



*Understanding  
the transformative  
impact of agtech  
on Irish agriculture*

**AGTECH IRELAND  
GENERAL ELECTION 2024**

## AgTech Ireland's Chairperson's Message

**Ahead of a general election**, it is important for politicians whether they will have the responsibility of government or that of opposition, to remember how critical rural Ireland is to the social, economic, and public life of the country, as well as its environment.

Agriculture and farming, among other sectors, have challenging climate and environmental obligations, which, uniquely, they are already hard at work to meet.

The last couple of years have seen fundamental changes to the Nitrates legislation, concerns over the continuation of the Irish Nitrates derogation, new obligations on carbon emissions under the Climate Action Act and Plans, topped by challenging weather conditions, and this has proven both costly and wearing for farmers' livelihoods and mental health. While farm product prices are recovering and inflation easing, there remains great deal of uncertainty around environmental policy and its implications on farms – though what is clear is that the requirement for continued climate and environmental action will remain.

The need to transition to more sustainable farming practices, including by adopting many of the tools which our agtech industry is busy developing, will continue to grow.

In this Manifesto, which we have designed as a living document to be updated regularly with new case studies, we aim to raise awareness among prospective public representatives of our fast-growing agtech sector. It is developing to respond to the needs and challenges of agriculture and can deliver solutions to support farmers in improving their sustainability. It has a central part to play in securing rapid adoption of new practices and technologies to make Irish farms more resource efficient and profitable, while reducing their environmental footprint. It is also a successful export-oriented sector in its own right, with its own contribution to make to our national economy.

We look forward to working with our elected representatives, to ensure that agtech is better understood and can develop to fully deliver on its transformative potential for Irish agriculture, and wealth generation for Ireland's economy.

*Padraig Hennessy*

Padraig Hennessy  
Chairperson  
AgTech Ireland



## AgTech Ireland – Who are we?

**AgTech Ireland** is a not-for-profit industry representative group funded and led by members. We are governed by an Executive Council and have appointed Catherine Lascurettes as COO to drive our programme of action.



Catherine Lascurettes  
COO

Agri-policy Consultant &  
Exec at Nuffield Ireland

## Our Executive Council



Padraig Hennessy  
Chairperson

CEO of Terra NutriTECH  
Animal nutrition



David Leydon  
Secretary

Head of Food &  
AgriBusiness at ifac  
Professional Services



Lloyd Pearson  
Treasurer

MD of Pearson Milking  
Technology  
Dairy technology



Deirdre O'Shea  
Council Member

Food, Agribusiness &  
Beverage Leader at AON  
Professional Services



James Greevy  
Council Member

Head of Product at  
Herdwatch  
Farm Management App



Ursula Kelly  
Council Member

Managing Director of  
Cormac Tagging  
Animal Identification



William Minchin  
Council Member

CEO of Agricultural  
Trust  
Agri Media



Sean Smith  
Council Member

Commercial Director at  
Micron AgriTech  
Animal Health Start-up

**Our members** are companies from every sector of agricultural technology and innovation, from infrastructure, hardware, digital and data management tools, machinery, automation, biotechnology, veterinary and phytosanitary products and supplements, information monitoring and data analysis. Our members include Irish and international companies, startups and established businesses alike.

**Our mission** is to promote, support and enhance Ireland's agtech community, by connecting our members into a supportive ecosystem to create a network of agtech leaders in Ireland. We advocate and lobby for the sector, promote collaboration across industry, research and government departments and agencies. We help shape and communicate agtech in the context of sustainable agriculture. We aim to be the single point of contact for government, media, trade missions and research for our industry. We take good corporate governance extremely seriously and are fully registered with the Register of Lobbying.

## What is agtech?

Agtech, short for agricultural technology, refers to the use of technology and innovation to enhance various aspects of agriculture. It encompasses a wide range of technologies, including precision farming, sensors, robotics, data analytics, artificial intelligence, and biotechnology. Agtech aims to improve efficiency, sustainability, and productivity in agriculture, addressing key challenges such as food security, resource management, and climate and environmental sustainability.

## The value of agtech

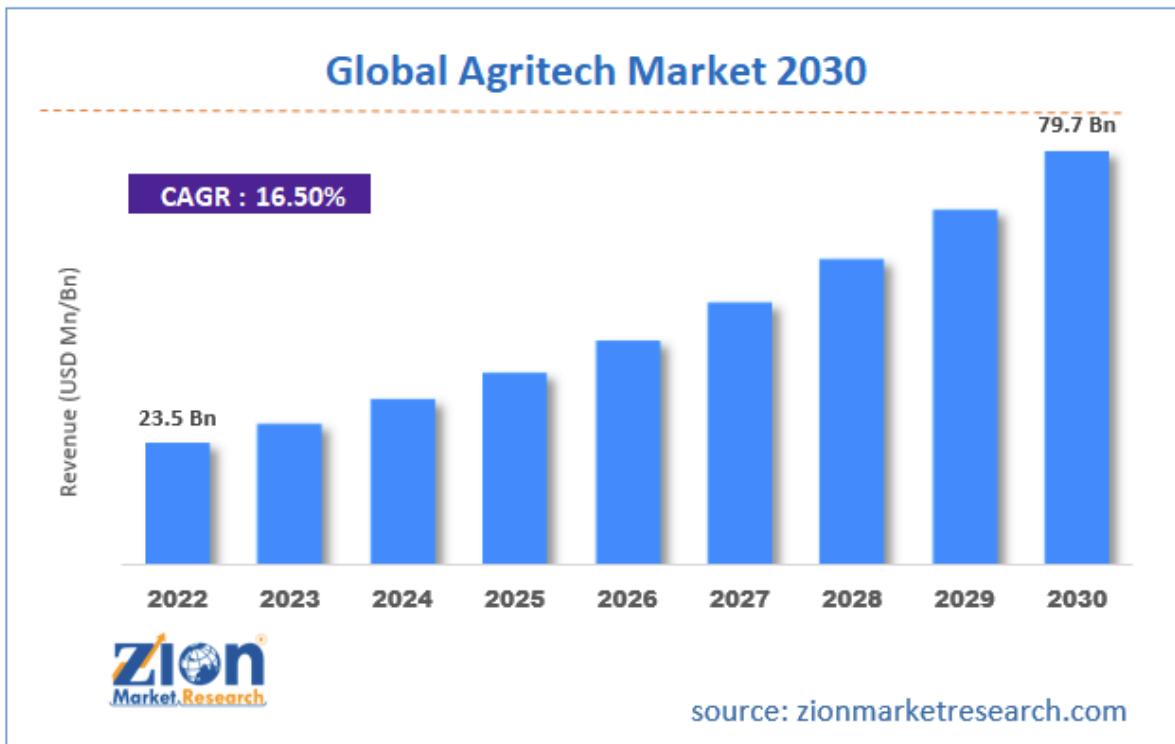
**The global value** of agtech in 2024 has been variously estimated at around USD\$25-30bn, with expectations of spectacular CAGR growth of up to 16% to reach north of US\$70bn by the early 2030's. While the growth projections are somewhat speculative, they are reported by various market analysts consistently between 14 and 16% CAGR and reflect the greater dependence of

