Irish Grassland Association

Members' Information Booklet Issue No. 45 July 2020

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

Irish Grassland Association

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Corporate membership commences on the 1st January annually.
Standard membership is deducted from all IGA members via direct debit on an annual basis.

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Editorial

Matt O'Keeffe
Editor and
IGA Council Member

Welcome to the Irish Grassland Association Summer 2020 Information Booklet. In normal times we would include introductions to our Beef, Dairy and Sheep Summer Farm Walks. Because of ongoing Covid 19 restrictions we are instead running a series of Virtual Farm Tours, returning to various farms the IGA has visited in past years. The online programme across July and August will include previous farm developments, current practices and future plans. All participation details are provided inside these pages.

Elsewhere in this Information Booklet we have a series of relevant technical articles, farm profiles across a range of grass-based enterprises and a provocative piece of research on dairy EBI carried out by Matt Ryan, the recipient of our IGA Lifetime Merit Award.

Our ongoing Archive series, profiling past presidents of the Irish Grassland Association, highlights the career of Dr. Henry Kennedy, who held the IGA presidency in 1954-55. We have also included a speech by Dr. Kennedy which he delivered over eighty years ago at the Social Order Summer School held at Clongowes Wood College in 1938. The sentiments expressed in the speech are worth repeating. The same priorities identified then are equally relevant today – improving grassland productivity, raising soil fertility, lifting stocking rates.

I thank everyone who contributed to our Summer 2020 IGA Information Booklet and most especially our IGA Manager Maura and the members of the Editorial Team on the IGA Council. I wish all our members well and trust that you will enjoy reading our latest publication.

SUGGESTIONS & FEEDBACK PLEASE!

If you have any suggestions for the newsletter or any particular topics or features you would like us to include in our forthcoming issues of the newsletter please send via email to office@irishgrassland.ie We would love to hear from you!

Paul Hyland IGA President 2019/2020 welcomed Matthew Halpin Beef Farmer and Irish Farmers Journal, Ed Payne Dairy Farmer, Mike Egan Teagasc, Vincent Griffith Aurivo and Niall Claffey Agrilandto his team at the 2019 AGM.

IGA Annual General Meeting

Maura Callery
IGA Office Manager

The Irish Grassland Association (IGA) AGM is scheduled to take place in early September. As this is a good time away and lots of changes are occurring with Covid19 restrictions, we are hoping that it will be possible for this meeting to be held in person in a hotel premises. Due to the logistical challenges in hosting events at present, it is paramount to register your interest if you wish to come by emailing the office office@irishgrassland.ie no later than 13th July 2020. A roundup of the year's activities will be presented by the outgoing President Paul Hyland and we will also welcome the new incoming President Stan Lalor into office.

Each year a small number of seats on our council can become available to be filled through election on foot of existing council members terms expiring. Last September we welcomed five new faces to our council namely, Matthew Halpin, Ed Payne, Niall Claffey, Mike Egan and Vincent Griffith. They were elected to seats that were vacated by Emer Kennedy, Adam Woods, Bernard Ging, Rosalyn Drew and Cathal McCormack.

IGA Annual Membership will be deducted from September. All fully paid up members of the Irish Grassland Association for the previous term are eligible to be nominated for election. If you wish to put your name forward this year for election to our council, then please contact us to express your interest by emailing office@irishgrassland.ie no later than 9am Friday 31st July 2020 with your supporting nominations. (Constitutionally we also need to receive two supporting nominations for you in writing from two current Irish Grassland Association members).

We have had a very large volume of farming families involved in bringing our summer event showcases to you. We would like to take this opportunity on behalf of our President and Council to thank everyone involved in running these virtual events. We would also like to thank you, our loyal farming and corporate members for your continued support.

We hope that you are all safe and well and we are really looking forward to meeting you all very soon again.

Virtual Beef Summer Tour

Christy Watson
IGA Council member
and Teagasc Naas

As a consequence of Covid restrictions, the 2020 IGA Beef farm walk is taking a slightly different approach for 2020 where we are inviting each of you to relax and enjoy revisiting three of our previous host farmers through a virtual, online showcase.

This year on the week beginning 27th July, we will be releasing a selection of video footage through the Irish Grassland Association website (https://www.irishgrassland.ie/) and across our social media channels (Facebook @ Irish Grassland Association – IGA; Twitter @IrishGrassland) where we will be revisiting three of our previous host farmers; Paul Turley our host farmer from 2011, farms in Downpatrick, Tom Halpin is farming in Co. Meath and hosted the IGA beef event in 2017 and the O'Connor family partnership from Kildare were our hosts in 2018.

Thus far 2020 has thrown each of us many challenges, but we will bring you a snippet of how each of these farmers and their farming systems have progressed and changed since we last visited them. I am sure you will find it very interesting to see how these three excellent farms have changed and developed in order to cope with the challenges that face beef farmers, and to get their views on where they see their farm going over the next few years.

Jan Jensma IGA Past President and Yara making a presentation to The O'Connor Family

O'Connor Farm

Christy Watson
IGA Council member and
Teagasc Drystock Adviser

In June 2018 the Irish Grassland Association visited the O Connor farm near the village of Moone in South Kildare. The farm is run as a partnership by Monica, Tom and their son Thomas. It is a truly mixed farm with four enterprises comprising Beef, Sheep, Tillage and Pigs. In 2015 Thomas was the winner of the FBD Young Beef Farmer of the Year Award. The beef enterprise then was consisted of 90 Suckler cows with all male progeny finished as bulls under16 months and heifers at 21 months, with 200 additional cattle purchased for finishing, including 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. The 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, and up 100 heifers are grazed together in one group. Grassland management was excellent with all the farm laid out in 2 ha paddocks, with the provision for subdivision of all paddocks. On our visit to the to the O`Connor farm in 2018 we saw the three pillars that supported high output on the farm - Breeding, Grassland Management, Livestock Management. The O`Connors were 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.

2020 Update

The sheep enterprise has expanded to a flock of 250 Breeding Ewes, with plans to increase the flock to 300 ewes. No changes have been made to the Tillage area, the Pig enterprise also remains unchanged. The cattle enterprise has seen changes with 20 fewer Suckler cows in the herd partly due to a bull fertility problem necessitating increased culling within the herd. Fewer store cattle have been purchased due to the herd being TB restricted and also in a planned approach to meet the Organic Nitrogen reductions necessary to comply with the BEAM scheme. The O`Connors have invested in their beef enterprise with the building of a 6-bay slatted suckler house with a lie back, calving pens and two feed passages. In order to reduce labour input and in the interests of safe handling of livestock a new state-of-the-art cattle handling unit was built incorporating a circular forcing pen, drafting/ handling pens and weighing facility with Bluetooth-compatible clock to enable reading of EID tags. Due to the drought that prevailed in May/June, bulls were put onto finishing rations earlier in order to maintain rotation length and average farm cover. In order to achieve better utilisation of nutrients in slurry a dribble-bar was fitted onto the existing slurry tank. This also enables the O' Connors to spread slurry onto the grazing paddocks and reduce chemical nitrogen usage, while at the same time reducing ammonia emissions. Chemical fertilizer use has changed with protected urea the product of choice to further reduce ammonia emissions while reducing fertilizer costs. As if Thomas was not already busy on an intensive livestock/tillage farm and involvement with Macra, he has taken on the role of IFA County Chairman for Kildare/West Wicklow.

Regarding future plans the O Connors intend to increase ewe numbers further to 300 breeding ewes. Once the farm becomes clear of TB and the BEAM reduction period has passed the suckler cow numbers will go back up to 90 cows along with a resumption of normal cattle finishing numbers. All cattle will be EID-tagged to facilitate efficient and safe capture of cattle performance and allow rapid interpretation of weighing results.

Paul Turley Beef Farmer

Turley Farm

Niall Claffey
IGA council member and
AgriLand beef specialist

In 2005 Paul Turley, who farms in Downpatrick, Co. Down, had an important decision to make – whether to continue with his small-scale store-to-beef operation or to drive on and develop a farming system that increased the holding's bottom line. Deciding to run with the latter, Paul – continuing to work part-time – turned to running a suckler-to-beef enterprise, slaughtering all progeny with the exception of replacement heifers, which were sold at 12-14 months-of-age.

For this to work, Paul needed a fertile cow that would: look after herself; have a good temperament; calve unassisted; have a good milk yield; and produce progeny suited to a simple grass-based system. After studying various breeding strategies, the decision was made to go for an Aberdeen Angus cow bred from a British Friesian herd. These heifers and cows were then crossed back to pedigree Aberdeen Angus sires.

"We were prepared to sacrifice half a grade in confirmation at slaughter to have the extra milk," Paul explained.

In the time from 2005 to 2011, when the farm hosted the Irish Grassland Association (IGA) Beef Tour in July, Paul built the herd up to 115 spring-calving cows and grew the size of the farm to 80ha – focusing on maximising the gain from grass and minimising labour.

With this in mind, the breeding programme was simple. The calving date was designed to follow the grass growth curve on the farm. The Co. Down native only calved cows for nine weeks and had no problem selling any in-calf cows that were due to calve outside this window. This tight-calving spread led to increased levels of output and reduced labour on the farm.

After the grazing season, calves were weaned in the month of December and – at an average age of 9.5 months – steers would weigh 360kg, while their female counterparts would weigh 330kg. This represented impressive weaning weights from a milk and grass-based diet only.

Once weaning was complete, both cows and weanlings were out-wintered, with weanlings carried on kale over this period; cows were also fed on kale and had access to wood-chip pads. As mentioned, replacement heifers were typically sold off the farm for breeding at 12 months-of-age weighing approximately 380kg. Heifers not suitable for breeding were brought to beef and slaughtered off grass at an average age of 17.5 months – typically from July onwards. Steers also followed this production system. The average carcass weight stood at 315kg, with exceptional animals hitting 380kg. Approximately 50% of the progeny graded R, while the remaining 50% graded O+.

This was – and still is – a low-cost system of farming, with the cheapest resource available – grass – playing a pivotal role and excluding the need for expensive concentrates. The fact that all animals are out-wintered – and with only minimal machinery kept on the holding – fixed costs are also kept to a minimum.

"The quad bike is the most important piece of equipment on the farm. We have one good tractor with some grassland management equipment such as a fertiliser spinner; that's all we need," he said. "Everything else is contracted out, shared or hired in."

In the intervening period from 2011 until now, Paul has upped the ante and the farm has undergone some noticeable changes. Fuelled by the return of his son, Frank, to the farm both men are now home full-time. This has paved the way for a more intensive system, but never strays away from the grass-based production model.

Where there was scope for grassland management and grazing facilities to be improved, measures have now been put in place, with a full rotational-grazing system employed, accommodating paddocks, fencing and water troughs. Also, regular grass measuring takes place on a weekly basis and every four-to-five days during critical periods; this leads to better utilisation (of grass) and better management decisions on the farm.

The cow type on the farm is largely the same – an Aberdeen Angus from a British Friesian herd. However, Paul notes that the sourcing of the 'right' cow has become increasingly difficult. As a result, Paul and Frank use some of their home-bred heifers as replacements leading to a three-quarter Angus; one quarter British Friesian-type cow in some instances.

However, while the cow-type remained largely unchanged, new genetics were introduced to a proportion of the herd in 2016 – Wagyu, with the first calves hitting the ground in 2017.

"The decision was market led and we always chase a premium. We started looking at other options and I thought Wagyu could work well here with the suckler image. It's worked well to date, but it has been a very steep learning curve," he added.

Paul has now secured a contract with a retailer and beef processor for a year-round supply of Wagyu beef, so an autumn-calving system is also operated on the farm now, with the first of these calving in 2020. While a proportion of Angus cattle are still finished on the farm, the plan going forward is to move to a 100% Wagyu system. The first Wagyu steers slaughtered off the farm hit a 360-370kg carcass weight at 26 months, while heifers had an average carcass weight of 320kg at 27 months. The farm now spans across some 162ha and 180 cows were inseminated this spring through a fixed-time AI programme.

"The Wagyu system is a work-in-progress, but it is showing promise, or we would have backed out of it already," he concluded.

Adam Woods IGA Past Council Member / Beef Chairperson and Irish Farmers Journal making a presentation to Tom Halpin

Halpin Farm

Matthew Halpin
IGA Council member and
Irish Farmers Journal

The Irish Grassland Association is revisiting Halpin family farm in Co Meath this summer, as part of its virtual farm walk series. Run by Tom, in partnership with his son Matthew, the farm comprises 160ac of free-draining grassland situated in one block. The farm is devoted to a suckler cow-to-beef enterprise with the fundamental objective being to maximize animal performance through good grassland management and high-quality, continental genetics.

Farm Walk
In July 2017, the Halpin family farm hosted an afternoon farm walk as part of the Irish Grassland Association's Beef Open Day. The walk immediately followed a morning Beef Conference which took place in the Headfort Arms Hotel in the nearby town of Kells. While there have been some substantial changes on the farm since then, many key aspects of the operation have stayed exactly the same.

For instance, in the last three years the farm's core system has remained untouched. Male progeny are brought to under 16-month bull beef, while suitable female progeny are retained as replacements and surplus females are brought to beef at 20 to 22 months of age. The breeding strategy on the farm is also unchanged in the last three years, with Charolais, Limousin and Simmental genetics in equal use to maximise hybrid-vigour which serves to benefit both the future 'cow-makers' being born on the farm, and indeed the beef bulls destined for slaughter. Cow numbers are relatively unchanged with 97 calving in 2020.

Consolidated calving period
In 2017, attendees to the farm walk would have learned about the farm's split-calving system, whereby 60% of the herd calved in February and March and the remaining 40% were calved in June and July. However, in the last three years, and after careful consideration, the herd has been in transition to 100% spring calving. Indeed, Spring 2020 was the first year in which the full herd calved down between February and April.

While the somewhat unique summer calving system had its benefits and attracted plenty of interest from visiting farmers over the years, ultimately the decision to move to all spring calving was made based on the ability to better manage the herd overall, to reduce the number of grazing groups on the farm for improved grassland management and to streamline labour at various stages of the year. It was also felt that the productivity of the Summer calving herd in relation to their incurred feed costs was significantly lower than their Spring calving counter parts, given the fact they were rearing a calf mainly indoors.

Grassland
Grazing and grassland management on the farm have also continued to evolve. During its four year participation (2012-2016) in phase two of the Teagasc/Irish Farmers Journal BETTER Farm Beef Programme, the farm dropped rented ground and opted instead to maximise grass production and utilisation and subsequent animal performance on the home block.

