Digging for data

When you think of farm equipment, what usually springs to mind? Tractors? Balers? Ploughs? What about drones flying over crops and fields, robotic milkers, smart collars on cows, iPhones and farming apps? Digital technologies are being used more and more in farming and Ireland is no exception.

Sensors, drones, robotics, and GPS trackers are just a few examples of digital methods that can help farmers to increase efficiency and decrease labour on their farms. These technologies have a wide range of uses, like tracking animal health, animal behaviour, crop health, farm finances, land use and so on.

While you may hear about these technologies in the news or see videos of them in action, something you probably don't often hear about is farm data. Digital farm technologies are constantly generating and collecting data on the farm, which can be used in many different ways by a wide variety of groups and organisations.

When lots of different farm data is grouped together, it becomes 'big data', which is used by groups like policy makers, scientists, and farm machinery companies to influence their decision making and business plans.

The way that this farm data actually gets collected, shared, and turned into 'big data' is not a clear process, and brings up important questions: Who owns the farm data? Who can use this information? What rights do farmers have to the data? What makes information private versus public? These questions are not just specific to farm data – the same types of questions about data have relevance to any of us that have ever used our smartphones to search Google, scrolled through social media apps, tapped our loyalty cards in the shops or used our Revolut cards to make payments.

Netflix documentaries like *The Social Dilemma* and *The Great Hack* have made us aware of how important it is to consider these questions and recognise how our data is being collected and used.

These questions link to an idea that we will all need to become more familiar with in our increasingly digital and connected world – data governance. Data governance covers the rules and relationships around how data is shared and used, including the decisions that are taken to manage data, and issues like ownership, privacy, and security. GDPR is an example of good data governance. Good data governance practices can help protect farmers and make sure they are getting benefits from sharing their farm data.

Farmers of the future will need to become more comfortable with analysing and interpreting data, as the farming landscape is changing and becoming more data-oriented. There is huge value in using digital technologies to help improve the economic, social and environmental sustainability of farming – however, farmers need to be reassured that good data governance practices are in place when using these technologies.

Agrisnap, a new smartphone app, developed as part of the EU Horizon 2020 NIVA project, is one example of a data-based technology that aims to improve the way that farmers manage their paperwork. In a relatively novel approach to developing new farming technologies, Agrisnap was co-designed by app developers, social scientists and different people in the farming community. Involving end-users in the design process like this helps to make sure the end technology is more user-friendly.

The app gives farmers and farm advisers the option of uploading geo-tagged images of their land to the Department of Agriculture, Food and the Marine, whenever the Department has a query relating to scheme applications. Instead of farmers having to submit paperwork responding to Department queries, which may cause frustrating payment delays, AgriSnap deals with farm data more efficiently by submitting this information through a smartphone app.

So far, the app has been tested by more than 400 farmers and farm advisers in the Republic of Ireland, who have positively reported that it has the potential to speed up payment claim processes and greatly reduce the need for an in-person farm inspection visit. As a result, farmers have reported that the app has the potential to make them feel more empowered and increase their trust in the farm inspection process.

Involving farmers and farm advisers directly in designing and testing the Agrisnap app helps make sure that this digital technology is actually user-friendly and can help people on the ground in their day-to-day farming.

This type of co-design method for developing digital farm technologies is important for good data governance practices, as it can point out areas in the design where it might not be clear how the data will be used, where it goes and what privacy permissions are needed.

Protecting farmers and their data should be essential to the design of any new digital agriculture technology, and using good data governance practices and co-design methods is a great place for researchers to start.

– Claire Brown, Ursula Kenny & Áine Regan, Teagasc

Teagasc National Dairy Conference

The Teagasc National Dairy Conference takes place on:
•Tuesday November 23 in the Rochestown Park Hotel, Cork.
•Wednesday November 24 at the Hodson Bay Hotel, Athlone.

There are many technical, economic and environmental challenges facing dairy farmers in the coming year. Implementing best practices and adopting research innovations in relation to fertiliser use, grazing management, clover establishment and herd genetics, will play a big part in meeting these challenges at farm level.

Our dairy conference will provide an excellent opportunity to debate and discuss the issues with fellow farmers, researchers and industry representatives.

We look forward to meeting you there. Details of the conference programme and bookings will be available from mid-November on www.teagasc.ie/events.

Winter housing farm walks

•**Date:** 5 November 2021.
•**Event time**: 10:45am.
•**Venue:** Farm of Thomas Kennedy, Ballinahallen, Ballycarney, Co Wexford. Eircode: Y21 FR64.

Beef farm walk, on the farm of Thomas Kennedy, hosted by the Teagasc South East Advisory Region.

•**Date:** 10 November 2021.
•**Event time:** 10:45am.
•**Venue:** Seamus Hayden, Old Leighlin, Co Carlow. Eircode: R93 CX95.

Beef farm walk on the farm of Seamus Hayden, hosted by the Teagasc South East Advisory Region.

Topics to be discussed on both farms include:
•Winter dosing programme.
•Nutrition – silage quality and supplementation.
•Winter housing – adequate space and ventilation.
•Health and safety on-farm.

ADVERTORIAL

Metabolic Disorders: Prevention Beats Cure

Maeve Regan, Head of Ruminant Nutrition

When costs associated with metabolic issues are assessed alongside the time and labour involved, prevention is always better than cure.

Body Condition Score (BCS):

It is best practice to dry off cows at, or very close to the same condition that they should calve down in (target BCS 3.0-3.25). Therefore, the nutrition of the dry cow should just maintain condition over the 60-day period (thin cows should ideally be dried off early to allow for recuperation of condition).

Where a percentage of the herd is below target, it is more cost effective to build condition while the cow is producing milk, as opposed to building condition over the dry period. Also, be mindful that over-conditioned cows at calving are more likely to suffer with metabolic issues. Therefore, cows should be condition scored prior to drying off to make a tailored plan for the herd, which may include grouping cows according to BCS.

Dry Cow Minerals:

Most Irish silages lack the required mineral levels to get the cow through the dry period, therefore feeding a dry cow mineral is essential to build up mineral reserves and give the cow the best possible chance of calving down without any issues.

Research indicates a single case of milk fever is estimated to cost circa €312 when veterinary costs and consequential production losses are accounted for, with sub-clinical cases being estimated to cost > €100. It is also estimated that for every clinical case of milk fever that manifests itself on farm, a further 6 sub-clinical cases go undetected, highlighting the importance of providing the cow with the macro and trace elements required to avoid such issues.

Cost of Metabolic Disorders (clinical cases)	
Metabolic Disease	**Estimated Cost Per Case**
Milk Fever	€312
Clinical Ketosis	€190
Retained Afterbirth	€392
Displaced Abomasum	€515
Mastitis	€262
Acute Lameness	€312

Feed Facilities:

Minerals can be offered via a diet feeder where it is being used on farm. Alternatively, where top-dressing minerals at the barrier and space is limited, offer the mineral twice daily (half rate am and half rate pm) to ensure all cows have access to the correct daily rate.