*Understanding the transformative impact of agtech on Irish agriculture*

*AgTech Ireland's General Election Living Document Manifesto 2024*

*November 2024*

agriculture on technology as it transitions towards more sustainable and resource efficient ways of producing.



**In Ireland**, surveys by Enterprise Ireland and the AgriTech Ireland Cluster suggest that there are upwards of 100 companies involved in agtech. Their sales exceed €1.3m, with over 60% of this turnover achieved on exports, and an estimated annual growth of over 10%.

Those companies employ around 4000 employees, of which 84% are based outside Dublin.

## The Drivers of Agtech Adoptions on Irish Farms

### Economic

In a world of globally traded agricultural commodities, Irish farmers are increasingly faced by volatility in commodity and input prices. Supply chain disruptions linked to geopolitical events have challenged farmers' margins and made income risk management increasingly important. Agtech companies such as Concept Dairy have helped formalise this process and, working with dairy co-operatives, enable farmers to stabilise their milk incomes.

Other agtech businesses have developed farm business management software packages and apps which enable farmers to keep closer control over their farms' financial and business performances.

High cost and low availability of labour is also motivating farmers to adopt more automatization solutions, from drafting gates to milking robots.

## **Environmental**

Uniquely in Ireland, agriculture is the largest source of GHG emissions at around 38%, the bulk of this methane from ruminants. Measuring emissions from cattle and sheep with a view to reducing same can be achieved using technologies developed by the likes of Reap Interactive and Agri Data Analytics.

The need to measure the carbon sequestration capacity of various features of the farm, from hedgerows to grassland, is also leading farmers to engage with agtech companies capable of carrying out such measurements, like [Senus](#).

More soil testing and greater precision in input application is also crucial to assessing and improving soil health, reducing input use, and minimising nutrient losses, especially to water courses. Various solutions available for farmers, including low emission slurry spreading equipment, robotic precision weeding equipment, GPS driven fertiliser spreaders and more.

Most of those technologies also have a positive impact on biodiversity, as they enable lower levels of soil disturbance, reduced use of pesticides and herbicides, and reduced nutrient loss.

## **Social/Generational**

A well run, well organised and equipped farm is a more attractive, as well as safer workplace. This helps with recruitment and retention of staff, but also with making the farm a more appealing workplace for the younger generations in a farming family.

Increased used of automation and technologies can help save time, reduce the drudgery and physical demands of certain farm tasks. This can make a significant contribution to gender diversity among farm holders and workers, and it can also improve farm families' and farm workers' work/life balance.

## **Compliance**

Many of the new technologies adopted on farms capture and analyse data within the farm's own system. This is crucially important to monitor and improve the technical and business performance of the farm.

However, it also enables farmers to prove compliance with legal requirements in areas like farm records for CAP administration purposes, animal health and welfare, animal movements for traceability, and environmental considerations.

Being able to capture data once and transfer it between approved and controlled data platforms through rigorous, agreed protocols, means much of that data can also be used to satisfy the requirements of quality assurance schemes, measuring proof points such as those required for the "Grass Fed Standard", among others.

## The Challenges to Farmer Adoption

### Economic viability

Teagasc National Farm Survey categorises each year the situation of farms in all sectors that are viable, sustainable or vulnerable. A farm is deemed viable if it can remunerate its family labour at the minimum agricultural wage and provide a 5% return on the capital invested in non-land assets. A sustainable farm household consists of a farm business, even if unviable, with the farmer or spouse in receipt of an off-farm income. A farm household is considered economically vulnerable if the farm business is not viable and neither the farmer nor spouse work off-farm.

In 2023, the National Farm Survey showed that only 28% of Ireland's farms were deemed viable.

This means that, even though some agtech solutions can improve resource efficiency from labour to input and effectively save money, the poor economic performance of the majority of Irish farms makes it difficult for many to invest in even vital technology to improve all aspects of their sustainability.

### Access to finance and financial/taxation supports

For farmers looking to invest in sustainability enhancing agtech, access to finance from banks and other institutions varies hugely from sector to sector, reflecting the relative economic viability outlined above.

Many on-farm investments, especially aimed at environmental sustainability, animal welfare and health and safety, can benefit from the Targeted Agricultural Modernisation Scheme (TAMS) funded from Pillar 2 of the EU's Common Agricultural Policy (CAP) payments.

Grants of 40% to 60% are available for specific eligible equipment, the higher level for young and women farmers. This forms an important part of the financial plan for most farmers investing in new technologies.