Attendees at the 2017 walk will have seen that infrastructure on the farm was impressive, with a total of 40 divisions already in place, with a combination of paddocks and some larger blocks for silage cutting. This has since increased to 50 divisions, with most offering the potential to be sub-divided. Soil fertility has also been under continuous improvement, with Spring 2020 soil tests indicating a 100% sufficiency in K and an 80% lime sufficiency. P levels need some more attention with some index 2's needing a push towards index 3.

At the 2017 event, it was acknowledged that reseeding was the final piece of the grassland puzzle that would be required to fully capture the potential of the land on the farm. Those wheels have since been set in motion. In August 2019, a 15ac block was reseed in a traditional plough, till and sow fashion. With more than pleasing results obtained, the plan is to reseed another 13ac block in Autumn 2020, while the longer-term objective will be to reseed the entire farm in blocks of 10-15ac each year in the autumn.

2020 Update
To date, 2020 has been a pleasing year, farming wise. The first, full Spring-calving season went well

Tom Halpin with his son Matthew

with 104 live calves on the ground from 97 calvings. An unprecedented 11 sets of twins more than offset four mortalities.

The breeding season has also drawn to a close. After being forced to cull the Simmental stock bull in 2019, that disappointment actually presented an opportunity to use AI in the herd. A batch of 34 cows were synchronized in a fixed time AI programme. Initial results were positive, with scanning showing 23 in calf to the first service and 7 held to their first repeat. A final scan is yet to be completed on the four remaining cows. The Charolais and Limousin stock bulls will be taken from their respective bunches of cows and maiden heifers on 10th July.

First cut silage was made on 2nd June with a somewhat disappointing yield due to prolonged drought conditions. The second-cut crop looks more promising. Seventy-five bales of surplus grass have been made to date, with another 5ac earmarked for cutting. Under 16 months are killing well, coming to an average carcase weight of 395kg at 15 months of age.

To learn more about what has been happening on the farm in 2020, and indeed the changes than have taken place since the Irish Grassland Association last visited in 2020, stay tuned for the three-part video series, set to be released in July.

Virtual Dairy Summer Tour set to go online this July

Stuart Childs
IGA Council member and
dairy specialist Teagasc

With restrictions prohibiting large gatherings from taking place, the Irish Grassland Association's Dairy Summer Tour will take on online format this July. Revisiting three farms that hosted the Event from 2014 to 2016, video clips from the farms airing on Twitter and Facebook from Monday to Wednesday, July 20th - 22nd will look back at where the host farmers were at the time they hosted the tour, where they are now and where they see themselves going in the future. Then on Thursday 23rd July all three hosts will join the Irish Grassland team and sponsors AIB for an online meeting to answer your questions about the direction that their farms have gone and about their plans for the future.

Commenting at the launch of this year's Summer Tour, Tadhg Buckley, Head of Agriculture, AIB said, 'We are delighted to continue our support of the Irish Grassland Association Dairy Summer Tour. The approach taken by the Association this year has been necessary in response to the global pandemic and the cancellation of large scale events. This year's event will allow us catch up with some of the previous tour hosts and see how things have changed since they hosted the Summer Tour, in terms of development, changes in performance and future strategy. The live webinar on Thursday evening will also offer the opportunity to ask our hosts any questions you may have. We at AIB are looking forward to this distinctly different 2020 Dairy Summer Tour just the same as previous tours.

We would like to thank our sponsors
AIB for their continued support
#IGADairy #BackedbyAIB

David Kerr from Ballyfin in Co. Laois hosted the event in 2014. The theme for the event was 'Successful strategies for expansion'. His strategy was based on increasing herd size from within his highly fertile dairy herd with investment in low cost slurry storage and cow accommodation. Over 450 farmers from around the country attended to hear how David operated a predominantly grass-based system of milk production on his 160 acre farm. Milking 140 cows that year, just prior to quota abolition, David also reared his replacement heifer calves but the yearling heifers were being contract reared off farm. That year the cows were on course to produce 400 kg milk solids. At a farm stocking rate of close to one cow per acre, he expected grass growth to exceed 14 tonnes of dry matter on this mixed free-draining and peaty farm.

David Kerr Dairy Farmer

Here is a throwback photo to the launch of the Dairy Summer Tour when we visited David. L-R Bernard Ging IGA Past President and Dairy Farmer, David Kerr Host Farmer, Tadhg Buckley Head of Agriculture with AIB Bank, David Hyland Past Host Farmer and Paul Hyland IGA President and Past Host Farmer.

Farming outside Oranmore, Co. Galway, **Henry Walsh** hosted the event in 2015. The farm comprised a 76 ha milking block on free draining limestone land. Henry had developed his system of farming to exploit this advantage fully and expanded the herd to milk 240 cows in 2015. This rapid expansion has brought challenges in terms of infrastructure and labour but critically had not impacted on efficiencies with cows producing 450 kg milk solids throughout the expansion process. At the time of the event, part of the plan for over wintering involved moving a combination of young stock and dry cows off the milking platform for part of the winter to graze mostly crops of deferred grass. Milking facilities had become an issue with the 16-unit parlour coming under pressure as herd size increased. In the year prior to the event, the herd produced an average of 430 kg MS/cow from 450 kg of concentrate per cow and had an 85% six-week calving rate that spring.

Henry Walsh Dairy Farmer and Bryan Hynes IGA Council Member and Dairy Farmer

Here is a throwback photo to the launch of the Dairy Summer Tour when we visited Henry. L-R Henry Walsh Host Farmer, Noel O'Toole Past Host Farmer, Tadhg Buckley Head of Agriculture with AIB Bank and Bernard Ging IGA Past President and Dairy Farmer.

In 2016 **Conor Creedon,** from Rathmore, Co. Kerry hosted the dairy summer tour on what turned out to be the warmest day in the year. With a theme of 'milk production on more challenging soils', Conor farms on an elevated site rising up to 300 metres above sea level. His farm typically receives almost 2 metres of rainfall per annum. Unusually, the milking platform has a shallow topsoil over a gravelly subsoil which, while free-draining, is hungry for lime, phosphorus and potash. Conor's milking platform was 26 ha and stocked at 3.73 cows/ha in 2016. He had a highly fertile herd with 97% of the 97 cows calving in 6 weeks He had produced 413 kg milk solids the previous year.

Conor Creedon Dairy Farmer

Here is a throwback photo to the launch of the Dairy Summer Tour when we visited Conor. L-R George Ramsbottom IGA Council Member and Teagasc, Sean O'Riordan Past Host Farmer, Conor Creedon Host Farmer and Donal Whelton, AIB Agri Advisor

'On Thursday evening Stuart Childs will host the live webinar and will interview the three hosts. He will also put audience questions that can be submitted in advance as well as during the webinar to the three farmers to further understand the direction they have taken since hosting the summer tour on their farm.

Also. on the evening, Tadhg Buckley of AIB will speak on the prospects for dairy markets in the latter half of 2020.

While this will be a different offering to our regular summer tours, we hope that you will participate by watching the videos from each farm throughout the week and then join us on Thursday evening for the live interview and Q & A with our farmer hosts and our sponsors AIB.

For more information logon to the Irish Grassland Association website and follow us on Twitter and Facebook for links to the Dairy Summer Tour online event in the coming weeks if you are not already doing so!'

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

#IGADairy #BackedbyAIB

Virtual Sheep Summer Tour

Dr. Fiona McGovern
IGA Council member and
Teagasc Athenry

Due to Covid19 restrictions, the 2020 IGA sheep farm walk is taking a slightly different approach for 2020 where we are inviting each of you to sit back, relax and enjoy revisiting three of our previous host farmers from the last decade through a virtual, online, 'event'. This year on August 20th we will be releasing a series of short video clips across our social media channels (Facebook @ Irish Grassland Association – IGA; Twitter @ IrishGrassland) and through the Irish Grassland Association website (https://www.irishgrassland.ie/) where we will revisit three of our previous host farmers; William Hutchinson, our host farmer from 2011, farms in Co. Kilkenny, Ned Morrissey is farming in Co. Waterford and hosted the IGA sheep event in 2015 and John Bell, hailing from Co. Westmeath, was our host in 2017. Thus far 2020 has thrown each of us many curve balls but we will bring you an insight into how each of these farmers is dealing with 2020 and how their farming system has progressed since our initial visit. For a taste of what is to come please read below for a preview on each of our host farmers.'

Philip Creighton IGA Past Council Member and Teagasc with Ned Morrissey

Morrissey Farm

Fiona McGovern
IGA Council member and Teagasc

Operating a highly stocked farm alongside a tillage enterprise in Co. Waterford

Ned Morrissey, our 2015 host farmer, is farming with his family in Ballybrennock, Dunhill, Co. Waterford. Ned farms a mixed sheep and tillage enterprise on approximately 100 owned acres in addition to a further 500 rented acres, which is primarily used for tillage. There are a range of crops grown on the farm including winter barley, winter wheat, spring barley, spring wheat, fodder beet and maize, although this can alternate from year to year.

Sheep flock

The sheep enterprise, based on the 100-acre owned farm block, is run as a mid-season lamb production system with the aim of finding the best balance between maximising output and reducing labour input. The flock consists of 400, mainly Suffolk X Belclare, ewes which lamb from mid-March onwards. Stocking rate on the grassland area is high at 13 ewes/ha with an equally impressive weaning rate of 1.6 lambs/ewe being regularly achieved. Grassland management is a top priority with a strong emphasis placed on utilising as much grass within the diet as possible. A paddock system and a planned reseeding programme in conjunction with the fodder beet help to maximise the use of grass on this farm.

Management strategies

There is a strong focus on reducing labour on the farm with all ewes out wintered on fodder beet during mid-pregnancy (November – January) before twin ewes are turned onto saved grass prior to lambing outdoors thus reducing the need for concentrate supplementation. Ned finds this method of out wintering plus outdoor lambing works for him but he emphasises the importance of assessing ewe body condition regularly and ensures that any thin ewes or ewes falling behind are brought indoors for additional feeding pre-lambing. All single and triplet ewes are housed pre-lambing and lambed indoors to enable cross-fostering. This is crucial as scanning litter sizes of 2.0 lambs per ewe are being achieved year in, year out. There is a strict ewe culling policy operated on the farm with all ewes that have significant lambing difficulty, health issues or fail to hold body condition identified via a tip-tag throughout the year. According to Ned this a vital as "all ewes that are tip tagged were done so for a reason so there is never a question asked over these ewes and they are removed from the flock post-weaning".

Finishing lambs

All lambs produced on the farm are either finished and sold to a local butcher or retained as replacements. Belclare and Suffolk rams are used to produce replacement females while Charollais and Texel rams are used to produce finishing lambs. Ned has also recently tried an Ile de France ram with his first lamb crop on the ground this year. Given earlier drought conditions this year lambs have been weaned approximately two weeks earlier than other years and in order to hold grass supplies for lambs, creep has been added to their diet to extend the available grass supply. While conditions haven't been ideal Ned is thankful for the lessons learned in 2018 and said it has stood to him confidently managing the situation this year.

John Bell accepting a presentation from Bernard Ging IGA Past President

Bell Farm

Ciaran Lynch
Animal and Grassland Research and Innovation Centre, Teagasc Athenry, Co. Galway

Achieving high output from a grass-based system in Co. Westmeath

John Bell is farming on the outskirts of Castletown Geoghegan, Co. Westmeath and was the host of our 2017 IGA Sheep Farm Walk. Running a sheep only system based on 42 ha of grassland, John manages a flock of 480 ewes and 130 replacements stocked at 14 ewes per hectare. The farm itself is sitting in one block on a combination of dry to more peat type soil, which John will admit has its pros and cons depending on weather conditions.

With the high stocking rate on the farm good grassland management is now at the fore of John's system. With good levels of soil fertility on the farm attention was turned to grazing infrastructure where John divided up the larger areas on the farm making good use of the TAMS grant to achieve some of the permanent divisions. He then uses temporary fencing to good effect to achieve further divisions, thus providing an economical way to achieve multiple paddocks.

Breeding programme

When it comes to breeding, good levels of animal performance are key. All lambs produced on the farm are finished or retained as replacements. On the terminal side, high index Texel, Charollais and Suffolk rams make up the team, with Belclare rams making up the maternal component. Key to the performance is a high output ewe flock. Given the numbers on the farm Johns aim is to achieve a high output ewe that will look after herself and her lambs. The ewe flock consists of a mixture of maternal and terminal genetics with Belclare sires being used in a criss-crossed pattern with the terminal sires on the farm. This policy is delivering on the ground with a combination of genetics and good management. Litter sizes of over 2.0 are commonly seen with pregnancy rates of +96% with ewes lambing from early March onwards. The ewe flocks is delivering in excess of 1.6 to 1.7 lambs reared per ewe joined on a consistent basis.

To further increase output all ewe lambs are joined each year with Charollais rams. They lamb from the end of March when the pressure is off from the main ewe flock. Unlike most farms John typically only retains the pregnant ewe lambs as he believes these are the more productive replacements, when you examine the performance there may be merit to this.

A simple system

One of the key aspects of John's farming system is keeping things simple with an aim of making the farm labour efficient, as much as possible. Whether it's the feeding of ewes in late pregnancy, lambing, drenching or the weighing of lambs throughout the season John isn't afraid to ask for help when it's needed and believes in being organised in advance in order to make the most of people's time when getting big jobs done on the farm.

The key components in Johns system that are clear to anyone who visits the farm, are to keep things simple and focus on the factors you can manage – grass and genetics, combine these with good management and you can achieve your targets.

William Hutchinson Sheep Farmer

Hutchinson Farm

Mary McEvoy
IGA Council member
and Germinal

Farming in Kells, Co. Kilkenny, 2011 Host Farmer, William Hutchinson and his family farm 120 ha of owned land with a further 27 ha leased in an adjoining block. Since 2012, there have being 2 major changes to the farm system. The move towards the Easycare breed and the bull finishing system has been replaced by a dairy heifer rearing contract.

A major objective on the Hutchinson farm is to focus on a low-cost grass-based system producing vigorous lambs in order to maintain a sustainable farming enterprise. The farm has a clay soil but tends to suffer from drought in the late spring/ early summer period, while being heavy and susceptible to poaching in winter. Changing the sheep genetics has reduced labour per ewe, while increasing lamb output to ensure a profitable and sustainable farm business into the future.

