ROYAL HIGHLAND SHOW 2023
PARTNER SINCE 1981
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RHASS Presidents' Initiative for 2023

The RHASS Presidents' Initiative for 2023 will raise awareness of the critical role science plays in our food and drink sector.

CASE STUDY: Liver fluke study delivers win-wins for animal and environmental health.

Moredun

Case Study Partner

Moredun is committed to promoting livestock health and welfare through research and education and is recognised worldwide for its contribution to research into infectious diseases of farmed livestock.

Established by Scottish farmers in 1920, Moredun's work has always been firmly based on addressing the needs of the farming industry.

Moredun's research has led to the development of many vaccines, diagnostic tests and improved treatment strategies for farm animals across the globe.

"During the project, we found that farmers were very worried about liver fluke, due to Islay's mild wet climate which favours the fluke's life cycle."

Dr Philip Skuce

Overview

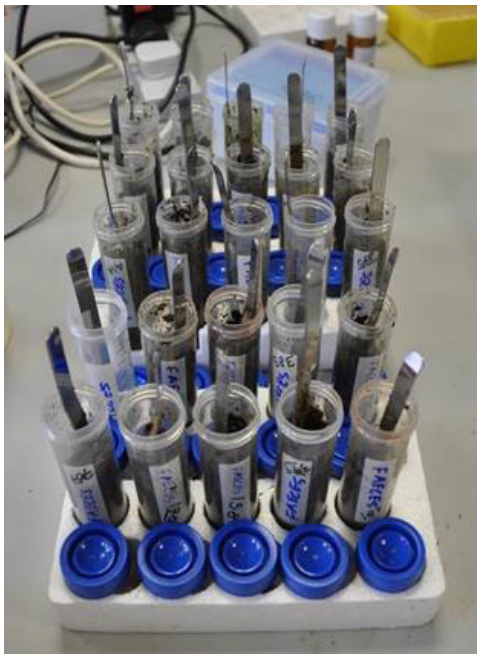
Striking a balance between effective fluke control and minimal environmental impact were the core objectives of a season long project on Islay, working with livestock farmers to reduce unnecessary flukicide treatment.

For many years, farmers have routinely treated their sheep and cattle for fluke at specific times of year, but overuse of treatments has changed parasite seasonality and reduced the efficacy of certain products. Scientists have been working with farmers and the pharmaceutical industry to advocate for more testing and evidence-based decision-making, to minimise the impact on animal health, welfare and productivity as well as minimising any potential environmental impact.

Scientists from the Moredun Research Institute took part in a study, working alongside Elanco Animal Health, the RSPB, Liverpool University, Islay veterinary practice and farmers on the island, to come up with a plan to boost animal welfare, reduce flukicide resistance, improve soil health and help promote local wildlife populations.

Moredun had been hosting active discussion groups focusing on mitigating the potential for negative environmental impacts associated with treating grazing animals for internal parasites and alongside Islay vets and Liverpool University, was involved with undertaking faecal egg counts from sheep and cattle on study farms to establish the presence of liver fluke on the island. By doing this, they were able to better understand when and where animals were picking up fluke infection.

"Through conducting monthly faecal egg counting on selected groups of animals, we found that the timing of liver fluke infection was well off where we would have historically expected to see it."



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This case study is one in a series, highlighting where farmers, across a range of different sectors, have benefited from scientific advancements.

"During the project, we found that farmers were very worried about liver fluke, due to Islay's mild wet climate which favours the fluke's life cycle, so were often treating prophylactically with flukicides but this approach doesn't work particularly well," explained Moredun Parasitologist, Philip Skuce.

"Through conducting monthly faecal egg counting on selected groups of animals, we found that the timing of liver fluke infection was well off where we would have historically expected to see it, due at least in part to changes in weather patterns in recent years. We recommended routine faecal testing which would establish when and where an animal had picked up liver fluke and what treatment would be most effective. We also tested how effective any treatment had been.

This allowed the farmers to optimise treatments, and save money in the long run, as well as limiting the risk of developing flukicide resistance."

Stuart Lamont was one of five farmers involved in the testing programme and looks after 100 Highland cattle and 400 Blackface ewes, grazing over 2000ha of coastal grassland, in-bye, heath and peatland.

Before taking part in the testing programme, Stuart had routinely treated his sheep at set times throughout the year, but his test results came back to show very low levels of fluke in the summer and autumn, and he was advised not to treat until January.

"It has made a huge different to our management plan and animal welfare since moving to a routine testing over routine dosing programme," explained Stuart. "Not having to handle animals when it isn't necessary is a huge bonus, as you aren't having to run animals through a race every four to six weeks and In 99% of cases, where farmers are testing, it saves a lot of money as we aren't having to buy in chemicals.

"Worms and fluke are an overlooked drain on farming in Scotland, impacting production efficiency on every stock farm every year."

RSPB Farm Manager Stuart grazes his livestock on the Oa Nature Reserve and was keen to better understand and manage his flukicide routine in order to reduce any potential environmental impact.

"Through taking part in the project we have been able to reduce our chemical use, which is better for our soils and local wildlife, as it leaves the dung invertebrate population much stronger, which is a sign of a healthy farm ecosystem."

David Wood, site manager of the RSPB Oa Reserve, has been working with Stuart to manage grazing on the headland, to support local bird populations and in particular, the Chough population, which is under threat.

There are only 45 pairs of Choughs left in Scotland, found only on Islay and Colonsay, and David was particularly interested in the impact routine fluke treatment was having on dung beetle larvae, which are key to their diet and survival.

"A whole host of bird species feed on dung invertebrates and much of the chemical that goes into the animal to treat the problem comes out in the dung and urine, inadvertently impacting on dung and soil life.

This project has delivered so many win-wins and I can see us doing more testing and reducing our veterinary medicines usage further in the long run. There has been real buy-in to this work, with everyone promoting the same message, to use treatments sparingly i.e., as little as possible, but as much as necessary!"

Animal health company Elanco supplies a range of parasite control products for sheep and cattle, and Technical Consultant, Matthew Colston, got involved with the Islay project to demonstrate that fluke treatments can be accurately targeted, minimising the risk of developing resistance through overuse of products, which would leave farmers without an effective option for sustainable fluke control.

"Previously farmers have been taught to routinely treat animals for parasites but as the science has developed, it has showed us that although initially this is a great idea, we are driving development of resistance in all livestock parasites in the way we are using these products.

"If resistance levels continue to rise, then we won't be able to farm animals in high-risk fluke areas, as animals will die before we can treat them. Two of the farms on Islay had little efficacy with TCBZ, so it was vital we made them aware of the risks of treating with the same active, time after time. The farmers have already changed their management systems to a testing versus treating programme which is something which should be adopted much more widely.

"Worms and fluke are an overlooked drain on farming in Scotland, impacting production efficiency on every stock farm every year. The reason farmers aren't adopting testing protocols more quickly is because most farmers think what they are currently doing is the best way to control these parasites. Fluke is a moving target, and we need to be using science and evidence to ensure we are making the best decisions for animal health and welfare as well as the environment."

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Future case studies will be available at:

https://rhass.org.uk/presidential-initiative/

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