However, the scheme has been plagued by delays in payments and insufficiently frequently updated and therefore out of date costings, eroding substantially its contribution to farmers' investment capacity, including for essential equipment.

In addition, a recent re-interpretation by Revenue of what constitutes eligible equipment for VAT refunds to non-registered farmers has initially caused confusion and uncertainty, slowing down investments. It is now causing farmers to rethink their financial planning for certain types of investments no longer deemed eligible for VAT refunds by Revenue.

The challenges to farmers' ability to finance investments have a direct impact on agtech companies order books and development plans.

### Trust in validated technology

For farmers need to see the value of new technologies for their enterprise in economic terms as well as have confidence in their efficiency and efficacy.

It is not enough for agtech to be developed and work in labs or experimental situations. It also must be validated by trusted organisations in real-life environments that can recommend its use to farmers.

Agtech companies work with organisations like Teagasc, the Universities, and other private trialling groups to demonstrate the value of their innovations. More programmes are needed to ensure that high quality innovations are duly vetted in a tight timeline, then made available to farmers through trusted channels.

### **Technical support**

Agtech adoption also depends on informed, independent advice and technical support. This requires advisory services that understand intimately and appreciate the value of the technologies relevant to their farmer clients.

Teagasc and private agricultural advisors need to have forums through which advisors can engage with companies in the agtech sector as well as validating authorities to learn about new technologies and their value for their farmer clients.

AgTech Ireland has in the past facilitated those kinds of interactions with our member companies and would be happy to participate in a more structured approach to foster greater understanding among farm advisory services.

### **Context and mindset**

Farmers have seen the policy focus change rapidly in the last decade, especially in dairy, from production growth as milk quotas were abolished, to a far greater emphasis on GHG emission reductions and environmental sustainability. The last couple of years have seen fundamental changes to the Nitrates legislation, concerns over the continuation of the Irish Nitrates derogation, new obligations on carbon emissions under the Climate Action Act and Plans, topped in the last twelve months by challenging weather conditions. This has tested farmers' livelihoods, but also mental health and proactive mindsets.

Regulatory uncertainty continues, with a backdrop of contentious debate about the role of Irish agriculture in climate, with some in society even questioning the very legitimacy of livestock farming, methane emitting ruminants in particular.

In a fundamentally pastoral agricultural ecosystem such as Ireland's this is not a context conducive to proactive, sometimes costly and not always productive on-farm investment. Farmers often feel that they are being asked to make substantial changes to their practices to help meet national obligations on climate, environment, or to facilitate processor, retailer and consumer demands— with insufficient societal appreciation shown for their own livelihoods and economic well-being.

It is vital that politicians from all parties would promote a positive discourse around farming, one which is respectful and supportive of farmers' efforts to reduce their environmental impact while delivering high quality, nutritious and delicious food in exchange for a fair income.

## The Main Challenges to Agtech Development

### Labour

In a labour market close to full employment (only 4.2% unemployed as per CSO in October 2024), businesses in the agtech sector find it no easier than other companies to recruit the talent and skills they require.

The difficulties around housing, not only in cities, but pretty much all around the country, including in towns and rural areas, add to the challenges of recruitment and retention of staff for agtech just as it does for other sectors.

Prioritising housing at affordable costs, highlighting opportunities in agtech as part of career guidance in technological/IT and other engineering courses in universities and other educational institutions and access to work permits for personnel with relevant skills from outside the EEA would be particularly important here.

### Access to finance

Developing from idea to start up stage and beyond requires different types of financial supports. While Enterprise Ireland and other agencies such as, at local level, Local Enterprise Offices, are very helpful, securing funding from investors and financial institutions can be challenging.

The former can have a poor understanding of the challenges inherent in selling to farmers, and unrealistic expectations of returns, especially in terms of timelines. The latter can be very risk averse.

Start ups wishing to retain control can find that venture capital or other types of equity investors are ill-suited to their needs. Finding the right funding partners can be very difficult.

Fostering a greater understanding among investors of agriculture's and agtech's specific financial realities and needs would be a desirable way to support the community in its development.

Agtech innovators should also be considered by government as forming part of the homegrown enterprising sector which, adequately supported and provided with funding solutions to promote growth, could help reduce our national finance's dependence on corporate tax from large FDI firms. 77% of corporation tax paid into the national exchequer by foreign owned multinationals in 2019, according to the Irish Fiscal Advisory Council.

### Validation of research

To be marketable, all technology must be validated through realistic, independent trials, and recommended by trusted organisations and institutions to final users as capable of delivering what it promises.

Agtech innovations especially need credibility and trust, as farmers are conservative buyers and adopters. While required by regulations to invest in or use certain products – e.g. low emission slurry spreading equipment, or cattle crushes, or software to help fulfil animal record compliance – farmers' incomes are generally low and can be volatile. They understandably want to invest cautiously and wisely.

It is indispensable for agtech innovators to have access, at reasonable costs, to institutions engaged in applied research to trial out their products and services in real-life conditions with a view to providing proof of concept, and validation of its efficacy and efficiency.

### **Inflexibility in CAP funded farm schemes**

The grant aid schemes aimed at supporting farmers in modernising their enterprises and/or improving their sustainability can militate against innovation. A scheme like TAMS (the Targeted Agricultural Modernisation Scheme) only grant aids equipment which is included in a pre-existing eligibility list, and it also precludes grant aiding of equipment which is only available from one supplier.

In addition, the application bureaucracy and payment delays of the scheme can make applications challenging for farmers, and even discourage adoption of technology – which is obviously damaging to agtech companies' order books.

Management of those schemes must be streamlined to minimise delays in application and payments, and eligibility lists must be open to review on a regular basis. Regular interaction with the agtech sector would ensure relevant innovations come quickly to the attention of the managers of the schemes and can be promptly considered for inclusion in the list of eligible equipment.

## **Conclusion**

To meet the 25% cut in greenhouse gas emissions the Irish agricultural sector must achieve by 2030, and to play their part in delivering improvements in water quality, farmers must continue to adopt at speed and at scale new farming practices and new technologies.

