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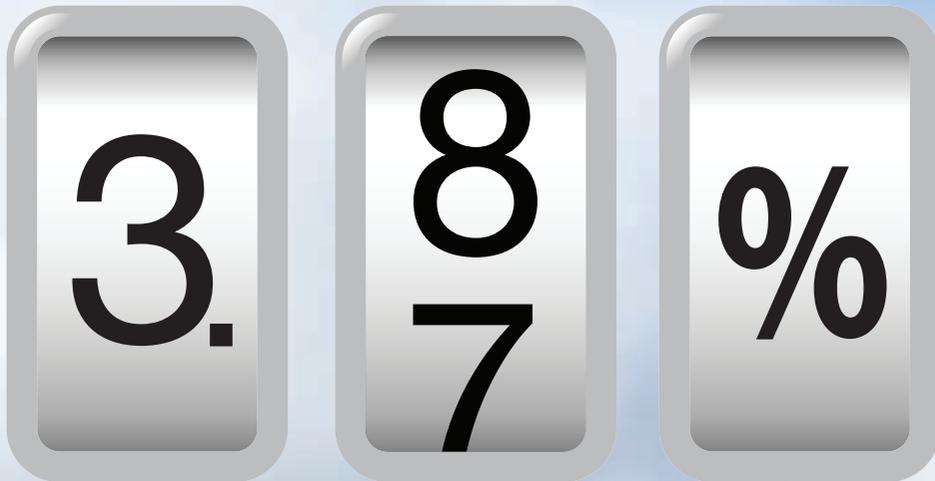
Climate and Energy Focus

Ireland's agri-industry responds to the key challenges

ASA PRESIDENT ANNE-MARIE BUTLER ON THE IMPORTANCE OF SCIENCE TO THE FUTURE SUSTAINABILITY OF FARMING

PIG FOCUS - AFRICAN SWINE FEVER, LIVING WITHOUT ZINC OXIDE AND TIPS FOR NUTRITION

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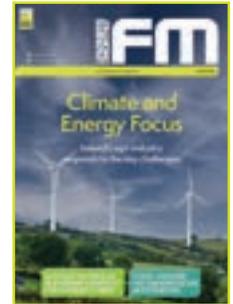
The recent increases in agricultural commodity prices couldn't have come at a better time. Farmer morale has been battered by criticism of their perceived environmental transgressions. Increased BPS Convergence in the next CAP augers badly for many farmers who built up their historic payments through hard work and good business acumen. The adoption of Eco Schemes under new Conditionality measurements will necessitate farmers moving into more unknown territory, the implications of which will impact on their farms and finances for many years to come. Neither the Farm to Fork nor Green Deal initiatives

offer much that can be described as positive for Irish farmers as both strategies are explicit on what will be expected, at considerable expense, from farmers; but worryingly vague on how farmers will gain recompense for their efforts and costs from the marketplace or elsewhere. Pious platitudes abound, but little in the way of guarantees as to the future economic wellbeing of farmers. The Climate Action Bill as it relates to agriculture is another example of high expectations and demands with insufficient acknowledgement of the cost implications for farmers.

The newly launched Signpost Programme, which we delve into in detail in this issue of IFM, confirms the environmental path which farmers will have to follow in the years ahead. There is some confirmation that the various strategies must offer reasonable hope of positive outcomes from the perspective of improved production efficiencies and profitability. Time will tell. While farmers are being positively encouraged to adopt viable climate change mitigation practices on their farms, there is every likelihood that this benign encouragement will be increasingly replaced by compulsion as deadlines for action and results loom. The compulsory measures we already see in place for derogation farming may well be commonplace across all farms in the near future.

Meanwhile, back inside the farm gate, farmers are taking heart from the improved prices we have witnessed across grain, beef, sheep, dairy and pigmeat, though the gains are being eroded by production cost increases. There is reason to believe that current prices will remain steady for the period ahead. Demand and consumption are rising as the world emerges slowly from the Covid pandemic. Provided the Covid recovery is not reversed by some unknown factor, of which there are many possibilities, the economic recovery, optimistically forecast, should consolidate gains in raw food prices in the short term with an opportunity for food producers to fortify their finances even as production costs rise. The historical fluctuations of commodity prices are not consigned to history, however, and we can expect that at some stage price reversals will again be the order of the day.

Now is the time for farmers to hold their collective nerve. Scientific and technological ameliorations and remedies are being increasingly brought to bear on many of the environmental challenges facing agriculture. In addition, increasing food prices on supermarket shelves may provide some realisation to cost-conscious consumers that food is not either as cheap to produce as many assume or as freely available and in surplus as is generally thought. Grain is a case in point. Its production in abundant quantities is essential to the stability of every mainstream livestock enterprise as well as being a direct food mainstay for millions of people across the planet. There is little realisation that grain stocks at any one time are precariously balanced. A combination of weather induced lower plantings and similarly challenged harvest conditions, allied to increasing global demand could, at any time, push that production/demand ratio into a sustained deficit position. It may be only then that the general populace realises how tenuous the age of plenty is in reality.



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Guild celebrates its 60th birthday



Amy Forde and Damien O'Reilly pictured at the last Guild of Agricultural Journalists of Ireland awards

The Guild of Agricultural Journalists of Ireland was formed in 1961 and next month will see the launch of a video to celebrate six decades of the Guild. Among those interviewed is Larry Sheedy, who played a significant role in setting up the Irish Guild, along with former *Irish Farmers Journal* editor Paddy O'Keeffe and Michael Dillon. According to Larry it was Paddy's idea for Ireland to join the International Federation of Agricultural Journalists (IFAJ). The organisation today has a worldwide membership of 5,300 journalists across 55 countries. Paddy had attended a number of meetings in Paris in the 1960s and was the first Irish international delegate to represent Ireland. In those days the Irish Guild held quarterly meetings in Ballymascanlon hotel. Others participating in the celebration video are Michael Miley, Damien O'Reilly, Ciara Leahy, Mairead McGuinness, David Markey and the current Guild Chair Amy Forde.

Both Sheedy and Markey served as IFAJ World Presidents. The Guild, which is an All-Ireland organisation, will also have contributions from Richard Halloran the current Guild President and former President Brian Donaldson. The video is being produced in partnership with FBD.

Talking of the Guild, we hear that one of Cork's favourite sons Stephen Cadogan, a long-time supporter of the Guild, is retiring from his role at the *Irish Examiner*. Stephen is very well respected among his peers and has done a fantastic job since taking over as Farming Editor. We wish him well in his retirement.

Another prominent Guild member, Liam de Paor, fully deserves the acclaim he has received with a recent high-profile award. Liam's company, De Paor Consultancy, was declared winner of the Best Animal Health Environmental Consultancy for 2021 in the Irish Enterprise Awards organised by EU Business News. Liam, formerly Managing Director of Volac Feeds, started his PR business in 1998 and has an impressive list of clients.

A double-jobbing role for Damien?

It was an interesting move by Fran McNulty to jump over to a Prime Time role. He had been outstanding in his relatively brief sojourn as Agricultural Correspondent with the national broadcaster. Most objective observers would have given him credit for being well informed and objective in his analysis and reporting on farming and agri-industry matters. With the financial pressures on RTE, it could look to Damien O'Reilly to step into a dual role. A combination of Agricultural Correspondent and Countrywide presenter would make Damien a very busy bee indeed, but it would be a logical appointment. O'Reilly is highly respected among his peers and has a deep understanding of Irish and global agriculture. Currently, he is the International Federation of Agricultural Journalists International delegate, and was one of the journalists, 10 years ago, who set up the European Agricultural Journalist Organisation, ENAJ, in Brussels.

Eco credit due to farmers

The initiation of a 'census' to determine the baseline biodiversity on Irish farms is a welcome, if tardy, development. Farmers are fed up with being criticised when everyday they are looking at the wide and varied biodiversity on their farms. Add on all the initiatives taken in recent years by individual farmers at their own expense to further increase biodiversity on their farms and it adds up to a considerable and impressive body of work. That has not and will not prevent the ongoing criticism of farmers as desecrators of the natural environment. What farmers must beware of is the possibility that when the quantifications are made of the levels and standards of biodiversity they have on their farms, they are not used as baselines for individual farms. Credit must be given for existing biodiverse aspects of farms when the awaited eco-schemes are introduced under the next CAP. If a farmer is to be encouraged to increase hedgerow prevalence on farm to a specified level, for instance, then surely farms with existing hedgerows of the required acreage should be equally supported under eco-scheme measures. Baseline measurement should be used in a benchmarking manner not as a starting point.



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It's 225 years since Edward Jenner discovered the medical wonder that is vaccination. In 1796 Jenner took a sample of cowpox pus from the hand of a

milkmaid, Sarah Nelmes, and after scratching the arm of his gardener's son, James Phipps, inoculated him with the cowpox sample. Anecdotal evidence had informed his experiment. It was said that people infected with cowpox, a relatively benign 'cousin' of smallpox, did not subsequently contract Smallpox, a deadly disease that accounted for many thousands of deaths and disfigurements every year across the world. Edward Jenner put the hypothesis to the test and young Phipps lived to tell the tale after he was subsequently deliberately infected with Smallpox by the now renowned physician.

The terms vaccine and vaccination are derived from the latin phrase 'variolae vaccinae', the phrase devised by Jenner to denote smallpox vaccination. It translates as 'a scratch of cowpox'. Vacca is the latin name for cow. The cow in question was known as Blossom, and she, ultimately, provided the immunity to a disease that has, through mass vaccination, been eradicated from the world. Today's Covid vaccines are produced under the highest scientific and medical standards and Jenners approach would now be considered irregular to say the least. But Jenner and his unknowing accomplice, Blossom, could be reasonably considered as the Father and Mother of Vaccination.

Teagasc looking for a new Director General

Gerry Boyle will leave an impressive legacy from his years as Director General of Teagasc. He retires in September and the favourite to take over in the role right now is Frank O' Meara. Frank, who is Director of Research, is highly respected both within the organisation and the agricultural industry. He is not a shoo-in however, with a range of high-profile names with strong credentials available to take on the Teagasc leadership role. Within Teagasc, names being mentioned include Stan Lalor and Thia Hennessy, both of whom have outside experience, having worked in Grassland Agro and UCD respectively, during sabbaticals from the home ship. Gerry Boyle himself was chosen to head up Teagasc back in 2007 from outside the organisation so an external appointee is another distinct possibility, though staff morale might favour an insider for the job. Either way, there are plenty of challenges facing the next Director General of Teagasc.

No trace of Protected Urea



The latest trace testing for residues of the Urease Inhibitor NBPT (used in Protected Urea products) in milk samples has come up clean. That

has to be reassuring, as any evidence of a carryover from the fertiliser to food would have severely damaged the reputation of the product as an important aspect of Irish agriculture's strategy to reduce emissions and nitrates loss from fertiliser. The trace testing showed that at an extremely sensitive detection standard of less than 2 parts per million, residue from the treated urea product is not present in milk. Some concerns had been expressed about the possibility of protected urea residues showing up in milk and milk products. The testing, carried out as part of Protected Urea trials at Teagasc's Johnstown Castle Research Centre confirmed the absence of any carry-over from grass to milk, either in individual cow's milk or in bulk milk. It is another case of the science around reducing emissions standing up to the closest scrutiny regarding efficacy and safety.

Macra increase membership



Last month Macra elected Laois man John Keane as National President to take over from Thomas Duffy. Keane, a dairy and beef farmer, is already well known in farming circles, and has a reputation for having strong organisational skills. His tenure as National Chairman of Macra was impressive for the manner in which he conducted meetings and ensured that outcomes were acted on. John's election comes at a very important time for Macra with huge decisions being made on the next CAP which will impact farmers for generations to come. Young farmers, especially, will be hoping for preferential treatment to reverse the severe aging of the farm sector across Europe.

Despite the pandemic, Thomas Duffy and Denis Duggan have managed to increase membership with Macra becoming even more relevant to its members over the last year. Duffy served the organisation with distinction during his two-year term and his particular skillsets in highlighting and defending the environmental credentials of Irish agriculture will be needed in the years ahead. We hope he will develop new roles for himself in the broader agricultural sector. Meanwhile, we wish John Keane the very best in his new role as Macra President.

STRATEGIC TRACE MINERAL INJECTION BYPASSES THE HARSH RUMEN ENVIRONMENT AND "MINERAL TIE UP"

In 2013, a survey of grass samples from 44 farms across Ireland showed pasture trace mineral levels at 73%, 50% and 38% of lactating dairy cow requirements for copper, zinc and selenium respectively, meaning cattle can be on the threshold of subclinical or clinical trace mineral deficiency during the grazing season¹.

Daily oral trace mineral intake is essential for maintenance, but the issue of low pasture trace minerals is exacerbated by trace minerals being relatively poorly absorbed from the digestive tract regardless of the source².

Furthermore, oral trace minerals face the additional challenges of antagonists such as sulphur, molybdenum & iron. These antagonists can bind to the essential trace minerals like copper and selenium, "tying them up" and decreasing absorption further³. Some continental beef breeds are relatively poor milkers, coupled with low trace mineral levels in the milk, means that as calves at grass grow they will deplete their trace mineral stores, which could lead to subclinical or clinical deficiency developing mid-season, adversely affecting growth rates⁴.

In regions that have pastures high in antagonists like parts of the US or Australia, strategic trace mineral injection has for years been an effective way to overcome this challenge. Strategic trace mineral injection has been documented as a means to rapidly increase cattle's trace mineral stores ahead of high demand periods.

In a 2012 study, supplementing cattle with a trace mineral injection showed statistically significant increases in plasma trace minerals within 8-10hrs post injection and increased liver levels within 24hrs⁵.

Hartman et al (2018) demonstrated that beef cattle fed a diet containing greater concentrations of antagonists like sulphur and molybdenum had greatly decreased liver trace mineral stores. As part of this study, the cattle's trace mineral stores were attempted to be restored by either trace mineral injection along with a maintenance diet or by high trace mineral diets alone. Regardless of the dietary antagonism present, trace mineral injection rapidly improved the copper and selenium status of the cattle. Oral trace minerals supplied at 150% of the daily trace mineral requirement from organic/inorganic blend took 28 days to recover optimal trace mineral levels and an inorganic diet, also at 150% of daily trace mineral requirement, took 42 days⁶.

Cattle grazing pastures that have poor trace mineral levels or a high antagonist burden are at increased risk of developing subclinical trace mineral deficiency and this may negatively affect performance.

Good oral nutrition is essential for maintenance, but oral nutrition alone can take weeks to build back up the trace mineral stores in depleted cattle. Injectable trace mineral supplementation has been shown to quickly restore mineral reserves and thus could improve herd performance through high demand periods and support profitability.

ASK YOUR VET ABOUT STRATEGIC TRACE MINERAL INJECTION.

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Ploughing Executive Cancel Trade Exhibition & World Ploughing Contest

The NPA Executive have announced their decision to cancel the 2021 Trade Exhibition following months of monitoring the Covid-19 status and taking into account the Governments updated roadmap for the next few months. The World Ploughing Contest, due to be held in Ireland to celebrate the 90th Anniversary of the NPA, attracting visitors from 30 countries, has also been cancelled given the extent of current international travel restrictions.

Commenting, the NPA Managing Director Anna May McHugh said: "It's a massive disappointment to the Association to have to cancel the trade exhibition two years in a row in particular when you consider the estimated annual economic impact of €50 million that will be lost to the Irish economy. We are very conscious of the loss of revenue for our exhibitors and the disappointment of patrons. However, the

NPA is a strong establishment, we have a massively committed team behind the event, our exhibitors and our patrons have been very loyal over the years and we look forward to bringing the Exhibition back at its full potential in 2022. We will run our National Ploughing Competitions this year and hopefully we can welcome some visitors, pending regulations." The plan will be to build a programme of activities around the "Ploughing Competitions" that will keep the focus on "Rural Ireland" during Ploughing Week (15th-17th September), which will include virtual content promoting exhibitors, combined with a week of highly interactive and immersive #Ploughing2021 digital activations for all to get involved with. The NPA have also confirmed that the event will return to Ratheniska in 2022 from 20th-22nd September.

€9,000 Prize Fund for RDS Irish Forestry Awards

A prize fund of €9,000 should encourage foresters to apply for the 34th RDS Irish Forestry Awards, which are now accepting entries. Mr Dermot Power, Chairman of the RDS Committee of Agriculture and Rural Affairs said: "From magnificent historic woodlands, to innovative commercial forests, the awards highlight inspiring examples of the benefits and diversity of forestry in Ireland. Last year's award winners have achieved a balance between the economic and environmental needs of the sector and the RDS is proud to play its role in recognising the very best in Irish forest and woodland management." Ross Buchanan of Carndonagh, Co. Donegal was the recipient of the 2020 RDS-Teagasc Farm Forestry Award. The 146-hectare farm has been in the family

for generations and was traditionally used for sheep production with some grain. Ross planted 48-hectares of an outlying farm in 2006 with a diverse range of species. This has opened up new opportunities for farm diversification and as such forestry is now very much an integral part of the farm. The 2020 RDS Production Forestry Award went to Peter and Patricia Farrelly, Moynalty, Kells, Co. Meath; and the winner of the 2020 RDS Community Woodland Award was Rossmore Forest Park Co. Monaghan. Application forms are available at www.rds.ie/springawards - the closing date is July 9th. Award winners of each category will be announced at the 2022 RDS Spring Awards which will take place in the RDS Concert Hall in April next year.



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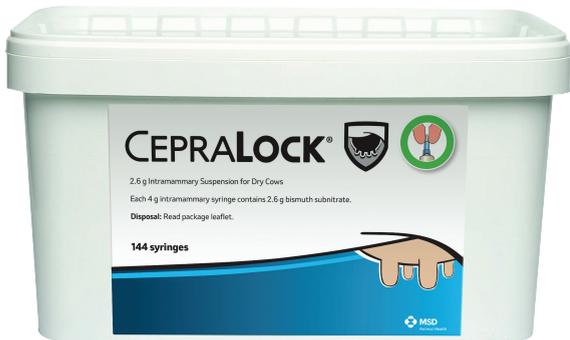
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New teat sealant from MSD



CepraLock® – a new teat sealant recently launched by MSD Animal Health highlights the company's commitment to the future of udder health in Ireland. Available to vets and farmers from June 2021, this new teat sealant is a significant addition to the current MSD Animal Health dry cow portfolio - complementing its market leading dry cow intramammary product Cevravin® Dry Cow and the wider dairy herd health portfolio.

With new regulations on veterinary medicines coming into effect in January 2022, MSD Animal Health says that it is dedicated to supporting both vets and farmers, by supplying them with the necessary tools required to safely transition from blanket dry cow therapy practices and the adoption of a more selective approach to dry cow therapy based on individual cow information. This is known as a more holistic, cow-centred approach industry wide.

Speaking at the recent MSD Animal Health webinar, Udder Health - The Past, The Present and The Future, Peter Edmondson, Veterinary Consultant, stated: "The veterinary practitioner has a really important role to play in the transition from Blanket Dry Cow Therapy to selective Dry Cow Therapy. This is an opportunity for veterinary practitioners to engage with and educate clients on best practice protocols such as hygiene, product selection and data driven decisions for a more sustainable approach to Dry Cow Therapy." According to Dr. Jantijn Swinkels, DVM, PhD, Ruminants Technical Director Veterinarian at MSD Animal Health, all "farmers should be using internal teat sealants, with studies showing that nearly 25 per cent of teat ends remain open for as long as six weeks after drying off. "Adding a teat sealant to a dry cow management program helps prevent infection and supports the responsible use of antibiotics."

CepraLock® is designed for use at drying-off, with or without a dry cow intramammary antibiotic, and provides an important inert barrier in the teat canal to reduce the risk of a bacterial infection of the udder during the dry period.

CepraLock® will be available from June 2021 and can be purchased in single boxes of 24 tubes (6 cows) and buckets of 144 tubes (36 cows). Both include biodegradable disinfectant wipes for udder preparation.



Finishing at grass: Weighing up your options

Maeve Regan,
Head of Ruminant Nutrition, Agritech

Over the next few months (mid-June to late October), a substantial number of beef cattle will be slaughtered off grass.

When cattle are housed for finishing, the cost/kg of live-weight gain typically increases by up to 50%, compared to finishing directly off grass. Feed costs account for 75% of variable costs in Irish beef production systems. Grazed grass is estimated to cost circa €70/tonne of dry matter, with grass silage costing approximately double that and concentrate prices trending well over three times the cost of grass at present. Therefore, in the current climate, optimising the contribution of grazed grass within the animal's diet and using silage and concentrates as strategically as possible will help increase margins within beef finishing systems.

Grass quality

Excellent grassland management will underpin the success of finishing cattle efficiently from grass. Energy is the main driver of live-weight gain in cattle and should be maximised throughout the finishing period. At grass, this is achieved by utilising top quality grazed grass (target covers of 1,200-1,600 kg DM/ha (8-12 cm)) throughout the grazing season. Aim to have cattle no longer than three days in the one paddock/area. Swards should also be grazed to 3.5-4 cm to maintain quality for the subsequent rotation.

Feeding concentrates at grass

Supplementation rates at grass will be dependent on grass availability, grass quality, animal type (helping to achieve adequate fat cover in continental breeds) or to speed up the finishing period where prices increase. Supplementation rates of 3-4 kg where grass quality is adequate or 5-6kg where grass quality is poor/supply is low, are typical from mid-summer onwards. A high energy, low protein supplement will suffice at this time of year as adequate protein will come from grass. Grouping cattle on their ability to finish off grass is also worthwhile (age, breed and gender). A 'build up' period to a concentrate finishing diet can be implemented while at grass for those groups returning to the house prior to slaughter.

For further information, contact your local Agritech sales advisor or visit www.agritech.ie.



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InTouch

Small changes will make our systems more resilient

Cathal Bohane, InTouch Nutrition

Farming is never dull, and there is always some new challenge around the corner to overcome. It has been a strange year, and it has not even really got going yet. Weather has played a major part in this, and we are not sure what to expect going into the future. We started the growing season with a lack of rain, which is unlike a country like Ireland, followed by low temperatures with frosts and hail late into the season, resulting in poor ground temperatures and, thus, growth.

For most, breeding and silage are at the forefront of our minds. The success of these two areas will have knock-on effects long after the event has passed or been completed. Breeding should be into the second round at this stage, and while we are crossing our fingers for as few repeats as possible, some will inevitably happen. Keeping a handle on the figures thus far, rather than waiting for scanning results later, will allow you to continue to achieve greater success. For a 100-cow herd, there should be a submission rate of 90% for the cows available to be served, or 90% should be seen in heat. Ideally, 65% of these should go in calf at the first serve and a further 65% in the second serve. If this all goes to plan, then you will have >85 cows calving in approximately six weeks next spring. As described in an earlier article, this depends on a number of factors, with the basic principles of consistency and measurement being key. Measuring how they are performing and where you want to get to. Measuring their production, their intake and matching this with supply and quality, remembering that weather will play a large part in all of this. Trying to keep cows in calf and not giving them supplement when they require it, or where the weather is bad or forcing them to graze out strong paddocks, are recipes for disaster.

Taking out some of these strong paddocks and putting them into the pit or taking a few high-quality bales for buffer feeding later should be the plan if the farm cover allows it. Focusing on high-quality silage for the first and second cut should also be at the forefront of our minds. It is not just about getting silage for the winter. It is about trying to get the best quality feed for cows in the springtime when they will be doing >25–30 litres. We need to stop and think about why we are getting 10.5 ME or 0.7 UFL with 12% protein silage each year, and by changing 2–3 simple things, we can achieve higher quality silage.