Commercial flock

The commercial flock comprised of Belclare and Suffolk cross ewes in 2012 when William hosted the IGA Sheep Farm walk. In 2011 William had purchased his first Easycare ram in order to investigate the suitability of the breed to his system. Since then the commercial flock of 550 ewes has changed almost entirely to the Easycare breed with the target of the entire flock being Easycare in the future. William cites a number of reasons for this decision: reduced labour as the breed sheds and does not need to be shorn, no requirement for treatment of flystrike, exceptional mothering ability of the ewe and the high quality of the lambs, which all grade as R's and have a higher kill out percentage than the traditional breeds. There has been growing interest from other farmers wishing to purchase Easycare ewe lambs in recent years due to the success of the breed. This spring, lambs were weaned 2-3 weeks earlier than usual, due to lower grass growth and the need to reduce demand for grass on the farm. Average lamb growth rate was 300 g/day from birth to weaning (approx. 80 days old). William attributes this to high DM % and high quality grass, no parasite challenge due to lower rainfall and as a result of the grass being tight, creep was introduced 10 days prior to weaning. As a result William noticed there was no check to lamb growth following weaning.

Pedigree flock

The pedigree flock includes three breeds: Suffolk, Texel and Ile de France, with approximately 50 ewes of each breed. It is managed similarly to the commercial flock and pedigree ewes receive no preferential treatment. No creep is fed to lambs unless where ewes are rearing triplet lambs or in a drought situation such as this year. Pedigree rams are on grass only prior to selling with no additional feed. William places a strong emphasis on animal recording in LambPlus with Sheep Ireland for both the commercial and Pedigree flocks. It provides invaluable information on his decision-making regarding breeding and selection of his replacement lambs.

Recent developments

In recent years, William has sown chicory, plantain and red clover to identify options to provide palatable crops to finishing lambs and reduce worm burdens. He explains that dry Springs at sowing have compromised the crops and he feels that going forward Autumn sown crops might yield better results on his farm. He has had success with the hybrid brassica, Redstart, which he sows in April and begins to graze in mid to late June with the heaviest ram lambs. Three to four grazings are completed with ram lambs drafted off the crop to slaughter and a further grazing is taken in February with pregnant ewe-lambs prior to sowing the field to a Spring cereal. In recent years, approximately 300 ewes are grazed off-farm during the winter on a cover crop of a nearby tillage farmer.

Virtual Farm Tour

Further detail will be provided on developments from each of the above farmers on August 20th with a series of short videos which will be released across the IGA social media accounts and on the IGA website. Please join us for an update from each of our three previous IGA Sheep Farm Walk hosts.

A Year in my Wellies

Jason Melbourne, Dairy Farmer, Co. Waterford

Early season targets met

Things have been busy, busy on the farm the last few months despite being in the middle of a global pandemic, with calving season finally done and breeding most definitely underway.

We had a very successful calving season this year. The work was shared between myself and my colleague Brendan Flynn full time and we also had help from Daire Cregg for two months during the calving. We are very impressed with the efficiency of managing to run a 270-cow farm with just over two full time labour units. As we have all seen, February was a rather wet month which undoubtedly caused some difficulties but the surprisingly dry weather from the end of March most certainly made life a lot easier. Even with this wet weather we were very fortunate to be able to keep silage out of the cows diet. This year we started the second rotation on the 2nd of April and now at the end of May we are starting into the fifth rotation. Grass growth has been very good and up to the 1st of May we have grown 4.2 tonnes/dm and have fed 200kg of meal per cow and sold 121kg/MS and are firmly on track to sell 450kg of milk solids per cow. We currently have our first cut of silage in. We cut 21% of the milking platform along with the out-block and this year we decided to take samples of the grass and have them analysed to assess the dry matter. We cut and weighed every field before it was cut and had an average yield of over 9 tonnes dm/ha. This in turn means we now have over 80% of our Winter feed saved already. We had underestimated the amount of grass that these silage crops were growing which led us to sample the dry matter and as seen above we were very pleasantly surprised with the outcome.

Working with Covid restrictions

As stated above, I am sure we are all very aware of the strange circumstances we have found ourselves in in 2020 with the lockdown in place as a result of Covid-19. However, things have remained optimistic and positive here on the farm with new additional health and safety measures put in place in the interest of both the health and safety of our staff. As a result of this milk prices have seen a drop so we have decided this year to prioritise spending in the areas that are going to provide us with the most return, which is why we decided to invest in reseeding. In our original plans for the year we had intended to reseed more however given this current situation we have decided to place our focus on the lowest performing paddocks and postpone the remainder of the reseeding of the paddocks that needed less attention until 2021. However, we are still ensuring that soil fertility is still being corrected and we are still putting out lime where needed. In the soil results we got back in January 30% of the farm was still below optimum PH therefore we spread 2 tonnes/acre on these paddocks.

An emphasis on breeding

We are very pleased with how breeding has been progressing so far with 91% submitted within the first 21 days of breeding. This year we made the decision to place a bigger emphasis on breeding and it is clear that this effort has paid off. Any cows that were thin (BCS of ←2.75) were put on once a day milking until they improved body condition or had been served. We scanned the cows early to identify non-cycling cows and any possible dirty cows (metritis) in order to treat these cows in preparation for breeding. We did 3 weeks of pre-breeding and any cows that still had tail paint left on were scanned and a once a day cohort of cows was assembled which included any dirty, non-cycling or late calving cows. This made up 16% of the total number of the cows on the farm. This year we decided to try a different strategy and we put stock bulls with these as we believed it would encourage these cows to come into heat earlier and have a better chance at going into calf. Once these cows were served they rejoined the main herd of cows and after 16 days the bulls had 80% of that group served. Our overall plan is to do six weeks of AI with the final week of AI being with the bulls to ease them into it, followed by five weeks of stock bulls. On the heifer rearing farm that I discussed in my last article breeding has gone very well with 96% of the heifers served within the PG synchronization programme. This group of animals are also ahead of target weight of 300kg for May which we are pleased with. All the heifer calves are also been reared on this farm also and we again are very satisfied with how they progressed on once-a-day feeding. They were weaned once eating over 2kg of concentrate per day.

Staying positive

In all, things have definitely been working in our favour despite the current situation we have found ourselves in. In the coming months we plan on staying positive and optimistic and focusing our attention on grass quality throughout the Summer and putting a focus on getting the farm ready for the next Winter. As the workload starts to wind down a few days holidays will be taken to make the most of the fantastic weather we are getting now at the beginning of June.

A Year in my Wellies

Peter Doyle Teagasc Grange and University College Dublin

PhD experience: Grass-fed beef

In the future beef producers and suppliers may become more reliant on marketing 100 % grass-fed beef due to its perceived 'healthiness' and 'sustainability', which may claim a premium price. Hence, this project aims to compare animal and grass growth in production systems which facilitate the production of 100 % grass-fed beef. Further, we aim to compare the physical and nutritional properties of grass-fed beef vs. concentrate-fed beef.

Due to Covid-19 restrictions, I have been working from home throughout March – June. Our planned experiments and trip to the European Grassland Federation conference in June were all subsequently postponed. I am currently analysing beef cattle and grass outputs from different experimental grazing systems that incorporated altering pre-grazing herbage masses and post-grazing sward heights during the grazing seasons of 2017, 2018 and 2019. The project is enjoyable and interesting from monitoring detailed relationships between sward structure and animal grazing behaviour and how this sward structure ultimately affects animal intake and live weight gain, grass growth, grazing rotations, stocking rates etc. The aim at the end of the summer is to get back to the laboratory, to continue to analyse grass-fed beef samples vs. concentrate-fed beef samples. It will be interesting, to determine if any positive marketing claims can be identified for grass-fed beef.

Removing concentrates from the diet can obviously make it difficult to finish suckler-bred cattle, due to reduced energy intake. Over the past 3 years, suckler-bred steers were housed for a 'second' winter and finished on silage only (75 % DMD) at 24 months of age. The 100 % grass-fed steers on average, grew at 0.57 kg/day on silage only over the second winter, and achieved a 346 kg carcass weight at 24 months of age, compared to their comrades who received silage plus 4.5 kg concentrates over the second winter only and achieved a 390 kg carcass at the same age. The ability of 100 % grass-fed steers to achieve a fat score of 2+ or greater was mainly determined by the digestibility of silage (which increased carcass weight), and breed maturity, as early-maturing cattle had a greater propensity for

PULL-OUT SUPPLEMENT

Irish Grassland Association

Complete a quick and simple fodder budget

It is important to complete a fodder budget before the winter begins. This will enable you to react quickly to a suspected fodder shortage, or to cut feed costs or build up reserves in a suspected fodder surplus. A fodder budget contains two simple steps; measure how much you need and measure how much you have.

Step 1 - How much fodder do you need?

Animal type	Number of animals	Silage required/ animal/ month (t)	Number of months to feed	Total silage (t) requirement
	A	**B**	**C**	**A x B x C**
Dairy cow		1.6		
Suckler cow		1.4		
0-1 year old		0.7		
1-2 year old		1.3		
2+ year old		1.3		
Ewe		0.15		
			Total (t)	**(D)**

Notes:
(D) equals the total tonnes of pit silage required for your stock for this winter. To convert tonnes of pit silage into bales of silage, multiply by 1.25.
The above monthly silage requirement is based on ad-lib feeding levels. Adjust this, where necessary, depending on allocation of concentrates and/or other feed stuffs
It is best practice to add a one-month buffer on to your expected feeding period for each group of stock.

Step 2 - How much fodder have you in stock?

Pit silage	Pit	Length x Bredth x Height (m)		Total (t)
	1		x 1.35	
	2		x 1.35	
	3		x 1.35	
Silage bales	**Amount**	**Weight (t)**		**Total (t)**
		0.6		
		0.7		
		0.8		
Hay bales (4x4)	**Amount**	**Every 20 bales = 16t of silage**		**Total (t)**
Feeding straw (4x4)	**Amount**	**Every 20 bales = 10t silage**		**Total (t)**
		Total silage (or equivalent) (t)		**(E)**

Notes:
(E) equals the total tonnes of silage (or silage equivalents) you have available in your yard at present.
Measure silage pit dimensions in meters. Always take the settled height of the silage pit.
Ideally, weigh a silage bale to get the exact weight. However, depending on dry matter at the time of cutting, they should weigh between 600kg and 800kg.

Compare figures (D) and (E) to determine if you have a fodder surplus or deficit facing into the coming winter.
You have now given yourself time to act early, so take the opportunity to do just that!

Irish Grassland Association
Quick Guide to Paddock Cover

Grass weight (g)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)
25	11	110	12	120	13	130	14	140	15	150
50	11	220	12	240	13	260	14	280	15	300
75	11	330	12	360	13	390	14	420	15	450
100	11	440	12	480	13	520	14	560	15	600
125	11	550	12	600	13	650	14	700	15	750
150	11	660	12	720	13	780	14	840	15	900
175	11	770	12	840	13	910	14	980	15	1050
200	11	880	12	960	13	1040	14	1120	15	1200
225	11	990	12	1080	13	1170	14	1260	15	1350
250	11	1100	12	1200	13	1300	14	1400	15	1500
275	11	1210	12	1320	13	1430	14	1540	15	1650
300	11	1320	12	1440	13	1560	14	1680	15	1800
325	11	1430	12	1560	13	1690	14	1820	15	1950
350	11	1540	12	1680	13	1820	14	1960	15	2100
375	11	1650	12	1800	13	1950	14	2100	15	2250
400	11	1760	12	1920	13	2080	14	2240	15	2400
425	11	1870	12	2040	13	2210	14	2380	15	2550
450	11	1980	12	2160	13	2340	14	2520	15	2700
475	11	2090	12	2280	13	2470	14	2660	15	2850
500	11	2200	12	2400	13	2600	14	2800	15	3000

Irish Grassland Association
Quick Guide to Paddock Cover

Grass weight (g)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)	DM %	Yield (kg DM/ha)
25	16	160	17	170	18	180	19	190	20	200
50	16	320	17	340	18	360	19	380	20	400
75	16	480	17	510	18	540	19	570	20	600
100	16	640	17	680	18	720	19	760	20	800
125	16	800	17	850	18	900	19	950	20	1000
150	16	960	17	1020	18	1080	19	1140	20	1200
175	16	1120	17	1190	18	1260	19	1330	20	1400
200	16	1280	17	1360	18	1440	19	1520	20	1600
225	16	1440	17	1530	18	1620	19	1710	20	1800
250	16	1600	17	1700	18	1800	19	1900	20	2000
275	16	1760	17	1870	18	1980	19	2090	20	2200
300	16	1920	17	2040	18	2160	19	2280	20	2400
325	16	2080	17	2210	18	2340	19	2470	20	2600
350	16	2240	17	2380	18	2520	19	2660	20	2800
375	16	2400	17	2550	18	2700	19	2850	20	3000
400	16	2560	17	2720	18	2880	19	3040	20	3200
425	16	2720	17	2890	18	3060	19	3230	20	3400
450	16	2880	17	3060	18	3240	19	3420	20	3600
475	16	3040	17	3230	18	3420	19	3610	20	3800
500	16	3200	17	3400	18	3600	19	3800	20	4000

fat deposition at a younger age compared to late-maturing cattle. Some 100% grass-fed steers that were turned out to grass for a 3rd grazing season were able to achieve a 396 kg carcass weight at 27.5 months of age (end of June).

Grassland management at home

Again, the drought is playing a major role on Irish farms, however, this year the drought has started earlier than 2018. Our farm at home is situated on high land with shallow soils and is subsequently prone to drought during the summer. Unlike other years, this spring we decided to graze heavier covers (ranging from 1700 to 2500 kg DM/ha), rather than taking them out quickly for silage. Initial results from the PhD work in Grange, suggests that increasing pre-grazing herbage mass to 2000 or 2500 kg DM/ha on beef farms in spring, increases grass growth, without any major negative impact on sward digestibility (DMD drops 1 % unit), and no negative impact on steer performance in spring, due to a slightly higher herbage intake on heavier covers that are not 'stemmy'. I believe these heavier covers helped us greatly during the soil moisture deficit in spring due to increased grass growth compared to lower covers and prevented us taking out too much ground for silage (which helped this year considering the unexpected poor growth that occurred later in spring and summer in our area), hence, helping us to maintain our grass supply up until the summer. However, this 'higher pre-grazing herbage mass' system can be harder to manage, and I believe that exceptional detailed planning is required, as a paddock taking out too late for silage at too high of a cover, can take a long time to come back into rotation, and subsequently affects grass supply in subsequent rotations. In a normal year, we would aim to bring the pre-grazing herbage mass back to approx. 1600 kg DM/ha in the summer period, to prevent the build-up of excess stem and deterioration in sward quality, before increasing it close to 2000 kg DM/ha in early-autumn to 'build-up covers'.