Our sector offers pathways to address pressing agricultural challenges, promote sustainability, boost economic growth for all agricultural sectors. As a substantial exporter, it can also help position the country as a leader in the global agrifood and agtech landscape.

AgTech Ireland urges politicians of all parties to promote a vibrant Irish agriculture sector and agtech ecosystem and support both in practical ways.

Agtech innovators such as those we represent will play an instrumental role in delivering the necessary economic, social and environmental transition on farms.

In appendix, a few of our member companies have contributed case studies, which outline their vision, their products and services, how they can offer solutions to support smarter, more sustainable farming, and what challenges they are encountering in fulfilling this potential.

To find out more about the companies which make up our membership, what they do, and how they contribute to meeting our agricultural challenges, check out our [“Meet our members” page on our website.](#)



**CASE STUDIES  
OF AGTECH IRELAND  
MEMBER COMPANIES**

**AGTECH IRELAND  
GENERAL ELECTION 2024**

**CASE STUDY #1**  
**LELY ROBOTIC SCRAPER**  
**VAT REFUND**



## Lely Robotic Scraper – VAT Refund

### Introduction

In the Revenue guidance published May 2024 entitled ‘Flat-Rate Farmers Refund Order’, robotic scrapers have been specifically excluded for rebates for non-VAT registered farms. This is even though, until recently, numerous non-VAT registered farms have successfully reclaimed VAT on these investments in the last 10 years.

The updated guidance has excluded robotic scrapers due to being incorrectly defined as ‘not integrated within the farm building’ and moving independently. This is a fundamental misunderstanding of both the investment and integration needed to successfully operate robotic scrapers. In addition, there is a misconception that robotic scrapers can be easily removed and sold. This document lays out in detail that robotic scrapers are equivalent in permanence and integration to hydraulic or chain-based scrapers which are a qualifying investment.

Despite the many benefits to farmers, cows, and the environment, the exclusion of robotic scrapers disproportionately impacted small and medium farms hoping to gain state support to improve their animal performance, welfare and environmental footprint through better technology.

Automation of farm activities has well-recognized benefits in terms of labour-saving and farmer wellbeing, however the potential benefits in terms of the environmental performance of Irish farms and animal welfare are less well known. Lely as a company is dedicated to delivering these benefits to farmers and the environment through a range of key products.



Robotic scrapers



Traditional automatic hydraulic scrapers

### Qualifying criteria

The document ‘Flat-Rate Farmers Refund Order’ lays out a number of criteria that equipment must comply with in order to be an eligible investment. Below is in detail the investment and modification/construction needed to install and successfully operate a robotic scraper in a cattle shed, slatted or solid floor, and how they objectively qualify for each criteria.

**1. Does the expenditure constitute the construction, extension, alteration, or reconstruction of farm buildings or structures?**

All robotic scrapers require significant modification to existing animal housing. In new builds, specific planning must be used to ensure the successful operation of Lely Discovery and Lely Collectors. The following is the basic criteria needed for installation and modifications needed or design.

REQUIREMENT	PLANNING	MODIFICATION
<b>MAXIMUM 6-DEGREE SLOPE (10.5CM PER 100CM)</b>	Ensuring charging port and access routes to livestock areas are less than 6 degrees in sloped	Substantial passageway /slat modification involving the pouring of concrete and installation of new access points (Fig 1-3)
<b>CUBICLE HEIGHT MINIMUM 12.5CM</b>	All cubicles must be installed in excess of 12.5cm including portable cubicles	Significant investment is needed to increase the relative height of cubicles including shuttering, concrete pouring and installation of new steel/plastic cubicles
<b>INSTALLATION OF SEPARATION FENCES</b>	The design of separation fences no less than 60cm from the floor height (normally concrete curbs throughout)	Installation of separation fences of a permanent standard, either reinforced steel pieces welded to existing structures or concrete curbs installed through pouring. Any fencing near existing access points requires new access points or methods to drive over (Fig 4-5)
<b>EXTENSION OF GATES AND BARRIERS TO FLOOR LEVEL TO PREVENT SCRAPER ACCESS</b>	Specific gate types and barriers with installed wood or steep bottoms	Addition of timbers reinforced through metal fabrication to existing gates and barriers
<b>ALL GATES AND DRINKERS MUST BE 650CM FROM THE FLOOR</b>	Plans must ensure gates are installed to ensure 650cm clearance and drinkers mounted 650cm from floor height	Raising of drinkers from the existing level. Significant steel fabrication is needed to ensure clearance of gates above 650cm (Fig 6-7)

<b>BOUNDARY AREAS ENCLOSED BY 16CM BARRIER</b>	All boundary areas must be designed to allow for a 16cm barrier (timber, steel, or concrete), this includes access points for other equipment	Boundaries of the shed must be modified to allow for a 16cm barrier, this includes sloped access requiring significant re-concreting
<b>SPECIFIC CHARGING PORT</b>	An area inaccessible to livestock near the scrapping area with walls for mounting equipment of 5m long and 1.8m high minimum. Where the charging port is on a solid floor a sump hole will be required	The division of an area of slat or passageway from access by livestock of no less than 5m long and 1.8m high. In the case of a solid floor, concrete must be removed with a sump installed with access to a slurry tank (Fig 8-10)
<b>ELECTRICAL AND WATER REQUIREMENTS</b>	Planning to install wiring from circuit breakers and water piping from a water source	Installation of new wiring and protective ducting from circuit breakers to charging site along with retrofitting 13mm water piping (Fig 11)
<b>FOR SCRAPERS OVERCAPACITY OF 6 BAY SOLID FLOOR</b>	Redesign of a plan to ensure channels to solid floors greater than 3 bays.	Removal of concrete and installation of channels to areas greater than 3 bays.