June and July are the months we should be getting a lot of our milk production, but the majority of us end up with just 90% of what we are destined to produce. There is no reason why cows should not maintain production during this period or, in a worst-case scenario, drop by up to 2% per week. We see herds dropping by 3–4% per week by simply not meeting the intake and quality requirement of the cow due to poor grass growth and allocation, poor supplement levels and weather. While the weather is deemed an uncontrollable, how we react to it is not and bringing in concentrate first, followed by high-quality forage based on the severity, is the solution. Together, all these small changes can make our farming systems more resilient.

Cork Students Crowned Winners of Ireland's Leading Agricultural Competition



Five students from St. Aloysius College, Carrigtwohill, Co. Cork were announced as the Overall Winners of the 2021 Certified Irish Angus School's Competition. The initiative has become Ireland's leading agri-competition for secondary school students and this year's winning group are five students – Emily O'Donovan, Kelsey Hourigan, Helen Savage, Leah Buckley, and Rachel O'Gorman – all of whom come from non-farming backgrounds.

The winning group explored the topic 'Communicating with the Consumer & Producer' throughout the course of their 18-month project. In an effort to educate consumers on the beef process, they created an app called 'Angus Adventures', which is available to download from Google Play. The successful app focused on the daily tasks of a farmer to inform consumers of the hard work that is required to produce Certified Irish Angus beef from farm to plate. The students developed a fun game, allowing app users to 'rear' an Angus animal that needed to be fed, dosed, watered and washed, as well as providing interesting facts and information about the Angus breed and the school's competition.

Speaking about the winners, Charles Smith, General Manager, Certified Irish Angus said: "For a group with no farming background to have been able to embrace an agricultural competition with such enthusiasm and dedication and to have immersed themselves in every aspect of beef production was hugely impressive. They enthusiastically involved themselves in everything from genetic research to attending on-farm events where they were willing to participate in wide ranging activities including sweeping yards and clipping pedigree cattle! The passion with which they explained and displayed the benefits of Certified Irish Angus Beef to consumers was incredible. Overall, their grasp of every element from production and processing to promotion was impeccable. In the judges' views, these young ladies were very worthy winners." Josh Lovely, Iarla Nolan, and Jordan Greiner from Castleknock College, Co. Dublin were announced as the runners up at the 2021 final of the competition having focused on 'The Benefits of Eating Beef as Part of a Balanced Diet'. The third award is one that celebrates and accredits a particular individual who impressed the organisers and judges throughout their time in the competition. One student from each finalist group was shortlisted with the award going to Iarla Nolan from Castleknock College, Co. Dublin.

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Anne-Marie Butler, President of the Agricultural Science Association (ASA), discusses the importance of science in ensuring a viable future for our agricultural industries.

ENSURING SCIENCE LEADS THE WAY

Having been involved in the ASA since graduating from UCD, Anne-Marie Butler says she was delighted when she was nominated last September to become president of the organisation. Her immediate focus was to put science centre-stage. “The number one thing is science. Science, I believe, is more important now than ever for the agri-industry. Informed science based on data needs to be at the forefront of all debate. We can’t be purely advocating for agriculture without backing up our arguments with solid science.” Anne-Marie notes that science is what links the membership base together: “Science has a connection to all members. When we look across our membership, there is a huge diversity there, in age, in occupation. We have a roughly 50/50 male/female representation, which is great. But there is a reason you see this diversity, from bankers like myself to those involved in academia: these are people who are not necessarily getting up-to-date scientific agricultural research in their everyday job and it is important that we all hear what is happening. Only recently, for example, we had an event on multi-species swards with over 200 people in attendance. We had great feedback that ASA provides a forum to hear the latest science and research such as the great work in the area of MSS.”

Membership

Secondly, Anne-Marie is keen to help build the organisation’s membership and champion the importance of community across the association. “I think Covid has highlighted this: a lot of people join the

ASA for the networking and the friends that they make. I have tried to keep that connectivity going despite not being able to physically meet so we have held a series of online webinars and we have really increased our level of social media participation. I established a new communications committee within the ASA purely for that reason and we launched a new ASA podcast series Experts in their Field. The podcast has been a huge success: we are averaging about 1,200 listens per episode which is great. It is another way to visit someone's home, to join them on a walk."

However, while the virtual world of Covid networking has offered new ways to connect, Anne-Marie adds that people cannot wait to get back out into the real world and meet each other: "I think that in the new 'post Covid' world the ASA will still rely on meeting up and sharing that science in a face-to-face format. We will still keep some element of the web-based events but I think people want to get back into the field and see the crops growing and see each other in person." Indeed, membership over the past year has grown, sitting at approximately 1,700 currently and Anne-Marie notes it is on an upward trajectory. "I want people to feel there is a relevance to being a member of the ASA. I feel like we have pivoted well during Covid and membership numbers are up. We have done a lot of work on membership benefits this year, re-activating our partnerships and reaching out to our membership base."

Fellowship programme

Since taking on the role of president, Anne-Marie has also launched the new annual Fellowship Programme, sponsored by FBD, which aims to contribute positively to scientific innovation within the Irish agri-food industry while developing Ireland's next agri-industry thought leader. Anne-Marie explains that the €10,000 ASA Fellowship kindly sponsored by FBD Trust will assist the fellow in further developing their scientific knowledge and experience while enhancing their communications skills. "The ASA Fellow is given the opportunity to enhance their existing scientific knowledge by learning from experts around the world, gaining a global outlook on their chosen theme. They will be encouraged to promote and integrate scientific knowledge and data into relatable communications in order to become a strong ambassador for the Irish agri-food industry." The plan is to announce the first ASA fellow at the ASA 2021 conference in September – the theme of which is 'Science: Driving Innovation & Addressing Challenges in Agri-Food'. "The idea is to have a Fellow with a proven excellence in science who will be there as a communicator to advocate for the sector. I think, considering the challenges in relation to environment and policy, it's more important than ever that we have somebody to represent our agri-food industry's interests in a scientific way."

The next generation

Commenting on our future graduates, Anne-Marie notes that the standard of third-level education in Ireland within the agri-science area is really strong. "When I look

back to when I was in college, UCD was the only avenue to achieve a degree in agricultural science. My Agri degree has served me very well – but today there is a huge variety of third-level courses out there, with different focuses and different streams. And, you know the agricultural science graduate has tremendous skills and there is a huge variety of career roles graduates can go into. Our membership base includes farmers, bankers, researchers, journalists, policy makers, horticulturists and scientists. So, as long as the courses remain dynamic and science based, that's the key."

Looking at the challenges that lie ahead for both the farmer and the wider industry, Anne-Marie believes that everyone is on board to work together to tackle environmental issues in a sustainable manner but she is concerned that the agricultural sector is currently being put forward as a 'sacrificial lamb'. "The industry has recognised the challenge and the industry appreciates the work that needs to be done. But when you consider it from a broader, global perspective, the one thing that needs to be addressed is that agriculture isn't presented as the sacrificial lamb or scapegoat in these debates. I think within the non-agri community, agriculture can face a lot of negativity and while I appreciate everyone has their view, it's very important that agriculture is also appreciated for what it does. I don't know any farmers out there who do not support the protection of their environment. We all need to have more joined-up thinking. Farmers have, for generations, been doing their part to look after the environment and, while I don't for a minute think that change is not required, there needs to be proper information and data and realistic solutions agreed. Because, we are a very clean, green country; we have the most efficient conversion of grass to milk and there are other parts of the world that are not as efficient as Ireland."

The Glanbia restrictions

In her role as Senior Agricultural Manager with Ulster Bank, Anne-Marie has also seen the direct effects on farmers of the Glanbia milk restrictions. "We are starting to see customers who are personally impacted – we have had a number of customer inquiries looking at their options, particularly those who had plans on expanding and are now constrained. And it is having an effect irrespective of scale – we are seeing farmers who haven't expanded yet but were planning to as well as those who are on a trajectory of expansion and are now being curtailed. So, it has certainly caused worry for a number of customers." Does Anne-Marie believe that we will continue to see environmentally-linked production restrictions in the future? "I think farmers more than ever want to embrace the protection of their environment. The challenge is going to be the level of constraints versus what farmers are doing on the ground and what it will mean for their system. But I am confident for the future. In my job, I meet young, educated farmers every day who, I believe, will rise to the challenge. There is great vibrancy and creativity out there."



Signposting the future direction of farming

Matt O’Keeffe talks to Siobhan Kavanagh about the importance of Teagasc’s Signpost Programme for the future of Irish farming.

Tom O' Dwyer is leading the Signpost Programme, launched last month, with Siobhan Kavanagh appointed as Communications and Engagement Specialist and Seamus Kearney as Training and Development Specialist. Speaking to Matt O' Keeffe Siobhan stressed the the importance of the new strategy: "A much wider team will be involved across the country in rolling out and implementing the Signpost Programme on farms. The Programme has widespread endorsement from across the agri sector and that bodes well for its success. Forty companies and organisations have committed their support as Signpost Partners at this stage. These include Bord Bia, the farm organisations, milk and meat processors as well as service industries. We have the technologies necessary to fulfil the aims of the Programme and our Signpost farms will lead the way towards widespread implementation on farms across the country."

An important template for Irish farming

So how important is the Signpost Programme as a blueprint for the future of Irish farming? "This will dominate Teagasc's approach in the years ahead and is our flagship programme. There is a very holistic approach being taken. It's not only environmental, it has implications for all areas of sustainability, social, economic and environmental. The Signpost farms will be key to demonstrating best practice, especially in environmental terms, on farms."

One hundred pioneers

There are two main components to this programme, as Siobhan confirms: "The first one is the demonstration farms with one hundred of them dotted around the country. They will cover all the main enterprises. We have about two-thirds of them already signed up. We are piggybacking a little on some of the existing programmes, the likes of the Teagasc/Glanbia Open Source Programme, for instance. Participants in the existing Kerry, Dairygold and Carbery programmes are included. We are not trying to reinvent the wheel. There are dairy farms and beef enterprises, including the Green Acres dairy calf-to-beef farms. The Sheep BETTER Programme participants are represented. Aside from those, we will have to involve other enterprises including organics, tillage farms and examples of regenerative farming enterprises. The idea is that our research outcomes can be demonstrated on farms across the country. Existing technologies to reduce emissions will be adopted on the Signpost Farms and we will see novel technologies emerging and made available to be demonstrated on the farms. The second part of the programme is the advisory aspect. That will involve working with all farmers, not just Teagasc clients but everyone involved in farming. It will be a collaborative process with all the partners involved. Teagasc advisory and education staff, private industry advisors and private sector advisors will all have roles to play. The Programme will be delivered through a network of discussion groups, through events, through one-to-one consultations and through media, both traditional and the new digital communications systems that are now available. The training aspect will be a big part of making this programme succeed, involving our existing farmers and the next generation through our third level colleges. Ultimately, the Signpost Farms locally are key because local farmers will have an immediate opportunity to see what is involved and adopt new farming practices and management skills themselves. My role, ultimately, will be to ensure that the information is spread out from the Signpost farms."

"Farmers are being asked to make significant changes to the way they farm in a relatively short period. We have to be cognisant that the changes made to improve our environmental credentials are also economically sustainable."

Full involvement is critical

It is critical that all farmers are involved and committed as Siobhan Kavanagh acknowledges: "Teagasc has up to 43,000 farmer clients, so that's a big cohort and we need to ensure that every other farmer is communicated with and becomes involved in making this work. That's why our industry partners are so important. They have frontline staff interacting with farmers and that engagement will be very important. Our ability to communicate will be critical in securing positive outcomes in the coming years. Some of the technologies are easily adoptable. The use of Protected Urea is an example. So, getting that adopted widely should be straightforward. Incorporating clover will take more effort because it requires specific sward management. Reducing overall chemical fertiliser use has a range of components in terms of grass and soil management so there's a challenge there too."

Significant emission reduction required

Ultimately the aim is to significantly reduce emissions over the coming decade: "We need a 10-15 per cent reduction, firstly on the Signpost Farms and then on all farms by 2030. Early progress will be important. We need to get adoption rates up from now, not in 2028 or 2029. There may well be policy changes along the way as well as incentives to support change on farms. New research will further drive the programme. Farmers can only control what is inside their farmgates."

Outside support will also be important.”

Is it, literally, a revolution that is needed in farming practices: “Farmers are being asked to make significant changes to the way they farm in a relatively short period. We have to be cognisant that the changes made to improve our environmental credentials are also economically sustainable. That’s one of

the important aspects we want to demonstrate on the Signpost Farms. We can make dramatic changes that will deliver viable results for farmers as well as for the environment. All the demonstration farms will be in the National Farm Survey so the figures will be available for scrutiny. We can track the economic and environmental benefits of participation. Better

use of cattle slurry, clover incorporation, protected urea and reductions in nitrogen fertiliser application, reducing beef slaughter age, breeding more efficient animals, all of these practices are already working profitably on some farms. Now we need to have them widely adopted across all farms. It will require a change in mindset as much as in

farming practices. Reduced nitrogen fertiliser can deliver big positive results and we are showing it need not reduce profitability if other management changes are made at the same time. Even accurately calibrating spreaders will be important to avoid wastage. The bottom line is that many of the technologies will leave more money in farmers’ pockets. Breeding greater efficiency into our livestock, for instance, has no additional costs and can deliver higher profit to an enterprise. There is a practical lead-in time so we need to act quickly.”

The science of carbon sequestration

Carbon sequestration measurement will be a key research feature of the Signpost Farms, Siobhan says: “Each Signpost Farm will be part of the National Agricultural Soils Carbon Observatory. That means taking deep soil samples to build up a profile of the amount of carbon stored in our soils. Soil samples will be taken early in the Programme and then further out to look at changes in carbon storage in the interim. An important fact of the Signpost Programme is that we have research, advisory and education supports available to us. There is nothing as sophisticated or proactive being attempted anywhere else in Europe so it will be closely observed by the international agricultural community with a view to the Programme being a definitive means for agriculture to improve its environmental credentials internationally.”



Shayne Meyer, Tragedy Farm Forestry Award, presented to Siobhan, Co. Donegal, winner of the 2020 RDS-Tragedy Farm Forestry Award

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IGA on virtual tour this summer

This June and July the Irish Grassland Association is hosting a series of online events and virtual farm visits.

The 2021 Irish Grassland Association Sheep conference will be held online on June 16th at 8pm. The theme for the event is 'The use of innovative practices to enhance flock management and performance'. The conference will see three sheep farmers discuss their systems of production and will focus in on where each farmer has used innovative practices or technology to improve the management of their flock and increase overall flock performance. The Host Farms include Alan Cole from Athy. He farms 200 mid-season lambing ewes and all lambs are finished on farm. There are multiple enterprises on the farm with spring barley, winter wheat and contract rearing of 60 dairy heifers. Alan puts a big focus on grassland management for his sheep flock and dairy heifers. The second farmer will be Peter McGuinness. He farms in partnership with his father Tom in Trim. Over 800 ewes are lambed outdoors on the farm. Single and twin bearing ewes are outwintered with triplets housed. The third virtual sheep farm visit will be on the McGowan farm in Perthshire, Scotland where Neil McGowan farms alongside his wife Debbie. The McGowan's are farming 1,200 breeding ewes and 220 suckler cows on 485 hectares of upland ranging from 400 to 750 feet above sea level.

IGA Virtual Beef Tour

The 2021 IGA Beef Event will also take an online format - hitting mobile phone, tablet and laptop screens on Tuesday, July 13th - kicking off at 8:00pm.

This year's event will have something for both Irish suckler and beef-finishing farmers. The online event will carry two different segments: 'Inside the gates of Ireland's largest suckler farm' and 'Qualifying for - and the benefits of - the grass-fed standard for Irish beef'.

The virtual farm visit is with John Kingham, the manager

of Ireland's largest suckler enterprise - Tateera and Rathmore Farm - based in Louth and Meath. John and his team have grown the herd size to 500 cows - consisting of Simmental, Limousin and Belgian Blue genetics. The suckler herd spans across 1,000ac, with calving split between spring and autumn.

The online second segment will be based on the grass-fed standard for Irish beef. Firstly, beef farmer, Allen Callagy, will talk about the management of his beef-finishing enterprise and how his slaughtered animals qualify for the grass-fed standard. Allen farms in Kildare. The farm is fragmented and laid out in three blocks up to 4km from the farmyard. The beef system is based on the purchase of 100 continental weanlings each autumn, with all stock brought through to beef.

The final speaker from Bord Bia, Rory Mannion, will dive into the inner workings of the standard - detailing the required criteria to be eligible for the standard.

IGA virtual dairy event

This year's online IGA Dairy Summer Tour on the 21st of July, visits two farms, 300km apart, with an emphasis on clover in the sward. Kevin Moran farms near Caherlistrane, Co. Galway and in the last few years has focussed on reducing his nitrogen fertiliser inputs and incorporating clover on his farm. Then the focus will move south to the farm of John Joe and Andrew O'Sullivan near Rosscarbery, Co. Cork. John Joe began using clover as part of his farming system in the 1990's and still does so. The discussion will show what clover has done for John Joe and what it continues to do for him and son Andrew who is now working the farm. How clover has been incorporated and more importantly maintained on their farm will be the focus with the O'Sullivans.



Agribusiness and Farmers Hard Hit by Rising Raw Material Prices

Liam de Paor examines the issue of rising raw material prices, noting that while fuel and fertiliser continue to soar, so does the cost of materials such as concrete and steel, which is affecting the farm machinery industry and those looking to build.

Farmers are well aware that energy, fuel and fertiliser and other prices are soaring. Fuel costs have increased by 33pc since autumn because OPEC and other oil producing countries decided to slash output during the Covid-19 crisis. The increase in fertiliser costs, has seen the cost of CAN and urea move up by €50-100/t. The price of balewrap and silage covers has also soared. According to the manufacturers this is due to a 50 per cent increase in raw material costs.

Covid-19 greatly reduced the demand for steel during the pandemic as car manufacturers and other customers hit by reduced sales greatly reduced their orders. Demand has now recovered but demand for steel far exceeds available supplies from China and elsewhere. Steel prices are also higher in the USA than in the EU so the USA is getting more of the scarce supplies.

Steel production and the environment

Steel production has a number of negative impacts on the environment, including air emissions (CO, SO_x, NO_x, PM_{2.5}), wastewater contaminants, hazardous wastes, and solid wastes. Environmental restrictions imposed on the steel industry are also impacting severely on production. For example three regional governments in South Korea insisted that Posco and Hyundai Steel halt their mills for 10 days over violations of the Clean Air Conservation Act. According to the Korea Iron & Steel Association "If steel mills are closed for 10 days, it takes more than six months to resume the plants." Incidentally, the world's largest steel mill is in South Korea.

With China adopting a strong stance on emission controls and imposing steel output reductions, supplies from there will obviously tighten thereby impacting on prices. In Tangshan, the city government in March 2019 instructed most mills to cut production by 30 per cent until the end of the year and told seven steelmakers to keep output at half capacity until July.

According to media reports, the cost of shipping a 40-foot container from Asia to northern Europe has increased from about \$2,000 (€1,648) in November to more than \$9,000 last January, according to shippers and importers.

Apparently thousands of empty containers were left stranded in Europe and the US in the first half of 2020 due to the coronavirus lockdowns which caused a sudden slowdown in global trade. When western demand for Asian-made goods rebounded in the second half of the year, competition among shippers for available containers sent freight rates soaring.

Most of the steel imported to Ireland comes in via Belfast port so Brexit has also impacted on import logistics and costs. These increasing prices are impacting all farm machinery manufacturers.

The impact on manufacturers

According to Peter Richardson, Marketing Manager with McAree Engineering in Co. Monaghan "the price of galvanised steel is increasing from €850/t in 2020 to €1700/t in Q3. Mild steel is seeing a similar increase as well. In addition, we are seeing shortages of steel supply, which is compounding the problem. So steel prices are doubling during this period." McAree have announced their second price increase in 2021 this will add 30 per cent to feed silo prices for livestock farmers.

Bluemount Trailers is a family owned farm equipment business based near Mountnugent in Co. Cavan. They specialize in the manufacture of high quality livestock trailers and their 18ft livestock trailer is very popular with smaller farmers.

However, Paddy Finnegan their Design Engineer says they have been hard hit by rising prices since early January last for steel. According to Paddy the mild steel they use "has increased in price from around €600 per tonne in Q4 last year to over €1,000 per tonne in Q2 this year -an increase of over 70 per cent and prices are still increasing."

"We were aware last November that prices would increase, however as we are a small family business, we could not afford to pre pay and stock up with supplies at the old price. Manufacturing trailers to farmers' specifications leaves it extremely hard for us to plan ahead with the large variation in trailer sizes."

Paddy went on to say: "In addition we are also paying higher prices for axles, wheels, lights and even paint costs

have increased. Supplies for axles, wheels and steel are very tight due to increased demand in the market so we have no choice but to pay the higher prices. To remain competitive we have taken a lower profit margin however the increased raw material costs unfortunately have to be passed on to our farmer customers."

New buildings

Farmers building new cubicle houses and other livestock buildings have also been hit by rising concrete, steel and timber prices. An increased demand for timber in the US housing market, the Covid-19 crisis, and an upsurge in demand in the global DIY market, has seen timber prices rise steeply since the end of Q1 2020. Licensing issues related to the felling of Irish trees and Brexit stockpiling have added to problems in the market, resulting in a pile-up of supply pressures. The supply of native timber in Ireland has been hampered by delays in the issuing of licences.

For example the number of forestry appeals received by the Forestry Appeals Committee (FAC) by the start of November 2020 was 689 appeals – almost three times the amount received in 2017 and 2018 combined.

O'Dwyer Steel based in Dundrum, Co. Tipperary are one of the leading suppliers in Britain and Ireland of CE certified structural steel and cladding. According to their Managing Director, Matthew Ryan steel prices have risen by 40 per cent or €330/t. They have also been

impacted by rising timber prices. Another well-known firm feeling the pressure from increased costs is Dairymaster a multinational dairy equipment business based in Causeway, Co. Kerry. According to Dr John Daly, Research and Innovation Manager: "Since Q4 2020

we are being impacted with double-digit cost increases across all raw materials categories – including steel, polymers and electronics components. The impact of these increases are being exacerbated by lead times extending from weeks to months, and in some cases to more than 12 months. In addition, the

effect of Brexit means that couriers are now charging significantly higher fees for components sourced through the UK. So far we have resisted passing these costs on to customers but the extent of the increases mean that we will have no option but to raise our prices in the coming months".

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CLIMATE AND ENERGY FOCUS



The secret lives of bees

Dr Dara Stanley at UCD is heading up the research project SUSPOLL, which is funded by Science Foundation Ireland, to examine the impacts of both climate change and pesticide use on pollination services to crops. Here, she outlines the work being done and highlights some early indications.

The message around declining bee populations is well understood and the importance of pollinators to our agriculture and food industry is key. However, while there has been a lot of research into the factors contributing to bee decline, there is less research available focused on the implications of these factors for the pollination services which bees provide.

A research project being led by UCD – and supported by Science Foundation Ireland (SFI) – is investigating the impact of both climate change and pesticide use on pollination services to crops, including future modeling with the aim of informing sustainable agricultural production in the face of global change.

