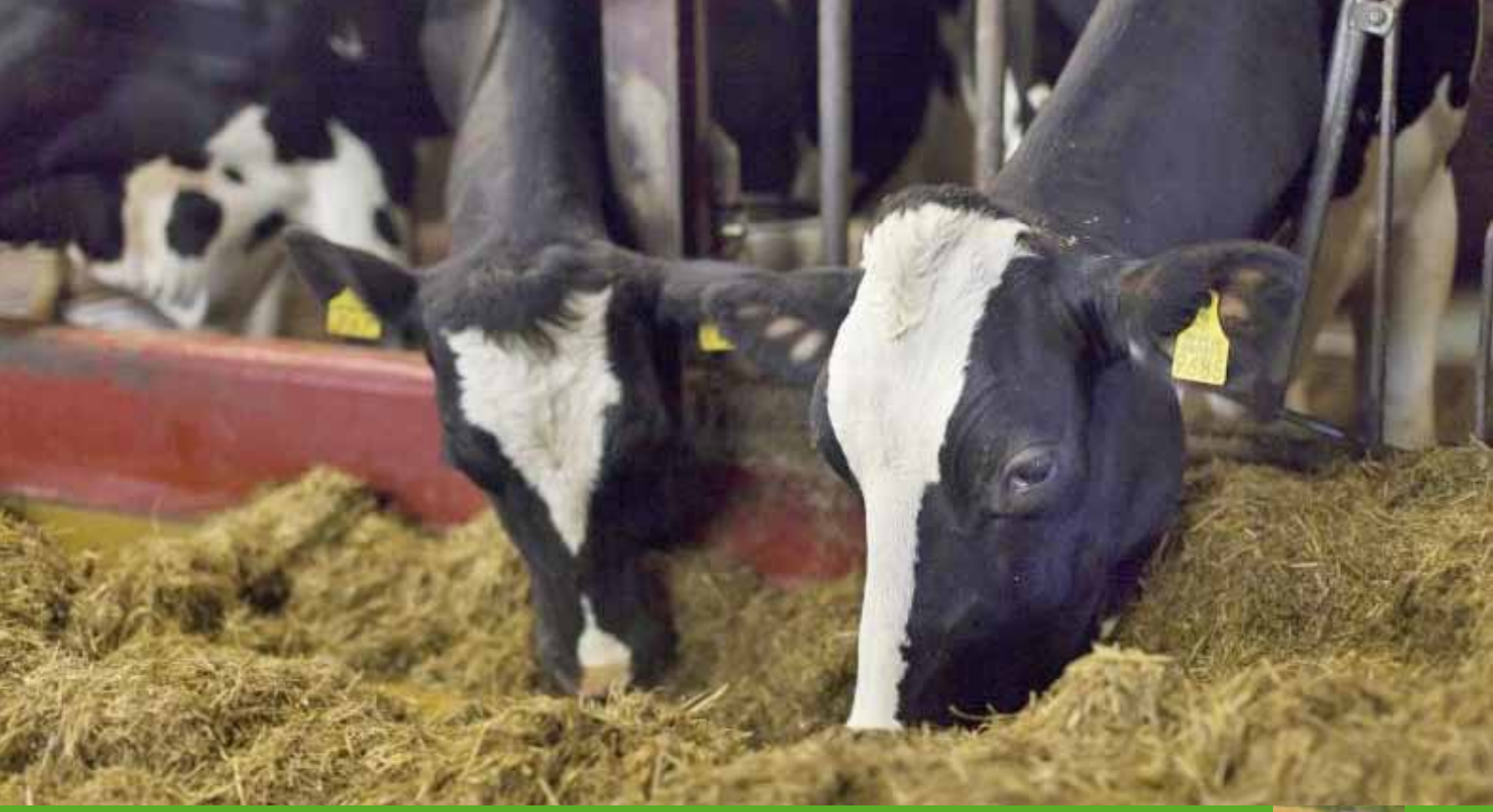
Grass growth has been poor so far this year with a very wet January and a cold February we are waiting in hope for a good March. However, with the lambing put back two weeks and the Pedigree ewes in a few weeks longer we should be ok. We applied half of a bag/acre of Urea on all grazing ground on the 24th of February. As I write, Ireland is preparing for the arrival of the 'Beast from the East'. This could bring its own problems and I was sceptical about covering all grazing ground with urea however, we are already 3 weeks later with the application compared with last year so I decided to bite the bullet. As we are expecting the majority of lambs to come in the first few days of April there will be a high demand for grass, hopefully for once we will miss the worst of the snow fall. Slurry went out on the fields that were grazed last in the Autumn and I hope to spread more soon in the fields grazed by the Texel ewes and fields which will be closed for silage.

Description	Lime requirement (t/ha)	P Index	K Index
Shed	0	4	3
Triangle Hegarty's	0	1	1
Lally's	1.25	1	1
In Front of House	0	1	2
Maisey's	2.5	1	2
Forge	1.25	2	4
Kindrum	0	1	4
Behind Cashel	2.5	1	4
Trebha	0	1	1
Part na Cloich	1.25	1	2

Ten paddocks were soil sampled (see results in table 1) at the start of February. I had to take samples last year for the GLAS scheme and found it to be a great benefit and removed any guess work. With the price of chemical fertiliser it is too costly to be going in blind and possibly applying unnecessary/ incorrect compounds. Although it has an initial cost I feel it is great value in the long run. These are mainly rented fields and I knew they were lacking slightly in P and K. This wasn't helped by a cut of silage being taken from a few of these fields in the last two years. I applied lime at 3 tonne/ per acre last year and it seemed to have a very positive result. However, the results from the samples came back suggesting I needed to put a lot more Phosphorus (P) and Potassium (K) back into these fields. Of the ten fields sampled 8 were in index 1 for P and 6 were in index 1 or 2 for K. I was slightly shocked but glad I have taken the samples now. I will price around different compound fertilisers and work out which represents the best value to help increase these indices. This will have to be built up over 2 or 3 years but I can afford to do so having the land at home all in index 3 and 4.

We have started setting up temporary fences in the last week also. This is just three strands of electric wire and we find once ewes are used to it is works very well. The ewes and their lambs will be firstly let out in small batches of 12-15 ewes per paddock for the first week or two and then ewes will be grouped. I intend to use a creep grazing system this year to give the lambs the best possible chance as lambs will be two weeks later this year and our annual breeding sale for the Milford lambs is a week earlier (27th August). Depending on grass availability creep feeding may be introduced at 5-6 weeks old to ensure lambs are in best possible shape come sale time.

First step is getting them out and hitting the ground running, so here is hoping for a dramatic change in the weather and a successful lambing.



Optimising N, P & K for Grass Silage

Mark Plunkett,
Teagasc, Johnstown Castle,
Wexford

It will be time to consider closing up silage fields over the coming days / weeks to ensure that enough grass silage is produced to meet the winter feed requirements of the animals on the farm. Plan to maximise both grass silage yield and quality to help reduce the costs associated with harvesting and ensiling the grass and to offset some of the concentrate feed costs. Careful fertiliser management is required to ensure that maximum grass yield & quality is achieved at harvest time. These target harvest dates are important in order to achieve the desired silage quality required for the livestock production system. Where silage crops are lighter than expected, there is often a temptation to allow the grass to grow and "bulk up" for an additional couple of weeks, however, this can often have detrimental effects on silage quality. In this article I will look at the N, P & K requirements for a high yielding grass silage sward.