**2. Does the equipment or machinery that is installed as part of the works necessitate that it is permanently installed in the farm building to the extent that its removal would cause substantial damage or significant alteration being caused to the goods themselves or to the building or construction to which they are installed?**

As the above specifications show, significant planning and/or modifications are needed to install robotic scraping systems. These systems require significant building work, particularly in the concrete flooring. These same changes are non-removable, and permanently change the layout and use of sheds. There is a greater level of modification needed for robotic scraping systems than for hydraulic scrapers which qualify in the existing guidance.

Sheds where robotic scraping is removed, would not be suitable for alternative systems and would require significant structural changes.

In addition, the removal for selling involves significant cost. Each scraper is equipped with a PCB programmed to a set layout. Upon being removed the safety tripper (an electronic element) on the scraper must be fully replaced at a cost of €400. The equipment's wheels would similarly need to be replaced at a cost of no less than €500. In addition, for reinstallation, scrapers would require a full service at a cost of up to €1000. These costs along with the installation cost of €2000 by Lely technicians and modifications to the recipient's shed would severely devalue the equipment vs a new scraper unit.

**3. Is the expenditure solely for the purposes of the farming business?**

Yes. This technology has no purpose beyond agricultural manure management.

In addition, the guidance document states that robotic scrapers are not integrated within the farm building. As the above clearly shows this is not accurate. The unit itself is inseparable from the permanent installation of the charger and associated equipment (eg separation fence, boundary modification, sump etc).



Fig 1. Existing passageway with steps to either side. These had to be removed and entirely new concrete passageways laid



Fig 2. New passageway laid complete with step to guide scraper (near feed barrier)



Fig 3. New passageway demonstrating the change in height and significant changes needed to accommodate the scraper.



Fig 4. Passageway of over 5m, too wide for robotic scraper



Fig 5. Passageway separated via installed barrier bolted to plates welded into place to reduce the size of the passageway.



Fig 6. Raised drinker to facilitate the access by robotic scraper



Fig 7. Raised gates requiring specific fabrication to facilitate scraper movement



Fig 8. Specifically build sump for Lely Discovery Collector to deposit collected manure.



Fig 9. Structural work required to install Lely Discovery scraper



Fig. 10 Permanent structural area needed to facilitate charging, water refilling and deposition of manure



Fig 11. Installation of wiring and permanent water source for scraper units



### **Benefits of Automated Scrapers**

In shed environments, an automatic scraper is key to cow health over the Irish winter by ensuring the slats and solid passages are kept clear of manure. Not only does this technology reduce hoof disease over the winter but also reduces the amount of ammonia gas within the cattle shed. Higher levels of ammonia gas are associated with local environmental issues such as nitrogen deposition on local vulnerable habitat but also associated with increased risk of respiratory illness in cows.

Further to this Lely is working on new solutions to address the nitrogen emissions issue in the Netherlands with the potential application for Irish farms to use separation of solid dung and concentrated liquid high in nitrogen to reduce fertilizer use.

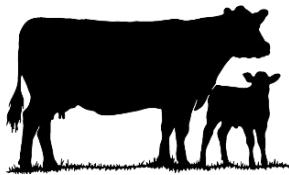
### **What farmers need:**

To ensure the benefits of automation and agritech to both farmers and the environment, the Revenue Commissioners should update their guidance as by the objective criteria laid out in their guidance document, robotic scrapers should qualify for refund to flat-rate farmers, similar to all other automatic traditional scrapers.



**CASE STUDY #2**  
**AGRI DATA ANALYTICS**  
**THE BOVINE BREATHALYSER**

This is a living document - November 2024



AGRI DATA ANALYTICS

**Agri Data Analytics**

<https://agridataanalytics.com/>

<https://ie.linkedin.com/company/agri-data-analytics>

### **Company profile**

Agri Data Analytics is an Offaly-based agtech start-up that provides a non-invasive solution for measuring enteric GHG emissions from ruminant animals called the Bovine Breathalyser.

Used primarily for agricultural research organisations, the Bovine Breathalyser is the tool that can provide the all-important data on enteric livestock emissions. We aim to provide the agri sector with data that will be used to identify high and low emitting ruminants, test methane reducing supplementation and determine ways of reducing cattle methane and CO<sub>2</sub> output through genetical, dietary and supplementary means without compromise to Dairy/Beef yield.

Agri Data Analytics was founded in 2023 by Jack Pilkington (CEO) and Alan O'Donovan (CTO) and is currently pre-sale with first sales projected for Spring 2025.



### Our products/services

The Bovine Breathalyser is a non-invasive solution for measuring enteric GHG emissions from ruminant animals. The emissions data collected by our device is used by research organisations to identify high and low emitting ruminants, test methane reducing supplementation and determine ways of reducing cattle methane and CO<sub>2</sub> output through genetical, dietary and supplementary means without compromise to Dairy/Beef yield.

The Bovine Breathalyser entices individual animals into an enclosed feeding tray area using meal which is dispensed when the animal is in close proximity to the device. While an animal is present in the feeding tray area, their enteric emissions (breath and belches) are drawn into the Bovine Breathalyser air collection system where the concentration of methane and CO<sub>2</sub> present is measured.

Using this data, we can determine the amount of methane and CO<sub>2</sub> that the animal emitted during its visit. When this process is repeated multiple times per day over a particular testing period, the Agri Data Analytics team can analyse all the data collected and build an emissions

profile for that animal which gives an accurate representation of the animal's lifetime methane and CO<sub>2</sub> output.

The Bovine Breathalyser is a robust device that can be deployed in sheds or at grass, enabling the collection of an animal's emissions while in their natural environment.

The data is processed by the Bovine Breathalyser automatically and sent to the Agri Data Analytics team and the clients as raw data. From here, the Agri Data Analytics team analyses the data further and displays curated, usable information for the client on a dedicated browser-based dashboard.