Principal investigator Dr Dara Stanley explains the aim of this research in the context of global food security and environmental sustainability: "The idea is to look at bees and their interactions with agriculture in Ireland and how that might change in the future. Bees and other pollinators are so important – globally there are 20,000 species of bees and in Ireland we have 99. Nearly 90 per cent of flowering plants benefit from bees and other pollinating insects and it is understood that approximately 75 per cent of leading food crops globally benefit from insect pollination. Crucially, it is estimated that 30 per cent of the food we consume benefits from insect pollination."

Although agriculture in Ireland is predominantly based on livestock production, Dara notes that we do have an increasing amount of crops grown that need pollination, including oilseed rape, field beans and fruit crops such as apples and strawberries. "The big one is clover," she adds, "which is so important in sward management. Also, it is estimated that the value of insect pollinations to oilseed rape alone is €3.9 million annually, which is not insignificant. And, with climate change issues to the fore in agriculture, there could also be a change towards more insect pollinated crops." Dara continues that the importance of wild plants is another factor to consider. "The importance of our wild plants – our hedgerows and hawthorn for example – to the surrounding ecosystems, is another area to bear in mind."



Dr Dara Stanley





CAP 2023-2027

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An Roinn Talmhaíochta,
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– pesticides and climate change – investigating how weather currently affects bees and their activity, as well as looking at possible future scenarios. “Pesticides are a very important part of agriculture management but they can have a knock-on effect to beneficial insects such as bees that are active in crops. We need to assess what the impact of pesticides is on bees in an Irish context.” With regard to weather, Dara points out that most of the data we have in relation to how pollinators respond to weather comes from outside of Ireland. “Farmers are often recommended to spray at certain times of the day when bees are less active but we are not sure if this makes sense in an Irish context. With our Irish weather, which is very changeable, we have really variable conditions. From a climate point of view we need to see how bees respond to Irish weather conditions, and also use a future modeling situation to see how bees will be affected in the future.”

Early indications

The project is in its third year and, although findings are yet to be published, Dara does highlight some key areas that are showing interesting results. “Early indications do suggest that different bees respond to different weather conditions. It seems that honey bees might be more sensitive than bumble bees to changes in weather; bumble bees seem to be more hardy and can fly and pollinate in more varied weather conditions. So, honey bees might be more impacted by climate change down the line. Bumble bees are really good pollinators – they are very hairy and they carry pollen over their bodies, and growers are very interested in bumble bees, in particular fruit growers. We are lucky in Ireland in that we still have a very good supply of wild pollinators and we don’t have to rely on pollination management. However, although honey bees are a native species in Ireland, the vast

“It is estimated that 30 per cent of the food we consume benefits from insect pollination.”

majority of them are managed by people and are quite well supported – sometimes growers will work with bee keepers to bring colonies to the orchards – and so it may be that wild bee species are more at risk.”

There is evidence, Dara adds, to show that good farm management, like wildflowers margins and hedgerows can boost pollination and she cites the All Ireland Pollinator Plan (www.pollinators.ie) as a source of some good guidelines for farmers and what they can do here.

Compensating between the species

Arrian Karbassioo, one of the researchers on the team, also refers to the importance of weather: “We are looking at the relationship between the weather and pollinators and what this means for the pollination services that they provide. My research will feed into illustrating what pollination services look like today and how that information can be used by farmers and conservationists; and to use this information to model and predict what pollination services will look like in the future.”

“Preliminary results are showing that bumble bees as a native pollinator are able to forage in less than optimal conditions, where it is rainier, more windy, etc; and they are more robust against these changes in their hive activity also. Honey bees are more affected by these conditions. What we are seeing is a compensating between the species, which is happening naturally, based on the conditions in Ireland today.” For farmers, he says, this information will assist them in knowing when pollinators are out and which conditions can encourage the presence of native pollinators as they may be active in conditions that managed pollinators are not.

The findings

The research project will be fully completed in 2022 and, when finished, Dara explains that UCD will communicate and disseminate the findings widely: “We have worked very closely with a number of farmers doing observations in their field – our first port of call will be to communicate with the farming community. We will also be liaising with the policy makers in DAFM, our colleagues in Teagasc and the relevant farming organisations once we have completed the study. We hope to hold practical workshops, as well as publishing our findings in scientific journals.”





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Forestry go-slow

The present crisis in the Irish forestry sector is much more serious than we are given to believe, says **Simon White**, Chairman of the Limerick and Tipperary Woodland Owners.

Planting trees in Ireland has been in a steady decline since the year 2000. That year 15,500 hectares of land were planted. We must plant 5,000 hectares every year to maintain the 11 per cent cover of land in trees recorded in 2017. For the last four years we were planting so little that we have changed from afforestation to deforestation.

This Government claims to be committed to seriously increasing the national land area under trees to meet our greenhouse gas mitigation targets in our national climate change strategy. A target of 8,000 hectares per year was set to be planted between 2017 and 2030 with a further target of increasing overall land cover under trees from 11 per cent to 18 per cent. These aspirational targets are totally meaningless while the reasons why no one is planting trees are not addressed and no worthwhile incentives are introduced to make planting trees attractive to landowners.

The necessities for afforestation

There are several reasons as to why private landowners have lost confidence in planting trees. Successive Governments have ignored forestry. They have undermined the forest service by starving it of resources so that it has been unable to adapt to the changes needed to comply with new environmental demands. Private forest owners are expected to comply with demands under a system that is broken, out of date and unfit for purpose. The forest service gives licensing processing priority to Coillte and forestry companies. The needs of private forest owners are treated as a much lower priority and this is blatant discrimination. Historically, the responsibility to protect our investment in trees from pests and diseases from outside the state rested with the Minister for Agriculture. In allowing plants, infected with ash-dieback, to be imported into this country the Minister, and the tree health section in the Forest service, failed to act in time. This failure has been compounded by official refusal to accept responsibility for what losses ash dieback has caused and give meaningful assistance to those with ash trees. In March, the Oireachtas Joint Committee on Agriculture, under Chairman Deputy Jackie Cahill TD, issued a report on its work on the forestry crisis. They recommended a radically changed scheme to deal with the needs of those affected by ash dieback. In a recent policy change, the forest service have stated that it is now the applicants

for afforestation grants and reconstitutions who are responsible for protecting their trees from pests and diseases, with subsequent punitive clawback of grants and premia paid if they fail to do so. Disease risk is increasing in forestry.

Forestry under attack

For quite a while, I believe, forestry has been under sustained and very biased attack. This is orchestrated by a select few, who have a very focused agenda. It has gained significant momentum on social media. It has resulted in thousands of objections to ordinary forestry license applications and hundreds of appeals. One of the primary functions of the forest service is to support and defend out national forestry. But Government, and the forest service, I believe, have failed to counteract these attacks and a general perception has taken hold that coniferous forestry is damaging to the environment. This is false. Our timber industry depends exclusively on coniferous forestry. The aim of this campaign appears to be to rid the country of commercial forestry. This minority faction is a long way towards killing off a valuable rural industry, on which 12,000 families depend for income. Now, for the first time ever, a substantial number of license applications to harvest forestry are being refused. When unable to harvest and replant, the total investment in time and money in growing those trees becomes completely worthless and there appears to be no redress. The reasonable expectation of a significant return from planting trees is no longer assured.

Credit for carbon sequestration

Privately grown trees sequester significant amounts of carbon. To date all carbon credits generated by forestry and woodland have been allocated to the agricultural sector. As the value of the carbon increases, those who own trees sequestering carbon, consider they are being exploited. Among private forest owners there is a growing demand for payment for carbon sequestration. Forestry license applications are needed to carry out vital day-to-day forest management work. 4,500 applications are stuck in the system. Thousands of ash growers hit by ash dieback are left to manage their dead and dying trees. Private forest owners are disillusioned. No appreciable planting is taking place and the future for forestry is in serious question.

Seller beware

All of this is having a severe impact on elderly plantation owners. An unprecedented level of anxiety has been created. These people are reliant on their investment in trees for their pensions and they are fearful that they may have great difficulty in realising value for their trees when they reach harvesting stage. There appears to be an increase in forestry investment companies. Private forestry owners are being targeted with offers to buy their harvesting rights and the rights to the subsequent replanted crops on their land. It is not altogether clear as to why there is such a high level of interest in acquiring these rights. However, there is a certain vulnerability within elderly forest owners, who are anxious and may well undervalue their trees. These companies may well be working on an assumption that trees will become substantially more valuable in time. Whatever about the timber being more valuable, it is much more likely that they consider sanction of trading in carbon credits associated with privately owned forestry to be inevitable. It is important to get a message of caution out to owners of forestry. If approached, before signing anything, they should seriously consider asking for copies of the terms and conditions of any contracts being offered. They should take these to professionals and seek legal and tax advice on them. It makes sense

also to seek advice from one of the forest owners' groups to find out how to get a better idea of what their trees are worth. It is possibly of the greatest importance to discuss the implications of such a contract with family members, close friends, or those they intend passing their property on to. Carbon credits are likely to become valuable and it is important to factor this

into all decisions affecting those plantations. There is an attempt in progress to find a better future for growing trees in Ireland. There are several people involved in discussions in this "Project Woodland". They need to keep it in mind that there is now no commercial aspect to growing what is traditionally referred to as "Woodland", broadleaves. Broadleaves and Conifers

provide similar carbon sequestration. In looking to provide habitats and biodiversity, they must consider the responsibility they have for all those people who are employed in our commercial timber industry. Contrary to some very vocal opinions it is not a prerequisite of growing more broadleaves that our valuable growing of spruce must be sacrificed.

BORD NA MÓNA

Bord na Móna requires 500,000 tonnes of biomass annually to co-fuel its power plant at Edenderry, Co. Offaly. The company is now offering long term sustainable contracts for the supply of:

- **Sawdust**
- **Wood Chip**
- **Forestry Thinnings & Residues**
- **Pulp Wood**



Sawdust



Wood Chip



Forestry Thinnings & Residues



Pulp Wood

For further details please contact:

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An introduction to the Forest Carbon Tool

Tom Houlihan, Forestry Specialist, Teagasc

Planting of new farm forests, incorporating the right trees in the right place, has an important role to play in addressing climate challenges. It can assist in the process of building a significant carbon sink in addition to delivering other sustainability benefits on the farm. Teagasc, in conjunction with Forest Environmental Research and Services (FERS) Limited and the Department of Agriculture, Food and the Marine (DAFM) has developed an online Forest Carbon Tool (www.teagasc.ie/forestcarbontool) to support decision making. It provides a user-friendly way to get an indication of how much carbon can potentially be removed through various forest establishment options and other climate mitigation pathways, such as the use of harvested wood products (HWP).

It is for users of the Forest Carbon Tool are requested to be aware of the range of assumptions, methodologies and system boundaries described within the tool assumptions page. The latter also outlines the clear requirements and scope for future tool updates and enhancements.

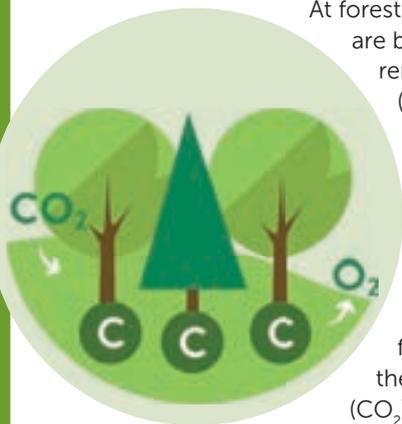
Forest carbon balances

At forest level, carbon balances are based on net emissions or removals from five pools (reservoirs of carbon).

These consist of above and below ground biomass pool, the litter pool, the deadwood pool and the soil carbon pool. Ongoing carbon transfers (termed fluxes) occur between these pools. Carbon dioxide (CO_2) is removed from the

atmosphere and sequestered by

trees during photosynthesis with a corresponding release of oxygen. The rate of carbon uptake is determined by many factors, such as tree species, yield class, soil type, forest management activities such as harvesting and previous land use. There are also processes such as long-term allocation of carbon into above- and below-ground forest biomass and turnover of biomass into the soils and dead organic matter. There can also be autotrophic respiratory losses, and decomposition losses from soils and dead organic matter. Where carbon uptake exceeds loss, the forest is a 'sink'. Conversely, if loss exceeds uptake the forest is a 'source'. The final output is the sum of all carbon stock changes.



Other mitigation pathways

In addition to carbon sequestration in the growing forest, the long-term storage of carbon in harvested wood products (HWPs) represents a well-recognised and important carbon pool. Substitution of fossil fuels with wood energy from sustainably managed forests is a further carbon mitigation pathway. These three pathways are incorporated into the Forest Carbon Tool. A further important pathway, not included in the current system boundaries, is the substitution of energy intensive building materials such as concrete and steel with wood products which can have a high level of impact. For example, using 1.0 tonne of wood instead of concrete can lead to an average reduction of over 2.0 tonnes of CO_2 emissions over the life cycle of a product.

Using the Forest Carbon Tool

Users of the tool can select from a dropdown list of current planting and soil type options under the DAFM Forestry Programme or otherwise from selected forest tree species or species groups. The tool outputs provide indicative values for mean yearly CO_2 sequestration expressed as tonnes of CO_2 equivalent per hectare per year ($\text{t}/\text{CO}_2\text{-eq}/\text{ha}/\text{yr}$) and mean cumulative sequestration values ($\text{t}/\text{CO}_2\text{-eq}/\text{ha}$), the latter being an estimate of the (once off) maximum potential sequestration, termed the CAP value, derived over two forest cycles or rotations. Both of these are normalised measures of sequestration which allow comparisons over different rotation ages. Annual carbon sequestration rates do not stay constant, but change significantly over forest cycles, as shown in the graphic outputs of the tool. Although growing forests capture and store CO_2 during active growth, activities such as forest harvesting give rise to emissions, which the tool also takes into account.

Forest Carbon Tool outputs

Outputs from the tool indicate that mean annual sequestration rates (under the current assumptions described) can range from 1-9 $\text{t}/\text{CO}_2\text{-eq}/\text{ha}/\text{yr}$. Application of the tool can help inform decision making in terms of forest establishment and management options. It also shows that all forest types and mitigation pathways can have an important role to play in climate change mitigation.

Examples 1-3 provide summary outputs of mean annual and mean cumulative sequestration (CAP value) for Grant and Premium Categories (GPC) 8, GPC 3 and GPC 11 respectively on suitable mineral soils. Broadleaf forests (e.g. GPC 8, alder/birch), while having a lower mean annual rate of carbon capture, also tend to have a high

sequestration potential as indicated by the CAP value (example 1 / figure 1). Productive conifer species (e.g. GPC 3) such as spruce can return high sequestration rates, especially when their harvested wood products are taken into account (example 2 / figure 2). While the net sequestration capacity from agroforestry scenarios is reduced when agricultural emissions are factored in, this planting category (GPC 11) has potential to move such mixed forest and livestock systems towards achieving carbon neutrality, as indicated in example 3.

The objective of this first iteration of the Forest Carbon Tool is to provide information on the capacity of forests to sequester carbon and particularly, to provide insights for users on the comparative merits of different forest planting options. The tool is not intended to provide definitive or absolute data on any particular forest or for processes related to forest carbon valuation or potential trading platforms.

Finally, it is also important to emphasise that carbon sequestration is one of a range of important ecosystem services provided by sustainably managed forests. These include timber production, water quality protection, social amenity, landscape and biodiversity enhancement. Factors such as landowner’s objectives, tree species choices and forest management approaches are central to determining the specific mix of services that farm forests can provide.

Example 1

GPC 8: Birch forest

- Mineral soil
- Includes 15% open area /retained habitat
- Yield class 8
- Thinned
- Rotation 75 years

- Mean annual CO2 sequestration 3.46 t/CO₂-eq/ha/yr
- Sequestration potential (CAP) 471 tCO₂-eq/ha

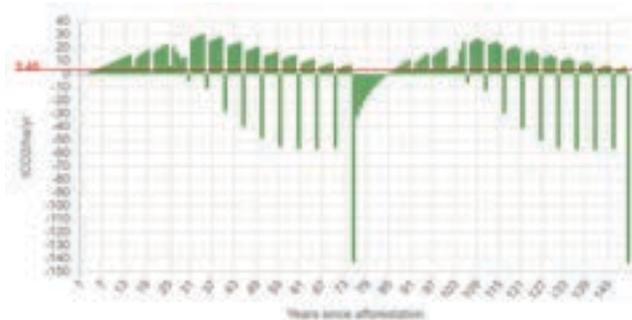


Figure 1: Carbon emissions/removal for fast growing broadleaves e.g. birch over 2 forest rotations

Example 2

GPC 3: 15% Diverse Conifer/Broadleaf

- Mineral soil
- 70% Sitka spruce with 15% birch and 15% open space / retained habitat
- Yield class 24
- Thinned
- Rotation of 38 years

- Mean annual CO2 sequestration 6.8t/CO₂-eq/ha/yr
- Sequestration potential (CAP) 357 tCO₂-eq/ha

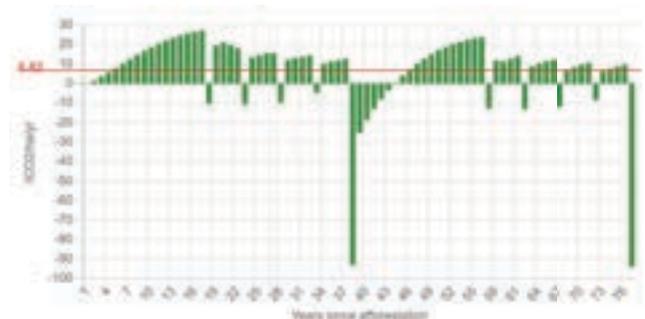


Figure 2 – Carbon emissions/removal trends for a mainly conifer forest over two rotations

Example 3

GPC 11: Agroforestry (Silvo-pastoral, combining

- trees with livestock grazing)
- Fast growing broadleaf e.g. sycamore
- Initial stocking of 400 trees reduced to 70 over the rotation
- Mineral soil
- Thinned
- Rotation 75 years
- Dairy cattle (0-1 years) with stocking of 1.7 head per hectare

- Forest based sequestration 3.46 t/CO₂-eq/ha/yr
- 2.86t/CO₂-eq/ha/yr
- (Less) agricultural emmsions (CAP) 471 tCO₂-eq/ha
- 2.21t/CO₂-eq/ha/yr
- Net (mean sequestrian rate) 0.65t/CO₂-eq/ha/yr
- Sequestrian potential (CAP) 173.81 tCO₂-eq/ha

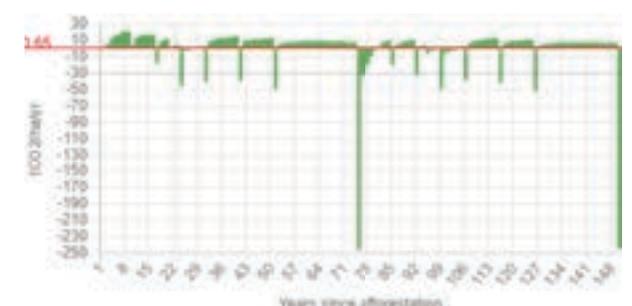


Figure 3: Carbon emissions/removal trends for an agroforestry system combining a fast growing broadleaf with grazing of young dairy cattle over two forest rotations

The solar option

New export tariff payment makes roof-top solar PV an impressive investment opportunity for all farms and businesses aiming to reduce their energy costs and carbon emissions, says **Pat Smith** of Local Power, based in Dunshaughlin, County Meath.

New supports, including a premium kWh payment for electricity exported to the grid from this year, makes the installation of roof-top solar PV on farms and businesses a wise investment opportunity. In addition to TAMS and SEAI grant opportunities, 100 per cent accelerated capital tax allowances and VAT refunds on your solar PV investment are also available. With technology costs starting to trend upwards, this is an opportune time to look at how solar PV can deliver a sustainable, long-term economic and environmental return for your business. Solar PV technology is well suited to Ireland's moderate climate with generation based on day length and the panel orientation

How solar PV works

Solar PV generates DC electricity from daylight through solar panels. The energy is converted to AC using an inverter for use in the business, home or for export to the grid when the new tariff scheme is introduced in July. Once the system is sized correctly, the aim is to ensure that most- if not all- of the energy generated is used in the business or home. To assist in ensuring this happens, surplus generation can be diverted to heat water or can be stored in batteries, which act as a buffer between energy generation and usage. South facing system installs will generate between 900 & 1000kwh of electricity for every 1kwp of solar PV installed. If the panels are facing East-West, generation will be 10/12 per cent less but the spread of generation during the day will be better for assisting self- consumption.

predictable depending on your location and the way the roof is facing. Indeed, with the high quality technology we provide, the generation is guaranteed and independently insured by multinational insurance company AON. There are no moving parts or plumbing with solar PV as all the components are electrical. Maintenance requirements are low. Monitoring of electricity usage can be provided to your smart device, assuming appropriate connectivity on your end, ensuring you know that your investment is delivering every day of the year.

Wise investment

Expected returns for solar PV are between 3 and 6 years. Grants of up to 40 per cent are available and an export tariff for surplus energy exported to the grid is expected to be between 10 and 15c/kwh. In addition, the VAT is fully refundable as a renewable investment and the business can avail of 100 per cent accelerated capital allowances in the year of investment which, for a Sole Trader, can be worth a 54 per cent tax write off and, for a company, 12.5 per cent.

A Solar PV system install is not like any other investment, as depending on the technology chosen, your system will be fully warranted to generate for decades to come. For example, Local Power Ltd offers a German manufactured panel, Solarwatt, which guarantees a minimum of over 87 per cent of its initial performance after 30 years. Solar PV is also modular in design. In Local Power Ltd we generally advise on a staged approach to solar PV on farms to ensure that returns are optimized.

Predictable generation

The amount of electricity generated from solar PV is very

Grid connection

The Government has confirmed its intention to introduce

a feed-in tariff from July 1 2021 for micro generation. The grid access rules are to be eased, especially for installs of up to 50kwp, and new rules for system installs up to 500kwp are to be introduced- but this may not happen this year. ESB Networks, who control grid access, are actively progressing a number of significant changes to facilitate grid access and remove unnecessary costs on smaller systems up to 50kwp. This will be very important going forward, especially for the larger farm installs.

Planning exclusions

Other changes to assist the deployment of roof-top solar PV are also on the way. Significant exclusions to planning requirements, awaiting clearance this month, will mean that- for most roof-top PV installations in Ireland going forward- planning will not be required. This promised legislation is being further delayed recently with a decision to put the changes out to public consultation.

Financing your project

To finance your solar PV installation, four options are available.

1. Use your own cash reserves which gives double digit returns of up to 25 per cent (beats negative returns being proposed by banks for keeping your cash).

2. Use your own bank to finance the project.
3. Use Local Power Ltd funding partners to fund the project from the energy savings made for your installation over a 3/7-year period.
4. Local Power Ltd may be able to fund the project and charge your business a low fixed kWh price for the renewable energy generated over a 15-year period.

Don't be misled

Farmers, more than anyone, know the importance that the quality of manufacture can have on the longevity and performance of a machine or tractor purchase. The choices of technology when purchasing a PV solar system are even more critical to ensuring that you get decades of trouble-free electricity generation from your renewable investment. Companies should offer a number of technology options and full transparency on warranties, so that quality is guaranteed. Farmers are encouraged to check out the various technologies available and insist on datasheets to prove that what the company salespeople are saying is accurate. Check out the grant options and tax benefits for your business and get a written financial assessment on payback from your supplier. Finally, make sure that your investment delivers on your expectations by choosing the right technology on day one.