Weaning and finishing spring- and autumn-born bulls

On the home farm, autumn-born calves were gradually weaned over May and June to reduce the autumn cows' demand for grass. Spring-born calves will be gradually weaned over 4 weeks in October. Cows and calves are weighed at weaning as part of the BEEP scheme. Based on last year's report, results suggest that autumn-born calves were heavier than spring-born calves at the time of weaning, however, autumn-born calves were 1 month older at weaning, and when corrected for a '200-day weight', the spring-born calves were, in fact, heavier than the autumn-born calves. This is most likely due to the longer period at grass. Our first cross suckler cow from the dairy herd achieved weaning coefficients greater than 50 % (pictured), while the majority of our Limousin and Parthenaise type cows achieved weaning coefficients less than 50 %. This year I plan to monitor the subsequent carcass value between the 2 breed types at home. Last year, average '200-day weight' (and average daily gain) was 295 (1.25 kg/day) and 271 (1.15 kg/day) kg for all males and females, respectively, with no concentrates been offered before weaning. However, concentrates are introduced post-weaning for spring-born calves, as a good weanling weight without negatively impacting performance post-weaning is important to us, as it is linked to higher carcass weights in our '16 month bull system'.

Spring-born bulls are finished throughout June, July and into August (pictured). They are finished on straw plus *ad-libitum* barley ration (includes a protein balancer). In the past 3 years, spring-born bulls achieved carcass weights of 415 kg. Autumn born-bulls finished at the same age were 20 kg lighter over the past 3 years (but also finished on a slightly cheaper fodder beet-based diet). Resulting carcass value was Ð146 lower for autumn-born bulls, due to carcass weight differences and the lower market value in January and February compared to June and July over the past 3 years (- 15 c/kg). However, the 2 calving systems help to spread the workload and cash flow on the farm.

Breeding

Stock bulls ran with the spring-calving herd for 12 weeks (pictured). All cows were tail painted (pictured) and checked twice per day for signs of heat. On our farm, we are happy with our first 6-week calving rate and do not require it to increase due to labour restrictions at calving. However, in an attempt to increase overall calving rate and reduce the spread of 'lax' calving in the last 6 weeks, cows that showed no signs of heat after 6 weeks of breeding, were scanned, and corrective measures taking.

‘We can’t control the price of beef; all we can control is the cost inside the farm gate’

Niall Claffey, IGA council member and AgriLand beef specialist

Farming 5km from the Meath town of Dunshaughlin, Ronan Hughes manages a beef-finishing enterprise, consisting mainly of early-maturing steers and heifers. The system is simple – maximise liveweight gain through grazed grass, avoiding the need for expensive concentrates where possible.

However, this was not always the system run on the farm. Up until last year, continental bull weanlings were purchased and brought to beef under 16 months and under 22 months-of-age after an intensive indoor feeding period. Due to the rising cost of this system of production, Ronan is now focused on growing and utilising more grass and, therefore, keeping feed costs to a minimum.

“We are now trying to utilise what we have on this farm as much as we can; everything that comes in the gate is an additional cost,” Ronan explained.

Predominantly, 50 Aberdeen Angus-cross and Hereford-cross weanling steers and heifers are purchased during the backend of the year weighing approximately 240kg. These animals are fed top-quality silage (72-75% DMD) over the first winter and offered a low amount of a high-protein ration. Where animals are housed for a second winter, top-quality silage is fed along with a small amount of meal that is front-loaded before being pulled at Christmas.

In addition, Aberdeen Angus and Hereford steers and heifers - weighing approximately 470kg and 420kg respectively – are purchased in February or March for the oncoming grazing season. Naturally, some animals are slaughtered under 24 months-of-age, while others are finished at 25-26 months. All going well, some 230 steers and heifers will be finished on the farm in 2020, with 42 animals – mainly heifers – slaughtered off a grass-only diet to date.

In terms of slaughter performance, in 2019, average carcass weights for steers stood at 335kg and 318kg for heifers. Additionally, conformation grades vary from O= to O+, with the odd R-grading animal.

Animals are sourced both off-farm (50%) and from livestock marts (50%) and a proactive approach is taken to herd health following the ‘prevention is better than cure’ mantra, with vaccination programmes for all animals employed, along with an adequate dosing regime.

“The majority of cattle we purchase come out of sheds after the winter. We don’t know anything about them so everything would go through a strict herd health plan in conjunction with our vet.”

Getting the most from grazed grass

The grazing platform spans across 39.2ha, consisting of roughly 1ha sized paddocks. A new and improved water system was installed 18 months ago – with strategically placed water troughs - providing flexibility when it comes to utilising more grass. The platform is split into farmlets with each mob rotationally grazed across each one; mob size is dictated by the time of year, with 50 cattle per mob a common sight.

The farm is not the driest, or the heaviest in the country, but it has the ability to grow grass, with close to 9t DM/ha grown in 2019. To date (late-June) in 2020, the farm has grown 4t DM/ha – not a bad feat considering the dry weather conditions experienced this year. Traditionally, turnout occurs mid-February, with lighter animals targeted for suitable paddocks. Wetter weather this spring provided some challenges in this regard and turnout was delayed until March 21st.

Despite this, steers and heifers have achieved an average daily gain – off grass only - of 0.9kg/day and 1.1kg/day respectively since turnout – a direct result of grazing good-quality grass. The main challenge is to keep top-quality grass in front of the cattle during the grazing period, with surplus paddocks taken out and baled when the need arises.

The drought-like conditions experienced in recent weeks interrupted grass growth and reduced quality. However, Ronan intervened with some silage and meal to stretch grass supplies until the rain came; meal was targeted to animals close to finish to reduce demand.

The grazing platform is currently stocked at 5.2LU/ha (2,750kg liveweight/ha) and, with this stocking rate and good grassland management practices, Ronan keeps quality grass in front of his stock leading to impressive weight gain from grass and carcass weights at slaughter – a direct result of Ronan’s attention to detail when it comes to grass.

Weekly grass measuring is considered one of the most important and worthwhile tasks on the farm, which allows Ronan to make more informed decisions when it comes to grassland management. Every week, measurements are uploaded to PastureBase and management decisions are made accordingly. With only a very minute number of drystock farms actively measuring grass, Ronan believes that this task is a ‘no brainer’.

“Measuring grass is an unbelievable tool to have; it makes a massive difference. You can’t make the best management decision without it,” he said.

The same mantra is applied to the weighing of cattle, with upgraded facilities allowing Ronan to carry out this task, among others, with ease, while also embracing on-farm technology while doing so.

39ac of silage is harvested in three cuts and ensiled in the form of bales, with the first cut harvested on May 20th this year. This has been fertilised and will be cut again in the coming weeks, before receiving another round of fertiliser and cut for the third and final time. This is fed to 100 or so cattle housed in a straw-bedded shed for the winter months.

As Ronan’s demand for grass is highest in the spring when cattle are turned out and additional animals purchased, the conversation and plan for the following grazing season begins in August or September. Soil samples taken dictate what nutrients go where, and everything is targeted. Additionally, approximately 75% of the farm has been reseeded in the last five years.

Farmyard manure (FYM) along with nitrogen (N) fertiliser - in the form of protected urea - and compound fertiliser, is targeted towards paddocks that need it. In order to have a sufficient cover of grass in the spring, closing begins around October 10th each year, with housing starting on November 1st at the earliest.

Ronan has showed great flexibility in the change of system, and while the bull production blueprint was profitable, it was a high-cost system. Having seen both sides of the coin, it is now costing much less to produce a kilogram of beef, something that Ronan sees as the way forward.

“We can’t control the price of beef; all we can control is the cost inside the farm gate. Our efficiency on the farm has to be the best to get the best return possible,” he concluded.

Reseeding on sheep farms

Dr Philip Creighton
Animal and Grassland Research and Innovation Centre, Teagasc
Athenry, Co. Galway

Grass utilised/ha is a consequence of grass grown/ha, stocking rate and grassland management. Research has shown that old permanent pasture produces, on average, 3 t DM/ha less than reseeded perennial ryegrass swards. There are many beneficial reasons for reseeding as perennial ryegrass dominant pastures:

- Provide more grass in the shoulder periods of early spring and late autumn.
- Are 25% more responsive to nitrogen compared to old permanent pasture.
- Have faster re-growth.
- Support higher stocking rates.

As well as having more grass in early spring and late autumn newly reseeded swards are more responsive to nitrogen. This means that compared to old permanent pastures reseeded swards yield more grass per kg of nitrogen applied. Figure 1 shows the spring and autumn DM production of two pastures, an old permanent pasture and a new reseed. It is clear that the reseeded pasture with its high perennial ryegrass content produces more grass in spring and autumn compared to the old permanent pasture (30% perennial ryegrass) which will not support early or late grazing systems as insufficient grass is being produced. However, reseeding is not cheap, costing up to Đ700/ha (Đ285/ac) to complete. Reseeding should be the final step in a grassland improvement plan on sheep farms when improvements in management, utilisation and where necessary soil fertility have already been addressed.

For farms that are looking to increase total grass production the first step is to maximise grass growth and utilisation through the above criteria, there is then the second option of reseeding pastures.

Cultivar choice

Grass cultivars should be selected from the Irish Recommended lists. These varieties have been tested under Irish conditions. The Teagasc Pasture Profit Index (PPI) is also a valuable tool to select the most suitable grass cultivars for your farm. The key traits for sheep grass based production systems are:

- High seasonal production (especially spring)
- High grass quality figures
- Late heading varieties

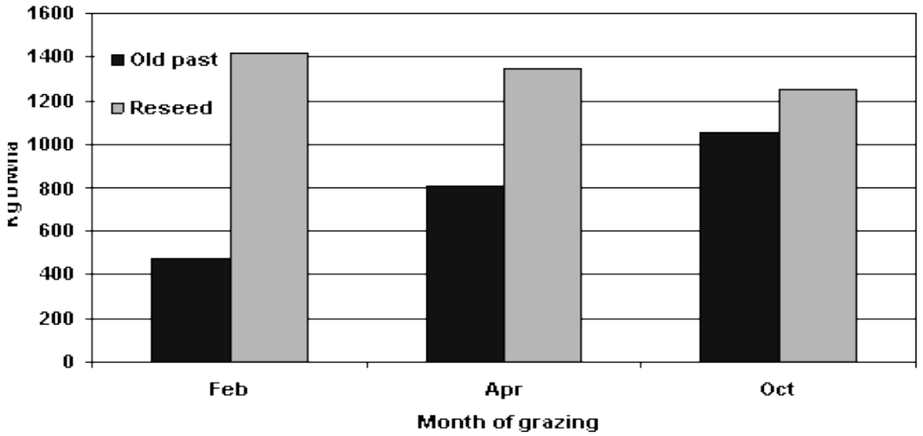

Figure 1. Effect of pasture perennial ryegrass content on DM yield.

Spring is a period of very high grass demand on sheep farms and so varieties that exhibit good spring production should be selected. Varieties with high nutrient quality figures will be easier to manage and will result in better lamb thrive especially in the period immediately before and after weaning. Late heading varieties should be selected as these won't go to seed until close to weaning for most mid-season lambing flocks. The use of early or intermediate heading varieties should be avoided as this will make grazing management difficult. These grasses will start to head out from early May onwards resulting in lower quality swards at a critical time for lamb thrive particularly as they start to consume larger quantities of grass. As already stated late heading varieties do not mean lower spring growth, you can select late heading varieties with high spring growth from the recommended list and the PPI. Further information can be obtained at www.teagasc.ie/crops/grassland/pasture-profit-index

A seeding rate of around 30 kg seed/ha (12 kg/ac) including white clover is recommended to ensure good establishment of the sward. It is also advised to sow a minimum of 3 kg of each grass cultivar within a mixture, and no more than 3 or 4 cultivars per mix. Standard advice is to include 60-70% Diploid grasses and 30-40% tetraploid. Those on heavier soils in particular where cattle will also be grazing the sward shouldn't go above 30-35% tetraploid grasses in the mix as it is more open and can lead to greater sward damage in wet weather. Those on drier ground or in an all sheep situation can go closer to a 50:50 split if desired. Clover should be included in the mix at a rate of 5kg/ha (2kg/ac), with on-going research showing benefits in terms of lamb performance and a reduced chemical N application requirement.

Differences between diploid and tetraploid cultivars:

Tetraploid cultivars	Diploid cultivars
Tall upright growth habit	Prostrate growth habit
Create a more 'open' sward	Create a denser sward with less "open" spaces
Higher digestibility value	Generally lower digestibility and yield
More palatable = higher intakes	

Formulating a grass mixture:

- Minimum of 3 kg of an individual cultivar (any less it is very unlikely to contribute anything to the sward and is diluting the positive effects of other varieties in the mix)
- Less than 7 day range in heading date between cultivars
- Cultivars exhibiting high simulated grazing yields in recommended lists
- High seasonal growth to extend the grazing season
- High values for digestibility i.e. →75% Summer digestibility
- 35-50% tetraploid – depending on soil type
- Small leaf clovers for sheep systems

Pasture finishing of cattle in autumn: role for concentrate supplementation

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Introduction

Many beef production system blueprints are designed to finish spring-born steers at two years of age but this involves a relatively expensive final indoor winter feeding period. In such blueprints heifers are slaughtered at 18-20 months of age either finishing at pasture or after a relatively short indoor finishing period. Heifers, in general, with their propensity to lay down fat at a younger age, are the easiest, as assessed by degrees of fatness, to finish before a second winter. However, national slaughter data shows that age at slaughter is approximately 24-months and 28-months for heifers and steers, respectively, thus exceeding the blueprint age targets outlined. The indoor winter period, when animals are either 'stored' or finished, is expensive and options to avoid the second winter are worthy of consideration. Thus, as grazed pasture is cheaper than grass silage or concentrates, early finishing at pasture in autumn may be considered as an option to reduce production costs. In addition, slaughtering at a younger age is an important factor in reducing the carbon footprint of beef production.

Reflecting the national source of beef animals, research has focused on the opportunities to finish both suckler and dairy beef animals at pasture in the autumn time.

