Factsheet

Testing for wormer resistance

By counting the number of parasite eggs after treatment, a drench test helps to determine whether your stock is resistant to certain types of anthelmintic wormers, helping inform your parasite control plan.

Preparation

Equipment needed: Suitable air and waterproof containers, labels and posting instructions, are available from the veterinary surgery or laboratory.

Test animals: For reliable test results, sheep which have not been treated for 10 weeks or are known to have had zero egg count after their last dosing are needed.

The more consistent the group of sheep tested (in terms of age, physiological status, litter size, previous anthelmintic treatment) the more reliable the result is likely to be.

The animals should have full access to pasture or feed before sampling as the result is affected by the amount and consistency of the faeces.

Sampling

On the day of treatment and again 7 days after treatment with a levamisole or 14 days after treatment with a benzimidazole or macrocyclic lactones, collect the animals into a corner of a field and observe for 5–10 minutes, and then pick up samples from 10 freshly produced faeces. Send 10 individual samples to be bulked up at the lab.

Storage and transport

Samples should be less than one hour old when collected and kept cool (not frozen) in an airtight container for delivery to the laboratory within 48 hours.
If the sample is too old some of the eggs will have hatched and the result reported may be an underestimate.

Analysis

Nematodirus eggs are easily distinguished by their relative size. However, eggs of most of the important parasite species, such as *Trichostrongylus, Teladorsagia* and *Haemonchus,* cannot be differentiated by their appearance. In order to determine which species are predominant, a larval culture would have to be performed. This involves culturing the eggs over a 10–14 day period and then identifying the species from the appearance of the larvae. In certain circumstances this may be worthwhile – for example, if the presence of *Haemonchus* is suspected.

Other tests include egg hatching ability and larval development tests. And for profoundly ill individuals, a total worm count taken post-mortem is a more reliable indicator than faecal egg counts.

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Interpretation of results

The total number of eggs is not going to be informative enough to inform your management practices, the results need to be broken down by species – this service and interpretation are available from a vet or lab.

Some known limitations of faecal sampling and analysis

Faecal egg counts provide no insight into the number of recently ingested larvae or immature worms present. The eggs appearing in the faeces were produced from larvae ingested approximately three weeks earlier.

There is likely to be large variation in faecal egg output within any group of animals tested, so sampling aims to strike a balance of cost and accuracy.

Faecal egg production per worm varies with time of year, particularly in sheep which have acquired immunity.

Where the main pathological effect is through the activity of immature larvae (*Nematodirus* and *Haemonchus*) significant tissue damage is likely before eggs appear in any numbers.

While larval culture can give a good insight into the range of parasites present it is not an accurate indicator of total numbers or proportions of each species.

Samples do not indicate whether parasitological status is static or changing.

Despite these limitations, faecal egg counts are a useful management tool.

Further reading

https://www.scops.org.uk/about/what-is-anthelmintic-resistance/
https://www.scops.org.uk/internal-parasites/worms/testing-for-resistance/
https://www.scops.org.uk/workspace/pdfs/making-the-most-of-fecs.pdf