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- Surplus solar energy used to build ice to keep refrigeration plant off line during milking – frees up grid capacity
- Free hot water to 65°C with add on premium quality refrigeration Heat Recovery Unit
- Our Solar Fence, Ice Builder and Heat Recovery Unit are available individually or as a package.
- All eligible for TAMS grant



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The case for Anaerobic Digestion

PJ McCarthy, CEO of the Renewable Gas Forum Ireland, offers an update on Project Clover, a collaborative effort by the Irish food industry to examine the benefits of Anaerobic Digestion (AD).

Last year *Irish Farmers Monthly* reported on Project Clover, a unique collaboration by the Irish food industry who came together to fund a Feasibility Study into an integrated approach to Anaerobic Digestion (AD) producing biomethane as an enabler to decarbonise the Irish agriculture food production and supply chain.

The vision and ambition for the project is to reduce carbon emissions and improve the sustainability of Irish agriculture through the development of an indigenous, large scale, farm-based AD industry, producing biomethane and biofertilizers (digestate).

Ireland is behind the curve on AD – a mature technology utilised globally. The biomethane market in France is among the most dynamic in Europe and the French model is worth examining in the Irish context – particularly given that the majority of French AD biomethane plants use feedstocks from agriculture, sourced where the AD facilities are located. The French government, in pursuit of its ambition to become carbon neutral by 2050, support the biomethane sector, along with organic farm practices and soil carbon sequestration as key to its agricultural decarbonisation strategy. Here, we speak to PJ McCarthy, CEO of the Renewable Gas Forum Ireland, who has been leading a delivery team comprised of KPMG, Devenish, GNI and Authenticity, in supporting industry members such as Dairygold, Glanbia Ireland, Lakeland Dairies, Tipperary Co-op, Carbery, Wyeth Nutritionals and Danone Ireland on this industry-led collaborative approach.

▶ WHAT IS THE BENEFIT FOR IRELAND INC OF AD BIOMETHANE?

AD biomethane offers Ireland Inc secure, sustainable, indigenous biomethane, a renewable energy production technology based on an existing infrastructure and national asset (the gas grid). It provides significant potential to decarbonise sectors most difficult to decarbonise, such as agriculture, transport and, in particular, high thermal demand in processing and manufacturing, where no alternative cost effective, least disruptive solution has been found.

In October 2019 RGFI submitted an Integrated Business Case for Biomethane in Ireland to the Department of Communications, Climate Action and the Environment. This KPMG report, (a full Cost Benefit Analysis in compliance with the Public Spending Code), showed an overall positive 1.26 cost-benefit ratio through to 2050 for producing biomethane from agricultural feedstocks. This proves that by replacing 11 per cent of current natural gas consumption with low carbon renewable gas, produced largely from agricultural organic matter, Ireland can save 2.6m tonnes of CO₂ per annum attributed to energy, with a further 1.3mt/CO₂ potential carbon savings in agriculture, supporting our decarbonisation targets and creating over 3000 jobs for rural Ireland by 2030.

▶ WHAT IS THE CURRENT STATUS OF PROJECT CLOVER?

The KPMG Project Clover Feasibility Study is now concluded. While all the indicators are positive for the development of a scalable, indigenous, farm-based AD development - beginning with a pilot of 8 plants - the reality is that to proceed any further, this project

requires match funding from Government of €24m and a willingness to support a long term pathway to 2030 and beyond. The key requirement is direct and collaborative support from Government to develop a strategic roadmap addressing all elements of implementing Project Clover for Ireland Inc.

As part of this we are asking Government to declare policy support for biomethane and to implement Article 23 (an EU renewable heat fuel obligation scheme, socialising the cost of producing biomethane). Irish Government policy support for AD biomethane is essential if Project Clover is to be eligible for EU funding support for projects.

▶ HOW DOES AD BIOMETHANE AND PROJECT CLOVER ALIGN WITH GOVERNMENT ENVIRONMENTAL POLICY?

It will help to achieve the Irish Government's GHG emissions reduction at scale across multiple sectors and wider environmental targets. It will provide greater renewable energy independence, also aligns with the EU Farm to Fork Strategy, can contribute to the Programme for Government 7 per cent pa emissions target and the roll out of AgClimatise.

Importantly the Project Clover approach will be developed in an environmentally sustainable way. The feasibility study recommends the development of a Project Clover Charter to ensure all AD plants under the scheme meet strict criteria to ensure environmental, economic, social responsibility and sustainability, and create no unintended consequences.

AD feedstock would be produced sustainably, enhancing biodiversity benefits by drawing on existing multi species swards research, such as that available from

Donal Dennehy, Danone Ireland; JP Prendergast, Chairman of RGFI; PJ McCarthy, CEO of RGFI; Russell Smyth, KPMG

Devenish and Teagasc, as well as the ongoing advice and experience from both. The proposal is to provide a slurry management alternative, with an outlet for excess slurry across the agriculture system, while producing organic bio-fertilisers to displace artificial fertilisers, leading to improved water and air quality and soil regeneration/health. AD biomethane is a key enabler in contributing to reducing emissions in agriculture.

▶ WHAT ARE THE BENEFITS TO FARMERS?

AD offers farmers both economic and environmental sustainability opportunities. The farmer is key to the success of AD Biomethane plants. As such the proposed commercial structure has the farmer/Group/Co-op structure central and ultimately owning the AD biomethane plant.

The potential for a farmer to have a key role in AD biomethane – regardless of discipline, presents a proposal that is complimentary – with a number of options, ranging from equity in the plant, to land lease income, or operational salaries where a farmer undertakes to operate the plant. For a farmer willing to supply feedstock, this model provides for long-term price-certainty, a secure income based on feedstock supply contracts. AD biomethane has the potential to provide a diverse additional income, greater than what can currently be achieved in the cattle, sheep and tillage sectors and from leasing land. With the digestate by-product, there is potential to reduce the on-farm carbon footprint by displacing artificial fertilisers, improved farm practices and land management, adapting innovative technologies, production of organic fertilisers and emerging agronomy approaches.

From an environmental perspective the farmer will have the added potential of soil carbon sequestration. The digestate by-product, an excellent bio-fertiliser organic soil improver, has potential to reduce the on-farm carbon footprint and nutrient costs, and increase the carbon content of the soil, through improved land management, applying best scientific advice, science-based targets, application of organic fertilisers and increased productivity by applying new agronomy. Farmers can use the AD plant to improve slurry management, address N, P, K or ammonia issues and reduce the use of chemical fertilisers while also bringing currently under-productive land into increased productivity and more profitable.

The whole process has the potential to reduce greenhouse gas emissions and captures carbon, soil carbon sequestration, in the soil where 1 tonne of Carbon per hectare equates to 3.67 tonne of CO₂ per hectare. Each AD Biomethane plant at the optimum



scale of 20GWh requires approx. 15,000t/animal slurry and 385ha/1,000 acres of land for sustainable feedstock supply. Farmers in Northern Ireland, France, Australia and many other countries have already realised these benefits.

▶ HOW DOES AD APPLY IN CARBON FARMING?

Carbon Farming is central to the EU Commission Green Deal and Farm to Fork strategy - with environment front and centre. As custodians of the Irish environment, AD biomethane offers great potential for Irish farmers to generate carbon credits – utilising soil carbon sequestration, reducing agricultural emissions, in a fully accountable, robust and transparent manner, which will optimise the value of the carbon credits. Our hope is that farmers see the opportunities and potential this project has to offer, decide to get on board with carbon sequestration ahead of the curve, reduce on-farm emissions and avail of diverse incomes, and future proof farming for the next generation via Carbon Farming. Irish farmers can be early adopter but they need Government policy support, funding and collaboration to design the most economically advantageous carbon farming structure for the agriculture sector. I have no doubt that farmers are ready to respond and take up this opportunity once the right framework of policy support is in place.

▶ WHAT IS THE BEST FEEDSTOCK FOR AD AND WHAT ABOUT COMPETITION FOR GRASS?

Grass and slurry will be the most common feedstock. Teagasc figures show that the average grass yield could be

increased by at least 50 per cent. University College Cork research shows how underutilised land, particularly in the less intensively farmed areas in the west of Ireland and the midlands, could be more productive. The work we have done is based on the learnings from the NI AD sector, which is farm based. This approach has not taken land away from dairy, or feed from cattle. On the contrary when we had the fodder crisis in 2017, a sizeable proportion of the imported feedstock came from AD plants in the UK. An indigenous AD biomethane industry could support a backstop for future fodder crises.

► **WHAT IS THE BENEFIT FOR THE IRISH AGRICULTURE AND FOOD AND DRINKS INDUSTRY?**

A KMPG Report on Decarbonisation of Heat 2018, outlines that biomethane is the lowest cost option and least disruptive available renewable heat technology solution for many of our manufacturing and processing industries to decarbonise their processes without impacting overall operations. As users of natural gas, the food and drinks industry can make an immediate switch to biomethane, which would deliver their environmental and mandatory carbon neutral targets. The supply of biomethane at scale is essential in the context of reducing the reliance on fossil fuels, achieving mandatory carbon neutrality, GHG emissions mitigation, commercial sustainability and competitiveness and

retaining current markets for our products being sold to global consumers.

► **WHAT NEEDS TO HAPPEN NEXT?**

The time is now to avail of the opportunity represented by AD. The industry participants of Project Clover are leading by example by collaborating on this fully integrated solution to reduce emissions in the agriculture sector from farm to fork and to decarbonise food production throughout the supply chain. However, in order to progress to the next phase, the Government needs to be proactive and support Project Clover in creating the right market conditions to support a scalable, farm-based renewable biomethane industry. This is essential if the sector is to remain competitive and sustain economic growth. There is now an urgent need for Government to support the project through cross Government policy support in terms of implementation of Article 23, matching capital funding, a meaningful role and targets for AD biomethane in the Climate Action Plan and inclusion of AD biomethane and Project Clover in both the agriculture and enterprise sector plans. Like every other sector, agriculture will have its own ceiling and its own list of measures and it is essential that AD biomethane is included if this model is to support the rural, circular bio-economy with the farmer at the centre of the opportunity.

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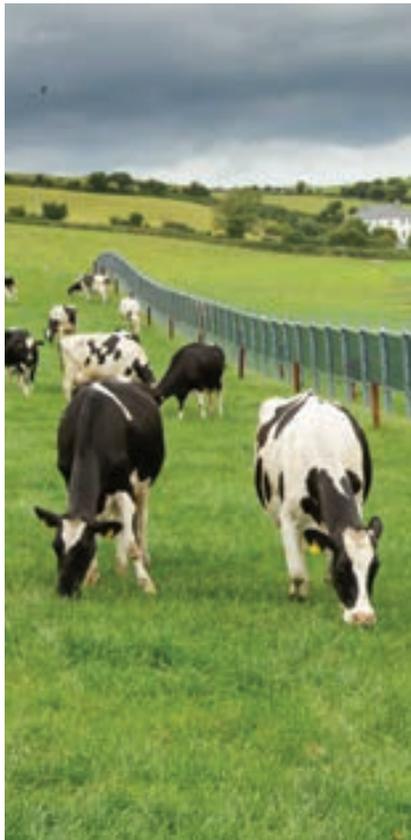
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Novel approach to solar energy production

Gene Hourihane of Sunstream Energy, based in Tramore, looks at a novel application of solar PV on farms

There are two basic types of solar energy: first, solar thermal where heat from the sun is used to produce hot water or steam; and second, solar Photovoltaic (PV) which converts light energy into electricity. Solar PV is the fastest growing renewable energy source and is forecast to be the dominant source of renewable energy in the world by 2050. The power generated by Solar PV increases as the intensity of light falling on the surface of the module increases. Hence south facing systems on roofs are common.

Like all installed solar PV systems, the electricity generated on a farm is either consumed instantaneously by electric loads on the farm (self-consumption), stored in batteries or other physical means for later use or overspilled to the grid when the solar power exceeds the electric load, and no energy storage device is in place or is fully charged at the time. Maximising self-consumption



is preferable as this will deliver the best return on investment.

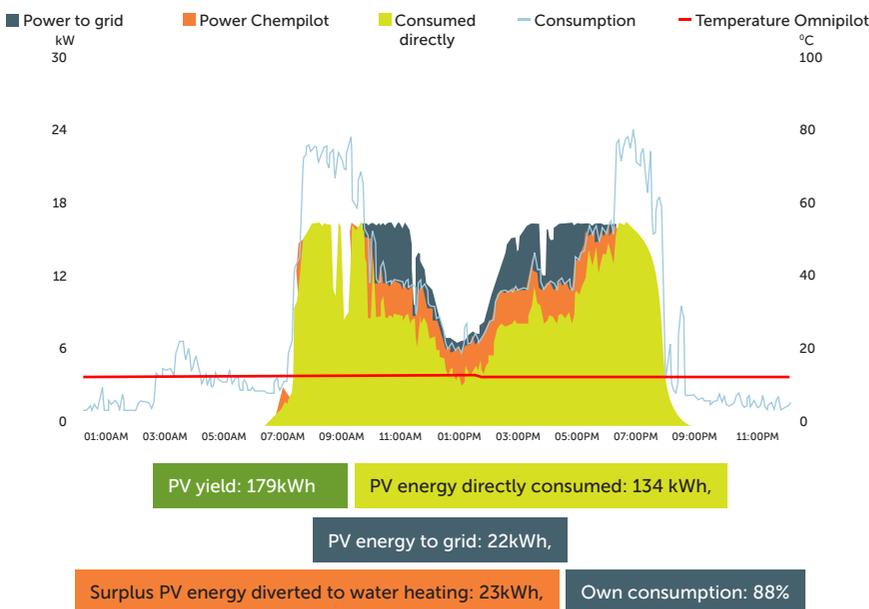
Matching production and demand

The 24-hour profile of the electric load on dairy farms batch milking morning and evening has two obvious peak periods where the load is at least ten times greater than the average for the remainder of the day. Over half the daily electrical energy consumption occurs during these two periods. Unfortunately, the load peaks are out of synch with the peak power output from a south facing PV system occurring around midday. This results in very low self-consumption levels, especially with relatively large capacity Solar installations. Energy storage can shift the excess midday solar energy to meet the evening load but at significant additional investment cost.

East/west is best

East/west facing solar PV systems can go some way to addressing the mismatch. Sunstream Energy took this approach a step further in the Spring of 2018 when it commenced tests using special bifacial solar PV modules which produce energy from both sides. Mounting the bifacial modules vertically on the ground (like a fence) with one side facing east and the opposite side west results in a twin peak power curve. The test was followed up with large scale (25 and 27KW) bifacial installations on two Waterford dairy farms in 2019. The results for 2020 and observations are:

- Energy yield: 1,050 KW/KWh. (equivalent to top performing south facing systems)
- An ideal load v generation match, especially from March through to October. Self-



Data courtesy of Fronius Solarweb
 Fig.1 Energy profile for 27 KW PV system



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Enterprise Ireland is launching this year's Innovation Arena Awards in association with the National Ploughing Association.

The competition will take place online and participants will have the opportunity to exhibit live in the Innovation Arena in September 2021 (Covid-19 restrictions permitting).

The Innovation Arena has a prize fund of €10,000 with the winner of the Best Start-Up category and the overall winner each being eligible for individual prizes of €5,000.

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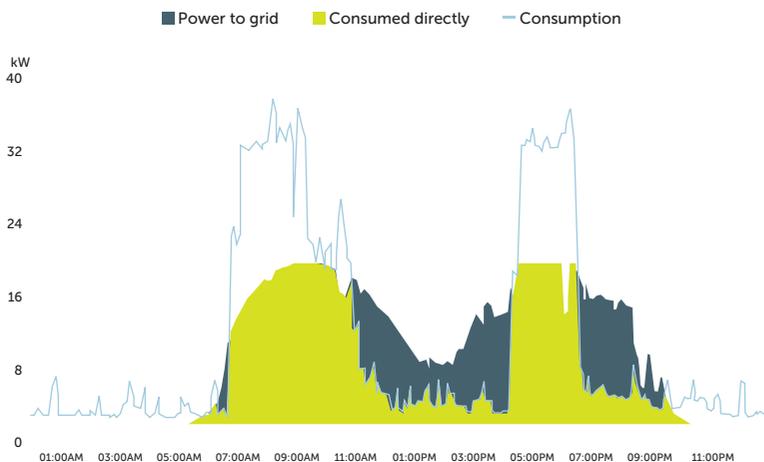
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PV yield kWh: 189

PV energy directly consumed: 129 kWh

PV energy to grid: 61kWh

Own consumption: 68%

Data courtesy of Fronius Solarweb

Fig.2 Energy profile for 24 kW DC / 16.5 KW AC PV system without active storage (May 30th, 2020)

consumption energy levels running at 65% and 74% respectively.

- Relatively large systems with high levels of self-sufficiency (grid independence).
- No energy storage other than water heating for one installation - 74% self-consumption.
- Being a fence type structure, very little ground space used.
- The farmers were able to assist with the installation to keep capital costs down.
- Livestock can graze around and underneath the modules with no risk of damage.
- Typical energy balance graphs for the two installations during sunny days are shown below.

Storage options

With the already relatively high levels achieved, self-consumption levels can be easily increased to near 100 per cent if energy storage is employed. There are two principal energy storage technologies available, electro-chemical battery and thermal. Thermal storage can be subdivided into heat and cool storage.

up to 40 per cent of the peak load and energy consumption on a dairy farm. The milking load peak can be reduced significantly by operating the refrigeration plant to build ice outside of milking times using an ice builder. The ice is then used to chill water via a plate heat exchanger which in turn cools the milk to 3°C before entering the bulk tank during milking. Ice is normally produced at night with lower tariffs.

Midday solar energy can be utilised to build ice for free. Ice building for cooling milk has advantages over battery energy storage. Ice builders have an unlimited service life and their performance does not degrade over time. Current premium Lithium-Ion battery technology is typically guaranteed for ten years with an expected service life of 15 years. When building ice, refrigeration compressors operate under steadier load conditions (no short cycling) requiring less maintenance and extending their service life. Using ice for milk cooling avoids dependence on precious pure clean water only found in the underground table which is being rapidly depleted worldwide. There is a significantly lower capital cost per kWh (unit) energy storage especially when the bulk tank and ice builder share

the same refrigeration unit. An ice builder is the most effective means to store large volumes of cooling capacity for later use. Where power is limited on single phase farms and ice builder will alleviate the problem by spreading the work over a wider time span. Ice builders do not use chemicals or scarce materials and are therefore more environmentally sustainable. The refrigeration plant can also be utilised to heat water when combined with a heat recovery unit (HRU) utilising the valuable heat from milk production. Each time a cow is milked she gives two valuable resources – milk and heat energy. This has additional advantages. A premium quality HRU installation is capable of heating water to more than 65 degreesC for free and has a long maintenance-free service life providing hot water long into the future. The HRU will enable the refrigeration compressor(s) to operate with increased efficiency, reducing costs, especially when building ice under steady state conditions. An ice builder and refrigeration heat recovery unit (HRU) are installed on one of the dairy farms with bifacial solar PV. The three complementary technologies will deliver significant savings in energy bills and carbon emissions for the dairy enterprise.





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Blowing hot and cold on wind energy

Tommy Cooke is a farmer and a pioneer of wind turbine development over the past 20 years. He gives his insights into the potential of the sector and the many frustrations he has endured in attempting to develop wind-based renewable energy resources.

I have a number of observations as I reflect on 20 years in the renewable energy business. It has been 20 years of many missed opportunities for rural Ireland and some modest success in achieving targets, albeit with an extremely high attrition rate. The initial extreme reluctance of our Irish government and state agencies such as ESB (who were faced with deregulation) severely hindered the development of a national vision for a renewable energy future for Ireland. There was a woeful lack of forward thinking that still persists today in many corners of government structures.

What I am talking about here is the kind of vision that Denmark and Germany had for the future, not only of how future energy would be produced from clean renewable resources but also a vision for their national economies through the development of new and world leading technologies. Not only that but a very clear and objective vision for how rural communities would become stakeholders in a very real and economic way in this new industry.

European energy production models

Denmark has always been a leader in the development of the cooperative model and at one point 70 per cent of their wind farms were owned by local cooperatives even to the extent of having economic interests in offshore wind farms. Similarly, in Germany for example, the development of wind farms and solar projects were frequently led by local communities. The development of farm-based biogas plants have also been very successfully developed in these countries through the establishment of viable feed-in tariffs and priority access to the electricity grid at an economic price.

We can see from these two examples that developing and establishing renewable energy technologies that have long term benefits to the environment, the economy and ordinary citizens only happens where there is a strong vision for the industry that is followed through with clear policies and, critically, market access mechanisms that allow ordinary people to participate in these industries.



Too little and too late

Clearly, we do/did not have these forward-looking visionaries or policy makers in Ireland that would have created renewable energy industries that are predominantly locally owned. This is in spite of some very powerful advocates who tried their best to achieve local owned models. Recent efforts to create 'space' for some modest level of community involvement is worthy of mention for the reason of fairness. It is a well-intentioned policy, but fraught with a multitude of obstacles and impediments. For wind and solar projects, it is a case of way too little and way too late.

Biogas opportunity

There is a possibility even at this late stage for a rethink about how things are done with regard to biogas in Ireland. While the future 'is electric' there is a long term and massive need for renewable gas that can be injected into the existing gas network. This bio-methane gas can

be produced from biogas anaerobic digestion plants using animal slurries and grass as the feedstock. Paradoxically, the Irish market and systems failures that inhibited the widespread expansion of biogas plants - in the fashion of Denmark and Germany - who use the gas to generate electricity, may now provide Ireland with an opportunity to develop biogas plants solely for the production of bio-methane. I believe that this farm-based bio-methane industry can and should be developed along cooperative lines where it would neatly fit with large scale dairy processing plants who are trying to compete in a global market where the carbon footprint is a valuable marketing tool. As a country with a very underdeveloped bio-methane production industry, we as farmers and food processors may well find ourselves disadvantaged by other countries with more advanced plans in this regard.

The Renewable Gas Forum and especially Project Clover have been active in the area of trying to promote the development of 125 biogas plants for this purpose. For the ordinary farmer the current biogas business model is not solid enough at this stage to encourage development. This is where strong government leadership and vision is desperately required so as to address the market failure of a new industry that is vital for our economic and environmental benefit. The production of bio-methane is not a new technology and the basics are very well understood. What is not clearly understood at this stage is the economics of gas scrubbing, handling and transportation to the network or processing plant injection site and above all the all-important question of a long-term bankable price and offtake agreement.

Keeping the benefits local

The benefits of farm scale biogas plants include efficient nutrient management, reduction of GHG emissions, badly needed bio-methane gas production, the development of new revenue streams and supply chains in the rural economy. The question is who will do it and who will benefit? I have more than a suspicion that there seems to be an underlying policy in Ireland that seeks to deprive local actors of the benefits of local large-scale economic activities, we see this in the wind and solar projects; we even witnessed it in local radio licences where communities were forced to compete with multinational media organisations to serve their areas. I would not like to see the same pattern emerge in the fledgling biogas industry. The benefits of activities in the rural economy should in the first instance flow directly into that rural area where possible, this is not to portray a radical nationalistic attitude but is in reality the only pragmatic and sustainable way forward. Joel Barker, the US author, who popularised the concept of 'paradigm shift' said: "Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world". At the end of the day we have no choice but to do what is necessary to sustain life and livelihoods on this planet; we need to up our performance and we need to be smarter in how we do it. It is time to stop dreaming and start doing.