Finishing suckler-bred progeny at pasture

A recent series of grazing experiments, at Grange, finishing spring-born suckler male progeny at approximately 19-months of age, comparing gender (steers vs. bulls) and maturity (early-vs. late-maturing) concluded that:

- Steer carcasses of spring-born suckler progeny sired by early-maturing breed sires were lighter, fatter and poorer conformation than those of late-maturing breeds.
- Compared to steers, bulls had higher growth rate, liveweight and kill-out proportion, carcass weight and conformation score but lower fatness.
- In all cases early-maturing breed steers were adequately finished at 19-months of age from un-supplemented pasture, whereas late-maturing breed steers were finished in some cases but not in others; adverse grazing conditions related to weather were a key factor affecting the inconsistency. This creates uncertainty in the ability of the latter animal type to be reliably finished on autumn pasture only at 19-months of age.
- Concentrate supplementation (4-5 kg/head/day) from mid-late July onwards (75-95 days) increased carcass fatness of steers; thus, concentrate supplementation may be an option to help finish late-maturing breed steers at 19-20 months of age while remaining at pasture.
- Compared to late-maturing breed steers, late-maturing breed bulls were only adequately finished when supplemented with concentrates (4-5 kg/head/day) at pasture for slaughter at 19-months of age.
- Carcasses from early-maturing breed bulls slaughtered at 19-months were lighter, but adequately fleshed with (i.e. 4-5 kg conc/head/day) or without concentrate supplementation, during the last half of the grazing season, whereas the heavier late-maturing breed bulls were only finished when offered concentrates.
- Carcasses of both early- and late-maturing breed bulls were under-finished when slaughtered at pasture at under 16-months of age.

In summary, the data showed that suckler progeny sired by early-maturing breeds can be finished at pasture in the autumn without concentrate supplementation, whereas the heavier late-maturing breeds generally needed supplementation to achieve an adequate carcass fat score.

Finishing dairy-bred steers

Previous results from Grange showed that Aberdeen Angus × Holstein-Friesian steers slaughtered at pasture in autumn, without supplementation, had light carcasses, of relatively poor conformation and were inadequately, or just about, finished. A subsequent study was undertaken to quantify the response to concentrate supplementation, and to compare steers finished at pasture in autumn or finished indoors at the end of the second winter. Spring-born Aberdeen Angus × Holstein-Friesian calves reared in a standard calf rearing system, grazed at pasture for their first season, were housed for the winter and returned to pasture, as yearlings, in spring and rotationally grazed for 86 days on predominantly perennial ryegrass swards. They were then offered either: (i) grazed grass (GG) only - (GG0), (ii) GG plus 1.5 kg fresh weight concentrate (rolled barley) daily - (GG1.5), or (iii) GG + 3.0 kg fresh weight concentrate daily - (GG3.0). After 112 days, half of the animals in each treatment were slaughtered and the remainder were housed in a slatted floor shed and individually offered barley-based concentrates *ad libitum* plus ~1 kg of silage DM daily until slaughter, 89 days later.

Animal performance at pasture did not differ (significantly) between the three pasture supplementation groups (Table 1), with the exception for kill-out proportion which was lower for grass-only animals, with both supplemented groups being similar. Compared to grass only, offering 1.5 kg concentrates daily resulted in an additional 10 kg liveweight at the end of 112 days of feeding at pasture. Feeding 3 kg concentrates daily resulted in an additional 2 kg liveweight compared to feeding 1.5 kg concentrates. Higher daily gains at pasture were associated with lower gains indoors. Animals subsequently finished indoors had higher carcass weight and carcass fat and conformation scores than those finished at pasture. The response to concentrates at pasture for 1.5 and 3.0 kg was relatively low; 62 g and 43 g live weight per kg DM, respectively. Increasing supplementation from zero to 1.5 and 3.0 kg daily reduced grass intake by 0.47 and 0.81 kg DM per kg concentrate DM offered, respectively, implying a relatively high substitution rate.

	Pasture supplementation					Finishing strategy			
	GG0	GG1.5	GG3.0	–	Sig.	Pasture	Indoors	-	Sig.
Live weight (kg)									
Start of finishing	369	370	370	-		367	372	-	
Pasture slaughter	459	469	471	-		466	-		
Indoor slaughter	573	569	577	-		-	572	-	
Live weight gain									
Pasture (kg/day)	0.80	0.88	0.91	-		-	-	-	
Indoors (kg/day)	1.29	1.13	1.18	-		-	1.20	-	
Carcass weight (kg)	252	258	261	-		231	282	-	***
Kill-out (g/kg)	487[a]	497[b]	499[b]	-	*	496	493	-	
Carcass:				-				-	
Fatness (1-15)	6.3	6.8	7.0			5.5	7.9		***
Conformation (1-15)	5.4	5.6	5.4	-		5.0	5.9	-	***

Table 1: Performance of dairy-bred steers offered supplementary concentrates at pasture and finished at pasture or indoors

It is concluded that under the conditions of this study the response to concentrate supplementation at pasture was poor (partially due to the high digestibility of the grass offered) and an indoor finishing period after grazing is probably necessary to produce carcasses of adequate weight, fat cover and quality.

The economics of autumn finishing at pasture need to be carefully undertaken. Poor weather in autumn resulting in a negative effect on grass growth, utilisation and animal performance can make the reliability of finishing cattle at pasture somewhat problematic. Introducing concentrates earlier in the summer is likely to lead to a high substitution rate (replacing grass with concentrates) and erodes the attractiveness of grass as a cheap feed source. If winter accommodation is available (overhead costs already exist), the consideration of finishing indoors could be explored with carcass weight targets and selling times more under the farmers control.

Optimising lamb performance from grass post weaning

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Have you weaned your lambs yet?

This is one of the most often asked questions amongst sheep farmers during the summer months. Time of weaning can be specific to each farm but, in reality, it should be based on your time of lambing or the age of the lamb. The optimum weaning age for lambs is 100 days or 14 weeks from the date of birth or the average flock lambing date. For example, if your mean lambing date was March 17th then the optimum time to wean would be June 23rd. Allowing the lamb to remain on the ewes for longer periods can end up penalising both parties with lambs requiring the best quality grass and ewes needing time to build body condition before mating.

An average flock weaning weight of 34kg from a grass only diet should be targeted however this will depend on pre-weaning grassland management, ewe age, flock genetics and rearing litter size whereby lambs reared as multiples will have lower weaning weights than singles and lambs sired by terminal sires will have higher weaning weights than those sired by maternal rams. Interestingly, research has shown us that lambs born and reared as singles will on average always be heavier at weaning even when compared to lambs born as twins but reared as singles (Fetherstone et al., 2019).

Weaning can be a good opportunity to review performance of the animals and the year to date. It is important to count all of your weaned lambs and it might be worth comparing this number to your ultrasound scanned litter size which will give you an indication of the level of lamb mortality on the farm. If you have the opportunity to weigh your lambs at weaning, or at least split them based on size (by eyeballing), it's a good idea to record the proportion of your lambs in the following weight brackets:

- > 35kg
- 30-35kg
- < 30kg

You need to assess where your lambs are at this point, if there are a lot of lambs <30kg or lighter (< 25kg) it might be worth trying to identify their ewes and remove them from the flock due to poor rearing ability, providing there were no other underlying issues which impacted growth to weaning. Ask yourself whether you have a plan in place for finishing your lambs? Often, we don't think about it until much later in the year when the opportunity to maximise live weight gain has passed us by. Lambs < 30kg at weaning will need to put on 15-20kg to finish (reach target slaughter live weights). Growth rates after weaning will drop to ~200g/day or less which means it could take at least 100days for a lamb to gain 20kg live weight. If you are weaning in mid-June this lamb won't be ready for sale until late September.

Post weaning performance

Where issues often arise on farms post-weaning is with lamb performance. Understandably with milk being removed from the diet, lamb growth rate post-weaning will rarely match that achieved pre-weaning. However, average daily gains of 175-200g/day should be targeted from a grass only diet. Concentrate supplementation can play a role (which will be discussed later) but concentrates are on average four times more expensive per kg DM fed than grass, hence finishing lambs from a grass only diet or maximising the amount of grass in the diet of the lamb is the most financially beneficial option. Aim to try and avoid situations where lambs are on an ad-lib concentrate diet, afraid to stray away from the feeder and under-utilising the grass that is available.

While rotation length varies throughout the year, as a rule of thumb grass should be grown in 3 weeks and eaten in 3 days thus ensuring a fresh supply of grass is in front of lambs at all times. The best time for grazing in order to achieve maximum animal performance is when the plant is at the 2.5 to 3 leaf stage. This equates to 1200kg DM /ha or 7-8 cm. Post-weaning grass demand of both ewes and lambs is the same at 1.2 kg DM / head / day. As lambs require the highest quality / most digestible grass for optimum growth a leader follower grazing system is recommended where possible. Lambs will always be offered the most leafy, digestible grass first, grazing down to 6cm and ewes will follow behind with a post-grazing target of 4cm. If grazing after grass or new reseeds it is ok for lambs to graze down to 4.5/5cm as there will be improved grass quality in these swards. Maximising grass utilisation is key to maintaining high quality re-growth throughout the year. Allowing animals to graze higher pre-grazing covers (8-10 cm) will result in dead material accumulating at the base of the sward. This not only increases residency time in the paddock but it delays re-growth and reduces the energy content of the sward which will result in a decline in animal performance. Work carried out by Dr. Philip Creighton at Teagasc has shown that, albeit depending on farm stocking rate and prolificacy potential, between 80-90% of the lamb carcass produced on farm can be achieved from a grass only diet (Earle et al., 2017).

Handling and weighing lambs regularly should become part of your routine after weaning. Teagasc recommendations suggest that lambs should be weighed and assessed for fat cover once every two weeks from weaning onwards. This will enable you to gain knowledge on how lambs are thriving and avoid drafting lambs for slaughter that are overweight, over fat or alternatively under fleshed. Target drafting weights will vary depending on your lamb type and finishing system. The kill out or dressing percentage of lambs will decline as the season progresses. For lambs drafted pre-weaning a kill out % of >48% can be expected, however after weaning this will fall to 45% in July and can go as low as 42% in late September / October. The main factors affecting the kill out % of lambs are diet type and sex with higher percentages achieved for females and the lowest values obtained for entire males.

What happens if your grassland management is on target but lambs aren't reaching their optimum growth rates?

Unfortunately. this is quite a multifaceted question with numerous possible answers. First and foremost, stomach worms are one of the main oppositions to achieving maximum lamb growth during the summer months. It is crucial to carry out regular faecal egg count (FEC) tests to understand the level of infection that is present on the farm and to decide on the correct time of drenching. Care must be taken when drenching lambs that are close to drafting as careful attention must be given to withdrawal periods on the product of choice. At this stage I will encourage you to read the adjacent article by Dr. Orla Kane, Teagasc, which addresses this and the rising problem of anthelminthic resistance in more detail. Lameness, specifically scald, can be an issue on many farms. It is important to observe lambs grazing and to incorporate foot bathing lambs into your routine when weighing and /or drafting.

As mentioned above having a finishing plan in place is crucial for your farm. If you know you will have a lot of lambs left in the autumn do you have a plan for these? Are you going to build grass supplies to ensure adequate supply for when ewes and lambs will be competing for grass during the mating season? There are many options including selling store lambs, adding concentrate to the diet to increase growth rates, finishing lambs indoors if shed space is available or deciding to store lambs yourself and sell them early the following spring. Going on trends over recent years this can be a financially beneficial option for lighter lambs.

Regardless of what you choose you need to pick an option that best suits your farm while trying to maximise the amount of grazed grass (our cheapest feed source) in the diet of the lambs. Dividing lambs into two groups (lighter and heavier) will help to achieve this. If supplementing lighter lambs with concentrates the highest feed conversion efficiencies have been identified where concentrate was fed at 300g/ head / day. An alternate option which we have seen first-hand on two of our previous IGA sheep farm walks, John Bell and John Large, is establishing a finishing lamb group which can have many benefits. The heaviest lambs (> 40kg) are drafted into a group and supplemented with concentrate at 500g/day for a short period of time until drafted, ensuring adequate fat cover on lambs for slaughter. It is important to weigh this group of lambs regularly and continually draft lambs as they reach target live weights and fat cover. As lambs are sold from the group more lambs are added in. This ensures a constant flow of lambs for sale and reduces the requirement to bring all your lambs into the handling unit regularly.

Experiences from the Teagasc BETTER Sheep Farms

The target for all of the lowland BETTER farmers is to wean their lambs at approx. 14 weeks from mature ewes and 12 weeks from yearling ewes. In 2019 the average daily gain from birth to weaning for the lowland flocks was 270g/ day for twin lambs leaving lambs with an average weight of 32.2 kg, on target for twin lambs in a grass-based system. Performance of lambs up to 7 weeks this year was also good with twin lambs averaging 300g/day. However, the slowdown in grass growth rates as a result of the low rainfall levels in May has meant that some of the flocks are weaning earlier this year at 10-12 weeks post-lambing. The aim is that this will reduce grass demand but also ensure that there is good quality grass available for the lambs post-weaning. Despite the earlier weaning age the farmers will follow the above advice which will still be vital for these flocks to ensure lambs keep growing and are sold on time.

Is the EBI message being adopted across Co-op catchment areas?

Matt Ryan
Dairy Consultant and
IGA LMA recipient

The EBI system was launched in February 2001 and has generated nearly €800 million in added value to Dairy farmers' incomes. If the average farmer were to improve his herd's genetics to that of the Next Generation Herd in Moorepark, the country would be €400 million per annum better off. In that 20 years was there good adoption of the EBI system across the various Co-Op catchment areas?

One of ICBF's Herd Plus reports, Dairy Herd Performance Report, gives information to farmers on how their figures compare with the Co-Op average and with the Top 10% farmers in their Co-Op. Both are good benchmarks for farmers to compare themselves with. It should be noted that not all dairy farmers in each Co-op area are members of Herd Plus, however, the data is for all milk suppliers in that Co-op.

Based on that information derived through my clients, I have compiled a comparison between dairy farmers in the various Co-Op areas. My aim is to motivate farmers to achieve what the Top 10% of farmers are achieving in their own co-op.

The various stakeholders should examine the data, follow up on strategies to improve the adoption of cow genetics and reproductive management so that the breeding KPI's are achieved.

Table 1 compares Co-Op farmers under various headings; kgs MS/cow sold; % fat and % protein; and somatic cell count (SCC) levels. Because there are a lot of figures on each Table we will only focus on the highest and lowest (underlined) and any trends therein.

Table 1: Farmer performance in various Co-areas, as defined by Milk Solids (MS) per cow; % Fat and % Protein; and Op herd SCC levels for 2019.

