ONE Agritech Programme

Meeting: ONE AgriTech Summer Visit to Focus Farm Titaboutie
Date: 16th August 2023

AgriTech Showcased at Titaboutie

Titaboutie Farm, run by Andrew and Dan Robertson are one of the two focus farms under Opportunity North East's AgriTech Programme. The aim of the programme is to demonstrate and validate the benefits and practical application of smart innovative technology to farmers, as a route to improve the productivity and sustainability of Scottish farms. At the recent open evening, the Robertson family discussed the various technologies that have been put in place over the last year and the benefits they are bringing to their mixed farming system at Tarland.

Ritchie Ltd have supplied the business with a Ritchie beef monitor. This equipment allows for continual monitoring of cattle weights, as cattle step into the crate which is the watering point for the cattle court. This system has also recently been installed at grazing with salt and minerals being used to entice the cattle in for their daily weigh in, in the rotational grazing system.

The business did question if they required a beef monitor for their 160 strong breeding herd, finishing approximately 120 cattle per year, but after six months they see this as an essential piece of kit for their system, that has exceeded their expectations. Weighing of animals was sporadically done in the past and animals were commonly overweight at slaughter. Andrew Roberston suggested "after a typical weigh where cattle would be moved from the court and run through a crush, the cattle were losing 0.1kg/day over 7 days simply due to the stress, where now with the beef monitor, there is no stress of handling, moving shed, mixing cattle, etc and these losses are not being seen". Also, with an overweight animal costing an estimated £200-300 to the business, they expect the beef monitor to pay for itself quickly. Andrew checks the weights, growth rates and frequency of drinking for all the cattle at fly time each day so he can pick those ready to sell and also spot problems – a beast not growing or losing weight and changing its drinking behaviour, which could be a sign of sub-clinical health problems. The Robertsons have found the beef monitor very easy to install and operate, and physically robust.

Ritchie Ltd have also supplied the business with an auto drafter, trailer and weigher to create the ultimate sheep handling system to complement their own combi-clamp, for the 650 head breeding flock run at Titaboutie. They have found multiple benefits for the system, where they can handle and treat 200 lambs through the system in an hour, reducing the labour required. Sheep can be auto drafted by weight, for example allowing

lambs growing at less than 200g/day to be shed out for treatment. The system has been found to be very versatile and Dan Roberston stated "it has become an essential tool for our sheep enterprise, every time we handle sheep we use it, saving time, reducing stress on the animals and making our lives easier". The three-way auto drafting has proved to be a huge asset. A TePari auto drencher has recently been purchased by the family, and will be used over the coming months. It allows the correct dose of wormer to be automatically applied to each lamb to match its weight. Under and over drenching will be eliminated, saving cost and reducing the potential for building up anthelmintic resistance. The auto drencher will also be used for cattle.

Other technologies tested included the new ClipFitter system for castrating the male lambs in the spring. This allows castration and tailing up to 3 months of age in lambs with no anaesthetic, compared to rubber rings that cannot be used after 7 days of age. ClipFitter uses the burdizzo effect, crushing the nerves, sperm cords and blood supply. These can also be used for tailing lambs. Dan reported "it was clear to see there was no pain in the lambs at the time of castration, a big difference from rubber rings. One big benefit is that we don't need to stress the lambs, and ourselves. in the busy spring period". However, they did find that some of the clips fell off after application, which may have been due to operator error. The family are unsure if they will use them again for lambing 2024 at this stage and will look into the performance data of the lambs recorded at 8 weeks and weaning for the tup lambs and compare to previous years. This will help identify if the testosterone effect is significant.

SmartRural have installed a range of sensors on the farm at Titaboutie, all linked through a LoRaWAN gateway. This includes two weather stations, soil temperature probes, livestock building temperature and humidity probes, grain store probes and water trough flow meters. LoRaWAN or Long-Range Wide Area Network is a technology that transmits over vast distances of up to 10km whilst using very little power e.g. a water trough monitor

could send a message from 5km away to warn of an overflow. With such a large coverage and the ability for devices to last up between 5 and 10 years on a single charge this technology is very applicable to remote areas and farms. Data from sensors can send data through the LoRaWAN network to provide farms with near real-time and historical data on all aspects of their daily work. Data from the sensors can come to the farmer as a warning message or displayed in a dashboard on phone or computer with the results from many monitors. The data gathered from these technologies has allowed for changes in management on the farm e.g., through the data collected in the spring from the soil probes, fertiliser was applied to grass one month earlier than normal.

Going forward the project will deploy and trial another set of technologies at Titaboutie, this will include the auto drench gun for the sheep, plate meters and grazing management tool Farmax, and tractor and equipment data loggers. A key task will be the deep analysis of all of the data generated through these systems to produce useful indicators that can be used to improve livestock performance. Further details for the ONE agritech project can be found at ONE Agritech Programme | ONE (opportunitynortheast.com) .Those signed up to the programme will receive newsletters on technology updates. Look out for the Future Farming Expo at P & J Live on 10 and 11 October where the programme will be featured.