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PIG FOCUS

Preventing global ASF contagion

Dr Egan Brockhoff, a veterinary surgeon and expert on the Canadian pork industry, addresses African Swine Fever Virus (ASFV) and its huge impact on global pig production*.

Dr Egan Brockhoff is a veterinary surgeon and expert on the Canadian pork industry. He is a managing partner in Prairie Swine Health Services and also runs a family farm in central Alberta. Egan is also the National Animal Health Coordinator for the Canadian Pork Council. At a recent Irish Pig Health Society seminar, Dr Brockhoff highlighted the changes that are taking place in the Chinese production system as a consequence of ASF decimating the pig population in that country. He began by outlining his concerns about the latest changes in the virus: "There has been much discussion that the virus is changing and that is giving me great concern. There is talk of a longer infection period, more asymptomatic pigs, and some pigs being carriers of the virus, having fully recovered."

The figures for the continuing impact of ASF on the Chinese pig herd are quite staggering, as Dr. Brockhoff confirms: "Probably 20 per cent of the current breeding herd has been affected in the last six months alone. That equates to a loss of 8.5 million head. In the last quarter year from November 2020 to the end of January 2021, through a combination of ASF, PED and PRRS infections, there has been a projected drop of 1.76 million sows in the Chinese herd. Rabobank estimates a three to five percent decrease in sow numbers per month from December 2020 to February 2021."

Emerging virus variants

Dr Brockhoff quoted from a China Harbin Laboratory Paper which describes twenty-two ASFV field isolates from seven provinces collected during a six-month period: "This suggests there are variants emerging in China and emerging quickly. We are also hearing reports of unregistered gene-deleted vaccines being used illegally, resulting in chronic infection with increased virus transmissibility in the field. These vaccines have not been subjected to any safety or efficacy trials. The development of chronic infections, in turn, increases the risk of carriers emerging. Masking

diseases will also become more difficult to differentiate and could result in the presence of ASF in pigs remaining undetected for extended periods. All of this makes surveillance, early detection and proof of freedom from disease more complicated."

ASF virus in feed ingredients

Feed connections to virus spread have been observed previously, as confirmed by Dr. Beckhoff: "More movement of variants have been observed throughout China. If these strains were to come to Canada or Ireland it could really hamper our early detection methods. Given the interactions in terms of feed imported from China, it is a cause of alarm. As a result, secondary control zones were introduced in Canada for plant-based feed ingredients imported for use in animal feed. These are in place at all of the relevant animal feed importation ports."

Scale does not eliminate disease spread

"While large scale modernised pig production in China has accelerated in recent years, there are still many small units with little or no regulation over production or transport of carcasses. Many of the new large-scale production facilities are multi-storey fabrications with novel technologies being developed to optimise efficiency and minimise disease spread. However, these units are still potential conduits for the movement of the ASF virus."

One of the largest new units brought into production recently in China is an 84,000-sow, farrowing to finish, fully integrated facility with a feed mill and packing plant on site. Larger sites, as Dr. Beckhoff confirms, do not eliminate the risks of viruses spreading: "The sheer scale can work against the purpose, because of the difficulties of adhering to 'all-in/all-out' protocols. There is a need to source pigs for the units from several sources and ultimately, despite novel air-filtering systems for instance, there are always

possibilities for viruses to spread within the large scale, multi-storey pork production facilities. One consequence of the increased biosecurity measures being implemented in China to combat viral infection has been the elimination of the use of pig swill in pork production across China, resulting in an exponential increased demand for grain-based feed."

Safeguarding Canadian pork sector

With a pig herd of over 14 million head, Canada exports seventy per cent of its pork production, so any incursion of virus has to be protected against to the greatest extent possible. To this end public/private partnerships have been developed in Canada, encompassing producers, government and other relevant agencies. The industry is developing new trade tools and zones and zoning agreements have been established to combat potential foreign disease outbreaks. These zones would be activated after detection and are primarily a movement restriction and a disease control tool. The hope is to minimise disruption that could otherwise lead to border closures with consequent market disruption and economic and personal hardship.

Avoiding trade disruption

A more targeted approach has been to adopt compartmentalisation protocols which are defined primarily by management and husbandry practices related to high levels of biosecurity. Egan outlined the rationale for compartmentalisation: "The benefits of compartmentalisation include the fact that they are put in place before any outbreak of disease occurs. This ensures no trade interruption and has industry programme administration with government oversight. The whole idea, in the event of an ASF Virus outbreak, is to provide individual producers with a means to reduce their business risk and to support zoning efforts by reinforcing the country's biosecurity, traceability and surveillance infrastructure."

A compartment can be made up of either a single pig farm, or multiple integrated farms, under the same ownership or management. Dedicated breeding units with export businesses, for instance, fit into this compartmentalisation concept very well, because it can protect the businesses by having these high standard biosecurity measures in place that allow them to continue trading in the event of a virus outbreak in the country.

Fail-safe biosecurity measures

Dr. Brockhoff acknowledges the hope that these biosecurity and infection prevention tools may never be used but he emphasises the necessity of having them in place: "The next steps for the Canadian pork sector are to maintain the momentum, with both the development of zoning and compartments, to further develop the advocacy - response programming, to ensure that all necessary destruction and disposal protocols are in place and to ensure implementation of the strategy at all points. The prevention of the wild pig population in Canada becoming a potential disease vector is also being addressed."

**The content from this article is taken from the Irish Pig Health Society's recent virtual seminar, where Dr. Brockhoff focused on African Swine Fever Virus (ASFV) and its huge impact on global pig production*



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The journey away from antibiotics

Roy Gallie*, a pig farmer in Kildare, shares his thoughts on the removal of both antibiotics and zinc on the farm.

Roy Gallie has 180 sows in north Kildare, where he grows all his own wheat and barley. "We dry all our own grain on site and store it and here is the dryer working. My mill is somewhat unusual, in that it is in a very old part of the farm, a stone-built shed that has been milling for animals for the last 200 years." He destocked the pig unit in the 1980s, and restocked with disease free stock. "I've remained pneumonia free ever since. I suppose the principle of isolation in the middle of my own farm with no other pigs nearby has stood to me." "I have always been interested in disease freedom and in minimizing the use of antibiotics. So, the impending ban on in-feed antibiotics and zinc oxide, which was flagged a number of years ago, sparked my interest," Roy notes. "I made the decision to remove antibiotics as a matter of principle, before it became mandatory, realising the danger antimicrobial resistance posed to all of us of.

I had debated the idea with my nutritionist, vet, and decided, rightly or wrongly, that an enormous leap of faith was going to be required. To help us control, all the inputs should be as much in our own hands as possible. So, we moved to making our own creep and links, removing all antibiotics but keeping zinc at 3 litres per tonne for the time being. This was just in case.

The creep is a 50 per cent premix added to barley, wheat and full-fat soya; followed by the link of a 40 per cent premix added to barley, wheat and soya. They must be good as the first thing we noticed was a considerable increase in intake in both the farrowing house and first stage weaners. This, I put down to the increased palatability of the diets. Our weaner mortality figure is 2.2 per cent...our daily growth rate is 757 grams - nothing startling there, but I am quite happy with."

Herd immunity

"It wasn't very long until the menace of Strep. suis began to appear. After a while it got quite bad, and I was sorely tempted to go back to antibiotic, but I persuaded myself to persist to see if immunity would develop. And sure enough, that's exactly what did happen. And over the period of several months, the storm abated, and the incidences of

sick pigs got less and less. This proved to me that without antibiotics we would get disease pressures, but the principle of herd immunity did work. It was costly in terms of mortality for a time, but over time there was a diminishing of the problem, even without a change in management. An improvement in management practices could only help.

Management practices

Attention to management of the piglet, and the newly weaned pig, Roy stresses, is critical. "The first piece of advice I can give is to wean a strong piglet...one that is already fully eating creep, supplementing its mother's milk. This, of course, means having enough farrowing pens to allow for a five-week weaning cycle. I remember back when I started with my father, six-week weaning was quite normal. Once you've enough farrowing pens you can play around with weaning, either taking one or two of the strongest pigs off at four weeks, or leaving the very smallest behind at five weeks, so that all pigs weaned are eating creep at large quantities and nobody is missing out. My farrowing pens are all half solid flooring. One of the things that is really good for making sure pigs are eating creep is to introduce a handful of it at seven days, which is easily done at floor feeding. Little and often is the best. Weaning is much less stressful as they are already on solid food and the gut is much more developed.

"The second thing is nutrition. I think we really need to concentrate on the creep and the link rations. With no antibiotic to kill off all the good bacteria in the gut, we can now use the gut enhancer in the creep and the link that contains probiotics and prebiotics to encourage the growth of lactic acid bacteria, short chain fatty acids and other nutrients to help the gut lining.

Attention to detail is the difference between success and failure. Needless to say, the very same creep is fed the week before weaning as the week after weaning. As little difference between the farrowing house and the first stage weaner as possible is best, to minimize the weaning trauma. Floor feeding also in the first stage weaner, so its no big deal moving from farrowing house to first stage weaner house. Mats can be used, the added benefit of a mat to put your creep on to is that there is another bit of heat there, about 5 degrees, in the mat just sitting on the slat floor. Water is equally critical, so we have extra water bowls for 4 and 5 days post weaning, all helping to reduce the fasting period from weaning to their first meal. Lots of light is also important so pigs can find the feed and water easily at whatever time they fancy going for it. I do find that some pigs may get loose dung for a period, but this disappears in a few days."

Zinc removal

On top of a move away from antibiotics, Roy has also taken zinc oxide out. "And again there was an increase in intake, which I put down to even greater palatability. A little more looseness in the first stage but not overly worrisome; and without

a decrease in weight whatsoever. So, the move to zinc went seamlessly. The cream on the cake for me in removing antibiotics and zinc, my pigs gut biome has been allowed to grow undisturbed and at long last my ileitis has all but disappeared in the second stage weaners. If I had enough time to wash between every batch, which is hard to get sometimes, I think the last vestiges would disappear too."

Conclusion

The process of moving to antibiotic freedom is not without its hiccups, Roy notes. "Strep continues to be a problem on and off. It tends to go in waves, but the interval between the waves is getting greater. At present, I have just come through a wave of erysipelas in some of pens. Whether the sudden emergence of a disease that has never caused us a problem before can be put down to the removal of antibiotics, poorer efficacy of vaccines, poor hygiene, or slightly different strain of disease, I cannot tell. There will be an increase in mortality on pig farms I have no doubt, but the transition has not been as bad as I had feared. I am still here to tell the tale!"

* Roy Gallie was speaking at the recent IPHS seminar.

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The zinc oxide removal challenge

Ciaran Sheehan, Mitchelstown, Cork, outlines his on-farm experience with the removal of zinc oxide from the weaner diet.

The use of zinc oxide at pharmacological levels has been common practice in pig feed to counteract diarrhoea and bacterial infections in pigs post weaning. European legislation has been introduced to significantly reduce the use of zinc oxide in pig feed from next year onwards. The ban on its use at high levels has already been in place in French pig herds since last January and from June 2022 this will be replicated in every European Union country. This has presented a major challenge for pig producers seeking alternative means of controlling bacterial infections in their pig herds. Some alternative anti-bacterial solutions have been proposed including the use of enzymes in the feed, reductions in protein content, the inclusion of more fibre in the diet and also the adoption of acidification processes in feed compounding. It has long been recognised that enzymes play an important role in assisting digestion in pigs and other mammals. This is especially the case with weaned piglets where their digestive systems are still developing.

On-farm experience with non-zinc oxide diets

This was a major topic addressed at the Irish Pig Health Society's recent series of webinars. On-farm experience with the removal of zinc oxide from the weaner diet was provided by Ciaran Sheehan who farms with his father Eugene at Mitchelstown, Cork. The Sheehans farm both pigs and dairy cows, with the pigs run as a fully integrated unit. Last year they sold 27.5 pigs per sow. A woodchip biofuel burner provides heating for the pig unit. There is a mill on the farm producing the feed required for the pig unit using ground soya, wheat, barley and Maize as the major components. While health status in the pig unit is high, the farm is positive for PRRS, Ileitis, Influenza, PCV and Mycoplasma.

Back in 2014 the Sheehans realised that a ban on the use of zinc oxide in the weaner diet was imminent and began to look at options, as Ciaran confirms: "At that time not a lot was known about the removal of zinc oxide from pig diets. By September 2016

zinc oxide had been fully removed from the weaner feed. The pre-emptive move was decided on to allow time to experiment on coping with the change, with an action plan put in place to cope with resulting reductions in reliance on antibiotics. The ultimate aim was to improve pig health to be achieved through the introduction of lower protein diets and, specifically, to improve gut health through the removal of zinc oxide. Prior to 2016, weaner diets had included zinc oxide for two weeks post weaning at a rate of 3kgs per tonne of feed, which is a typical inclusion rate on most Irish pig farms. Questions were asked as to whether a reduced rate of 1kg per tonne could be a viable alternative. This approach at the time was not an approved efficacy rate and there was a realisation that an 'all or nothing' template was needed. Over a period of four months, with support from our vet and nutritionist the strategy to fully remove zinc oxide additives in the weaner diet was completed. A lot of adjustments were required in the diet and supplementation feeding regime on the farm. Various supplements were tried and tested, eventually leading to a supplement that worked well in the ration with positive health outcomes for the weaner pigs."

Older weaning age

After introducing mid -protein diets it was decided that a low protein ration worked best on the Sheehan farm. There has been no zinc oxide in the diet since 2016. Ciaran acknowledges that the implemented plan is not set in stone and has been adjusted as necessary along the way: "One notable outcome is that the pigs are weaned at the older age of 34 days. Antibiotic use increased initially with the change in feed regime because of increased scour but has reduced since then. This was achieved through the introduction of vaccination programmes and managing the diet carefully. Other notable changes in management included an 'all in, all out' policy so that no pigs were moved backwards in the system. Any pigs struggling to thrive are euthanised. At the end of a production cycle thorough hot washing was introduced after the pigs are moved."

Drawbacks to zinc oxide removal

The new zinc oxide-free regime has not been without some downsides as Ciaran explained: "Slightly lower growth rates are being achieved in weaners. There is also occasional looseness

in weaners between day five and day eight after weaning. There are a few possible reasons for this including Ileitis or too high a protein content in the feed. An Ileitis vaccination programme may deliver benefits in solving this problem. We are also considering lowering the protein in the diet further. As I said, it is an active situation and we are tweaking the system along the way to get the best outcomes in place. The most important reason from adopting a non-zinc oxide regime is because of the EU regulation. There have been no obvious benefits in production terms from the move. The actual preparation for the ban did mean we adopted different practices and these may deliver productivity and efficiency advantages over time. Any environmental improvements are marginal, as the use of zinc oxide was low in the diet and only used in the weaner diet for short periods."

Not cost free

There have been cost implications Ciaran says: "There is an overall increase in healthcare costs due to increased vaccinations. Initially there were higher mortality rates and that increased production costs across the enterprise but after four months weaner mortality stabilised. At this stage we have a lower weaner mortality of 2.5 per cent in comparison to the three years 2014/15/16 prior to zinc oxide removal when the figure stood at 3.5 per cent. Because of all the changes introduced, the removal of zinc oxide cannot be pointed out as the reason for these figures. From our experiences on the farm we think that more research is needed on the efficacy on disease-challenged pig herds of the alternative products that are on the market. Other recommendations, as mentioned earlier include the use of lower protein diets, hot washing at the end of batches and the adoption of an all-in, all-out policy."

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Mycotoxins: A hidden threat in pig production



Dr. Hazel Rooney,
Pig Technical
Coordinator,
Alltech Ireland

The potential for mycotoxin contamination on crops in the field or stored feeds is ever-present, and this is coupled with the fact that pigs are one of the most sensitive species to mycotoxin-challenged feedstuffs. But what are mycotoxins, and why do they pose such a threat to pig production? Mycotoxins are simply secondary metabolites produced by certain moulds/fungi that may have toxic effects and are known to contaminate agricultural crops, such as wheat, maize and soybean meal and, consequently, animal feeds. Remarkably, studies have shown that more than 70% of animal feeds and feedstuffs produced around the globe are contaminated with at least one mycotoxin. Over 500 mycotoxins have been identified over the last number of decades, but the most commonly observed mycotoxins that pose a threat to pigs are aflatoxins, trichothecenes (namely deoxynivalenol (DON) and T-2 toxin), zearalenone (ZEA), ochratoxin A, fumonisins, and ergot alkaloids. Despite the invisible nature of these toxic compounds, even without signs of mould, mycotoxins can still cause significant financial losses to producers due to their damaging effects on pig performance, health and production efficiency. As such, the Alltech® Mycotoxin Management team has published guideline limits for mycotoxin levels in animal feedstuffs and finished feeds to reduce the adverse effects on pig health and performance (see tables below).

Feed for Nursery Pigs, ppb (µg/kg)

| Mycotoxin | Lower | Moderate | Higher |
|----------------------------------|-------|----------|--------|
| Aflatoxin B1 | 5 | 10 | 20 |
| Aflatoxins | 5 | 10 | 20 |
| Ochratoxins | 20 | 35 | 50 |
| Type B Trichothecenes | 250 | 500 | 750 |
| Type A Trichothecenes | 50 | 100 | 150 |
| Fusaric acid/Emerging mycotoxins | 1000 | 2000 | 3000 |
| Fumonisin | 1000 | 1750 | 2500 |
| Zearalenone | 50 | 100 | 150 |
| Other Penicillium Mycotoxins | 40 | 70 | 100 |
| Other Aspergillus Mycotoxins | 40 | 60 | 80 |
| Ergot Alkaloids | 200 | 350 | 500 |

Feed for Grower/ Finisher Pigs, ppb (µg/kg)

| Mycotoxin | Lower | Moderate | Higher |
|----------------------------------|-------|----------|--------|
| Aflatoxin B1 | 25 | 50 | 100 |
| Aflatoxins | 25 | 50 | 100 |
| Ochratoxins | 20 | 35 | 50 |
| Type B Trichothecenes | 250 | 500 | 1000 |
| Type A Trichothecenes | 50 | 100 | 150 |
| Fusaric acid/Emerging mycotoxins | 1000 | 2000 | 3000 |
| Fumonisin | 2500 | 3750 | 5000 |
| Zearalenone | 75 | 150 | 200 |
| Other Penicillium Mycotoxins | 40 | 70 | 100 |
| Other Aspergillus Mycotoxins | 40 | 60 | 80 |
| Ergot Alkaloids | 200 | 350 | 500 |

resulting in increased embryonic mortalities, abortions and a reduction in the number of piglets born alive. Zearalenone is another mycotoxin known to cause diseases related to infertility in gilts and sows, with animals exposed to ZEA exhibiting vaginal and rectal prolapses and reduced pregnancy rates. On the other hand, the dietary intake of DON-contaminated pig feed is known to reduce feed intake (due to feed rejection and vomiting) and daily liveweight gain. According to published research, pigs begin to show reduced growth performance when fed at least 1–3 mg/kg of DON. Common mycotoxin symptoms observed in pigs are shown in Figure 1, and this can be used as an on-farm guide to detecting potential mycotoxin issues within your herd. The severity of these symptoms depends on several factors, namely, the type and level of mycotoxin consumed, the duration of exposure, the age, sex and immune status of the animal, farm management and biosecurity. Furthermore, the combination of low levels of multiple mycotoxins in a feed can often result in more negative effects than the significant presence of a single

Feed for Sows/ Gilts/ Boars, ppb (µg/kg)

| Mycotoxin | Lower | Moderate | Higher |
|----------------------------------|-------|----------|--------|
| Aflatoxin B1 | 20 | 35 | 50 |
| Aflatoxins | 20 | 35 | 50 |
| Ochratoxins | 20 | 35 | 50 |
| Type B Trichothecenes | 250 | 500 | 750 |
| Type A Trichothecenes | 50 | 100 | 150 |
| Fusaric acid/Emerging mycotoxins | 1000 | 2000 | 3000 |
| Fumonisin | 1000 | 2000 | 3000 |
| Zearalenone | 25 | 50 | 75 |
| Other Penicillium Mycotoxins | 40 | 70 | 100 |
| Other Aspergillus Mycotoxins | 40 | 60 | 80 |
| Ergot Alkaloids | 200 | 350 | 500 |

The effect of mycotoxin exposure on pig performance

When pigs consume mycotoxin-contaminated feedstuffs, clinical signs can be varied and range from reduced growth and poor fertility to death in the most severe cases. Each of these issues can be a major cost to the producer. For example, reproductive toxicity occurs in pigs contaminated with aflatoxins, often

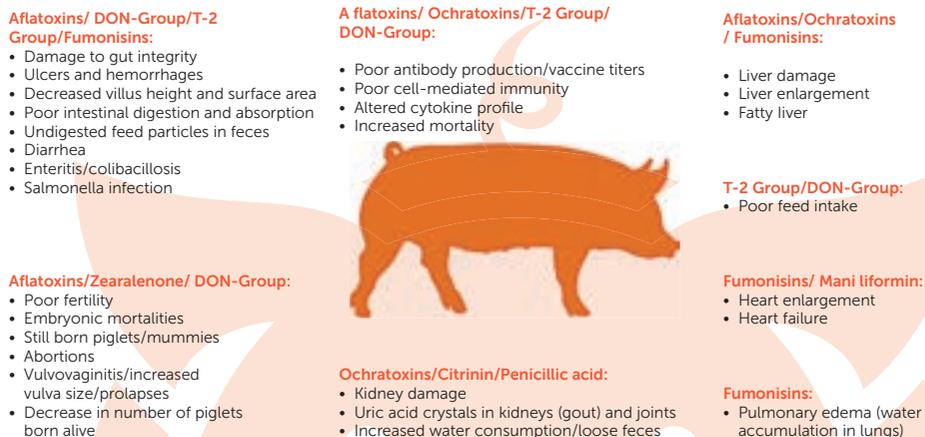


Figure 1. Commonly seen mycotoxin symptoms in pigs.

mycotoxin due to additive or synergistic interactions that can occur between mycotoxins.

Reducing mycotoxin exposure at farm level

Although the potential for mycotoxin contamination is typically higher in crops in the field (either before or during harvesting), feed and feedstuffs can also become contaminated during storage. To minimise the risk of pigs consuming mycotoxin-contaminated feed, the following practices should be adhered to so that the quality of raw materials and complete feeds are maintained during storage:

- Regular cleaning of feed bins to prevent old feed accumulating — bin interiors should be cleaned out with a pressure washer and left to dry completely before they are refilled.
- Running bins empty before refilling them with new deliveries.
- Every six months, it is advised that bins are run empty and treated with a mould inhibitor.
- Avoid warm or damp storage conditions — keeping the moisture low in storage environments is vital for controlling the level of mycotoxins and fungi.
- Maintain storage facilities in good condition to prevent leaks.
- Minimise access by rodents, birds and insects.

Mycotoxin mitigation

In an ideal world, the number one way to mitigate the harmful effects of mycotoxins is to simply not feed pigs mycotoxin-contaminated cereals. However, mycotoxins are an unavoidable problem, with the Alltech Mycotoxin Management team reporting that over 96% of samples tested in the Alltech 37+® lab in 2020 were contaminated with two or more mycotoxins (n = 7,000 samples). Therefore, it is crucial to 1) identify the level of mycotoxin challenges present in the feedstuffs and 2) mitigate any adverse effects on pig performance, health and production efficiency.