Co-Op	MS Kgs Co-Op Av	MS Kgs Top 10%	Fat % Co-op Av	Fat % Top 10%	Protein % Co-op Av	Protein % Top 10%	SCC Co-op Average	SCC Top 10% Average
Glanbia	416	513	4.22	4.47	3.57	3.72	177	93
Centenary	413	512	4.10	4.33	3.5	3.64	168	88
Aurivo	405	521	4.18	4.47	3.54	3.73	193	92
Lakeland	404	513	4.02	4.31	3.40	3.59	187	98
Tipperary	406	512	4.20	4.40	3.54	3.66	191	97
Arrabawn	402	503	4.18	4.41	3.53	3.67	200	92
Kerry	392	492	4.10	4.35	3.53	3.68	191	100
Dairygold	423	525	4.17	4.41	3.57	3.71	-	99
Drinagh	394	490	4.10	4.35	3.53	3.69	152	75
Lisavaird	408	518	4.09	4.37	3.51	3.67	160	86
Bandon	414	515	4.03	4.26	3.50	3.64	167	85
Barryroe	442	543	4.00	4.40	3.50	3.66	152	80
Av 2019	410	513	4.12	4.38	3.52	3.67	176	90
Av.2018	394	501	4.09	4.33	3.45	3.60	195	99

Milk Solids per Cow (kgs)

This is what farmers are paid for. It is an outcome of the breeding choices made and the management practices applied by dairy farmers, particularly early compact calving. The average sold was 410kgs MS/cow (+ 16kgs on '18) ranging from 394 in Drinagh to 442 kgs in Barryroe area. My clients achieved a common profit of €2.00/kg MS last year.

If we look at the performance of the Top 10% of dairy farmers we see that they sold on average 513kgsMS/cow, ranging from 490 in Drinagh to 543 in Barryroe. The top 10% farmers are selling 103kgs MS/cow more than the average farmer. Therefore, the Top 10% farmers made €206/cow more profit as a result of improved sales. How? The answer is in the output data, allowing for cost.

% Fat and % Protein

One way to insulate yourself against milk price volatility is to sell milk that has high % fat and protein. This is achieved by cow/bull genetics supplemented with good management practices.

The average fat was 4.12%, ranging from 4.00% in Barryroe to 4.22 in Glanbia. Compared with the Top 10% the average was 4.38%, ranging from 4.26% in Bandon to 4.47% in Glanbia and Aurivo. The difference of 0.26% between the average and top is worth 0.81 c/l in higher profit or €44 per 5500litre cow.

The average protein was 3.52% (up 0.07% from 2018) ranging from 3.40% in Lakeland to 3.56% in Dairygold and Glanbia. Compared with the Top 10% the average was 3.67%, ranging from 3.59% in Lakeland to 3.73% in Aurivo. According to Teagasc Moorepark, the difference of 0.15% between the average supplier and the top 10% would be worth 1.07c/l in higher profit or €59 per 5,500 litre cow.

Somatic cell Count (SCC):

Somatic Cell Count has been a major focus by AHI, Co-ops and Teagasc over the last few years but the data in Table 1 indicates that there is still a lot that can be done by the average farmer, 176,000 SCC, which is down 19,000 on 2018. The top10%, with a reading of 90,000, prove that higher standards can be achieved.
Significant Co-op variation exists. Why?

Calving Interval (days)

Table 2 shows that this averaged out at 391 days, ranging from 386 days in Tipperary and Kerry co-op regions to 405 days in Lakeland. The top 10% were on target. It should be noted that for each day's delay in calving the loss is €6.60 per cow.

6 Week Calving Rate (%)

This is one of the two key performance indicators (KPI's) of dairy farming, and the target is 90%. This figure needs to be interpreted in conjunction with the calving interval because synchronisation of

heifers greatly influences it. The industry needs to give this management outcome far greater attention at this KPI because we are 34% away from where we should be, – more so than grass.

The average 6-week calving rate for all Co-Op areas was 66% (up 3% from 2018), ranging from 55% in Lakeland to 73% in Tipperary. The Top 10% achieved 87%, ranging from 84% in Lakeland to 89% in Tipperary.

According to Moorepark, for every 1% a farmer is under the target of 90% there is a loss of €8.22/ cow to the farmer. There is a difference between the average farmers and the average of the Top 10% farmers of 22%. This represents a potential loss to the average farmer of €173 per cow in his herd. Or €17,262 for a farmer with 100 cows.

Table 2: Farmer performance in various Co-Op areas, as defined by Calving Interval (days); and 6 Week calving Rate (%) levels for 2019.

Co-Op	Calving Int.	Calving Int.	6Wk Calving	6Wk Calving	Calving Int	Calving Int	6Wk Calving	6Wkcalving
	Co-Op Av	Top 10%	Co-op Av	Top 10%	Co-Op Av	Top 10%	Co-op Av	Top 10%
Glanbia	388	365	68	88	384	363	68	88
Centenary	387	364	70	88	382	362	70	89
Aurivo	398	367	63	87	396	365	61	86
Lakeland	405	369	55	84	400	367	54	83
Tipperary	386	364	73	89	384	363	70	86
Arrabawn	389	364	69	88	384	363	67	87
Kerry	386	365	69	88	384	362	68	87
Dairygold	387	365	69	88	383	364	68	86
Drinagh	390	365	63	86	387	364	63	85
Liasavaird	394	364	62	84	388	363	62	86
Bandon	388	365	62	85	389	364	64	84
Barryroe	397	368	62	84	393	364	61	85
Av. 2019	391	365	66	87	389.6923	364.6923	63.15385	84.76923

What has influenced the above outcomes?

Because of the numbers of farmers involved and the geographic spread of farmers of different land types and management abilities it is reasonable to conclude that the above outcomes in Tables 1 and 2 are the result of cow genetics. Not only are high EBI cows more profitable to the individual farmer but high EBI cows are one of the methods we must apply to overcome the "emission challenges" to our industry. For every €10 increase in EBI there is a reduction of 2% in emissions while profit increases by €20 per cow. Therefore, all dairy farmers need to maximise genetic gain fast.

Hence, let us look at the use of AI on dairy farms and the level of EBI in the various regions. This is illustrated in Table 3.

AI Bred Heifers in Herds (%)

In all the Co-Op areas only 54% (up3% on 2018) of all dairy replacements were AI bred, ranging from 47% in Tipperary to 64% in Barryroe, while the Top 10% achieved 100% in all Co-Op areas. Forty six percent of all dairy replacements entering dairy farms are by stock bulls, even though research show that a cow by an average stock bull is up to €70 less profitable per year than an AI bred cow. However, it is encouraging that across all areas the Top 10% are using all AI.

Therefore, over 40% of dairy farmers should put all their cows in calf to beef breeds, preferably AI, and buy in or do a contract mating agreement with the Top EBI herds in the country. Otherwise, it will take them 15-20 years to get from where they are now to where the top dairy farmers are now.

% Heifers calved at 22-26 months of age

Nearly 100% of my clients are calving down their heifers at one year and 11 months old (23 months). We know from research that 2-year-old calving heifers last longer in herd and milk more in their lifetime than 3-year-old calving heifers.

In all the Co-Op areas only 65% of all dairy replacements calved at 22-26 months of age, ranging from 52% in Lakeland to 75% in Tipperary. However, the Top 10% achieved 100% in all Co-Op areas. This again illustrates that 2-year-old calving, with good management, can be achieved.

Table 3: Farmer performance in various Co-Op Areas as defined by AI use, Age at first Calving, Herd EBI and EBI of AI Bulls used in 2019.

Co-Op	%AI Bred Co-op Av	% AI Bred Top 10%	%Hfs Calved 22-26Mths Co-Op Av	%hfs Calved 22-26mths Top 10%	Herd EBI Co-op Av	Herd EBI Top 10%	Bull's EBI 2019 Co-op Av	Bulls EBI Top 10% 2019
Glanbia	58	100	69	100	107	147	236	284
Centenary	52	100	69	100	102	142	206	281
Aurivo	61	100	58	100	99	145	244	292
Lakeland	59	100	52	100	87	137	239	283
Tipperary	47	100	75	100	105	138	241	279
Arrabawn	53	100	65	100	104	139	230	287
Kerry	48	100	68	100	101	143	239	279
Dairygold	57	100	73	100	109	147	248	282
Drinagh	56	100	63	100	108	145	245	280
Lisavaird	55	100	60	100	99	142	227	274
Bandon	55	100	64	100	96	141	250	286
Barryroe	64	100	64	100	100	141	245	282
Av. 2019	55	100	65	100	101	142	238	282
Av. 2018	51	100	64	99	87	127	225	279

Herd Economic Breeding Index (EBI)

For the last 19 years, EBI is driving farm profitability, because the higher the EBI of a herd the more profitable it is. There are some herd with EBI's of nearly €200.

Across all Co-Op areas the average EBI of herds was €101 (up €14 from 2018), ranging from €87 in Lakeland to €98 in Dairygold.

The average of the Top 10% of herds in all Co-Ops was €142, ranging from €138 in Lakeland to €147 in Dairygold and Glanbia. Again, it is encouraging that some farmers have seriously bought into the EBI concept.

EBI of AI Bulls used in 2019

In 2019 Teagasc had a target EBI of €280 for the team of AI bulls to be used by farmers. As Table 3 shows the Top 10% of farmers used bulls with an average of €282, ranging from €274 in Liasavaird to €292 in Aurivo. I find the latter figure very encouraging; that a Co-Op with a low EBI base has farmers who have recently chosen AI bulls that will improve herd EBI significantly. However, the average EBI of the bulls used by the average farmer was €238 or €54 below target – a choice most farmers are making in spite of proven research.

Conclusions:

If one were to do an analysis on the dairy industry based on the above facts, one could say that our strengths are that we now have a very good system of identifying where we are genetically and what is actually happening on the ground. And that many farmers have adopted genetic practices that will benefit themselves and the country.

On the weakness side we can say that there is a lot more to do and it leaves some farmers very vulnerable to milk price and costs volatility while also adversely affecting dairy farmers status in the 'emissions' debate.

Every situation presents opportunities and with the EBI system in place, compared with our international competitors, and the fact that many farmers are achieving the genetic targets, we are in a good place for most farmers to move forward.

The big threats are emission requirements, milk price and costs volatility. The whole industry will be under pressure if all dairy farmers do not adopt the practices that enhance dairy farmers' status in the community. Fifty percent of replacement heifers are not AI-bred.

Recommendations

It behoves everyone in the dairy industry to commit to achieving the genetic GOALS that long term enhance the status of our dairy industry.

ICBF and Teagasc Research has enough work done (no doubt they are working on improving). It now must be actively and aggressively promoted by the Advisory Services of Teagasc, private consultants, DAF and Co-Ops.

Most Co-Ops have and are doing a lot on this front but by comparison with most advice agencies they have the opportunity of a "carrot and stick" and must consider that approach. Whether that be a bonus for milk recording; a reward for using AI or greater penalties for lower quality milk.

Advice agencies, while doing farm walks and group work, achieve the adoption of practice for some farmers. Many farmers are struggling with computer skills to use the sire advice on the ICBF site. Advisers, based on the farmers PD's on EBI and the best bulls available, should do this for their clients.

The DAP should make a mandatory module in the Knowledge Transfer discussion group project embracing improved cow fertility management and the use of AI bulls – all easily measured through ICBF data base.

Sociologically it is said "One should choose our parents wisely" because our parents determine our "life chances". Similarly, the careful choosing of the bulls to mate to our best cows is vital for the individual farmer and the industry.

To accelerate genetic progress some farmers should use beef breeds and purchase heifer calves from high EBI herds. This will enable them to get into cows that are €150 to €300 per cows more profitable than their own a lot more quickly.

Don't miss the boat on Lime and Potassium this Autumn

Stan Lalor
IGA Council Member and
Grassland AGRO

Summary Points

- Autumn is an ideal time of year to target applications of lime and potassium (K).
- Having lime applied before the winter allows soil pH correction to be happening well in advance of growth the following spring.
- Applying K in the autumn reduces the risk of suppressing Magnesium uptake in grass due to high K applications in spring.
- Silage removes a lot of K!!!!!
- Slurry plays a big role in balancing K requirements across the farm.
- Reviewing grass utilisation over the year will give a simple guide to calculating K required in the autumn to balance the offtake.

Introduction

Paying attention to soil fertility is an ongoing task for any farm. Despite considerable advisory efforts on messages around lime, phosphorus (P) and potassium (K), and progress being made on many individual farms, the national picture remains a challenge. Approximately half of soils tested continue to fall in the 'low' categories for soil pH, P and K fertility. Phosphorus continues to be a key nutrient in spring and summer fertiliser programmes. However, as we face into the autumn, the emphasis increases on lime and K.

Why spread lime in Autumn

When asked about the best time to spread lime, my answer is consistent: *"the best time to spread lime is as soon as you find out you need it"*. Optimising lime and soil pH to facilitate soil biological activity, nutrient mineralisation, and all the other benefits of a healthy, living soil are so fundamental to productivity, that applying lime when required is a no-brainer. So, targeting lime application this autumn is not about 'delaying it until the autumn', but more about 'make sure you get it spread before the year is over'. Autumn can provide good spreading opportunities when grazing rotations start to lengthen, and when all silage for the year is cut and the risk of lime having any impact on silage fermentation is reduced.

Getting the lime spread in autumn is also preferable over spring to allow the lime to get to work in raising the pH over the winter months. Having lime applied in autumn also helps remove the complications of having to worry about avoiding slurry or urea after spring-applied lime.

Potassium (K) in Autumn

Applying K in autumn has a number of advantages, especially where high rates are required for silage or soil fertility build-up. Firstly, the risk of high rates of K fertiliser in spring interfering with magnesium uptake by grass is reduced with autumn-applied K. Application in autumn also reduces the risk of over-loading silage with fresh K in spring and giving rise to excessively high K levels in silage, which is linked to milk fever issues at calving. Given that slurry application in spring will return a lot of K to fields early in the year, the focus on topping up the chemical K, where required, in the autumn is also a sensible approach.

Silage removes a lot of K

The impact of cutting grass and removing for silage (or zero-grazing) on the removal of K is very high compared to grazing. Grazed grass and silage have similar uptake requirements for K per tonne of grass grown. The difference in offtake of K from the field is because a grazing animal will return approximately 90% of the K it eats through its urine and dung while grazing, whereas a baler or forage harvester removes all the K from the field. Hence, the requirement for K when cutting can be very high.

Slurry is rich in K

While silage removes a lot of K from a field, it does not take it out of the farm. The K in the silage, if fed on the farm, will still be eaten and excreted by animals. The only difference is that it ends up in the slurry tank over the winter period rather than being excreted directly on the soil during grazing. This is why the recycling of slurry to silage ground is a good idea to keep K in balance and avoid running down K fertility on silage fields. This is particularly common on out-farms where the distance to carry slurry back after cutting silage is considered prohibitive. In this case, the K balance on the silage block still needs to be managed or soil fertility will suffer. Even paddocks taken out for a round of bales can have a big impact on the K balance in a field (Table 1).