Note: The Bovine Breathalyser is still in development, the images below related to prototypes which have been developed and tested to date.





## Our plans

Our immediate milestone is to develop an MVP for farm testing in December 2024 and plan our first sales in late Spring 2025. In 2026, we plan to expand into a number of foreign markets, principally the United Kingdom, New Zealand and Australia, where the demand for testing ruminant emissions is greatest.

During that time, we aim to make a number of technical and commercial advancements including the refinement of our product and software platform, core team expansion, increased investment for market research and networking and expansion of office and workshop facilities.

## Our challenges

- Recruitment – Difficulties in acquiring staff in areas including skilled labour (Steel fabrication, welding, assembly etc.), software development and data analysis, administration, sales etc. It is hard to match average wages in some areas as a startup and being based in Daingean, Offaly, there is a lack of accommodation in the immediate area for potential staff to live.
- Lack of access to finance – Wanting to retain as much company ownership as possible, we are cautious to take on investment at this stage, however, we may need to look for investment soon in order to continue product development and fund product trials because banks are very reluctant to give loans despite demonstrating a clear roadmap and sales pipeline, business plan, allocation of funds and a repayment plan.
- Funding trials – Although we have a good facility to test our devices at our headquarters and access to test farms in Ireland, funding the trials is still a significant cost. ~€200,000-€250,000 (estimate depending on length and size of trials and where it is conducted).



**CASE STUDY #3**

**MSD ANIMAL HEALTH IRELAND**

**SENSEHUB**

This is a living document - November 2024



### Company profile

Based in Leopardstown Dublin MSD Animal Health plays a significant role in the animal health sector, providing a range of products and services that cater specifically to the needs of Irish farmers and veterinarians.

MSD Animal Health maintains a strong presence in Ireland, with its operations tailored to the unique agricultural landscape of the country. This includes providing products for livestock, such as cattle and sheep, as well as for companion animals.

The company offers a comprehensive range of veterinary vaccines, pharmaceuticals and technology solutions that are specifically formulated to address regional diseases and health and reproduction challenges. Some of their well-known products include vaccines for bovine respiratory disease, infectious bovine rhinotracheitis (IBR), and mastitis. MSD Animal Health invests in R&D to ensure that their products are effective against the diseases most prevalent in the Irish livestock population. This commitment to innovation aligns with their global mission to enhance animal health.

They provide educational resources and support for farmers to help them implement best practices in animal health management. This includes guidance on vaccination schedules, biosecurity measures, and nutrition, which are crucial for maintaining healthy livestock.

**Digital Solutions:** MSD Animal Health is increasingly incorporating digital technologies into their offerings. This includes health management software and platforms that help veterinary practitioners and farmers track animal health data, manage vaccination programs, and monitor



herd performance. These tools are essential for improving efficiency and productivity within the agricultural sector.

**Sustainability Initiatives:** The company is committed to sustainable agriculture practices in Ireland. Their products not only aim to treat and prevent diseases but also focus on enhancing the overall productivity and welfare of farm animals while minimizing environmental impact.

**Partnerships and Collaborations:** MSD Animal Health collaborates with local veterinary schools, agricultural organizations, and government bodies to promote research and awareness around animal health. These partnerships are valuable for driving advancements in veterinary medicine and animal husbandry in Ireland.

**Regulatory Compliance:** MSD Animal Health's products in Ireland are rigorously tested and compliant with the regulations set forth by the European Medicines Agency (EMA) and the Health Products Regulatory Authority (HPRA) in Ireland. This ensures that all products are safe and effective for use.

*Introduction of the company:*

MSD Animal Health has been established in Ireland for over 50 years. It operates across multiple sites in the country, with investments and contributions to both the human and animal health sector. The company currently employs over 3,000 across multiple manufacturing sites.



## Our products/services

MSD Animal Health offers a wide range of products and services designed to enhance animal health and support agricultural operations. Their solutions focus on improving resource efficiency, productivity, profitability, labour efficiency, and overall farm performance while ensuring animal health and welfare. Below is a detailed description of how these products and services support farmers and agricultural practices:

### 1. Vaccines

MSD Animal Health provides a comprehensive portfolio of vaccines tailored for various species (cattle, sheep, poultry, swine, and companion animals). These vaccines are crucial for:

- **Disease Prevention:** Effective vaccination programs help prevent the outbreak of infectious diseases, reducing mortality rates and improving herd health.



- **Resource Efficiency:** Healthy animals require fewer resources (feed, water) for maintenance, thereby optimizing resource use.
- **Cost Savings:** By preventing outbreaks, farmers can avoid the high costs associated with treating sick animals and losing livestock.

## 2. Pharmaceuticals

The company offers a range of pharmaceuticals, including anti-infectives, anti-inflammatories, and pain management products. These pharmaceuticals support farmers by:

- **Improving Animal Health:** Effective treatments for sick animals lead to quicker recovery times and improved health outcomes.
- **Labour Efficiency:** Streamlined treatment protocols reduce the time farmers spend managing health issues, allowing them to focus on other farm operations.
- **Boosting Productivity:** Healthier animals are more productive in terms of milk yield, growth rates, and reproduction.

## 3. Diagnostics

MSD Animal Health provides diagnostic tools that enable farmers and veterinarians to:

- **Early Disease Detection:** Diagnostic tests help in the early identification of diseases, allowing for prompt intervention and management.
- **Data-Driven Decisions:** By utilizing diagnostics, farmers can make informed management decisions that enhance herd health and performance.
- **Monitoring Health Trends:** Regular testing helps track health trends within a herd, allowing for adjustments in feed and management practices.

## 4. Digital Health Solutions

The integration of digital technologies and software solutions supports farmers by:

- **Monitoring and Management:** Digital platforms enable real-time monitoring of animal health and farm operations, improving decision-making.