Soil Analysis

The starting point is to check soil test reports to identify the fertility status of the silage fields. This will provide information on soil pH and lime requirement and the major plant nutrients P and K. Soil test results are the basis for making the right slurry and fertilizer application decisions in order to deliver the correct balance of N, P and K for yield.

On average silage fields tend to have lower levels of P and K for a number of reasons. Firstly, these fields are continuously cut for silage, thus large quantities of P and K's are removed each year, and secondly, these fields tend to be furthest from the farm yard and may not receive an annual application of organic manures due to the longer travel distances.

Nitrogen (N)

Nitrogen is the key driver of yield but too much N in the grass at harvest will make it difficult to ferment properly as it reduces the grass sugar levels and dry matter content. In contrast too little N will reduce grass growth and overall yield and delay harvesting date. Grass swards with high levels of perennial rye grass will use N more efficiently than older swards. Recently reseeded swards (0-3 years) will have 25% higher N demand, especially when reseeded after a tillage rotation. First cut grass silage (5 to 6t/ha of DM) will require 125 to 150 kg N/ha (100-120 units/acre). The grass silage crop will uptake, on average, 2.5kg/ha/day of N (2 units / day). Therefore, it is necessary to apply the N fertiliser at least 50 days before harvesting to ensure full N utilisation.

- Where fields received early N applications for grazing assume 30 to 50% of this N will be available and deduct from the above N total for the silage crop.

- Reseeded swards will respond better to N that old permanent swards.

Phosphorus (P) and Potassium (K)

Phosphorus and potassium are essential to maximise grass yields therefore adequate supply of these nutrients in the soil is critical. Assess the most recent (← 5 years) soil test reports to determine the P and K requirements for silage fields. A crop of grass silage will remove approximately 4kg P and 25kg K /tonne of grass dry matter (DM). A 5t/ha DM crop (fresh grass silage yield of ~10 tonnes/acre @ 20% DM) will remove 20kg P/ha and 125kg K/ha at harvest time. Where insufficient P and K are applied for silage swards, soil P and especially K levels will decline rapidly due to the high off-takes of these nutrients in the silage crop.

Organic Manures

Organic manures are an effective source of N, P & K and can provide a large proportion of crop P and K requirements at relatively low cost. Table 1 shows the available N, P & K content for a range of organic manures.

Table 1:
Available N, P K values for a range of organic manures

Manure type	N	P	K
kg/m³			
Cattle Slurry (7% DM)[1]	0.7	0.6	3.3
Dilute Cattle Slurry (3.5% DM)[1]	0.6	0.3	1.65
Pig Slurry (4% DM)	2.1	0.8	2.2
kg/tonne			
Farmyard manure (FYM)	1.35	1.2	6
Spent mushroom compost (SMC)	1.6	1.5	8

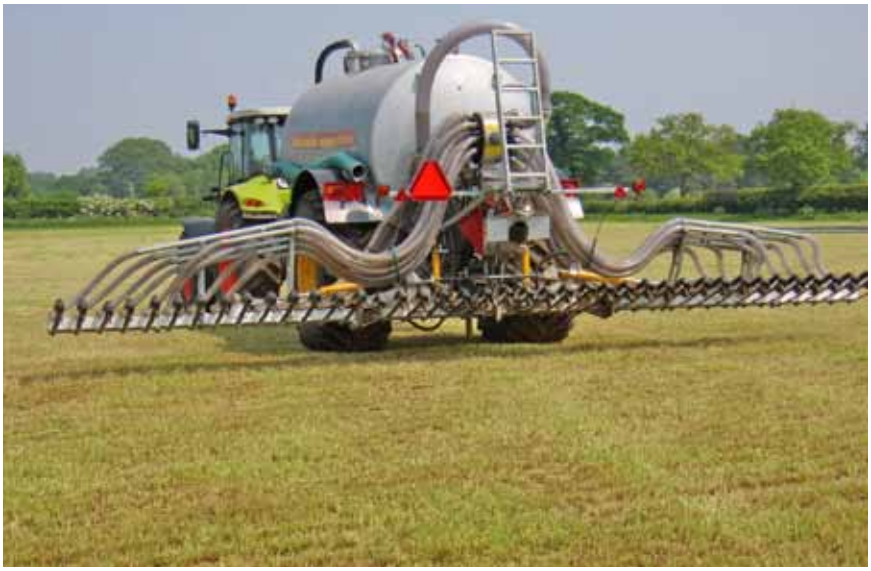
[1] Actual N, P & K value for cattle slurry.
To convert kg/ m³ to units/1,000 multiply by 9. To convert kg/ton to units/ton multiply by 2.

Cattle slurry is the most common manure applied to silage fields and good quality cattle slurry (7% DM) has the correct ratio of P to K for to match silage crop requirements. Diluting cattle slurry with water is beneficial for ease of agitation and can help to improve the N availability in the slurry; however it will also dilute the P and K content of the slurry.

Table 1 shows the typical available N, P & K values for a typical 7% DM and dilute (3.5% DM) cattle slurry. It is important to take account of slurry DM content when considering appropriate application rates to reduce the risk of under fertilizing silage crops. The slurry hydrometer is a useful tool than can be used to measure the DM% of your slurry and to predict the nutrient content more accurately. Once you know how much N-P-K you are applying in slurry you will be able to select a suitable fertilizer type to complement or top up these nutrients levels to the required levels to maximise grass yield (see table 2).

For example 3,000 gallons per acre of good quality cattle slurry (7% DM) will supply (19 units N, 15 units P & 90 units K) a large proportion of the crops P and K requirements. Cattle slurry contains N which needs to be deducted from the total crops N requirement. Table 2 shows the recommended rates of N, P & K and suggested fertilizer programmes at different soil P & K indexes (1 to 4) required to grow 5t/ha grass dry matter (10 tonnes fresh grass / acre).

- Apply slurry to very bare stubble or short grass
- Where slurry cannot be applied for 1st cut apply after silage harvest.
- Application of cattle slurry with trailing shoe / band spreader will increase N recovery by 0.4 kg/m³.



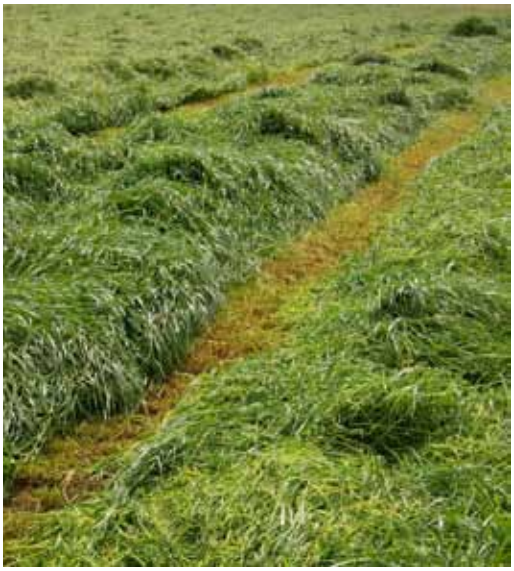


Table 2:- 1st Cut Grass Silage N, P & K Requirements (5t/ha DM) & Suggested Fertilizer Programmes					
Soil Index	N kg/ha (units/ac)	P kg/ha (units/ac)	K kg/ha (units/ ac)	Fertilizer Options[3, 4]	
				No Slurry[1]	Cattle Slurry 3,000gal/ac
1[1]	125 (100)	40 (32)	175 (140)	4.0 bags/ac 13-6-20 1.75 bags/ac CAN	3 bags/ac 27-2.5-5.0
2[1]	125 (100)	30 (24)	155 (120)	3.5 bags/ac 13-6-20 2 bags/ac CAN	3 bags/ac 27-2.5-5.0
3	125 (100)	20 (16)	125 (100)	3.0 bags/ac 13-6-20 2.25 bags/ac CAN	3 bags/ac CAN
4[2]	125 (100)	0	0	4 bags/ac CAN	3 bags/ac CAN