Reviewing grass utilisation to estimate autumn K requirements

As autumn approaches and silage crops are nearing completion, it is timely to consider the K balance across the farm and estimate where K shortfalls might be addressed in the autumn. The ready reckoner chart shown in Figure 1 can be used to estimate total K offtake from an area for the year. This can then be compared with K already applied to estimate the balance of K that may need to be applied in the Autumn. The total K offtake can be found by moving across the chart based on the tonnage of grass grazed (x-axis) and moving up the chart based on the tonnage of grass cut (y-axis). Adjustments for Soil K Index and slurry applied can then be factored in to calculate the fertiliser K requirement.

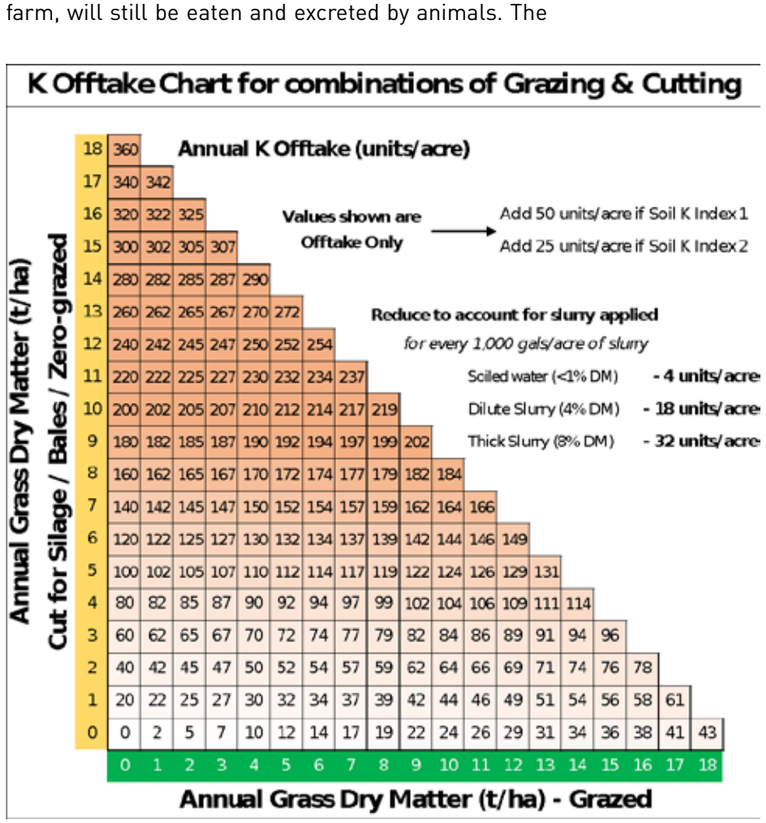

Figure 1. Ready reckoner for estimating total annual K offtake based on combined tonnages of cut and grazed and cut grass across the year. Note figures are presented as units/acre. To convert to kg/ha, multiply by 1.25. (Adapted from Teagasc Green Book, Wall and Plunkett, 2016).

Examples

Examples of the K offtake for 4 contrasting scenarios is shown in Table 1. The steps in estimating the K required can be followed based on the Grazed and Cut yields using the chart and guidance notes for accounting for soil Index and slurries applied as shown in Figure 1. The balance of K required in the Autumn can be calculated by deducting any chemical fertiliser K already applied during the year from the bottom line (Line (E)) in the Table.

A few significant points emerge when the four scenarios in Table 1 are compared. One round of baling surplus grass has the effect of doubling the K requirement in Scenario 2 compared with Scenario 1. The impact of taking heavy cuts of silage, and the effect of silage ground often having a lower soil K index is highlighted in Scenarios 3 and 4 compared with 1 and 2. Also, the difference in taking a second cut of silage without applying additional slurry to cover the second cut leaves a much bigger K requirement to be met with fertiliser.

Table 1. Examples of calculating the K requirement under four contrasting scenarios.

Scenario	**1) Grazed All year**	**2) Grazed all year with 1 round cut for bales**	**3) 1 Cut Silage + Grazing**	**4) 2 Cuts Silage + Grazing**	
Soil K Index	3	3	2	2	
Total Grass Yield (t/ha of DM)	15	15	15	15	
Annual Grass Yield - Grazed (t/ha)	15	13	9	5	
Annual Grass Yield - Cut (t/ha)	0	2	6	10	
Total K offtake (units/acre) (See chart in Figure 1)	**36**	**71**	**142**	**212**	(A)
Extra K required for soil build-up (Index 1 or 2) (units/acre)	0 (Index 3)	0 (Index 3)	25 (Index 2)	25 (Index 2)	(B)
Total K required (units/acre)	**36**	**71**	**167**	**237**	(C) = A + B
Slurry applied	2,000 gals/ acre - Dilute Slurry	2,000 gals/acre - Dilute Slurry	3,500 gals/ acre - Thick slurry	3,500 gals/ acre - Thick slurry	
K applied in slurry (unis/acre)	36	36	112	112	(D)
Balance = Total Fertiliser K required (units/acre)	**0**	**35**	**55**	**125**	(E) = C - D

Anthelminthic resistance in sheep systems – The four key steps you can take to protect your farm

Orla M. Keane
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Grazing sheep are naturally exposed to stomach/gut worms (gastrointestinal nematodes). A large number of different worm species can infect sheep but most follow a similar life cycle with both free-living and parasitic phases. Eggs laid by adult female worms in the gut are passed out with the dung. The eggs hatch to larvae which eventually move out of the dung onto the grass where they can survive for many months until eaten by grazing sheep. The eaten larvae mature to adults in the gut and commence egg laying, thus completing the lifecycle. Worm larvae accumulate on pasture over the grazing season and are generally a greater problem in the second half of the grazing season i.e. from July onwards. The majority of gut worms that infect sheep will not infect cattle and *vice versa.*

Gut worms

Gut worms can cause disease including scour and ill-thrift in naïve lambs but are more commonly associated with reduced feed intake and sub-clinical disease resulting in reduced growth rates. Sheep develop immunity to gut worms over time and generally have good immunity by 1 year of age. Currently, good gut worm control is highly dependent on effective anthelmintics (wormers). Despite the large number of products on the market, there are only 5 classes of anthelmintic for the control of gut worms in sheep;

- benzimidazole - white wormers,
- levamisole - yellow wormers,
- macrocyclic lactone - clear wormers,
- an amino-acetonitrile derivative - orange wormer,
- spiroindole - purple wormer

The last two classes are only available on veterinary prescription and are not widely used. Anthelmintics from different classes have different modes of action. However, within the same class all products share the same mode of action, therefore, when resistance develops to one product within a class generally other products in the same class are also affected. Anthelmintic resistance is a heritable trait which means resistant worms pass on genes conferring resistance to their offspring. When animals are treated with an anthelmintic at the correct dose rate, all susceptible worms are killed allowing only resistant worms to survive which results in resistant worms making up a greater proportion of the worm population in subsequent generations. Therefore, the continuous use of anthelmintics can lead to the development of anthelmintic resistance. For that reason it is important that anthelmintics are used appropriately to help slow the development of anthelmintic resistance.

Resistance issues

It has become clear that anthelmintic resistance is now widespread in Ireland with a large national study from 2013-2015 demonstrating that white wormers failed on 69% of farms tested, yellow wormers failed on 48% of farms tested and clear wormers failed on 38% of farms tested. A targeted study in 2018-2019 demonstrated that there had been an increase in the prevalence of resistance to macrocyclic lactones, with 56% of farms displaying resistance. Of concern is the fact that worms that are simultaneously resistant to all three classes of commonly available wormers have also been identified on some farms. Therefore it is important that sheep farmers take steps now to slow the further development of wormer resistance.

Four actions that will slow the further development of wormer resistance and can be implemented on most sheep farms in Ireland have been identified.

1. **Do not treat mature ewes for stomach/gut worms unless there is a demonstrated need.** Older stock have generally developed good immunity to gut worms and mature ewes should not require dosing for gut worms. Lactating yearling ewes or thin or immunocompromised ewes may require treatment but this should be targeted to individual animals on the basis of need.

2. **Use white wormers to treat for** *Nematodirus.* There is widespread resistance to white wormers among mid-season worms. However, resistance to white wormers among *Nematodirus* has not been detected. Therefore use this class to treat for *Nematodirus* and preserve the other classes for later in the season.

3. **Treat bought in stock with one of the new wormer classes.** A good biosecurity protocol for all bought-in animals should be implemented to prevent bringing resistant worms onto the farm. Animals should be treated with one of the new anthelmintics (orange or purple) and housed for 24-48 hours. They should then be turned out to contaminated pasture recently grazed by sheep.

4. **Use faecal egg counts.** Monitoring for gut worms is important and can be done using faecal egg counts. In lambs, a group faecal egg count of greater than 500-600 eggs per gram (epg) may have an impact on performance and may indicate a need to treat for gut worms. Faecal egg counts can also help determine which anthelmintic classes are working on the farm. In all cases when treating stock, ensure that the correct dosing technique is used and animals are treated according to the manufacturer's instructions and dose rates.

IGA Student Conference
A look back on the last decade

Maura Callery
IGA Office Manager

The Irish Grassland Association (IGA) Student Conference was initiated in 2010 by a group of IGA council members who were keen to showcase a day of cutting-edge Irish agriculture, specifically to final year, third level agricultural students. This is now an annual event and a key date for the Agricultural colleges curriculum. These events follow the format of a mixture of technical conferences and farm walks. A New Zealand researcher said at the very first IGA Student Conference in 2010 that *"Nowhere in the world is there an event like this for Students. This is a unique and very special day. These students are the future of the Agri-Food Industry".*

We are very thankful to the agricultural colleges and their staff for bringing the students to these events in such large numbers over the years. These events could also not take place without the input of our host farmers and industry and farming speakers. We have received tremendous feedback from the colleges following these showcases. Testimony to this is that we have since had a large volume of past attendees serve as elected members on our council in the IGA and speak at IGA events.

We want to thank FBD Insurance for their continued support. They have been the sole sponsors of these free admission events since their inception in 2010. Due to the current restrictions on mass gatherings on foot of the Covid19 pandemic, with the complex restructuring of the Ag college curriculum and Autumn schedules, it will not be possible to bring Students together for a live event this October. The great news however is that FBD have committed to a new five year arrangement to continue sponsoring this special day going forward. We look forward to welcoming Students to our next event in conjunction with FBD in 2021.

We would like to thank FBD Insurance,
who have sponsored
this event since its inception in 2010

FBD INSURANCE

DR. HENRY KENNEDY

IGA President 1954/1955

Born in the tiny village of Toor in North Tipperary Dr. Kennedy has been lauded as a "visionary" in the development of agriculture for the benefit of farming families in Ireland. Dr Kennedy was head of the Irish Agricultural Organisation Society (IAOS) for almost four decades (1926-63) – the longest serving chief executive in its 130-year history. His first role in 1920 was chief executive officer of the Irish White cross Society where he reported directly to Michael Collins and Aurthur Griffith. He is credited with having inspired the establishment of the Dairy Disposal Company for the state to take over local ailing creameries and setting up the Agricultural Credit Corporation (ACC) to provide farm finance. It helped that his brother in law, Patrick Hogan the country's first Minister of Agriculture – was in Government at the time. According to Michael Berkery Dr Kennedy "had the ability and the capacity to get local groups to buy into his ideas that ultimately led to the development of the dairy industry that we have today because he was a leader of exceptional ability and yet a very humble man who always described himself as a mountainy man". Dr. Kennedy's address to the Social Order Summer School in 1938 displays his advanced thinking on farming and the critical role of grass in increasing Irish agricultural output and farm incomes.

The Future of Agriculture in Ireland

Henry Kennedy

IGA President 1954/1955

Paper read by Dr. Henry Kennedy at the Social Order Summer School, 1938, at Clongowes Wood College.

I welcome this opportunity of submitting for the consideration of this audience of serious minded students of social problems some considerations on the present economic position of the farmer and rural worker in this country and what relation rural conditions bear to the economic position of other members of the community.

In the first place, I propose to lay before you facts, and I emphasise the word 'facts', with regard to the position of agriculture in recent years. It is not necessary, I am sure, to state that I examine the subject objectively and merely for the purpose of ascertaining the truth. If the problem is to be seriously considered as what I think it is, one of the major-if not the major-social problems of the country, the first thing is to ascertain the truth concerning it and then endeavour as men of goodwill to seek a solution.

The number of persons in Ireland who derive a livelihood from agriculture is, roughly, 50 per cent. of the total population. That section of the population has been confronted during the past eight years with problems of extraordinary difficulty, partly arising out of the general world position as regards prices of agricultural products, and partly due to special domestic problems of our own. The result has been a very definite tendency from the land to urban and industrial employment in this country and in Great Britain. While in a virile rural population there must be always such a drift, the serious thing at present is the growing hopelessness of farmers and the want of confidence in agriculture as a livelihood which is tending to drive not only workers from agriculture, but even the heirs apparent of farmers themselves. To what is this growing hopelessness due? There is no mystery about the answer, and if you will bear with me I shall set before you some statistics which make the answer clear.

Reasons for decline in farming morale

The first part of the answer is the fall in prices. Taking the price of farm commodities in the pre-war year of 1913 at 100, the price level in 1924 and 1925 was about 160. In the years 1932-1936, the figure averaged 88. In other words, the income of the farmer on the average was approximately halved. The price level on the average since the slump began in 1930 or 1931 has been something approximating to the pre-war figure. The second part of the answer is based on the increased cost of production since the pre-war period. The wages of agricultural workers have been very considerably increased and are still increasing. Rates have increased in some cases up to 200 per cent. The price of implements and machines has more than doubled since the pre-war period. A mower which cost £10 10s. in 1913 costs £25 now. A plough which cost £4 5s. in 1913 costs £8 now. The price of feeding stuffs since 1913 has increased about 50 per cent. Horse carts, harness, spades, shovels and other farming implements have increased by at least 100 per cent. Putting the thing in another way, a farner who wants to buy a mower to-day has to sell more than twice as many gallons of milk as in 1913. Against this, annuities have been halved.

While it is not possible to put an exact percentage on the increased cost of production, there is no question as to the reality of that increase to a very substantial degree. Therefore, while the level of prices since 1980 has been approximately pre-war, the net income of the farmer has been very substantially below pre-war.

