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Collaborating for rural success

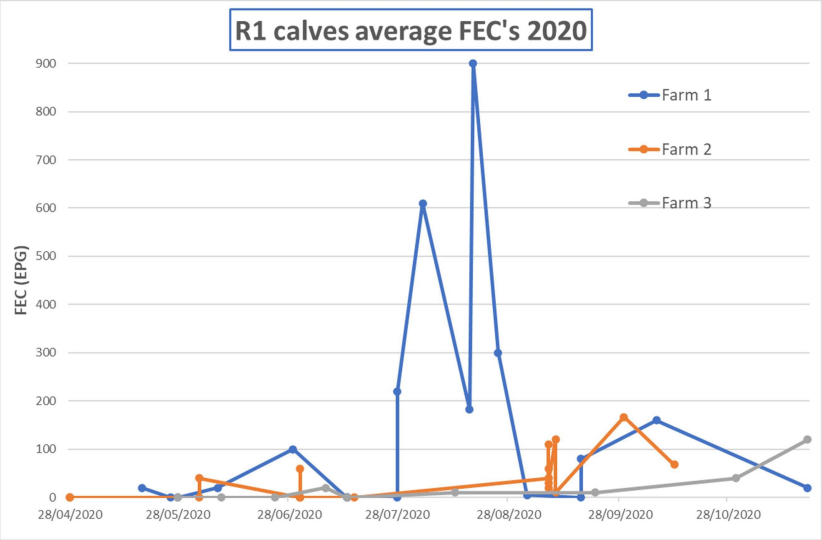
menter a busnes

Improving the diagnosis and treatment of gastrointestinal roundworms in cattle

Background

Three dairy farmers in Ceredigion are running a three year EIP Wales project which is investigating whether routine treatments of roundworms in their dairy youngstock need to be reviewed because of concerns of anthelmintic resistance. The farmers are working with Eurion Thomas of Techion UK Ltd, with technical input from Steffan Vets, Tysul Vets and Prof. Diana Williams of Liverpool University.

Progress to date



Farm system background

- 3 farms run similar systems
- Spring calving dairy herds
- Rely heavily on grass for production – extended grazing seasons
- Minimal supplementary feeding
- Same applies for youngstock – both R1 (1st season grazers) and R2 (2nd season grazers)
- Some groups of youngstock outwintered

The project started in August 2019. Regular pooled faecal samples from young cattle are sent to Steffan Vets to analyse Faecal Egg Count (FEC) using the FECPAK^{G2} system. The graph from 2020 shows a large variation between farms in terms of roundworm burdens in R1 calves. In particular, a much lower parasite burden was observed at farm 3 resulting in a substantial reduction in anthelmintic treatments, with no detriment to daily live weight gains. Changing farmer behaviour in terms of administering regular treatments has proved difficult, despite providing data to support decision making. This has partly been confounded by concerns around lungworm and the risk of Type II ostertagiosis.

Results from resistance /efficacy testing

FEC Reduction Tests (FECRT) were carried out for two of the three farms in two different seasons and the table summarises the results. The definition of resistance is if FECRT results drop below 95% e.g. if the wormer is fully effective, we expect egg counts to drop by 95% or more. The red coloured percentages are ones where there are concerns of resistance.

Farm -	Farm 1		Farm 2	
Wormer (group)	% Reduction	Yr Tested	% Reduction	Yr Tested
BENZIMIDAZOLE Oral (1 BZ)	100%	2019	96%	2020
LEVAMISOLE Oral (2 LV)	98%	2020	98%	2019
IVERMECTIN Injectable (3ML) - 1	81%	2019	44%	2019
IVERMECTIN Injectable (3ML) -2	62%	2020	57%	2020
IVERMECTIN Pour-On (3ML)	-		8%	2019
MOXIDECTIN Injectable (3ML)	-		86% (?)	2019
MOXIDECTIN Pour-On (3ML)	80%	2020	20%	2020

For both farms the macrocyclic lactone group (Ivermectin and Moxidectin) showed poor levels of efficacy, while benzimidazoles and levamisole were fully effective. Larvae were cultured from samples taken pre and post treatment and speciation using Nemabiome sequencing was completed. Preliminary data suggest only *Cooperia spp*. survived treatment. Preliminary analysis of daily liveweight gains has not shown differences in performance between treatment groups, however more detailed analysis is in progress.

The presence of *Cooperia* after treatment does raise several questions. Is the presence down to true 3ML resistance or just a lack of full efficacy? Does the level of *Cooperia* surviving affect stock performance? Hopefully more light will be shed on these matters during the remaining 12 months of the project.

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