[1]Index 1 & 2 soils apply P & K balance to build soil P & K levels to after grass for example apply as 24-2.5-10 / 0-7-30 / Cattle slurry
[2]Index 4 soils omit P for 2/3 years & retest, Index 4 K omit for 1 year and revert to index 3 advice thereafter until next soil test.
[3]Urea can replace CAN as main N source. Moderate rainfall (up to >5 mm) after application will reduce N losses from urea.
[4]For new / older swards with higher / lower yield potential reduce N, P, K by 25 kg N, 4kgP & 25kg K per tonne of grass dry matter (DM)

Timing of N, P & K application

Apply crop N, P & K requirements when closing silage fields in late March / early April. Where cattle slurry is applied, delay the top-up fertilizer applications for 1 week. In wetter soil conditions fertilizer N can be split 50:50 for example 50% in late March / early April and the remainder 2 weeks later to reduce the risk of N losses.

Building soil P & K for future silage production

Where the soil P and K status of silage fields has been worn down over a number of years, put a plan in place to build these up and restore their high grass yield potential. Apply additional P and K (soil build-up rates) to index 1 and 2 soils after 1st cut silage, or later in summer. For example fertilizer products such as straight Super P (16% P) or Muriate of Potash (50% K), or compounds such as 0-7-30, 10-10-20, 13-6-20 etc. are very suitable for building soil P and K levels to the target index 3. This strategy will generally take a number of years (moving from Index 1 to Index 3); however this will be rewarded with higher grass yields of up to 3t/ha extra dry matter which will more cover the extra cost of build-up P and K.

Don't Forget Sulphur (S)

Sulphur deficiency is most likely on light sandy & free draining soils with low soil organic matter levels. Grass silage crops have a requirement of ~20kg S/ha per cut. The application of S to soils where it is required will improve grass DM yields and quality as it helps to maintain an optimum N:S ratio which will improve the efficiency of N use by the grass. Apply S with the main N split as N +S (e.g. CAN +S / Urea +S).

Nitrates review delivers derogation, supports improved soil fertility, but increased requirement on farmers.

Thomas Ryan.
Environment Executive, Irish Farmers' Association.

In recent weeks Agriculture Minister Michael Creed T.D. and Environment Minister Eoghan Murphy T.D. announced that the EU Commission had formally granted the continuation of Ireland's nitrates derogation. This is positive given that two Member States lost their derogation and others are currently struggling through their negotiations.

The announcement by both Ministers is the final part of a review of the nitrates regulations. It comes after 12 months of intensive lobbying by IFA, scientific research by agencies including Teagasc and the Environmental Protection Agency, as well as technical discussions in Brussels and Dublin involving senior officials from both Ministers' departments.

An important derogation.

The derogation is important to support the sustainable development of the sector, with farmers in every county in Ireland availing of it. However, given the stringent additional compliance obligations and the higher risk of inspections it is not surprising that only 5% of farmers actually farm in derogation each year. New compliance obligations attached to the Ministers' announcement include a requirement that 50% of all slurry produced on a derogation farm must be applied by the 15 th? June each year. After this date, slurry may only be applied using low emission equipment. Derogation farmers must also have sufficient storage for livestock manure and soiled water produced on their holdings.

Hungry soils.

Soils in Ireland are nutrient hungry, Teagasc has highlighted that only 10% of soils have good overall fertility levels. To address this, the nitrates reviews will now allow farms with a stocking rate of greater than 130kg nitrogen per hectare and at index 1 to spread an extra 30kg phosphorous per hectare per year. Farms at this stocking rate, where fields are at index 2, will be allowed to spread an extra 20kg phosphorous per hectare per year. These measures are part of a four year programme, which will also include requirements for farmers who avail of these new build up rates to complete nutrient management plans and participate in a Knowledge Transfer Programme.

All soils to be sampled.

Regardless of stocking rates, all farmers are now required to have a maximum soil sample area of 5 hectares every four years. Farmers with a higher stocking rate of greater than 170kg nitrogen per hectare will, from 1st January 2021, be required to put in place fencing 1.5m from the top of watercourse banks, to exclude bovines from watercourses, with water trough set back of at least 20m from watercourses. In addition, from 1st January 2021 all farmers will be required to direct runoff from farm roadways away from water courses.

Farmers must fully inform themselves on implications of Directive review. Changes have taken place, the 'derogation' remains, genuine attempts have been made to address poor soil fertility levels. But there are strings attached. It is important for farmers to go to the Knowledge Transfer events and get nutrient plans done. The true value of the roadways and fencing off livestock remains to be seen, but the costs on farms to comply with these are real and tangible. Teagasc, ACA members and advisors are available and fully informed on the implications of the changes in the Directive. They should be consulted by farmers to go through the finer detail of this review as individual farms will have significantly different soil fertility levels and the infrastructure necessary to comply with the new restrictions contained in the Nitrates Derogation Review will vary widely from farm to farm. The best advice is that farmers should inform themselves fully as there is too much money being lost each year during on-farm inspections.

The derogation is important to support the sustainable development of the sector, with farmers in every county in Ireland availing of it.

Grass and White Clover Recommended List Varieties 2018

David Cummins,
Crop Evaluation & Certification Division,
Department of Agriculture, Food and the Marine

Perennial Ryegrass (PRG), Italian Ryegrass and White Clover account for nearly all of the agricultural grass/clover seed sold in Ireland. Of these, Perennial Ryegrass is by far the most important. Other species of grass and clover are not commonly used.

Crop Evaluation and Certification Division of the Department of Agriculture, Food and the Marine (DAFM) are responsible for evaluating new varieties of grass and clover in Ireland.

To market an agricultural crop variety in the EU, it must be registered in the National Catalogue of at least one EU Member State and the seed must be certified. These catalogues must be drawn up in accordance with uniform rules so that the varieties accepted will be distinct, stable and sufficiently uniform (DUS) and that they will be of satisfactory value for cultivation and use (VCU).

Each year DAFM test over 100 varieties of grass and clover for VCU in replicated trials at five locations throughout the country. All new candidate varieties are tested against existing commercial Recommended List varieties over a minimum of two sowing years, with each sowing harvested for two years, giving a total of four harvest years. Trials are grown on good quality soils in a manner conducive to selection of varieties most suited to good commercial farming practices.

Crop Evaluation and Certification Division of DAFM published the Grass and White Clover Recommended List of Varieties for 2018 in February. There are seven new varieties of Perennial Ryegrass and one new Large-Leafed White Clover.