1. Identification: Identifying and understanding the hidden mycotoxin threat is one of the most important steps in successful mycotoxin control. The Alltech 37+ mycotoxin analysis test is the cornerstone of the Alltech mycotoxin management program. This laboratory-based testing service investigates raw

materials and finished feed samples, searching for and identifying up to 54 individual mycotoxins. The test results provide a realistic picture of the feed contaminants present and suggest effective remediation, thus helping producers move toward an effective mycotoxin control plan.

2. Mitigation: After identifying the mycotoxins contaminating your raw materials and complete pig feeds, the next step in your mycotoxin control plan is mitigation. Adding a binder with mycotoxin mitigation properties to the pig's diet can play a pivotal role in reducing the toxic effects of mycotoxins within the animal. Mycotoxin binders work by selectively binding and immobilising mycotoxins in the gastrointestinal tract of the pig. Consequently, the mycotoxins pass through the gut without being absorbed and are excreted in the faeces. Natural products containing yeast materials, such as Mycosorb A+® from Alltech, are capable of binding multiple mycotoxins, and therefore, offset the damaging effects of mycotoxins on pig health and performance when different combinations of mycotoxins are present. The superior binding capability of such products, in addition to their stability over a wide pH range, rapid binding speed and ability to avoid interactions with essential nutrients and minerals, makes them one of the most advanced mycotoxin binders available.

The worrying impacts of mycotoxins on pig performance and health, in addition to the financial losses for producers, are forecasted to be exacerbated in the coming years due to climate changes, with higher levels of mycotoxin contamination becoming more likely. Consequently, producers need to ensure that they are following good practise when storing raw materials and feedstuffs on-farm and avoid supplying mouldy feed to pigs. The need for natural mycotoxin-detoxifying agents to be added to pig feeds is also expected to be more prevalent due to the growing mycotoxin contamination worldwide. In particular, mycotoxin-binding agents that target multiple mycotoxins are preferable due to the frequent co-contamination with mycotoxins in feeds and feedstuffs that are destined for pig consumption.

*References available upon request

Vaccination for disease control

Combined PCV2 and *Mycoplasma hyopneumoniae* vaccine frees up valuable time on pig unit, explains Maureen Prendergast, Technical Manager at MSD.



Brendan Doherty farms in the beautiful Inishowen peninsula near Malin Head, "Nearly 30 years ago I started the farm with just 70 sows, selling weaners and slowly grew the herd from there. It's still a relatively small 'birth to bacon' unit with just myself and one member of staff."

Like most farmers in the UK and Ireland, Brendan uses vaccination to control the most common and important diseases affecting growing pigs. Porcine circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae* (M. hyo) are two pig pathogens with a worldwide distribution. Studies in Europe show that PCV2 is endemic in 100 per cent of farms while the figure for M. hyo for Irish farms, North and South, is around 70 per cent. Coinfection with PCV2 and M. hyo is often found in conjunction with other viral infections, such as PRRS (porcine reproductive and respiratory syndrome) and bacterial infections such as *P. multocida*, *B. bronchiseptica*, *S.*

suis, *H. parasuis*, and *A. pyogenes* as part of the porcine respiratory disease complex (PRDC). PRDC occurs as a result of the interaction of a variety of pathogens, immunity, environment and management conditions that can result in pneumonia in pigs and has a major economic impact on the industry. Even subclinical respiratory disease has a significant negative impact on pig performance, especially during the fattening period, resulting in reduced average daily weight gain, increased mortality, increased need for medication and increased condemnations at slaughter. A few years ago, Brendan was giving three vaccinations for PCV2 and M. hyo between 1 week and 3 weeks of age. After discussions with his vet, Brendan changed to a combined vaccine effective against both diseases given as a single 2ml intramuscular dose at 3 weeks of age. The convenient formulation, which has been on the market in Europe since 2015, does not require mixing, saves time and minimises

pig handling and stress whilst protecting against PCV2 and *M. hyo* throughout the critical growing and finishing periods. Studies have shown that pigs vaccinated with the combined vaccine showed an improvement in ADG of up to 54g/day during the finishing period. "I used to find the triple vaccination regime very time-consuming. We would spend around 4 hours a week vaccinating and now we've managed to halve that. That's a lot of time and labour saved over the course of a year, that we can be doing something else. I wouldn't go back to separate vaccines now, there's no reason to change," concludes Brendan.

All farms will have different disease challenges in terms of severity and timing of illness.

Because of this it's essential that vaccination regimes are tailored to specific farms and their needs. Even though the combined vaccine can be used as a single 2 ml dose from 3 weeks of age, in certain farms where very early antibody protection is required due to poor maternal immunity from sows, it can also be given as a single dose of 1 ml from 1 day of age, followed by another 1 ml dose 18 days later.

The combined PCV2 and *M. hyo* vaccine can also be mixed with a new intramuscular vaccine for *Lawsonia intracellularis*, which is used to reduce losses due to ileitis in pigs. It can also be injected at the same time as a vaccine for PRRS, as part of an on-farm vaccination programme. This flexibility allows the use of this tried and trusted combined vaccine in very different farm situations.

Farmers should discuss their vaccination regime with their vet who can also advise on infection control and on-farm biosecurity.



PCV2 and *Mycoplasma hyopneumoniae* problems?



Single injection. Dual protection.

- PCV2 causes a wasting illness with variable signs in weaner pigs including fever, cough, diarrhoea and increased mortality. Reproductive losses in breeders include abortions, stillbirths and/or mummified foetuses.
- *Mycoplasma hyopneumoniae* causes chronic cough, pneumonia and uneven performance in growing pigs.
- Clinical effects are often more severe when these diseases occur simultaneously on a unit.

A single shot, ready-to-use, combination vaccine is available to protect against both PCV2 and *Mycoplasma hyopneumoniae*.

ASK YOUR VET FOR DETAILS

Use Medicines Responsibly

Further information is available from your veterinary practitioner, the product SPC or MSD Animal Health, Red Oak North, South County Business Park, Leopardstown, Dublin 18, Ireland.
Telephone: +353 (0)1 297 0220
E-Mail: vet-support.ie@msd.com Web: www.msd-animal-health.ie
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Tuesday, 29th June 2021 | 11am

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2020 National Winners of the NDC & Kerrygold Quality Milk Awards

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It will feature extensive interviews with Richard Starrett, his Teagasc Advisor, Tommy Doherty and Aurivo Farm Profitability Specialist Majella McCafferty.

The steps taken by Richard to ensure his farm produces milk of the highest quality, in an environmentally sustainable way will be discussed and highlighted.



For more information & to register visit
www.teagasc.ie/VirtualMilkWalk

MESSAGES

- ▶ **As a manager, you must read the signs presented to you on the farm.**
- ▶ **AI Repeats are costly; check the cause and take action.**
- ▶ **How long should you AI for?**
- ▶ **Providing enough winter feed this year will be a big challenge.**
- ▶ **Grass cover drives all grazing decisions.**
- ▶ **Be careful with slurry to avoid losses and deaths!**
- ▶ **Manage replacement by their weight relative to target.**
- ▶ **Grow kale on suitable land – cheapest winter feed.**

By Matt Ryan

MANAGER: 'READ THE SIGNS'!

What do daily management occurrences indicate? If there is poor, low, decreasing or unacceptable performance by you or the animal, if not rectified quickly it will cost you a lot of money.

- ▶ Are too many cows repeating? The target non-return-rate (NRR) to 1st service is 70 per cent at 28 days. Heifers should be 5 per cent better.
- ▶ Changes in milk yield and quality:
 - ▶ Has milk yield decreased by greater than 2.5 per cent in the week? Why?
 - ▶ Is the fat /protein/lactose % up or down? Why?
 - ▶ Is the SCC and TBC up or down? Why?
 - ▶ Did we get caught with water or antibiotics in the milk? What went wrong?
- ▶ Have you too little or too much grass?
 - ▶ What is the pre-grazing cover? What can we do to correct?
 - ▶ What is the average farm cover (AFC)? What are the implications?
- ▶ Are our calves coughing?
 - ▶ If so, why? And what should be done?
 - ▶ Have calves dried dung around tail head? This can mean stomach worms.
 - ▶ Will you have enough winter feed next winter for the stock you plan to keep? This is one of your most important management checks for June and a very big challenge this year.

REPEATS ARE COSTLY; CHECK & ACT

- ▶ Each missed heat now results in €100 -150 per cow loss:
 - ▶ Check your ICBF Fertility Report for last year to see if you have “long repeat intervals”. A figure greater than 15 per cent in this box indicates you are missing heats.
 - ▶ Do farmers get concerned about a missed heat? If not, why not?
 - ▶ Apart from the financial loss it is very important to assess the situation now while things are ‘fresh in your memory’.
- ▶ Dairy farmers must now ask and answer three questions:
 - ▶ No. 1: What percentage (%) of cows and heifers are repeating?
 - ▶ No. 2: What does that indicate?
 - ▶ No. 3: What should I do to alleviate the problem?

Question No. 1: If more than 30-35 per cent of cows and heifers are repeating it tells you something is wrong. On the ICBF fertility page this is indicated by non-return-rate (NRR). Assemble the data if you haven't it.

Question No 2: It may indicate one of the following as the cause (carefully go through all nine possible reasons):

- i BCS at calving, too low or too high
- ii BCS loss from calving to mating greater than 0.5
- iii Poor AI technician
- iv Poor storage/management of AI straws
- v Cow stress
- vi Energy deficit
- vii Minerals, particularly, Iodine, Selenium, Copper, Cobalt, Phosphorous
- viii Disease
- ix Poor herd fertility genetics

Question No 3: What should I do!

- ▶ There isn't much you can now do about the first two causes, but make sure you don't let it happen next year,
- ▶ If you are a DIY operator, be honest with yourself and answer ‘are you a good AI-man and careful with straw management?’ The same goes for the AI technician you use – check his record with the AI company.
- ▶ Cow stress occurs with bullying, lack of feed and water.
- ▶ An energy deficit occurs when grass gets tight, very wet or stemmy causing the cow to milk ‘off her back’.
- ▶ With your Vet and/or Adviser, check out possible mineral issues by way of blood sampling, soil, grass and forage sampling.
- ▶ With your Vet check out the diseases that may influence your fertility achievements,
- ▶ Finally, and not last port of call, herd genetics greatly influences conception rate outcomes. The EBI fertility targets are:
 - » Friesian: €110 +
 - » Jersey Cross: €65+
 - » The further away your herd is from these targets the poorer your herd conception rate will be.
- ▶ We are now in the most difficult part of the breeding season:
 - ▶ It is more difficult to identify bulling cows
 - ▶ Bulling activity is now only one-fifth of what it was 4-5 weeks ago.
 - ▶ Fewer cows are bulling, therefore, less bulling activity and as some cows are only mounted 5-6 times (average 10) with each mount only lasting 2-3 seconds, the chances of not seeding these cows bulling now is very high.
- ▶ You must “up” your heat observation efforts:
 - ▶ Tail paint or such aids are now more important than ever and should be topped up every 3-4 days.
 - ▶ A vasectomised bull, if you have one, should now be introduced. He, as well as a stock bull, must have been treated with dihydrostreptomycin and vaccinated for leptospirosis etc. before use.
 - ▶ He will be effective without a chin-ball if he hasn't many cows to keep an eye on.
 - ▶ Many farmers are now using computerised devices during this period to “help out” and they have merit but you must use other supports to confirm accuracy of detection.
 - ▶ Use previous service dates, off ICBF report, to help you

Management Hints

predict when to expect heats.

- ▶ Bull late calvers at 30-40 days after calving with an easy calving, and a minus 7+ days for calving interval.

HOW LONG SHOULD I USE DAIRY AI?

- ▶ Farmers must use 5 straws for every heifer required.
 - ▶ A 100-cow farmer will need 25 heifer calves; therefore, he needs to use 125 Dairy AI straws.
 - ▶ Farmers must keep using AI until that number of straws are used in the season. This includes repeats.
 - ▶ If the farmer intends expanding or has mastitis, lameness or other health issues he must use more AI straws.
- ▶ To bring late calvers and cows being served late choose your dairy AI bull now, with a gestation length of minus (-) 5-10 days, to ensure a shorter gestation period:
 - ▶ A minus 5(-5) days gestation length translates into a 10-day shorter gestation.
 - ▶ This 10-days will give an extra 10 kgs of milk solids next year, worth €20 in profit.
 - ▶ The bull chosen must meet whatever other criteria you have set for the herd.
 - ▶ Most beef stock bulls will delay calving next year – not a good idea!
- ▶ With good service day records for each cow, you can scan cows for pregnancy from 32 days post AI. This will allow you, under good scanning/veterinary supervision to take action if the animal is not pregnant or has a weak pregnancy.

- ▶ While I don't agree with the following advice I must address it: when the correct number of Dairy AI straws have been used introduce the stock-bull.

- ▶ Use a short gestation bull, such as Aberdeen Angus, Hereford or Belgian Blue.
- ▶ He will need to have been out at grass for 4-5 weeks.
- ▶ Serve 4 'trial' cows with him in late May/early June, to check his fertility, and if there are more than two repeats get the vet to examine him as he may be "firing blanks".
- ▶ Is he free of Leptospirosis, IBD and other health issues that he can easily transfer to your cows? Talk to your Vet.
- ▶ There is a case for having NO stock bull on the farm as each bull costs €800 – 1200 per year. And he might only serve 25-30 cows – fierce expensive. Good heat detection would be essential, maybe a computerised aid or vasectomised bull would be cheaper with no risk to humans.

WINTER FEED: GREAT CHALLENGE THIS YEAR

Most farmers will struggle to get enough 1st cut silage, because of poor May grass growth.

- ▶ You will know from other years how much silage you are short from 1st cut. Therefore, start the process of rectifying the situation from now – it will allow you to minimise the cost.
- ▶ There may be a case for delaying 1st cut a few days to let it 'bulk-up' while still achieving an DMD of 69-72 per cent

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- most farmers have sown late heading varieties and these will maintain quality even up to 10th June.

- ▶ The basic principle for June is to keep growing as much grass as you possibly can by:
 - ▶ For 2nd cut apply N (80units) and use equivalent of 2 bags 0:7:30 per acre to supply P & K, but more where fertility is low.
 - ▶ Stock the cows and cattle at 3.5 to 3.8 livestock units/ha on the grazing area so that you can close up larger areas for silage cutting. To achieve these grazing SR you must have 76 per cent of your annual N allowance over the whole farm by 15th June.
 - ▶ You should only 'top' pastures as a last resort because it is a method of wasting grass. Something we can't afford this year. If grass is getting strong, take out the surplus as round bales.
- ▶ Kale or rape are options to consider but must be sown now.
- ▶ The feed value of winter forages and feeds will be determined by the price of barley (maybe €200) and soya (maybe €450) and the following, per ton costs may guide you:
 - ▶ Grass silage; (a) 72DMD worth €34; 65DMD worth €28. With this information you can calculate if renting land, 2nd cuts with a yield 6-7 tons of settled silage per acre, is justified.
 - ▶ Barley straw = €95;
 - ▶ Fodder beet = €43,
 - ▶ Maize silage (32 per cent DM and 25 per cent starch) = €55;
 - ▶ Whole crop cereal silage (45%DM and 25% starch) = €73
 - ▶ Autumn grass (18 per cent DM) = €38
- ▶ Some farmers are grossly over-stocked, carrying poor milkers, high SCC/mastitis prone cows and lame cows. Sell off now. Use milk recording data and personal knowledge to weed them out and leave sentiment out of the decision.

GRASS COVER: THE DRIVER

The following are the grass cover targets for various stocking rates in Kgs DM per hectare that drive grass quality and yield during June:

| Stocking Rate (cows/ha) | Pre-Grazing Cover (S.R. x 18 x 21+50) * | Average Farm Cover (S.R. x 180) ** |
|-------------------------|---|------------------------------------|
| 3.0 | 1180 | 540 |
| 3.5 | 1380 | 630 |
| 3.7 | 1450 | 670 |

*Stocking rate x Daily Allowance x Rotation Length +Residual = Kg DM per hectare.

**Stocking rate x recommended cover per cow = Kg DM per hectare

- ▶ This is basic, fundamental knowledge required to manage grass to best effect. If you don't know that, you are now going to be left behind.
- ▶ If you are under these target covers you will run short of grass and if over these, grass will get too stemmy. Cows will underperform if either of these two situations arise.

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Management Hints

- ▶ The Nitrogen advice is, for all farmers, to apply 28 units/acre (protected Urea) in June with heavily stocked farmers applying it in early June with low stocked farmers applying it in mid-June. But you must work within your nitrate limits. These are monthly recommended amounts.
- ▶ On sulphur deficient farms you will get a response of 10 per cent – 50 per cent more grass by spreading 20 units per acre of sulphur between now and September, if no sulphur has been used yet. That same level of S must be used for 2nd cuts. Because sulphur interferes with copper uptake, don't use it if you don't need it.
- ▶ Fields, after a silage cut, should get 40+ units of Nitrogen for grazing and 2nd cut silage ground 80 units.
- ▶ There may be a case where soil P & K is low that one round of 27:2:5:5 is required to improve grass yield on the grazing area.
- ▶ Slurry, if you don't spread all your slurry on to bare silage ground now, you won't have the chance to spread it all in 'one go' later in the year. Immediately after cutting the silage spread 1500 -2000 gallons of slurry per acre and the balance of N, approx, 70 units/acre, 5-7 days later.

BE CAREFUL TO AVOID SLURRY LOSSES & DEATHS

Agitating slurry is very dangerous. Children and adults must be nowhere near the sheds while it is being agitated, preferably on a windy day.

- ▶ Go about this very important chore in a planned way:
 - ▶ Agitate the tanks 1-2 weeks before cutting the silage.
 - ▶ Have warning signs up in and around sheds during agitation.
 - ▶ Have the contractor booked to spread as the silage is being picked up.
 - ▶ Have warning signs when going on to the public road and be able to clean it if need arises.
- ▶ The spreading rate will be 1,500-2,500 gallons of diluted slurry per acre. Very heavy applications result in run-off or caking on the surface. This will save 8-13 units of Nitrogen per acre.
- ▶ Do not spread within 30-40 yards of wells and open waterways, or when very heavy rain is forecast but light rain increases the utilisation of N. Minimise risk of pollution.
- ▶ Do not spread when wind is blowing towards local householders.
 - ▶ Use trailing shoe or band spreader to reduce ammonia losses.
 - ▶ Turn off the vacuum tanker immediately when tanker is empty.
 - ▶ Where staff are overworked it is a very good idea to get a

contractor to spread it with a trailed and shoe system.

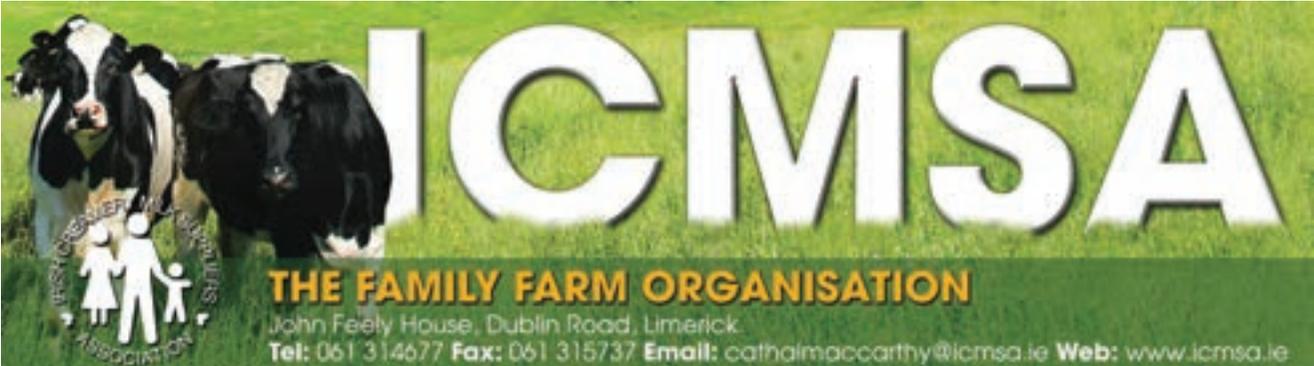
- ▶ Again, be very careful, while agitating.
- ▶ Too many road accidents happen as a result of no warning signs or muck on the road and/or involvement of very young tractor drivers.
 - ▶ Talk about this safety issue in advance.
- ▶ Spread the slurry immediately after the silage is cut.
 - ▶ Nitrogen should be spread 5-7 days later.
 - ▶ You will lose N to the atmosphere if spread near the slurry spreading day.
 - ▶ Anyway, there is no rush as there will be no growth for 7-10 days after a silage cut.
- ▶ Spread lime on bare silage fields ear marked for grazing and other 'bare' grazing fields that need lime.
 - ▶ If spreading lime after slurry, delay 7-8 days.
 - ▶ Generally, all fields need 2 tons/acre of lime every 3 years.

REPLACEMENT HEIFER CARE

The following are 1st June targets:

| | % Mature Cow | Holstein Fr | Jersey X |
|-------------------|--------------|-------------|----------|
| Yearlings (R2's): | 63 | 367 | 342 |
| Calves (R1's): | 23 | 135 | 127 |

- ▶ The cows' mature weight is got by weighing 3rd calvers and older cows in June/July – worth doing NOW. You can also estimate the herds' mature weight by using the Maintenance data on your herds EBI.
- ▶ For instance, if the herds' maintenance is €20 then the herd will average 544 kgs weight per cow. Every €5 difference from this changes the cow's weight by 1kgs less than 5 kgs.
- ▶ A maintenance figure of €10 = 592kg cow.
- ▶ You must weigh replacements regularly to make sure you know what's happening and therefore, deal with underweight animals. This advice is imperative for contract heifer rearer's/farmers with heifers on contract so that no disputes occur later in the year.
- ▶ The summer is when you get 'cheap weight gain in heifers' – don't miss out!
- ▶ Calf stage
 - ▶ Calves must always on the best grass, with residuals eaten off by R2s or cows. As well as getting best grass, there are fewer parasites high up on the grass plant.
 - ▶ Small calves would benefit from milk and/or meals in June.



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- ▶ Big calves, on good grass, require no meals. The conversion rate is 8:1.
- ▶ Stay on top of parasites such as hoose and stomach worms. Dose for hoose when oldest calf starts to cough and dose for stomach worms, if not on the Ivermectin programmes, with a white/yellow dose in late June and move onto aftergrass.
- ▶ Heifer stage:
 - ▶ R2s mated after 12 June will calve down after 22 March – it is getting very late to start calving heifers into a herd. If she hasn't 'held' by now there is something wrong with her.
 - ▶ Underweight heifers may need to be separated out and run with calves on best grass or fed 1-2kgs meal separately.