- **Data Analytics:** Data collected can be analysed to identify trends and improve productivity, resource usage, and profitability.
- **Streamlining Operations:** Digital health solutions can help automate tasks, reduce paperwork, and enhance communication between farmers and veterinarians.

## 5. Education and Training

MSD Animal Health emphasizes the importance of educating farmers about best practices in animal health management. This includes:

- **Workshops and Training Programmes:** Providing training for veterinarians and farmers on vaccination protocols, disease management, and biosecurity measures.
- **Resource Materials:** Offering guides and resources that cover various aspects of animal care and management, which can enhance farmers' knowledge and skills.

## 6. Sustainability Initiatives

MSD Animal Health is committed to promoting sustainable agricultural practices, which include:

- **Environmental Stewardship:** Products are designed to improve animal health with minimal environmental impact.
- **Resource Optimization:** Healthier livestock require fewer resources, thereby contributing to the sustainability of farming operations.
- **Animal Welfare:** Our solutions prioritize the welfare of animals, which is increasingly important for consumers and markets.

### ***MSD's SenseHub automates SCC testing, supporting farm sustainability***

Somatic Cell Count (SCC) is a key measure of milk quality, with significant impacts on the dairy industry if not controlled. SCC reflects the number of white blood cells in milk, which increases response to mastitis, an inflammation of the mammary gland. High SCC levels can indicate infection and reduce milk quality, the animal's health and its sustainability for process in and export.



In Ireland, maintaining low SCC is crucial for economic and regulatory reasons. The threshold for SCC is typically 200,000 cells/ml for uninfected herds. The national average of SCC in Ireland is 175,000 cells/ml based on milk 2023 milk recording. If levels rise, it can lead to fines, reduced milk production and poor animal health. Mastitis, linked to higher SCC, costs farmers around €60-120 per cow annually due to lost production, veterinary expenses, and the culling of affected animals. Nationally, these costs can exceed €20 million per year.

Farm management practices significantly influence SCC. Strategies such as regular cleaning of equipment, effective selective dry cow therapy, and post milking teat disinfection have been shown to reduce SCC levels.

The Irish dairy industry, which predominantly uses seasonal calving and grass – based systems is particularly impacted by SCC due to its focus on export markets, where quality standards are stringent. Addressing SCC effectively is essential to ensure farms are reducing the use of antibiotics use, increase longevity within herds all of which contribute to our climate goals.

The only one of its kind on the market, SenseHub SCC meter is an automated California milk test. This is where a sample of milk is taken, mixed with a reagent and its viscosity measured in a shuttle. Within two minutes of cupping the cows the sensor will display a light on each unit indicating the cow's SCC. (image 1) This allows the user to make immediate proactive management decisions during milking.

This information is also sent immediately back to the SenseHub Dairy App where it is stored. The user is provided with actionable insights into their herd SCC levels and can proactively apply timely management practices. This product can be used to support the SCC challenge on Irish Dairy farms.

*Image 1*

**SenseHub® Inline SCC Sensor**

## Test what matters



**SenseHub® Inline SCC Sensor**

Provides automated somatic cell counts count readings at individual cow level at every milking.

- Automated California Mastitis Test (CMT)
- Reliable results in less than two minutes
- Aids to reduce the spread of mastitis in the herd
- Identify high SCC cases during milking
- Make more-informed decisions
- Act quickly to protect milk quality and profitability

TEST. UNDERSTAND. ACT.

### How it works



The diagram illustrates the internal components of the SenseHub Inline SCC Sensor. It shows a central unit with various tubes and components. Labels indicate the 'Reagent taken' (from a blue reservoir), 'Waste removed from analyser' (from a red reservoir), 'Milk flows from cluster to the sensor' (flowing through a tube), and 'Milk sample taken' (from a milk cluster). Other labels include 'Analyser mixing and sampling' and 'Rest of milk flows to the milk line'.



**SCC Ranges**

SCC level	Color
0-200	1 Green
201-400	2 Orange
401-800	3 Orange
801-2M	4 Orange
>2M	4 Red

### Our challenges

*TAMS – Issue arising with the ineligibility of MSD Animal Health technology solution SenseHub SCC Sensor. The same sensors are grant eligible in the UK.*

*AgTech Ireland – General Election 2024*



Not having our meters approved for grants under the TAMS scheme is having several negative effects on the dairy industry including financial, operational, and reputational impacts.

Without grant approval for this SCC meter, farmers face a higher upfront cost for this essential equipment.

*Below is the TAMS eligibility category in which we believe it fits best.*

Milk recording equipment	Backup power generator	Fixed
	ICAR certified milk meter	Fixed



**CASE STUDY 4**

**CORE TECH – A CULTURA COMPANY**

**CORETECHNOLOGY**

This is a living document - November 2024



**CORETECHNOLOGY**  
[www.coretechnology.ie](http://www.coretechnology.ie)

### **Company profile**

CORE Technology was founded in 1982 – directly responding to a large co-op who required a solution in milk payment processing. This solution was delivered and greatly improved operations within this co-op, marking the beginning of CORE's journey.

In 2015, CORE was acquired by Volaris Group, which enabled CORE to expand its capabilities while maintaining its independence and innovative approach. Within the Volaris group, CORE are part of Cultura - a collective group of thirteen companies that service the agricultural industry globally with solutions right throughout the food chain. Cultura have now become the largest agri tech company in the world.

What began with dairy-focused solutions expanded as CORE recognised broader technological needs in the agri-business sector. Over time, the company became a leader in enterprise resource planning (ERP) systems tailored to the Dairy, Agri-Retail, Hardware/DIY, and Milling sectors. CORE now are the main provider of complete end to end solutions to the Irish Co-Operative sector - CORE's solutions have helped optimise operations, improve efficiency, and increase productivity across their client base in both Ireland and the UK.

Innovation is at the heart of CORE's success. The company focuses on operational efficiencies, providing clients with advanced tools for data-driven decision-making.