New varieties of Perennial Ryegrass on the 2018 Recommended List

*Variety Name	Maturity & Ploidy	Heading Date	Breeder
Moira	Inter Diploid	25th May	AFBI (NI)
Astonconqueror	Inter Diploid	26th May	DSV (DE)
Aberzeus	Inter Diploid	29th May	IBERS (UK)
Abergreen	Inter Diploid	30th May	IBERS (UK)
Elysium	Inter Tetraploid	26th May	Teagasc (IE)
Aberlee	Late Diploid	12th June	IBERS (UK)
Aberbite	Late Tetraploid	6th June	IBERS (UK)

*Listed in order of Maturity, Ploidy and Heading Date

New variety of White Clover on the 2018 Recommended List

Variety Name	Leaf Size	Clover %	Breeder
Dublin	Large	50%	Teagasc (IE)

The List is now available for free download from the 'Publications' section on the Department's website: http://www.agriculture.gov.ie/publications/2018/

Outclassed grass varieties removed from the Recommended List are the Intermediate Diploid Boyne and the Intermediate Tetraploid Magician. The three Late Diploid varieties Piccadilly, Tyrella and Stefani along with the Late Tetraploid Delphin have also been removed.

General Purpose and Simulated Grazing Data

Perennial ryegrass (Intermediate and Late heading groups) trials are sown in May/June and establish during the remainder of that year. The trials are then assessed over the following two-year period under two different systems; a 6 cut system and an 8 to 10 cut system, using a trial-plot harvesting machine. Individual trials remain on one system for the two-year period. The 6 cut system is also referred to as the General Purpose/2-Cut Silage system and involves one spring grazing cut, followed by two silage cuts and then three grazing cuts. Results from the 2003 to 2015 sowings of this trial are presented in the Main Tables of the 2018 Recommended List.

The 8 – 10 cut system is referred to as the Simulated Grazing (frequent cutting) system and involves that number of cuts taken at periods corresponding to normal commercial rotational grazing practice. This system was introduced by DAFM in its 2010 sowings. Its purpose is to provide variety performance data suitable for situations where grass is grazed throughout the growing season. Results from the

2010 to 2015 sowings of this trial are presented in the Main Tables of the Recommended List.

Intermediate and Late Perennial Ryegrass varieties have been evaluated using the Teagasc Pasture Profit Index (PPI) model. The PPI model assigns monetary values to the following traits: DM yield (broken down to spring, summer and autumn), silage yields, quality and persistency. Please note that due consideration should be given to these traits when choosing a variety. There are two sets of tables for Perennial Ryegrass on the Recommended List. The first table lists the varieties from highest overall PPI to lowest PPI. The second table lists the varieties by maturity (heading date) and ploidy (Intermediate or Late).

White Clover Varieties

There are now 12 varieties of White Clover on the Recommended List, including; 3 Large-Leafed, 6 Medium-Leafed and 3 Small Leafed. White clover varieties are sown in a mixture with a companion perennial ryegrass variety in May/June, and following an establishment year are assessed over the subsequent two years under a 6-7 cut system. White clovers are tested under a low fertiliser nitrogen input regime, where the total yearly application is 50kg Nitrogen per hectare (50kg N/ha) applied in the spring. Sheep grazing for one day immediately following cutting was introduced for the 2010 sowings onwards across two trial sites.

Farmers should give preference to recommended varieties unless there is strong evidence that some other variety is more suited to their conditions.

Using Recommended List varieties to reseed old and degraded pasture, in conjunction with appropriate soil pH and fertility will:

- ✓ Increase grass dry matter output per hectare,
- ✓ Improve response to fertiliser, especially Nitrogen,
- ✓ Extend the grazing season in spring and autumn,
- ✓ Improve animal performance, and
- ✓ Increase profits.

DAFM 2018 Recommended Intermediate, Late and White Clover varieties are presented in the following tables. For a complete list of Recommended List varieties please refer to the Department's website: http://www.agriculture.gov.ie/publications/2018/

Recommended White Clover Varieties 2018

Variety Name	Total Yield	Leaf Size*	Clover %	Year 1st Listed	Breeder
[1]*Control Mean (t DM/ha): 9.8 t DM/Ha*					
Barblanca	**105**	Large (0.76)	50	2009	Barenbrug
Alice	**99**	Large (0.73)	50	1995	IBERS
Dublin	**102**	Large (0.73)	50	2018	Teagasc
Chieftain	**98**	Medium (0.68)	47	2005	Teagasc
Buddy	**100**	Medium (0.58)	45	2015	Teagasc
Avoca	**102**	Medium (0.58)	47	1995	Teagasc
Iona	**94**	Medium (0.56)	44	2014	Teagasc
Crusader	**95**	Medium(0.56)	42	2009	Barenbrug
Aberherald	**97**	Medium (0.55)	45	2003	IBERS
Coolfin	**104**	Small (0.51)	47	2017	Teagasc
Galway	**95**	Small (0.36)	38	2017	Teagasc
Aberace	**95**	Small (0.26)	33	2016	IBERS

[1]Controls in 2014 Trial were Barblanca, Alice, Chieftain and Crusader.

*Values in brackets indicate leaf size compared to the variety 'Aran' (i.e. Aran = 1.00), based on data from UK D.U.S. tests.

Calculating Grazing Stocking Rate on Spring Drystock Farms

Christy Watson
IGA Council Member
& Teagasc B & T Advisor.

One of the essential pieces of information needed for good grassland management is the grassland stocking rate on the grazing area, by stocking rate I mean the kilos of animal live weight per hectare. With this information a farmer can calculate daily grass demand in kilos of grass dry matter per hectare, which can then be compared against daily grass growth to aid decision making regarding grassland management.

Importance of grass measurement

If grass growth is being measured weekly on the farm then accurate management decisions can be made regarding fertilizer use or closing of paddocks. However even on farms where grass growth is not being measured, it is essential to know daily grass demand. If a farmer is not measuring grass but knows the daily demand then this figure can be compared against weekly grass growth figures published in farming media. This leaves the farmer in a position to make more enlightened decisions regarding grass management on the farm. I am only dealing here with dry stock farms and also concentrating on the grazing area excluding silage area during the months April to June. This is because this is the period of most rapid grass growth and therefore the period when grass can get out of control very quickly. If as a grassland farmer you do not know how much grass you need to meet animal requirements, how can you make any meaningful decision regarding fertilizer usage or if you need to take out paddocks for ensiling?

Calculating stocking rates

It is necessary to have a simple system of calculating stocking rate which has a clear meaning for the farmer, which clearly shows how much grass that farmer needs to grow to meet the needs of grazing livestock. To calculate daily grass demand the dry stock farmer just needs a few bits of basic information as follows.

1. The area of grassland being grazed from April to June in hectares- make sure to exclude the area of fields closed for first cut silage.
2. The number and types of livestock being grazed on the farm.
3. Average weight of livestock within each category.

This type of information is readily known to the dry stock farmer and does not require a lot of thought, all the better if the actual weight of the animals is known, but a good estimate of average weight should suffice. Table 1 below shows an example of how to calculate the stocking rate for a 37 ha all grass Suckler farm, 20 hectares is closed for first cut silage so the area being grazed during the period April to June is 17 ha.