KALE: CHEAPEST WINTER FEED OPTION

- ▶ An 10 ton/ha crop of kale will be the cheapest source of feed next winter:
 - ▶ It is 80 per cent DMD, as good as barley
 - ▶ It and fodder beet will cost less than €1/day to feed a cow next winter.
 - ▶ The expected yield is 8-12 tons DM/ha with early June sowing.
 - ▶ With a 10-ton average crop and allocating 4kg and 7.5 kg respectively to weanlings and cows per day (with another roughage), the crop will feed 40 weanlings or 20 cows for 60 days.
 - ▶ The weanlings and cows will gain 0.6kg and 0.25 kg respectively per day.
 - ▶ Sow in dry fields that need to be reseeded or after 1st Cut silage.
- ▶ Requirements:
 - ▶ Sow in early June because, thereafter 1 ton/ha/week DM is lost.
 - ▶ A fine, firm seed bed is essential.
 - ▶ Seed can be drilled or broadcast (need higher seeding rate) at 4.5 to 5 kg/ha,
 - ▶ Sow kale once per 5 yrs in same field to avoid clubroot.
 - ▶ You need a soil pH of 6.5 to 7.0
 - ▶ Nitrogen: It needs 100kg/ha (80units/acre) split in two applications, the second one at the 2-3 leaf stage.
 - ▶ For a soil index 3, apply P

- (24units/acre) and K (140 units/acre) at sowing. Poorer soils require more.
- ▶ Watch out for pests as the crop develops.
- ▶ There should be a run-back area available to the animals during feeding.
- ▶ Silage bales should be placed strategically in June/July across the longest headland to minimise winter damage to the soil.

BRIEF MESSAGES:

- ▶ Change milk liners now after 2000 milkings. If you have 10 rows being miked twice/day, then each liner has to do 20 milkings per day. Therefore, in that situation the liners need to be changes after 100 days (2000 divide by 20) milkings (3.3 months). If not changed, mastitis and SCC level will increase.

- ▶ High SCC/mastitis:
 - ▶ If the cow is a repeat offender, get rid of her,
 - ▶ Test the milking machine again and change liners.
 - ▶ You will need to pre and post dip all cows to reduce the spread.
 - ▶ Dip the clusters in parasitic acid after milking an infected cow.
 - ▶ Wear gloves,
 - ▶ Consult your co-op adviser.
- ▶ High TBC:
 - ▶ Is your bulk tank cooling the milk fast enough? Have it checked out.
 - ▶ Is your cleaning procedure correct?
 - ▶ Use your Co-Op Adviser to sort out.
- ▶ Time Off:
 - ▶ It has been a challenging year.
 - ▶ Plan to be only milking 5-6 days per week.
 - ▶ Plan to work less than 60 hours per week.
 - ▶ Try to take a holiday from work.

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Landini Series 7 V-Shift

The Landini Series 7 V-Shift is now available with three models offering from 210 to 240hp (max power). The change in emissions legislation has led to the introduction of new styles and designs. In the latter area, one of the most obvious product improvements is a 360-degree viewing angle, guaranteed by 20 LED headlights, 12 of which are on the roof, also featuring a new design and canopy in perfect Landini style.

According to the company, high quality materials, high level ergonomics, attention to detail, a spacious and highly comfortable cab all combine to ensure that the Landini Series 7 V-Shift provides ease of use, outstanding performance and productivity, extreme comfort and simplified maintenance. Thanks to a larger tank capacity, the efficiency of the machine is improved during the working day. With a wheelbase of 2,820mm, an unladen weight of 8,300kg and 13,000kg when fully loaded, it has a front balance of 46 per cent and rear balance of 54 per cent, as well as high towing efficiency.

Series 7 in Stage V features some elements of continuity with Stage IV starting with the typical cast-iron chassis that houses the generous and fuel-efficient engine. The chassis increases the strength of the transmission, ensures a lower level of vibration, improves traction, increases manoeuvrability and eliminates the need for additional

front equipment chassis.

An engine brake pedal, the Engine Brake System, is available which, using the electronic motorised throttle valve of the turbocharger, allows the operator to increase the braking torque by activating the engine brake in combination with the normal tractor brakes.

The Series 7 is equipped with an advanced Landini Semi-Active Cab Suspension, controlled by a control unit capable of modifying the responsiveness of the shock absorbers and maintaining a high level of comfort in all conditions. This solution on the cab allows the suspension to be managed according to the operator's preferences, who can select from three different levels.

For driving comfort, whether on the road or in the field, whilst not compromising on safety, the Series 7 features an independent front axle link suspension system with 100 per cent electro-hydraulic locking, automatic 4WD, differential lock and automatic self-levelling. Another new feature is the introduction of an electrically controlled steering wheel tilt movement by means of a button, while the height of the steering wheel can be adjusted with a lever.

The 4-stage continuously variable transmission is particularly suitable for heavy-duty use, with extreme wheel traction. Features include the minimum speed of



40 m/h (maximum 50 km/h in eco mode), the wet clutch, rear final drives and a power take-off (PTO) available in four speeds, with adjustable automatic mode and without power restrictions. The Series 7 V-Shift has a 123 l/min closed centre hydraulic circuit with a dedicated 44 l/m steering pump. A 160 l/m Ultra Flow pump is available as an optional extra. All electro hydraulic valves are fully configurable through the DSM – Data Screen Manager. The layout of the control panel has been kept very simple and streamlined, ensuring considerable ease of use. New menus have been added for an increasingly professional user experience. Landini has presented the ADS2, Advanced Driving System2, an intelligent electronic guidance system that aims to enhance the driving experience and increase productivity. It features super comfortable steering, active steering wheel torque with direct steering emulation, Road & Field shock absorbers with active damping, automatic wheel realignment in forward and reverse. Landini 7 Series tractors are fully open to take any guidance system. The company also states that, thanks to the MyLights menu, it is possible to program the work lights for perfect visibility in every situation. Even greater freedom of configuration of the Series 7 controls through the new MyFunctions menu that allows 5 buttons to be assigned to as many functions chosen through the DSM (12" touch screen monitor).



Signs for a positive summer

As I put my column together this month we are all waiting on the news of the lifting and easing of some of the restrictions that have been in place. It looks like that we will definitely have outdoor dining, with the possibility of indoor dining

as well. Sports are up and running with the GAA league in full swing and we will soon see club championship preparations start to happen. This will be good news for the local communities as the local GAA club is still a focal point in rural Ireland. I often compare a good football or hurling match to the business of farming: you go out in all weather to do your best, you can only play what is in front of you and you take your chances when they come.

I am delighted to hear that the farm and forestry contractors association, the FCI, has urged its members to take zero tolerance approach to TikTok, Facebook and other social media postings of dangerous tractor antics. As it is the start of the silage season, it is a busy time on farms and dangerous behaviour will not be tolerated.

Irish farmers are now in line to benefit from a strong surge in global trade across all agricultural commodities with prices rising as high of 20 per cent plus over the past months. All indicators in the agri market are showing that 2021 will be a good year for prices across the globe with a surge in demand for food products.

From an Irish perspective, across all our main farming enterprises here prices have remained steady and on the high side in some cases. Beef prices remain strong and with the opening of the hospitality sectors both here in Ireland and in the UK demand for Irish beef will be strong over the next few months. Prices are running at €4.15/kg to €4.20 /kg for prime cattle. It would be a great boost to our beef market if we could get our Chinese market back on board: the value of this market in 2019 was 12,000 tons with a value of €31 million. Negotiations are still ongoing according to industry sources. On the sheep front, the sector is performing well not just in Ireland but across the UK and Europe, with the demand for lamb rising. Price at home are running between €35 and €40 per head over the same period in 2020.

Most coops have now decided to hold milk prices rather than increase them, which is positive news for the next few months. On the world stage, the Chinese market is driving up prices as the importation of skim milk powder in to China is up 36 per cent over the same period in 2020. Once again, tractor registrations are on the upward curve. According to FTMTA figures, 1252 new tractors were registered in the first four months of 2021 up by a staggering 23 per cent on the same period in 2020. Cork, Tipperary and Wexford have the highest level of registrations. In Northern Ireland, according to the Agricultural Engineers Association (AEA), 258 units were sold to date: that is up from 150 units on the same period in 2020, which is a growth of 72 per cent year on year. The UK market is also up 12.3 per cent with year-on-year figures of 4268 units registered for the first four months.

Wilson auctions have secured the Bord na Mona auction of surplus equipment. The first auction will take place on Saturday the 19th June at the Bord na Mona Derrygreenagh site in Co. Offaly. On offer will be a selection of tractors, bulldozers, excavators and much more besides.

As the silage season begins to get in to full swing, don't forget to check all trailers, grass equipment and road-worthiness of tractors. Double check insurance policies and check diesel prices with your local suppliers. Until next month, farm wisely and farm safely.

Vogelsang presents its agricultural technology virtually



With many exhibitions cancelled this year due to Covid-19, Vogelsang Ireland continues to present its technologies safely and interactively. Vogelsang expands its digital offering with a 360-degree showroom. The virtual tradeshow lets visitors interactively explore new agricultural technology and their product range as if you were there. As you explore the 3D space, you get an up-close view of each product with application videos, features and brochure downloads. View the precision distributors, including the tried and tested Ireland's number one ExaCut ECL and the award-winning ExaCut ECQ. According to the company, the ExaCut distributors cut fibrous matter, remove stones and evenly distribute slurry in a single process.

With the new UniSpread spreading that is available as a dribble bar and trailing shoe, Vogelsang offers a universal spreading system for small working widths and user-friendly retrofitting. Variable suspension options allow quick installation, while various safety features ensure safe, clean transport. Users benefit from Vogelsang's proven quality features of spreading systems, such as precision, distribution accuracy and maintainability.

Vogelsang's wide range of rotary lobe pumps function ideally as slurry pumps. These versatile and compact pumps offer longer runtimes, quick maintenance and high levels of operational safety. They are also self-priming and resistant to dry-running and foreign matter. Visitors can also see the new, robust HiFlo resist lobes for up to four times longer service life and new wear plates that protect the pump from any fibrous matter. SyreN is a system that stabilises the nutrients in the slurry for future-proof slurry management. This system ensures optimal nutrient utilisation, as it reduces nitrogen losses by up to 70 per cent. The result, says the company, is more ammonium nitrogen availability for the plant thus, increasing crop yield. To access Vogelsang's virtual showroom, visit www.vogelsang.info/en-ie/agricultural-showroom



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New Features from McHale for 2021

McHale is offering farmers and contractors 3 choices of mowers to choose from; a McHale Pro Glide F3100 Front Mower, a McHale Pro Glide R3100 Rear Mower or a McHale Pro Glide B9000 Butterfly Mower. These machines pack a host of features that focus on superior floatation and excellent cutting. All mowers in the McHale Pro Glide range come fitted with a 3m heavy duty cutter bar with tine conditioners which is powered by a right-angle gearbox and benefit from a number of novel features which result in better ground following ability and quicker reaction times to changes in ground conditions. The McHale Pro Glide B9000 Combination Mower comes with an optional Hydraulic Width Adjustment. The operator can hydraulically adjust the width position of the rear mowers to eliminate striping on slopes and curves. The hydraulic rams integrated into the mower beams shift the cutter bars sideways either together or independently to allow for up to 400mm overlap on each mower. McHale have also added some additional features to their centre delivery rake range with the introduction of a new hose tray and PTO holder which can be folded neatly away when the rake is in use. For this season, all R62-72 & R68-78 rakes will come fitted with oil flow control valves to allow the operator to adjust the speed at which the rotor arms are raised and lowered. This will be particularly useful for gentle operation on larger size tractors with high oil flow capacities. Also, for the 2021 season, all McHale rakes will be equipped with a tine arm holder for storing tine arms during transport or when the machine is in storage and the option of a spare rotor wheel.



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|  <p style="color: red; font-weight: bold; border: 1px solid red; border-radius: 50%; padding: 2px; display: inline-block;">Finance Available</p> | <p style="background-color: #008000; color: white; padding: 5px; border-radius: 5px;">PROCUT 3000 TC</p> <ul style="list-style-type: none"> ➤ 25mm gears ➤ Drive shield module ➤ Waltersheid driveline ➤ Heavy duty conditioner bearings |  <p style="color: red; font-weight: bold; border: 1px solid red; border-radius: 50%; padding: 2px; display: inline-block;">Finance Available</p> | <p style="background-color: #008000; color: white; padding: 5px; border-radius: 5px;">TEDD-AIR 570 840</p> <ul style="list-style-type: none"> ➤ Hook lines ➤ 7 arms per rotor ➤ Headland management ➤ Spare wheel and lights included ➤ 4 rotor 5.7 m ➤ 6 rotor 8.4m |

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Is there a Plan B?

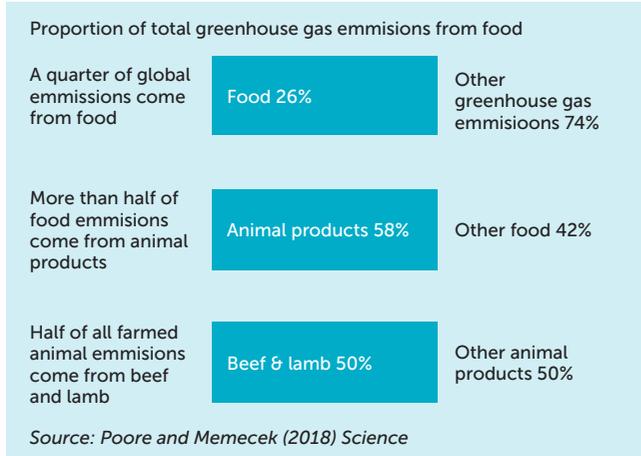


Tom Murphy
Professional
Agricultural
Contractors of Ireland



Agricultural production is, by and large, a predictable enterprise. Each year the cycle is repeated with reliable certainty, with occasional

changes to methods and machinery taking into account progress in technology. In Ireland, the farming sector is mostly made up of small family farms. Living in such a community myself, I get to meet farmers and the contractors who provide mechanical services to them, and it is true to say that they are worried as to where they will fit into a world that is changing its attitude towards diet and the production of food. There are very real environmental concerns about how we can reduce our emissions (see chart). But we have to ask why the EU is looking outside of Europe to import cheaper agricultural produce, particularly from Mercosur countries? Is this 'passing the environmental buck' onto other countries? By following this course of action, the EU can show a reduction in its carbon footprint, and going forward, this will have the knock-on effect of reducing CAP payments to Irish farmers. I am not being alarmist when I ask why we in the agricultural sector spend an incalculable amount of time and energy worrying and arguing about the here and now. However, very little time is spent on planning for the foreseeable future and ensuring we have built in flexibility in order to cope with changes. Constant media coverage, where credible organisations predict the demise of beef and dairy production over the coming years has to raise the question: 'Has our Government got a plan B?'



The Government, along with the EU Commission, must ensure that not only our present farmers and agricultural contractors have a future but also their successors. However, looking at EU agricultural strategies for the years 2020 -2050 it is understandable that farmers and agricultural contractors are expressing serious concern. In my view, at the end of the day, all of these EU strategies may end up in disarray if member state unrest on how Brussels is running the EU increases, and could possibly lead to more countries seeking to exit the EU.

Abbey Applicators now with ECQ distributors



According to Abbey Machinery, its new 10.7 metre DM Bandspreader and 10.7 metre Trailing Shoe have proved to reduce infield slurry spreading time by up to 35 per cent while accurately delivering vital nutrients to the ground. A key feature of these two new applicators is the Vogelsang ExaCut ECQ 42-hole distributor, efficiently conveying slurry evenly to 255 mm spaced pipes. The company states that advantages of the ExaCut ECQ included simple maintenance, extended service life precisely delivering nutrients to the soil and reduced power requirements.

The 10.7 metre Applicator range come standard with the ExaCut ECQ which is faster, easier and has less complicated maintenance than ever before. The easy maintenance of the distributor is due to the removal of the rotor unit through the generously dimensioned maintenance port on the front of the ECQ. There is no need to dismount the precision distributor of the cover resulting in easy maintenance for the farmer.

The service life of the ExaCut ECQ is extended by up to 50 per cent, complementing the Abbey Machinery applicators, resulting in a long life for the total machine. Three-sided blade design reduces the speed while enhancing the cutting performance – therefore, for every rotation you get an extra cut. The ExaCut ECQ supports the Abbey applicators in even distribution of nutrients, even more precisely than ever due to flow optimization. The ExaCut ECQ also requires 50 per cent less hydraulic power and the large cross-sections result in less pressure loss. New technology and lower speeds result in reduced oil requirement without impairing cutting performance.

Achieving even slurry application regardless of weather conditions, crop type and date are critical. Distributing the slurry below the crop canopy instead of on the crop foliage has significant benefits including 91 per cent reduction in smell and up to 90 per cent improvement in nitrogen retention. Cutting silage removes large quantities of potassium from fields, while slurry contains large volumes of potassium so by spreading slurry it is returning major nutrients like phosphorus and potassium back to the field. According to a 2020 Teagasc study, the trailing shoe and dribble bar are more effective at reducing ammonia losses as the slurry is placed in bands directly onto the soil surface just below the grass. The trailing hose will deliver up to 30 per cent reduction and the trailing shoe deliver up to 60 per cent reduction in ammonia loss according to the study.

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Kverneland Grass Machinery

Kverneland Group Ireland, the Kilkenny-based arm of the Kverneland Group, offers the full line of grass machinery. The Tarrup range, well known and designed for the heavy silage conditions in the Irish market was acquired by Kverneland in 1993 and now flies under the Kverneland banner. The mowers start from the 23, 26 and 28 plain mounted disc series, upward to the professional farmer offering of the 32, 33 and 43 mounted and trailed mower conditioners and completing the range are the 50 and 53 series butterfly mowers. Highlights include the cutter bar with the round discs that are a Kverneland hallmark. The unique circular disc design has a constant distance between the outer edges of the discs so that stones are expelled immediately before risking blockage, reducing shock loads on the transmission to an absolute minimum. According to the company, the knock-on effect improves durability and longevity while reducing maintenance substantially over time thus sustaining market value of trade ins, an essential consideration for the farmer. The rear-mounted 33 series comes with hydraulic QuattroLink® suspension that floats independently and adjusts instantly and accurately to ground contours and allowing accurate tracking ability and a highly-flexible working range, without any need to stop and reset. The comprehensive 9000 rakes offering begins with single rotor rakes through the twin rotor range including the highly popular 9472 C rake, with the heavy duty 9580 C and 9590 C Hydro, working widths of 7.2m,



8m and 9m respectively and four rotor 97150C. On the farmer range features include actively steered wheels, the TerraLink Quattro system and hydraulically raised rotors as standard. The 8000 series tedder range comprises the compact and Proline range, with working widths from 5.2m to 12m. The compact line 8452 is fitted with super-C tines with large spring coil diameter for added service life while the Proline range 8555 and upwards feature maintenance-free driveline and strong Proline gearboxes for professional farmers looking for a strong, effective, and versatile tedder. On the baling front the 6500F fixed chamber baler is new to the fleet and joins the award winning Kverneland Fastbale, the world's only non-stop fixed chamber round baler wrapper combination. The 6500F is a heavy duty fixed chamber baler specially designed for heavy silage conditions, with 2.3m pick up width, Kverneland's net Powerbind wrap system and net loading from the ground, eliminating any need for climbing steps or platforms.



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Pöttinger TOP 842 C for professional operators

Featuring an adjustable working width between 7.7 and 8.4 m, the TOP 842 C is the high-performance centre-swath twin rotor rake for professionals. This model guarantees high productivity, the best ground tracking and excellent manoeuvrability.

The neat headstock features a yoke connection to the tractor lower linkage equipped with a practical PTO shaft holder and neat routing of hydraulic hoses to the tractor. The TOP 842 C yoke type headstock allows a turning angle of 73 degrees to guarantee excellent manoeuvrability.

A rotor diameter of 3.70 m and 13 tine arms per rotor, the TOPTECH PLUS rotor unit combines proven technology with the latest innovations: On the TOP 842 C Pöttinger offers an adjustable cam track with a large diameter of 420 mm and a tine arm bearing spacing of 700 mm. The tine arms are easy to replace using just two bolts. The rotor unit guarantees great output, strength and reliability at the same time as ease of maintenance. Despite the impressive rotor diameter, the transport height remains below 4 m without having to remove any of the tine arms. Using the hydraulic working width adjustment system, the two rotor units are moved into the correct position before folding ready for transport. Both rotor units are also locked in the transport position.

As a professional user expects, marker boards, lighting and mudguards are provided as standard equipment, and with wide 340/55-16 tyres safe and rapid transport is guaranteed.



Pöttinger offers a choice of rotor chassis: a 5-wheel chassis per rotor with or without MULTITAST jockey wheel. The unique proven Pöttinger MULTITAST jockey wheel system delivers the excellent ground tracking and, as a result, lower contamination in the forage according to the company. As demonstrated in the DLG Focus test, a reduction of up to 25 per cent raw ash can be achieved by using the MULTITAST system. The rake is raised using one single-acting connection and one double-acting connection is needed for adjusting the working width. As an option, a flow splitter and individual rotor lifting system with convenient hydraulic interlock catches are also available.

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Krone rake offers durable high quality performance

Krone rakes offer unique features across a range of models, from single rotor machines to the Swadro 2000 six rotor. Stephen Scrivener, Sales Director for Farmhand, says: "Krone rakes offer a high-quality build able to cope with the heaviest Irish conditions. It doesn't matter if it's the 3m single rotor or a 13m 4 rotor, the build and most of the features are the same throughout the range" explains. Farmhand are the sole importers for Krone machinery to the island of Ireland.

10.5mm thick tines are standard on all Krone rakes. Kinked in two positions, these special tines from Krone offer significant benefits, that have been verified in a DLG Focus Test, including better performance in heavy crops and the ability to rake the ground clean every time. According to the company, Krone Jet Effect ensures the tines will not dig into the ground when the rotors lower and lift. Emulating the touch-down and take-off of an airplane, when lowering into work, the wheels on the rear touch down first – an intelligent system to protect the swath and avoid crop contamination. Cardanic Rotor Suspension enables the rotors to pivot in and across the direction of travel so they rake clean even in difficult conditions or on hilly ground. A wide-angle joint on the arm with two elongated holes prevents the tines from being pressed into the ground or from being left suspended in the air, thereby also avoiding crop contamination and leading to a quiet running rake. All rakes bigger than the TC680 come with electric height



control as standard. The user can set the height of each rotor independently from the comfort of the cab. Single rotor lift is also standard across all Krone rakes. The steep cam track provides precision guidance for the tines. A small track diameter in combination with massive cams make for quiet running, reduces wear and leads to well-shaped swaths. The Krone DuraMax is the steepest cam track on the market which leads to well-shaped, box swaths and best of all, it is completely self-lubricating and maintenance free. Meanwhile, the tine arms, made from strong tubular steel, offer maximum longevity and reliability. To replace tines simply undo two bolts and remove the entire arm complete with the bearing and roller.



WHY DOES EVERYBODY WANT A KRONE?

1. PATENTED LIFT TINES

10.5mm thick tines are standard on all KRONE rakes. Kinked in two positions, these special tines from KRONE offer significant benefits, that have been verified in a DLG Focus Test, including better performance in heavy crops and the ability to rake the ground clean every time.



2. KRONE JET EFFECT

ensures the tines will not dig into the ground when the rotors lower and lift. Emulating the touch-down and take-off of an airplane, when lowering into work, the wheels on the rear touch down first – an intelligent system to protect the swath and avoid crop contamination.



3. CARDANIC ROTOR SUSPENSION

enables the rotors to pivot in and across the direction of travel so they rake clean even in difficult conditions or on hilly ground. A wide-angle joint on the arm with two elongated holes prevents the tines from being pressed into the ground or from being left suspended in the air, thereby also avoiding crop contamination and leading to a quiet running rake.

4. DURAMAX CAST IRON CAM-TRACK

with 3 YEAR WARRANTY at the heart of all Krone rakes. The steep cam track provides precision guidance for the tines. A small track diameter in combination with massive cams make for quiet running, reduces wear and leads to well-shaped swaths. The Krone DuraMax is the steepest cam track on the market which leads to well-shaped, box swaths and best of all, it is completely self-lubricating and maintenance free.