This is a living document



This is a living document

## Our products/services

*AgTech Ireland – General Election 2024*



For over 40 years, CORE Technology has been at the forefront of agri-business solutions across Ireland and the UK, delivering industry-specific ERP systems that drive efficiency, sustainability, and profitability. CORE's flagship solutions—COREmilk, COREmill, and COREretail—have transformed dairy, grain, milling, and agri-retail operations, benefiting cooperatives and the farmers they serve.

**COREmilk** now manages 65% of Ireland's milk pool, streamlining milk collection, payments, and reporting for dairy co-ops. This improves operational efficiency, financial management, and ensures farmers receive timely, accurate payments. Similarly, **COREmill** optimises grain intake and milling operations, providing livestock producers with reliable, quality feed while reducing waste and enhancing productivity.

**COREretail** supports co-ops and farmers by enabling farmers to purchase agri-inputs on credit, offsetting purchases with milk payments. By integrating with co-ops' payment systems, COREretail simplifies procurement and inventory management, improving financial flexibility and supporting farm growth.

Recognising the demand for sustainability in agriculture, CORE developed a sustainability portal for Lakeland Dairies, allowing the monitoring of key metrics, from carbon footprints to waste reduction. This helps farmers meet sustainability targets, improve farm practices, and contribute to environmental goals.

CORE's MilkedIn app offers over 10,000 farmers real-time insights into milk collection, enhancing labour efficiency and farm management. In addition, CORE's data analytics suite empowers agri-businesses to make data-driven decisions, optimise operations, and forecast demand—ultimately reducing costs and driving efficiency.

With a commitment to innovation, including AI and IoT integration, CORE ensures its solutions evolve with the sector. These advancements help agribusinesses meet regulatory demands, improve sustainability, and guarantee long-term profitability.

#### Milked In App

#### Our plans



At CORE Technology, we are deeply committed to the agricultural industry, developing solutions that drive efficiency and sustainable growth. This passion has guided us for over 40 years, and we continually strive to evolve our products to meet the changing needs of cooperatives and ultimately farmers. Our mission is to create tools that make a real difference, supporting those who steward the land.

Currently, CORE is expanding its presence in both Ireland and the UK, with a focus on meeting the rising demand for innovative agri-tech solutions. We are enhancing our offerings to tackle key industry challenges, particularly around sustainability and regulatory compliance.

By leveraging cutting-edge technologies like AI and data analytics, we aim to improve operational efficiency, support data-driven decision-making, and promote sustainable farming practices. Our goal is to help the agricultural sector meet its sustainability targets while driving long-term growth and profitability.



Month	Litres	YTD
Dec 2022	51,393	1,239,267
Nov 2022	58,015	1,187,874
Oct 2022	47,534	1,129,859
Sep 2022	77,007	1,082,325
Aug 2022	592,920	1,005,318
Jul 2022	116,515	412,398
Jun 2022	57,354	295,883

AgTech Ireland – General Election 2024



### **Challenges:**

CORE Technology is keenly aware of the ongoing challenges facing the agricultural sector, including price volatility, fluctuating supply and demand, sustainability pressures, and evolving legislation. These factors create uncertainty for farmers, co-operatives, and agri-businesses, making it essential for companies like CORE to develop solutions that provide stability, improve efficiency, and enable long-term success.

1. **Price Volatility & Supply-Demand Imbalances:** Market fluctuations impact the agricultural sector. CORE's ERP solutions help manage supply chains, forecast demand, and optimise inventory, providing critical support during times of price volatility or supply shortages.
2. **Sustainability Requirements:** As demand for sustainable farming practices grows, CORE offers tools for resource management, waste reduction, and data-driven decision-making to help businesses meet sustainability goals.
3. **Legislative Compliance:** With new laws on animal welfare, environmental practices, and food safety, CORE ensures its systems stay ahead of regulatory changes, offering co-operatives the tools to comply with evolving standards.

At CORE, we are dedicated to driving innovation and sustainability in Agri-tech. The industry often faces a lack of sufficient funding for private enterprises, and increased collaboration between companies and research bodies like Teagasc etc could lead to more impactful solutions. Funding focused on green technologies, AI, and IoT would enable cooperatives to optimise operations and reduce their environmental footprint, promoting sustainability across the sector. Support through grants, partnerships, and access to expertise would allow us to scale our impact and enhance our solutions. Ultimately, industry-wide collaboration and funding are essential to help the agricultural sector thrive amid growing environmental pressures and regulatory changes



## Our challenges

At CORE, we are dedicated to driving innovation in agri-tech, but the industry faces several challenges that hinder progress. One of the most significant obstacles is the lack of access to finance, including the right types of funding for private enterprises like ours. In addition, there is inadequate access to state supports at both national and local levels, which further restricts our ability to scale and implement advanced solutions.

Another challenge is the difficulty in accessing validation trial facilities, such as those offered by Teagasc, universities, or private groups like the Dingle Hub. Without access to these vital resources, it becomes challenging to test and refine our technologies before deploying them on a larger scale.

Our growth—and the industry's progress—depends on strategic support. While funding often targets research institutions, more collaboration between private companies like ours and organisations such as Teagasc could unlock innovative solutions with real-world impact. Additional investments in agri-tech, particularly those focused on green technologies and IoT integration, would enable us to develop even more advanced tools. These tools would help co-ops and ultimately farmers reduce waste, enhance productivity, and navigate evolving environmental regulations.

Support through grants, partnerships, and access to expertise would allow us to scale our efforts, pushing the boundaries of what agri-tech can achieve. However, without these resources, it is difficult to bring our innovations to the market at the scale required to make a significant impact. Ultimately, industry-wide collaboration and funding are essential to help the agricultural sector thrive amid growing environmental pressures and regulatory changes.

With the right resources and collaborative efforts, we can drive transformative change across the agricultural sector, equipping agri-businesses with the tools they need to succeed in an increasingly complex and demanding landscape.