Table 1. Calculating *Stocking Rate*

Grazing Area April to June	(Excluding Silage Area)		Ha 17 (A)
Livestock	Av Number(B)	Av Weight (C)	Total Live weight (D) Kgs (B X C)
Suckler Cows	30	620	18600
Cattle 0-1 Yrs	30	100	3000
Cattle 1- 2 yrs	30	350	10500
Cattle+ 2 yrs	1	750	750
Total Live weight			32,850
Stocking Rate on Grazing Area Kg live weight/ha		(D/A)	**1,932 kg/ha**

We can see in Table 1 that for our farmer with 30 Suckler cows and their calves along with one Breeding bull and 30 yearlings on a grazing platform of 17 ha (42 acres) the stocking rate is 1,932 kgs of live weight per ha. We now know the stocking rate on the grazing platform, and we also know that the animal requires 2% of its bodyweight in dry matter intake. In this case as no supplements are fed at grass the total animal feed requirement must come from grazed grass. Daily grass demand on this farm is 2% of 1,932 which is 38.64 kgs/ha, at 80% utilisation this farmer needs to grow 48 kgs of grass each day to meet demand. If there are sheep on the farm you can add approximately 4 kg grass dry

matter required per day for a ewe suckling two lambs.

So for this farmer we now have that essential number i.e. how much grass has to be grown each day to meet demand. This information allows our example farmer (if he is measuring grass) to compare the amount that is being grown to the daily requirement. In this case daily demand is not very high at 48 kgs and if grass is growing at 60 kg/day then the farmer knows that surplus grass is being grown and steps need to be taken to remove surpluses or reduce Nitrogen applications.

What if I don't measure grass?

For the farmer who is not measuring grass, knowing daily grass demand is equally important. This farmer can look at the published grass growth for each week of the year and use that information to make grassland management decisions. Every dry stock farmer needs to do this calculation if they are serious about managing grass at a very critical time of the year, it is a very simple calculation to complete. I find this exercise very worthwhile with discussion group meetings held in early April a critical time for getting your grassland management on track and keeping it there. I find even within groups, the variation in Spring / early Summer stocking rate is enormous. The calculations for one of my discussion groups is shown in Table 2.

Table 2. Discussion group calculation of Stocking Rate and Grass Demand

Farmer	Grazing Area April to June (Ha)	S/R Kgs lu/ha	Grass Supply Needed to meet demand Kg/ha/day	Grass to be grown to meet demand @ 80% utilisation kg/ha/day
1	65	1500	30	38
2	110	1136	23	29
3	40	1620	32	40
4	63	1100	22	28
5	56	2129	43	54
6	76	2631	53	66
7	25	1720	34	43
8	30	1776	36	45
9	31	1503	30	38
10	156	1800	36	45

The data in Table 2 shows the huge variation in the stocking rate or kgs of live weight being carried on the grazing area for this group. This demonstrates the need for this calculation to be completed for each individual farm. Some farms need to grow as little as 28 kgs grass per ha per day and will struggle to keep quality right if they do not take out the inevitable surpluses that will arise on the farm. But at least by doing this calculation in early spring they are alerted to this impending situation. For many low stocked farms, they will be growing twice the amount of grass they require. For the farms stocked heavier such as farmer 6 they will need to grow 66 kgs grass per day. This alerts the farmer that grass demand is high and management needs to be good in order to ensure grass supply meets demand. In reality grassland management for the heavier stocked farms is easier than for farms operating at low stocking rates where surplus grass will be a constant headache while trying to keep quality right.

Table 3 Calculate your grazing stocking rate.

Grazing Area April to June	(Excluding Silage Area)		Ha (A)
Livestock	Av Number (B)	Av Weight (C)	Total Live weight (D) Kgs (B X C)
Suckler Cows			18600
Cattle 0-1 Yrs			3000
Cattle 1-2 yrs			10500
Cattle+ 2 yrs			750
Total Live weight			32,850
Stocking Rate on Grazing Area Kg live weight/ha		(D/A)	_____ kg/ha

So why not calculate how much grass you need to grow on your farm?

By inputting the livestock numbers, weights and grazing hectares for your farm into Table 3, you can generate that very important figure for your farm. Once you have the stocking rate for your farm in kg live weight per ha then simply get 2% of that and you have the amount of grass your livestock require to eat per hectare per day. Add 20% to that figure to take account of utilisation and you now have the figure for the amount of grass you need to grow daily on each grazing ha to meet grass demand for your livestock.

For example, after you do your calculations your stocking rate is 2,000 kgs live weight per ha, 2% of this figure is 40 kgs which is what your stock will eat daily, and to take account of wastage add 20% to this figure to get 48 which is the kgs of grass dry matter you need to grow daily to meet demand.

Measuring grass silage yields pre harvest

Christy Watson
IGA Council Member
& Teagasc B & T Advisor.

The main influence on the cost of producing silage is yield. The higher the yield the lower the cost of production per ton. However, a compromise is often necessary between yield and quality. If a crop has headed out, continuing to wait for an acceptable yield can result in a reduction in quality. Achieving good yields of silage is a priority for all livestock systems regardless of stocking rate. This is particularly true with first cut silage as it is invariably cheaper to produce than subsequent cuts. If a field is performing poorly with low growth rates, waiting until an acceptable yield is achieved can lead to poor quality silage being produced. Poor quality silage increases winter feeding costs as extra concentrate feeding is necessary or else livestock weight gain is compromised. When advisers or farmers are preparing winter feed budgets, silage pits are measured to estimate the amount of tons available for winter feeding. This measurement will give an estimate of total tonnage harvested and ensiled from all silage fields. Unfortunately, this yield estimate is after the event and does not give us any indication of the yield from different fields. This is fine for a winter feed budget but does not give any management information early on in the growing season.

Measure silage yields prior to harvest

So why not be proactive and measure the silage yield in each field prior to cutting? After all, when measuring grazing paddocks, in excess of 10 yield measurements are taken over the grazing season, and an estimate is only made of silage yields. I find that silage yields in general are compared to the preceding season. Often comments are made such as "*This year's yield was better or worse than last year*". Inevitably small incremental drops in yield are missed. For instance, if over a five year period yields are dropping say by 5% per year. This is a drop of a quarter in yield over the period but is not quite noticed when seen in the context of the annual drop. This is despite the fact that this is a very substantial drop in yield indicating that something serious is going on.

Benefits of measuring grass silage yields pre-cutting are.

1. The yield of each silage field is known prior to cutting, so the performing and non performing fields are identified, and remedial action can be taken.
2. We now have numbers to indicate yield as opposed to talking about good, average or bad yields, which essentially are meaningless terms. For instance, if you were stopped for speeding you might like to know how fast you were going and might not accept an answer that you were going "Too fast", certainly in court this would not be acceptable, however a specific number would be essential.
3. So now a farmer knows the yield before he cuts his silage and can plan a winter feed budget before the silage is even cut. The area required to cut for second cut silage is known before the first cut is taken, allowing for any deficit in winter feed to be corrected early on in the growing season.
4. We can now express yield with a number as opposed to describing yield in meaningless terms such as good, average or poor. So we now can put numbers on what is an acceptable yield, and compare the yield in each field to an acceptable target yield.
5. Probably one of the best discussion group meetings is the one in late May where I take groups of farmers from field to field measuring the yield in the standing silage crop. We then have a discussion on the measured yield and work out possible reasons for the wide variation in yield we frequently encounter across fields.Some of the causes of poor yields discussed are.
    a. Soil Fertility, especially Potassium (K) which is invariably low in many silage fields, as result of large off takes of K in a silage situation.
    b. Soil pH., has big influence on yield, since acidic soils result in very inefficient use of applied fertilizer. Some of the most spectacular yield responses I have seen were where lime was applied to acidic soils in silage fields with yields measured pre and post liming.
    c. Nitrogen usage, silage has a high requirement for Nitrogen fertilizer, some farmers are expecting good silage yields from very low applications of Nitrogen as low as 60-70 units/acre.
6. Once we measure the yield in the field at a particular time, and know what yield is required, we can predict the expected cutting date by using current grass growth rates.
7. Sometimes when yields measured in the field are poor and we have identified the cause, with crops that are headed out it is recommended to cut the crop and rectify the problem for future cuts.