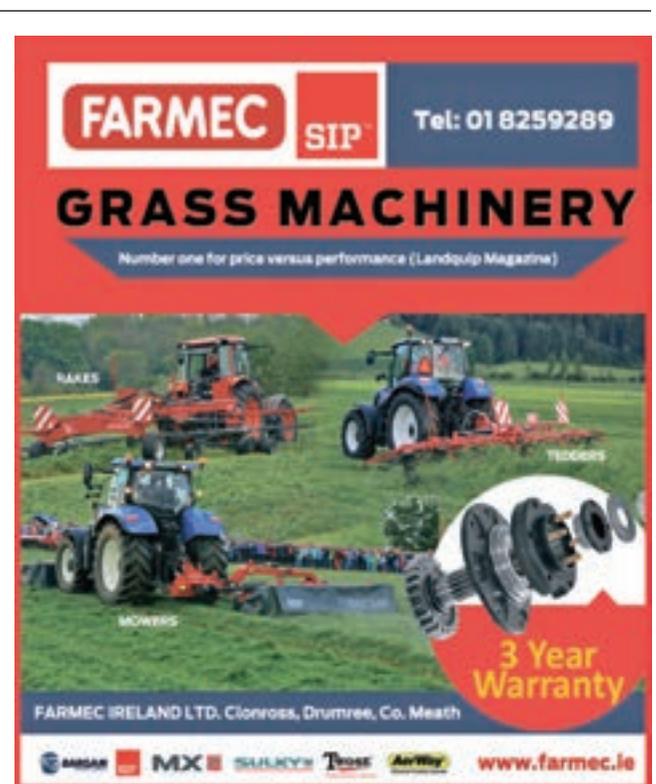


McCormick at Cereals 2021



McCormick is planning its return to the show circuit with an eye-catching display from across its key arable tractor ranges at Cereals 2021, as the marque seeks to support the agricultural industry and the wider economy by showing its backing for the exhibition and the gradual return to normality for farmers and the broader public. The event, which takes place on Wednesday June 30 and Thursday July 1 at Boothby Graffoe, Lincs, will see McCormick have a strong presence. Stand exhibits will be headed by the X8.680 VT, flagship of the McCormick range with a maximum power output of 310hp and standard CVT. The subject of an intensive demonstration programme by dealers around the UK, the X8 series is continuing to notch up sales for McCormick. Also on the stand will be a McCormick X7.624 VT tractor, representing the popular 200-250hp bracket that is currently one of the most hotly-contested in the arable tractor market. McCormick staff will be on hand to show visitors exactly why the X7 series, with features including VT-Drive CVT and a full precision farming package, can compete with anything else in the sector. Rounding out the main arable offering on show will be a 130hp McCormick X6.440 VT model, flagship of the X6 line of mid-range tractors for all-round farm tasks, again equipped with the brand's VT-Drive CVT. However, not forgetting that there are plenty of tasks for a smaller tractor on many arable farms, McCormick will also be showing the X6.55, the 93hp flagship of its three-model X6 series. "McCormick has been able to make some prominent dealer appointments over recent months, and alongside the advanced product offering we have developed this has helped to really boost awareness of the brand among larger arable farms," says Ben Agar, business development director for McCormick distributor Argo Tractors UK & Ireland. "We have the precision farming technology, transmission offering, build quality and back-up to match anything on the market. When added to our recent developments in

areas such as telematics, fleet management and remote diagnostics to allow farmers and dealers to monitor machines, plus up to five years' manufacturers warranty, the development of our UK parts warehouse, and the investment we've made in UK staff – 60 per cent of whom are field-based to work directly with dealers and customers – our commitment to UK agriculture is clear. We are really looking forward to showcasing that further at Cereals 2021."



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Safety at Silage Time

Ciaran Roche, FBD Risk Manager, highlights the key risks on the farm at this time of year.



It is approaching that time of year again when farmers and contractors are busy with what is potentially a very dangerous activity – silage making. Silage making calls for advance planning and even farmers and contractors with years of experience need to be aware of the dangers associated with this activity and take the necessary precautions. Children should never be present when silage making activities are ongoing.

Tractor & Machinery Safety

Over the last 10 years 53 per cent of all farm fatal accidents involved farm vehicles (43 per cent) and machinery (10 per cent)¹. Particular attention should be given to ensuring that tractors, trailers, mowers, harvesters and balers are maintained in good condition, adequately guarded and only used by competent trained operators.

Most tractor accidents are caused because of inexperienced operators, speed, lack of concentration, steep gradient, poor driver vision, unguarded parts and poor mechanical condition of tractor and or trailer. It is essential that measures are taken to avoid each of these hazards. Special attention must be given to ensure that all brakes are serviced on tractors and trailers as there have been a significant number of serious and fatal accidents due to brakes not working adequately. Before attempting to clear blockages in balers, switch of the engine, disengage the PTO and wait until all rotating part have stopped moving. Where possible, install reverse drive mechanisms to allow blockages to be cleared without manual intervention.

Safety on the road

Ensure vehicles are operated at a safe speed, well lit up and that they are maintained in a road-worthy condition. It's essential that all lights, mirrors, indicators and wipers are fully functioning, clean and visible. Safe access and egress from all farmyards and fields must be ensured. Be careful not to drag muck onto the public road as this may cause vehicles to skid, lose control and or overturn. We would also encourage all pedestrians and cyclists to wear high

visibility vests, use the correct side of the road, keep in a single file and listen out for road vehicles.

Don't overfill the pit/clamp

There's always the temptation to fit in that extra bit of silage into the silage pit/clamp, however this can be extremely dangerous as it can result in the surrounding walls or silage pit/clamp collapsing, especially when dealing with excessively wet grass. As a general rule, the finished silage pit/camp should slope at no more than 45° to the retaining walls. The width across the top of the finished silage pit should be a minimum of three times the width of the loader, including dual wheels. Loader operators must be able to ensure the stability of the rolling equipment to prevent loss of control or overturns. Where silage pits/clamps are full to a safe level and where more grass is required to be harvested, the option of baled silage should be considered. For bales, ensure that they are stacked in a safe manner, as in recent years a number of farmers have been fatally injured by falling bales.

Key Steps to Safe Tractors and Machinery Operation during Silage Time

- Maintain tractors and machinery in a safe condition and ensure you check them for defects at the start of every day.
- Only allow competent experienced people to operate tractors and machinery.
- Know your machinery and use machinery correctly.
- Avoid rushing and always be vigilant.
- Do not take short cuts and pay attention to safety warnings.
- Ensure all moving parts such as the PTO shaft are guarded properly.
- Disengage the PTO and switch off the tractor engine before attempting to clear blockages.
- Wear suitable clothing when working with machinery.
- Keep children away from the silage actively.

¹ HSA Report on Main causes of deaths in Agriculture and Forestry over the last 10 years 2011-2020

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CAP shaping up to be not even neutral, but actually worse

At the risk of being prematurely pessimistic – and I sincerely hope I am – we have to say bluntly that the outcome of the current CAP negotiations looks increasingly likely to be not even neutral, but actually worse. It's important to stress that there's still time to avoid this disaster but certainly based on the most up-to-date reports we are getting we seem headed towards a situation where thousands of farm families across the entire country will suffer substantial cuts to their direct payments, in addition to being subject to new and unsurpassed levels of inspection and regulation. There really is no way or, indeed, point, in presenting this scenario as other than less payments for much more regulation and absolutely nothing for meaningful sustainability. The current CAP proposals will deliver for consultants and people involved in enforcement, but will critically undermine farmers. That is the unavoidable conclusion unless the Minister can bring a last-minute sense of realism to the debate and delivers a CAP for sustainable commercial farming. The Government in general, and our Minister for Agriculture, Food & Marine in particular, have to get a hold of this issue. They could start by remembering that the primary purpose of CAP is to deliver safe and sustainable food from a farm sector while ensuring proportionate incomes for the farmer primary-producers. That is what CAP was designed to do; that is what CAP is for. But that is most certainly not the focus of the proposals that we have seen thus far. The emphasis has demonstrably been switched from supporting farmers to supply highest standard food to regulating farmers and cutting direct supports till they exit farming completely.

Based on the documents presented at the CAP Consultative Committee, the current proposals from the Department of Agriculture, Food & Marine are heavily weighted towards consultant input at farm level, inspection, regulation and enforcement, while being notably light on the funding for the farmers expected to carry out this work. I find it quite shocking to have to write that the levels of informed debate around CAP – already frighteningly low – have actually declined as evidenced by these current proposals. We had thought that others would see that it was frankly unrealistic to ask farmers to do much, much, more for the same payment. But the proposal now is that the farmers do much, much, more for much, much less money. This is the kind of nonsense that's just bringing the whole question of CAP into disrepute and making it absurd.



Pat McCormack
President, ICMSA

Nowhere is the decline of logic more evident than on the question of Convergence. The notion that convergence will deliver for small and medium sized farmers is just demonstrably wrong. In fact, the big gainers under convergence would be those people – very often non-farmers – who own or lease substantial areas of land.

If people are serious about protecting small and medium sized farmers – the reason most usually cited for convergence – then the focus needs to move from the payment-per-hectare to the overall payment received by farmers. That, surely, is the real measure. For instance, the promoters of the current convergence model need to explain how they think it's fair that a person who is receiving a total payment of €10,000 will see their payment cut to fund a person receiving €50,000? Because that's going to be the net effect of the proposed change. And how is it fair that a person leasing their entitlements will see their entitlements increase at the expense of people who are actually farming? The anomalies in the proposed convergence model are beyond reason.

Meanwhile, the Eco-Schemes in Pillar I are in danger of simply not being taken up by farmers due to unreasonable demands. In terms of Pillar II, farmers again appear to face a bureaucratic nightmare and, put bluntly, Pillar II also needs to be re-focused to those farmers producing food and contributing to their local economy. Overall, our worst suspicions that sustainable commercial farming is being undermined by ill-informed and unfair commentary are being borne out.

ICMSA feels that unrealistic and ridiculous demands are being placed on farmers and the current CAP proposals suggest that the Government endorses that policy. It's time for some realism and that realism must be matched by the maximum level of co-funding from our Government. We need a convergence model that protects farmers with a low overall payment. We need an ECO scheme that is simple and properly rewards farmers. We need a clear definition of a 'genuine farmer' that ensures only people genuinely farming get a payment. And we need a refocused Pillar II supporting farmers who produce food sustainably from an economic, social and environmental perspective. It's never too late to do the right thing.

Spirit of success

Ballykeefe Distillery is Ireland's only family farm with a fully integrated distillery. We speak to **Morgan Ging** about the journey from beef and barley farming to blending whiskey.

and he said he would be passing my way at half two that afternoon.

I showed him the farm building where I was thinking of locating the distillery and he was happy. He said, 'get your planning permission sorted and if you do it right, we will get you the license.' That was that box ticked. Kilkenny County Council were extremely helpful. As long as the building was in keeping with the farm, and with the proper facilities, they were happy.

I didn't want the distillery to have a carbon footprint on the land, I wanted to integrate it into the farm, so I took down an old hay shed and lean-to and replaced it. From the outside, people see a farm building and when they open it, they see a brand-new building with beautiful stills, casks and stainless-steel vats.

I wanted an enterprise that worked with the farm, as part of the farm. We grow the malting barley on the farm, harvest it and mill it, brew it, ferment it, distil it and the distillers' grain goes outside the door, not ten metres away, to feed the cattle.

We have Hereford and Angus beef on the farm. We buy in forward stores cattle and graze them on the land and finish them off in the shed on the pot ale and distillers' grain which gives a unique marbling and flavour to the meat. Our beef is dry aged for 28 days and sold through a few different routes: It is exported across Europe through Kavanagh Meats in Enniscorthy, John Murphy Butcher in Callan, the Pembroke Inn in Kilkenny, and the Old Convent in Clogheen, county Tipperary take the fillet. It is so soft that when you fry it off in the pan, the fat melts into it and it's so tender to eat.

The straw from the harvest is used for bedding for the animals and that goes back out as fertiliser on the field to grow barley and silage for the animals as well. We have added value to our grain and tillage, and value to our beef by feeding the by-products of the distillery to the cattle. When we were open for tourism, they were the most photographed cattle in the country. The farm attracts a lot of people to the distillery, from Germany, America, all over the world and is now part of our tour. It's so important to me that the farm and distillery were one.



Ballykeefe Distillery began making spirits in 2017 and in March of this year, it launched its first Pot Still Irish whiskey. For beef and tillage farmer Morgan Ging, it is the realisation of a decades-long passion. "I have worked with my father on the farm all my life. About 25 to 30 years ago, we grew malting barley, we had a contract with Minch Malt. One year the weather and the price were very difficult, and I said to my father, 'there has to be a better way of doing this, of adding value. What about whiskey?' Dad was quite a progressive individual and he said, 'if you can swing it, I'm behind you.' But Ireland was a different place then: there were three big players in the market, there were no artisans. It was impossible to get a distilling license.

The idea

When I married my wife, Anne, we bought our own farm, Ballykeefe in 2002. We worked very hard, we had nearly three jobs each to get the money together. The farm was a beef farm and we expanded into tillage over the years. Then came the bull beef crisis and the horse meat crisis. Beef prices collapsed, and we had a lot of heavy beef animals on the farm. It was a horrendous year. I visited my accountant, hoping that I could break even. She said that break even wasn't a good position to be in. I mentioned that I was thinking of diversifying the farm and it always came back to a distillery. My accountant gave me the number of the custom's officer in Kilkenny. I made the call

The distillery

I have studied whiskey making for the last 20-odd years and I wanted to make it the way it was made in Ireland hundreds of years ago when we were the world's leading whiskey producer. I needed a still maker, and I knew Peter Clancy, a rep for Barison Industry in Italy (distillery designers). Peter subsequently went on establish his own distillery, Lough Ree Distillery, and he was a great source of information and help. He introduced me to the owner of Barison Industry, Graziano, who came to Kilkenny and hand-made our copper stills for us. The necks on our stills are one-third longer than usual to create the aniseed flavour profile that we wanted.

We hired the most decorated distiller in the world, Jamie Baggott, and he developed our white spirit range. Our gins and vodkas are all gold medal winners which we are very pleased about. Our Lady Desart gin is quite unique, it's made from three different types of peppers from Cambodia and Vietnam. I wanted a gin that didn't need any added garnish. It's for the busy person who wants to just add ice and a good tonic. We have a sloe gin, we steep our sloes in the gin for nine months, and it won a gold medal recently – we have opened markets in the UK, Australia, Germany, Italy and we are working hard on America. Our Poitín is very popular with the tourist trade, a lot of outlets in Kilkenny use it in their Irish coffee. We recommend serving it with ginger ale. It won double gold at the World Spirits Awards recently.

The whiskey

In March, we released our first Pot Sill Irish Whiskey, drawn from seven casks of the premier distillations. Every drop of whiskey is triple distilled from barley grown on the farm, making it a uniquely grain-to-glass operation.

We're extremely pleased with the flavour profile of the whiskey; it exceeded our expectations. It took on the colour of the cask within six months and I knew we had something special. It is casked in the distillery which heats up during the day with the stills running and at night it cools, and this increased the maturation process of the casks. Each cask is released as an individual and it has its own flavour profile, but the common theme is very smooth, palatable with a creamy mouthfeel and Ballykeefe's signature tasting note of aniseed.

The advice

An on-farm business is the way forward for those who



have the will to do it and stick with it, but it's not for everyone. The general public, with their disposable income, are looking for artisan experiences and products, whether it's a distillery, a brewery, or a fish farm, but it has to be authentic. If you are going to do it, make it your story and people will appreciate it. It has to come from the heart, whether you are making cheese or chocolate. When people come to visit you, they see the passion. For me, it is more than a business, it's my family and how we live. When we opened, we had a family visit that flew into Shannon from America, hired a car and drove straight to Ballykeefe. I asked them why. They said, 'we looked you up on the internet and you're a family farm, you do it all yourselves, and we just had to see it!' When people appreciate what you are doing, when I see people ordering a Ballykeefe in a bar or see a bottle in a basket in SuperValu, you feel so proud, that gives you great strength and the courage to carry on."

AWARDS

- World Gin Awards 2019 – Gold Award 'London Dry Category' Ireland – Ballykeefe Extra Dry Irish Gin
- 2019 USA Spirits Ratings – Gold Award – Ballykeefe Lady Desart Gin
- World Liqueur Awards 2019 – Gold Award – Ballykeefe Sloe Gin
- Irish Whiskey Awards – Best Irish Vodka 2018 – Ballykeefe Potato Irish Vodka
- Irish Whiskey Awards – Gold Medal Award – Ballykeefe Super Premium Irish Poitín
- The Global Spirits Masters – Master Class Award – Ballykeefe Super Premium Irish Poitín

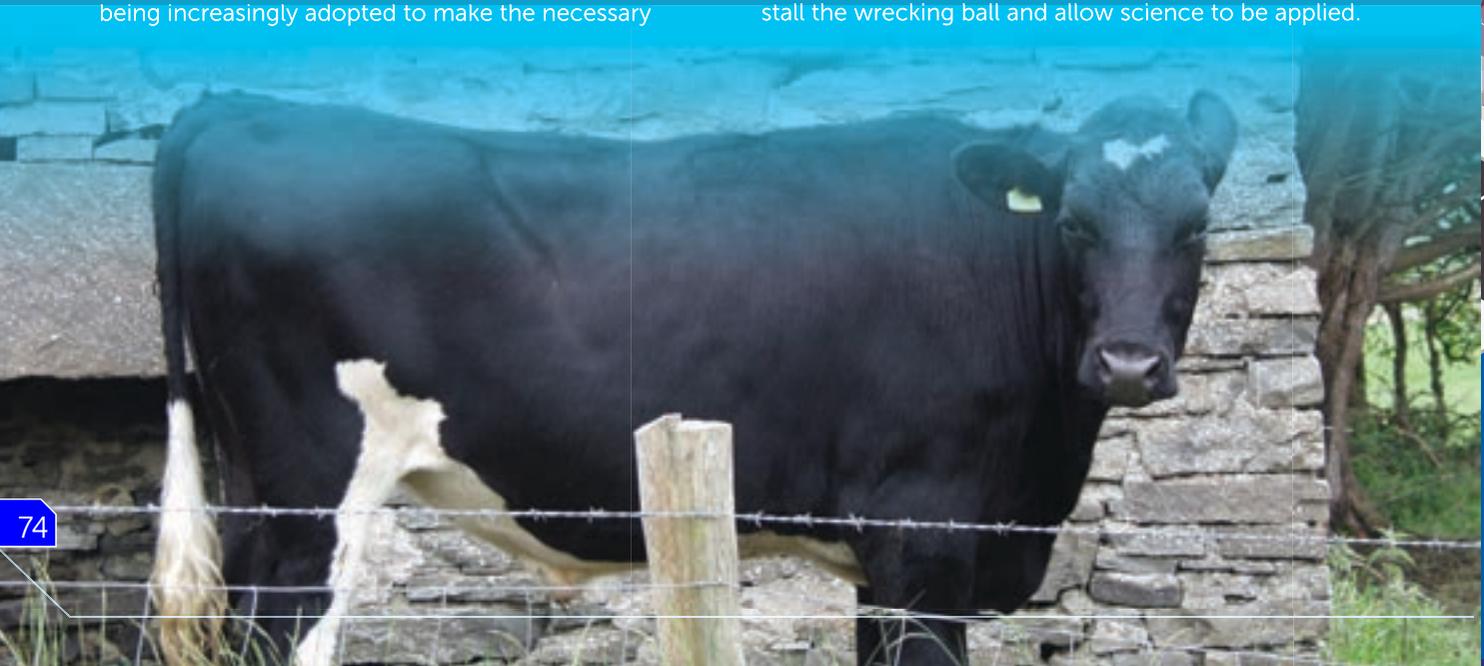
Dairy house being upgraded

If you own a house that has environmental challenges, do you knock it down or begin the process of upgrading the structure through a series of improvements? The house might need increased insulation and reglazing. It may have open fireplaces and be heated with an oil-fired Aga. Perhaps it has a solid fuel stove. If it is a large house with more bedrooms than you need then a logical approach would be to, at least, knock down part of the house. It is clearly unfit for purpose, especially at a time when there is so much anxiety over the climate and the impact of our carbon footprint on the planet. Knocking the house down is the simple and simplistic solution. By incrementally improving the house's energy rating, you could retain the structure, while making the house perfectly fit for purpose. The investment may be large but ultimately cost effective. Knocking down the house or reducing the size would seem an extreme measure with little logic given the potential to reduce its carbon footprint over time. The technologies are already available to improve the energy rating of the house to the standard required. Double or even triple glazing, high quality insulation, ground heat pumps, carbon efficient stoves, solar panels, the technologies are all there to upgrade the house and make it fit for purpose, while maintaining its integrity and treasured place in the built environment.

The same is true of Ireland's cattle herd. Improvements are needed to eliminate any negative impacts on the natural environment and mitigate its contribution to climate change. Again, as with the house knocking comparison, do we reduce or destroy the herd, or do we pursue measures which will effectively counteract any negative impacts on the environment? As with the house, the technologies are already available and being increasingly adopted to make the necessary

improvements without recourse to the drastic step of herd annihilation. Even allowing for the fact that our national herd is already amongst the most carbon efficient producers of milk and beef on the planet, there is still room for improvement. Viable and effective carbon and methane reducing technologies have been introduced on thousands of livestock farms. Clearly those improvements are gaining momentum and over the next five years it is anticipated the environmental impact of Irish livestock production will be significantly negated. The signposts are now in place.

Unfortunately, that assurance is not enough for those who insist that only the total dismantling of the Irish cattle herd will suffice. As with the house analogy, is it not better to retain the structure and, over time, bring the carbon footprint of our herd down even further? The herd is a valuable economic asset. Economics, however, will always come second in this debate. It is somehow almost disreputable to cite economic arguments in support of one of our most valuable indigenous assets. The livelihoods and jobs of thousands of rural dwellers, it seems, must be sacrificed for the greater good. So be it, but we should at least highlight the fact that there are viable alternatives to the crude mechanism of obliterating the Irish livestock herd. Just as there is an accepted ambition to upgrade 500,000 Irish houses by 2030, so too should the ambition to significantly reduce the environmental impact of Irish cattle farming in a similar period, be recognised and acclaimed. We should at least await the research outcomes of the carbon sequestration potential of our soils and hedgerows. Novel developments in methane-reducing feed additives are also in prospect. We should stall the wrecking ball and allow science to be applied.





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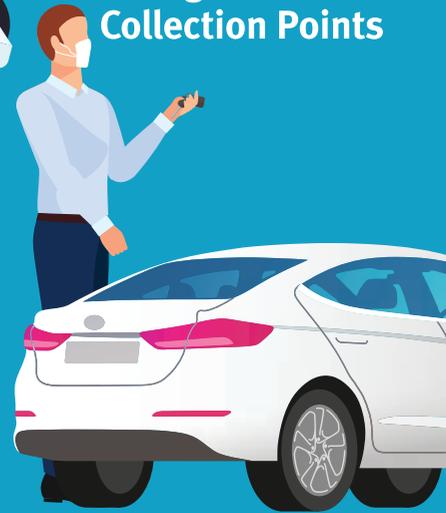


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Legal Category: **LM**

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*Butox Pour-On gives 6 - 10 weeks fly control depending on the degree of infestation, fly species and weather conditions.