The third factor in the answer is the increased cost of living. The disastrous fall in prices since 1925 or 1926 and the increased cost of the means of production would have been enough to impoverish the farmer because no one can say that agriculture in 1913 was a very profitable occupation. The situation, however, is rendered extremely serious by the increased cost of the farmer's household requirements. Boots and clothing are reckoned to cost more than 100 per cent. over pre-war; flour and sugar almost 100 per cent. There is no reason to believe that the increase in the cost of living to the farmer is any less than is shown in the official cost-of-living index. The position, therefore, is that as against 1913, the farmer's cost of production has materially increased, his gross income remains on the 1913 level, his net income is very substantially less, and his cost of living has increased by some 70 per cent.

These factors supply the answer to explain the present tendency to leave the land. In order to exist in these terrible years of depression, the farmer has had to tighten his belt, to dissipate his savings, and in far too many cases to increase his indebtedness.

International comparison

Even among those who are not as urban-minded as the average urban dweller, and who have a certain sympathy with the agricultural position, the problem is lightly disposed of with the statement that agriculture is depressed throughout the world, and that the position here is not worse than in most other countries as far as the farmer is concerned. That, again, is not an accurate

statement. I have examined figures from a number of countries of the price index of agricultural commodities and the cost-of-living index. While the price index is not a true measure of the net income of the farmer, owing, as I explained before, to the cost of production, yet the relationship between the cost of-living index and the price index gives some indication of the relative positions. I give you the figures for the ratio of the cost-of-living index to the price index, which is in a general way an indication of the amount of the farm products-say gallons of milk-that must be sold to buy the same things as one gallon of milk bought in 1913. The figures are as follows:

Germany - 1.21

United Kingdom - 1.15

U.S.A - 1.16

Hungary - 1.28

Sweden - 1.27

NZ - 1.03

Eire 1.60

These figures should, I think, convince anybody that there is a very real and very special problem.

Farm incomes

So far, I have dealt with the evidence available from statistics which are open to everybody. Now I come down to actual figures obtained on farms in this country. The figures to which I am going to refer were obtained for no contentious purpose. They are the result of an enquiry by Mr. M. Murphy of University College, Cork, in 1984, on 81 farms in a dairying district on some of the best land in the country. The investigation, for which Mr. Murphy deserves the greatest credit, covers every item of outgoings and income during two years. The net result of this investigation is that in the year 1984 the farmer in that district obtained for his labour an amount substantially below what he paid to his worker at that time, and still more below the present statutory wage of an agricultural labourer. He got no return on his capital-and this was the position on a district where the land is particularly fertile, and far above the average for the country.

Things have undoubtedly improved somewhat since then as regards the price level, but as far as the farmer is concerned I question whether they have improved considerably from the point of view of his net income, owing to the still further increase in recent years in the costs of production, and owing particularly to the operations of the Agricultural Wages Act. I think this Act needs a passing reference. I have met no farmer-and I have discussed the matter with many-who does not admit that if there are to be farm labourers their economic position has to be improved, but what farmers do complain of is that agricultural wages are fixed without any data whatever to indicate whether

the condition of agriculture is such as to enable the farmer to pay that wage to himself, his wife and the members of his family, who are employed on the farm.

I have endeavoured to present to you a picture of the economic position of agriculture at present. I have based it on facts. Can anyone say that it is exaggerated, and can anyone say that it is not a picture of extreme depression? There is no secret as to the origin of the drift from the country and the low marriage rate in the country.

Before leaving this point, let us contrast the position of other members of the community. In sheltered occupations and in sheltered industries, wages have increased; wages have been adjusted, and in many cases more than adjusted to meet the increased cost of living. There are all the signs of relative prosperity in towns and cities, as evidenced by amusement receipts, motor car registrations, etc. Industrial workers are protected by the 'Conditions of Employment Act'; shop assistants by the 'Shops Acts'. The unemployed are cared for by unemployment relief funds and unemployment assistance. There is no limitation of hours in the farmer's business, but the hours are limited for his workmen. The farmer sees the remuneration of every class of the community increased substantially over pre-war figures, while his net income is considerably less than the pre-war figure, and his cost of living is increased by 70 per cent.

I submit that there can be in the long run no great prosperity in this country until agriculture is made reasonably profitable, and, I add, until the agricultural worker can get a wage which will prevent the drift to urban employment. As consumers, those of our people who derive a livelihood from farming are 50 per cent. There must be a very definite limit to industrial production when that section of the community has such a low purchasing power. It is in the interests of justice and in the selfish interests of urban dwellers to see that every attempt is made to solve this rural problem.

Utilising our agricultural assets

We are living in a country with no great resources in raw material, but we have a country specially favoured by nature from the point of view of climate and fertility to enable us to produce agricultural products. It is, to my mind, in the better utilisation of this great asset that one can hope to provide the increased wealth which is essential to solve so many of our social problems.

Let us now see in what direction a solution may be found: It is a rash man who would venture a long-term prediction as to the trend of prices of agricultural commodities, but he would be more rash if he based his solution of our agricultural difficulties on the assumption of the return to the conditions between the war and the great slump. I think, therefore, that it will be necessary for some considerable time to artificially increase the price of farm commodities so as to maintain reasonable conditions on the land. This artificial increase will be at the cost of the consumer and the taxpayer. That, in my opinion, must be accepted if things are not to go from bad to worse. No thinking person, however, can regard with equanimity the permanence of such an artificial stimulation of prices, especially in so far as it concerns subsidies from the taxpayer on export surpluses. The real solution, to my mind, must be based upon a better, a more rational utilisation of our land to cheapen costs of production and to increase production, and the period of subsidy should be looked upon as a period of reconstruction of our agriculture to that end. If that end can be obtained, it is to everybody's advantage. Greater wealth will be produced, and the price of food will be reduced to the consumer-especially these all-important foods from a nutrition point of view such as dairy products, eggs, meat, etc., which this country can produce under such favourable conditions.

Clearing misconceptions

Here let me digress for a moment to cure some possible mis conception arising from a policy of self-sufficiency in agriculture. One sometimes gets the impression from enthusiasts that the desirable thing is to see every acre of the country growing cultivated crops, and that an acre which is not under the plough is an acre which is not being properly used. I have calculated that even if one went to the extent of producing 100 per cent. of our wheat and feeding stuffs for farm animals, to achieve a production 50-100 per cent. greater than we have to-day, the cultivated acreage under such crops would need to be not more than, say, three million acres, leaving the balance of our 12 million acres under grass. To whatever extent, therefore, the country intends to follow a programme of self-sufficiency--and in view of the general world situation there is much to be said for making our selves independent of food, feeding stuffs and raw materials for agricultural production - I emphasise the fact that the main portion of our agricultural production will be based on grass, and I am of opinion it is in the direction of the production of better grass, its rational conservation for winter use and its better utilisation that the hope lies of increasing production and reducing costs of production to the advantage of the State as a whole, and to the immediate advantage of the farmer.

I venture to make the statement that the greatest asset we have in this country is the 40-inch of rainfall which makes it possible to grow here crops of grass which are probably unexcelled in any country in the world. How are we to increase the production of grass per acre? The first and obvious line of improvement is the utilisation of vastly increased quantities of artificial fertilisers and the more rational utilisation of animal manure. There are three types of land to be considered. The first is the land which, by reason of its soil conditions, makes it capable of growing luxuriant permanent grass. That problem is simple. It is a question of more fertilisers, with, in some districts, questions of drainage, fencing, etc. The best analogy near home to what can be done in the utilisation of such land is Holland, but in Holland the consumption of artificial fertilisers per acre is fourteen times what it is in this country. The increase in production which can be obtained by better fertilisation is simply astonishing. Figures were given for actual production on improved pasture in a number of countries at the Grassland Congress held in Aberystwyth last year. In Germany, the figures range up to 4,500 lbs. of starch equivalent per acre, the average for all types of land being about 2,500 lbs. Similar figures were given for Sweden and Canada-countries which by reason of climatic conditions are not nearly so favourable for grass production as this country. The calculation on the 80 farms which Mr. Murphy investigated showed that the production was only about 1,400 lbs. starch equivalent per acre, and this was on some of the best land in the country. It is necessary to dwell upon the possibility of improvement in the economy of farming which can be effected in this direction. I have no doubt whatever that on these farms pro duction of milk could be very substantially increased with an expenditure which would be relatively small compared with the total cost of production. On these farms the production of butterfat per acre was 66 lbs. as against an average of 117 lbs. on 500 New Zealand farms which were costed by the New Zealand Department of Agriculture.

The second type of land is the lighter land which does not grow permanent grass so well. It is my opinion that on this type of land we should copy the example of the Scandinavian countries and use the plough to grow better grass, or rather to grow luxuriant crops of clover, to be laid down for three or four years before the land is ploughed again. I think that this is the rational way to approach the question of increased cultivation, the production of grain crops to be largely regarded as a by-product of the pro duction of grass on a rotation which will maintain and increase soil fertility; for, as you know, the action of the clover plant in fixing nitrogen in the soil will render unnecessary the utilisation of artificial nitrogenous fertilisers.

The third type of land is the poorer land, particularly in hilly and mountainous districts. Here, depending again on the quality of the soil, both types of improvement could be developed, and on these lands the problem of the farmer is especially acute.

Conserving grass

I have indicated the directions in which the greater production of grass can be effected. Equally important t- if not more important - is the rational conservation of that grass for the use of farm animals during the winter. I have no doubt in my mind that the fundamental problem in our agriculture-the hitherto unsolved problem - is how the farmer is to produce on his own farm (for if self-sufficiency is desirable anywhere it is desirable on a farm) winter food for farm animals in such quantities and of such high nutritional value, particularly in the all-important protein, as will enable the farmer to continue production throughout the year. I say that is the fundamental problem. To anyone who travels in this country in the month of April, the emaciated condition of store stock and cows must be evident. The truth is that in this connection our agriculture is merely primitive. Production as regards milk and live weight increase is vigorous during the few short summer months from the time when the animal has recovered from winter starvation until the grass ceases again. During the winter the animals starve. Some years things are very bad. In the Summer of 1930 I asked a creamery manager in South Tipperary to explain the drop in the milk supplies. He informed me that a great number of cows had died owing to the bad hay the previous winter.

I got exactly the same reply to the same question in 1931 from a creamery in East Limerick. In- 1937, a farmer in East Limerick told me that 100 cows had gone to the local " skinner " from his immediate neighbourhood. I know one farmer who lost three cows out of 12 - 25 per cent of his working capital gone. On a farm in North Tipperary I met a veterinary surgeon who told me he had been called to a farm where fifteen young cattle had died, and he diagnosed starvation. As a result of the bad hay in the winter 1936-7, production of milk in the creameries in 1987 was down by about 10 per cent. Mainly as a result of bad winter feed, the yield of milk per cow in this country averages about 420 gallons as against 700-750 gallons in Holland, Denmark, and New Zealand.

A Finnish example

That is a true picture of our livestock farming. Let me give you another picture. In 1936 I was on a farm in Finland. The farm consists of 70-75 acres of what we would regard as indifferent land. The stock consisted of 25 cows, a bull, 10 heifers 8 calves and 4 horses. The cattle were housed for eight months of the year, as on account of the severe climatic conditions there is only four months grazing. The yield of these cows averaged 900 gallons of 4 per cent. milk, and no food whatever was brought into the farm, and no nitrogenous fertilisers were used. That example is now fairly common in Finland. The farm to which I referred is owned and operated by a Professor of Bio-chemistry, Prof. Virtanen, who has, through his researches in the laboratory of the great co-operative organisation, Valio, given us the means of solving our major problem, by a process which he developed nearly ten years ago, and which is in operation on tens of thousands of farms in Scandinavian countries. It consists of preserving young grass or clover in silos by the addition of certain mineral acids as the fodder is being packed into the silo. The fodder is preserved with a loss of only about 10 per cent., and with practically the same nutritive qualities as it had when it was taken from the mowing machine. This process has been rigorously tested by scientists in many countries, and, in my opinion, the utilisation of that pro cess by farmers in this country with the young rich grass which we can produce on the good pasture lands by proper manuring, and with the clover which we can grow on the lighter farmlands would effect a veritable revolution in our agriculture. That fodder, with the utilisation of other home-grown foods, such as potatoes, grain, etc., would enable us to maintain production throughout the year, as the Scandinavian countries have been doing for a generation.

Revolution in production costs

I say, therefore, that these two developments of better grass production and more rational conservation would produce a complete revolution in our costs of production and in our general farming outlook. I am not one of those who think that the farmer is unduly conservative, and that he will not adopt practices which would improve his economic position. When that point is put to me-as it often is-I recall the introduction of the spraying of potatoes some 40 years ago. I think that is a complete answer, but to have such a revolution in our agriculture, these things must be demonstrated, and that is going to involve hard work and considerable expenditure-expenditure, however, which is a bagatelle compared with the costs which are going to be involved if no solution is offered except " to continue to feed the dog with his own tail." The effect on the farmer's costings of these innovations must be demonstrated. Money must be provided to enable their widespread introduction to be affected. It is obvious in connection with this whole question of agricultural credit that the first thing is to show that farming can be made profitable. If it cannot, credit is no use. If it can, credit must be provided not only for these direct purposes to which I referred, but for modern housing for farm animals of such a kind as will make the tending of farm animals something different from the drudgery which it involves at present. The work of the farmer, and especially of the farmer's wife, must be lightened. They must get some of the amenities of life.

It would take me too much time to go over the whole field of farming problems. I have indicated those problems which seem to me to be the most fundamental in improving the economic position of the farmer, in enabling him to pay a reasonable wage to his labourer and to give him some new interest in his avocation.

Mental starvation

One other point to which I would like to refer is the absolute mental starvation of the farmer in regard to his own job. At great expense we teach everyone to read and write. This country

is unique in the poverty of its agricultural reading - for the vast majority of farmers it does not exist. In Scandinavian, in Holland, in New Zealand, there is a first-rate literature of agricultural periodicals, weekly and monthly, which not only serve to improve the efficiency of the farmer, but to give him that intellectual interest which is absent at present, and some pride in his avocation in life. This question of the future of our agriculture is vital to our economic and social well-being. Wealth does not descend upon the earth like manna from Heaven. It comes only from the rational exploitation of the resources with which Providence has endowed us. In this country the greatest of these are the land and the climate, and if there is to be greater plenty for all, a new interest must be taken in devising means by which a greater and more economic return can be obtained from these resources. The development of new technique suited to our climatic conditions, and based on the scientific advances of the last 20 years, the provision of new capital when it can be demonstrated that it will yield an adequate return, and the mobilisation of our educational resources to disseminate the new ideas-all these are, to my mind, essential elements in the reconstruction of our rural life, and in the restoration of that balance of opportunity between urban and agricultural employment which is essential to prevent the drift from the land.

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We hope that you are all safe and well

We are really looking forward to meeting you all very soon again

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