How to measure silage yields:

Equipment required

Quadrat 0.5 m square (0.25 m^2), Shears, Scales, bags.

Methodology

The crop should be measured for yield and also a representative sample taken for analysis for dry matter and ensilability.

Sampling

One measurement of yield should be taken per hectare of the silage area. If the silage ground fields differ (i.e. ryegrass vs. old pasture, wet vs. dry ground, different closing dates etc), then the intensity of sampling to achieve the same crude estimate of yield may need to increase. Take the measurement / sample diagonally across the field and avoid gateways, proximity to water troughs/feeding areas/ pathways, under trees etc.

A grab of each of the cuts should be retained and from this composite samplee, a single representative sample taken for dry matter and ensilability analysis.

To obtain the measured yield:

A 0.25 m^2 quadrat is cut to 5 cm (mowing height). The herbage is placed in a plastic bag, weighed on a hand-held scales and the yield is then calculated, knowing the dry matter content.

The yield per hectare is calculated as follows:

Yield (kg DM/ha) = Fresh weight (g) x DM % x 0.4

Example

Size of quadrat = 0.25 m^2
Weight of grass in quadrat = 977 grams
Dry matter content of grass =16%
Yield (kg DM/ha) = 977 * 16 * 0.4 = 6,253 kg DM/ha

Or Fresh Weight 15.6 tonnes/acre

It is a reasonable target that a minimum acceptable utilisable yield for first cut silage is 5 tonnes of dry matter per ha (10 tons/acre of settled silage in the pit at 20% dry matter).

If we assume that a Minimum utilisable Silage Yield is 5t DM / ha (10 tonnes silage@20% DM/acre). Then what should the weight of fresh grass in our quadrat be to meet this target and allow harvesting of silage to take place? Taking into account field losses and losses during ensiling and feed out the weight of grass in the quadrat area needs to be 977 grams if we assume fresh grass dry matter is 16%, so about 1 kg of fresh grass in the quadrat. Be careful relying on this measurement in wet crops as grass dry matter will be low and you will get an unreliable high yield as much of what you are weighing is just water, so weighing must be done on reasonably dry grass. If I encounter very wet fields I cut the grass in the quadrat and weigh it, but retain the sample and place it under cover for few hours to dry out surface moisture and reweigh, to ensure that I am not getting a distorted yield because of surface moisture on the grass.

Indeed, by weighing wet grass and then shaking off surface moisture and then reweighing it, one can see how many tonnes of water is on the crop. This can be quite large in some cases and indicates the benefit of getting a quick wilt. So we now have some figures to work with and also some decisions to make.

Possible scenarios that can occur after measuring silage yields in the field pre-cutting.

Scenario 1

We have a measured yield in the quadrat of an average of approximately 1,000 grams. This means we have reached acceptable yield, provided that ensilability tests show sugar content is satisfactory, and buffering capacity is low. We are good to go and harvest the silage crop.

Scenario 2

Big variation in yield between fields. Some are at target yield others are well behind. Some farmers faced with this dilemma have decided to cut if grass has reached maturity and fields have had adequate time to reach an acceptable yield. A decision to cut additional second cut might be taken to make up any shortfall in winter feed, but at least the problem has been identified early in the grass growing season. The reason for poor yield in some fields has to be investigated and remedial action taken. In all cases when this situation arises an investigation has shown up the reasons for poor performance. It is very rewarding to go back to the same farm the following season and measure yields in fields where remedial action has been taken and yields are back to normal.

Conclusion

When silage yields are measured you generally get a mixed bag of results across silage fields on the same farm. But now the farmer is armed with facts and a figure to benchmark the performance of silage fields on the farm. By measuring yields every year, farmers can pick up trends arising in yields and correct in time any negative movement in silage yields. If silage crops do not reach an acceptable yield within a reasonable time scale farmers are tempted to wait extra time and as a result quality declines and extra winter feed costs are incurred. Measuring grass silage yields pre-cutting is a very simple exercise that gives the farmer very valuable time critical information and allows informed management decisions to be made.

Checking the silage pit for the coming season

Tom Ryan
Farm Buildings Specialist,
Teagasc (retired)

Over the next while take time to check the silage pit for defects that make control and collection of effluent difficult. It is not easy to decide on the best course of action unless a careful assessment is carried out.

Having used the pit for years you have a fairly good idea of what might be wrong. The main thing is not to rush the repair/replacement work until careful assessment of the problems and solutions is carried out. Consider putting the silage in another pit, if available, or make bales in order to free up the pit, making more time for the work.

Wilting the silage will allow any work to be postponed giving time to organise funds and plan the work properly. The pit may be too small and in the wrong place in the farmyard. Many pits are too small for present stock numbers making them unsafe when filling and emptying. They are more difficult to cover effectively resulting in a lot more waste silage.

Building a replacement pit in a new site can be done without affecting the existing one and will free up the old pit or its site for other uses. Locate the new pit convenient to the feed passageways, being mindful of safety and work efficiency in the farmyard.

Checking for defects

In order to check the pit fully it should be thoroughly washed down and joints, cracks and channels power hosed. What defects are you looking out for? Cracked and broken concrete is very common, particularly towards the front of the pit or in the concrete area in front of the pit. The cause of this is usually due to poor compaction of the hardcore material when the pit was originally constructed. If loose fill is allowed to settle naturally the concrete cracks under the weight of machinery and the whole lot subsides. If the soil is soft and weak under the hardcore material it can have the same result. The cracking in turn makes matters worse by allowing effluent to seep through, softening the ground underneath even more.

Cracks develop in new concrete slabs where joints are omitted or incorrectly formed. A joint is formed in the concrete to produce a crack in a straight line - easy to seal, whereas, a crack that develops by itself zigzags all over the place making it difficult or almost impossible to seal.

Structural stability

You are ultimately trying to determine is the slab structurally sound, is it gone beyond repair, should it be over-slabbed or would replacing particularly bad sections be sufficient. If there are a lot of cracks present, it will be obvious the slab is structurally unsound. One can test for structural stability by bouncing a fencing post on the slab. If you hear a hollow sound then this indicates subsidence and a poor foundation, whereas, a floor with full support and no cracks will emit a sharper thud. Pouring a new slab over an unsound floor is not recommended because the same problems will start to crop in the over-slab in no time. I'm not a fan of overslabbing because the levels and the channels will be difficult and costly to get right. There is a chance, as well, that cracks will develop in the over-slab directly above cracks and joints in the old slab underneath.

Build new silage pits to a high standard

New silage slabs and walls must be built to a high standard. Carefully follow the Dept. specifications S128, S120 and S100. The main elements are:

- Remove topsoil and lay graded hardcore. Lay the hardcore to the same gradient needed in the finished floor. Compact the hardcore with a vibrating roller to a finished depth of at least 150 mm. Any soft spots should be excavated and filled with hardcore and compacted in 150mm layers. Failure to compact the hardcore material adequately will lead to subsidence and lack of support for the slab and channels, causing cracking of the concrete under the weight of machinery. This problem cannot be rectified once the slab is completed and will undoubtedly shorten its lifespan. Purchased fill must have a certificate if used in a grant aided job.
- Blind the compacted hardcore with sand or other blinding dust and run the vibrating roller over it to bed it in. Lay a sheet of 1000 gauge polythene on the finished foundation
- Order "S100 mix A" which is essentially 45N20 concrete and insist on concrete manufacturer's

certificate (see Dept. specification S100 for more details). More certificates are required for grant purposes – see relevant specifications and TAMS 2 documentation. Site mixed concrete is not allowed for grant purposes.

- Place and compact the concrete to a finished depth of 125 mm. The concrete must be thickened to at least 150mm under the base of the channels. The slab and under channels must be compacted using a vibrating screed and poker vibrator. Joints should be formed as recommended (see S128). Cure the concrete by covering with a new sheet of polythene for 7 days to prevent premature drying out.

- Laying concrete is regarded as simple yet all too often defects from poor workmanship can be seen.

Replacing a section of the floor slab

Timely work will prevent more costly repairs in future. If sections of the floor have subsided and cracked it is only necessary to break out and replace the affected concrete. Use a concrete road saw or hand-held con-saw to avoid unnecessary damage to sound concrete and to provide straight cut edges to make it easy to seal the joints between old and new sections. Remove the old concrete and hardcore. Any soggy and blackened subsoil will have to be dug out and filled with new hardcore material. Compact the hardcore material with vibrating roller, and bring it up to within 125mm (5 inches) of the finished floor level. Placing a thicker layer of hardcore and concrete where the new joins the old makes it a better job. All the other recommendations above that apply to new silage bases also apply to this renewed section of slab.

Silage pit walls

Silage pit walls have to support heavy loads, so preventing corrosion of the reinforcing steel in the wall, especially at the base of the wall, is essential. Corroded steel at the base of the wall, if left unattended to, will ultimately mean the wall will have to be replaced. There is also possibility that the wall could fail under load. This is a safety risk too great to take. If the foundation is poor or the soil under the wall is soft the wall can tilt or shift out sideways.

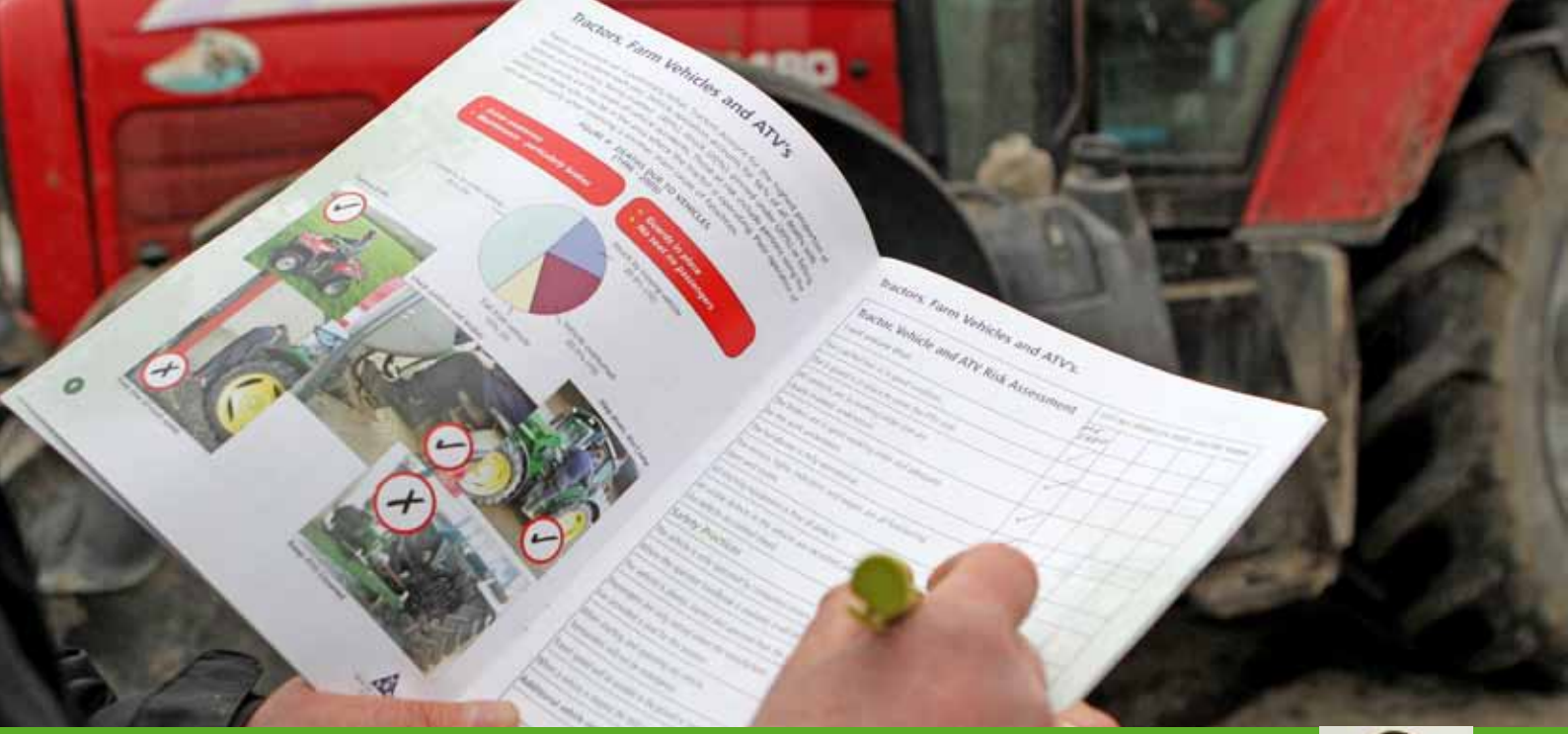
Other things to look out for are effluent leaking out through the wall at cracks, joints or snap-tie holes. Also look for evidence of effluent spilling out over the top of walls because of overfilling or poor pit drainage. Cracks wider at the top than the bottom can mean a section of wall has subsided. A ledge or height difference either side of a wall crack can mean that one section of the wall has moved relative to the other.

Surface damage of the wall due to silage effluent is usually evident too. The true extent of this damage can only be seen after thorough power hosing. It will look a lot worse after power hosing, so there is no point in power hosing it unless the whole wall or worst affected areas (low down on the wall and at the wall floor joint) are being plastered. A scud coat and two coats of plaster can work well if done properly. The surface must be cleaned back to sound concrete. It is good to use a bonding agent in the scud coat. A wooden float finish is best. An effluent resistant paint applied when the plaster has cured will provide added protection of the surface.

As long as the walls are structurally sound, there is no need to rush repairs as lining the wall and the floor beside the wall (out about a metre) with polythene will contain effluent and prevent further damage. A land drainage pipe laid on the polythene at the butt of the wall (or in a channel) will provide good drainage, as will wilting.

Silage effluent channels

Silage pits must have channels to collect and drain away the effluent. An un-walled silage base must have channels on all four sides. The most important features of any channel are that it has a vertical edge to intercept effluent and a fall to carry it away. Silage effluent should enter the channels under the polythene silage cover and the edge of the ensiled grass should not extend onto or over a channel. Open space to allow effluent to flow along the channel is ensured by placing a plastic drainage pipe in the channel. Effluent is piped from the lowest point of the channels to a storage tank via sealed uPVC sewer pipes. The one downside of this system is that as well as conveying effluent away from the silage, it can also allow air gain entry. So, meticulous sealing of where the polythene cover meets the concrete is essential. Tyres alone are not good enough for this job because they won't provide a continuous seal, whereas a line of gravel bags will. The gravel bags also exert more weight per unit area than tyres. There is another quite common issue with tyres. I have noticed on many farms in the last year that tyres are quite rotten and the steel bead wire is exposed and rusted, which can break off and could end up in the silage as it is fed out to animals. Have a good look at the tyres you use to cover the silage pit and do not use any with exposed bead wire. Consider substituting these tyres with a combination of purpose made silage pit bags, mats, gravel bags and nets.



Avoid becoming a farm fatality statistic this summer

Dr Aoife Osborne,
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Since 1989 there has been approximately 527 farm fatalities in Ireland in the 28 year period. Last year, a total of 24 deaths were recorded in agriculture resulting in it having the highest number of deaths of any sector for 8 years in a row. Elderly farmers have been highlighted as the most at risk population with 14 killed last year while working.

Trends from the last nine years indicate that nearly 50% of farming fatalities are due to tractors, farm vehicles and machinery. With the main causes reported being crushed, trapped and struck by. Increases in fatality numbers can be seen from May to September, peaking in the months of July and August. This highlights the increased risk on farms around summer time especially during periods and activities where farm vehicles and machinery are being used regularly.

Here are some suggestions on how to avoid accidents and injuries this summer time when using farm vehicles and machinery which could result in a safer summer for you and your family.

Safe use of farm vehicles and machinery

There is a legal onus on the driver to assess the risks on a job before the work starts and periodically as it progresses. In order to protect you the operator, or others working with you, from the risk of injury it is always important to check that:

- The machine is suitable for the job.
- All machinery controls are working properly.
- That is has been fully serviced by someone competent.
- You have looked at the site. For example, low power lines, hidden ditches or stumps in long grass, children in the area, slippery surfaces or steep slopes.
- You are up to the job and are not tired before even starting.
- You are familiar with all of the controls.
- You are wearing suitable clothes, PPE and boots.
- You know enough to do this job safely.
- You don't start the job unless everything is in place.

In nearly all tractor and machinery accidents there is one common factor, the driver. The driver is ultimately in control and makes the decision on how to approach and do the work. If the basic rules are followed by a competent driver then most accidents will not occur. Therefore, the safe use of farm vehicles and machinery depends on four critical factors:

1. The competency of the driver or operator- age, training, workload factors like stress and tiredness, perception of risk, clothing and footwear.
2. The safety of the machine – its maintenance and safety features, guarding, hydraulic power, speed.
3. The wider environment – yard vs field vs road. Factors such as slopes, drains and ditches, proximity of children or elderly, the weather, direction of sun, passengers or even soil conditions.

4. The system of work - Is it planned or does it just happen? Are the basic rules of safe work considered and followed?

If any one of these is not correct then safety will be compromised.

Safe operating procedures

The "Safe Stop" procedure is easy to follow and if fully implemented the "Safe Stop" procedure would by itself eliminate most crushing, shearing and entanglement machinery injuries and deaths around farm yards. Always apply the 'Safe Stop' procedure before leaving the seat of the tractor or other machine.

It is important for all operators to:

1. Bring the tractor and machine to a stop.
2. Disengage the gearbox and the drives – whether PTO or Hydraulic.
3. Apply the handbrake firmly.
4. Lower implements to the ground.
5. Switch off, remove the key.
6. Only now it is safe for you and others around you to get off.

The only exceptions should be where the drive needs to be left running, as in a Slurry Agitator or pump, an irrigation pump or a generator.

Quad bikes (ATV's):

Quad bikes have become very popular on farms in recent years. They are useful machines, however they have been involved in many serious and fatal farm accidents. Head injuries or being crushed under the Quad are the most common cause of death. It is essential that anyone riding a Quad wears a suitable helmet and is trained to drive safely. Before operating it is important to always check the Quads tyre pressures along with its brakes and throttle. A difference of only 1-psi (0.07 kg/cm 2) in tyre pressure can cause vehicle control problems. To ensure brakes and throttle are working correctly make sure brakes give a safe straight stop and the throttle operates smoothly in all steering positions before carrying out work.

Most accidents with Quads are caused by:

- Excessive speed.
- Overturning on steep slopes or rough terrain.
- Towing excessive or awkward loads.
- Driver is lacking in training or experience.
- Carrying passengers.
- Lack of regular maintenance.

Quads, unless registered with the Revenue Commissioners cannot legally be used on a public road. Where registration is granted, the vehicle must be taxed, insured and driven by a licensed driver when used on public roads. The vehicle must also comply with the Road Traffic Legislation that applies to all vehicles using the public road which can be obtained from the Vehicle Standards Section of the Road Safety Authority (www.rsa.ie).

Children safety with farm vehicles and machinery

It is important to set clear ground rules when it comes to children with farm vehicles and machinery. Teaching them about the risks from an early age is vital. It is also important to make sure and always remove keys, leave controls in neutral, apply the handbrake and lock unattended vehicles. Please also remember that:

- Children under the age of 14 must not be allowed to drive or operate tractors or mechanically propelled machines such as Teleporters, Jeeps, Quad's etc. In addition to this, a child or young person aged 14 or over should only be permitted to drive a tractor or mechanically propelled machine on the farm if they have attended a formal training course run by a competent training provider.
- Children between the ages of 7 and 16 may only ride on a tractor provided the tractor is fitted with a properly designed and fitted passenger seat (with seat belts) inside a safety cab or frame. Children under the age of 7 must not be present inside the cab of a tractor or machinery which is in use whether an instructor/passenger seat is provided or not.

Knowing where your children are at all times is vital. A safe secure play area for children can help ensure that they do not enter the farm unsupervised.

Training and risk assessment

Continuing professional education in agriculture is important to update your knowledge and skills related to your professional life. Formal training courses are provided to clients and non-clients by organisations such as Teagasc (www.teagasc.ie) and the FRS Network (www.frstraining.com).

At the beginning of each year it is important to review your farm safety Risk Assessment document. Identifying hazards and taking remedial action, combined with adopting safe behaviour, are the proven ways of reducing farm accident risk. Teagasc holds half –day risk assessment training courses throughout the country and bookings can be made at any Teagasc office.

Note: The document 'Guidance on the Safe Use of Tractors and Machinery on Farms' was used to inform this passage, this can be viewed in its entirety on www.hsa.ie.

Irish Grassland Association

DATES FOR YOUR DIARY

Grazing Infrastructure Event

25th April 2018

Sheep Conference and Farm Walk

22nd May 2018

Beef Conference and Farm Walk

24th May 2018

Dairy Summer Tour

24th July 2018

Annual General Meeting

6th September 2018

Student Conference and Farm Walk

8th October 2018

Dairy Conference

9th January 2019

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