

# Anthelmintic resistance

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**G**razing sheep are naturally exposed to stomach and gut worms, which can cause disease including scour and ill-thrift. Sheep develop immunity to gut worms over time and usually have good immunity by a year old.

Despite the large number of wormers on the market, there are only five different groups of wormer for the control of gut worms in sheep. These are benzimidazole (commonly known as white wormers), levamisole (commonly known as yellow wormers), macrocyclic lactones (commonly known as clear wormers), an amino-acetonitrile derivative (orange wormer) and spiroindole (purple wormer).

The orange and purple wormers are veterinary prescription-only medicines. However, worms are developing resistance to the wormers that we use to control them – this is known as anthelmintic resistance. The overuse of wormers can lead to anthelmintic resistance. Therefore, it is important



that wormers are used appropriately.

Four key, cost-effective steps that every lamb producer can take to slow the development of anthelmintic resistance on their farm are:

- Do not dose mature ewes for worms unless there is a demonstrated need. Mature sheep generally have good immunity to gut worms and should not require dosing. Lactating yearling ewes, thin or immunocompromised ewes may require treatment, but this should be targeted to individual animals on the basis of need. Mature sheep may require treatment for fluke, however.
- Use a benzimidazole (white wormer) to treat *Nematodirus* in lambs, as resistance to this wormer group among *Nematodirus* has not been detected.

- Implement a biosecurity protocol for all bought-in animals, to prevent bringing resistant worms onto the farm. Treat incoming stock with one of the new wormers (orange or purple) and house them for 48 hours. Then turn out to a pasture recently grazed by sheep.

- Find out what wormers are effective on your farm. Discuss how to test which wormers are working with your veterinarian or Teagasc advisor.
- Use wormers only when necessary, based on indicators such as flock-level faecal egg count. In lambs, a group faecal egg count of greater than approximately 500 to 600 eggs per gram may have an impact on performance and may indicate a need to treat for gut worms.

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## » Farm experience – John O'Connell, Ballinamore, Co Leitrim

These four key steps are adopted by participants in the BETTER Farm sheep programme, including Co Leitrim sheep farmer John O'Connell. John operates a sheep and cattle farm near Ballinamore, Co Leitrim, where the land is best described as heavy.

The comparatively wet weather and land John farms means he has to keep a close eye on fluke burden in his sheep and dose accordingly.

However, he is careful not to worm dose his ewes unless they meet the criteria outlined above. To do this, he uses fluke-only drench products on his ewes and does not drench ewes with products that also kill stomach and gut worms.

In 2018, a detailed faecal egg reduction test showed that among mid-season stomach and gut worms, there was resistance to benzimidazole

(white wormer) products on John's farm and low level resistance to levamisole (yellow wormer) and ivermectin (clear wormer). Despite this, he still uses a white wormer as his first dose for *Nematodirus*, as no resistance to it was detected. The timing of the *Nematodirus* treatment is based on the Department of Agriculture forecast in the spring.

"During the summer months, I collect faecal samples from the lambs to carry out FECPAK analysis and dose based on the results," says John.

He follows a simple procedure, firstly collecting a composite faecal sample (5g: approximately a large teaspoonful) from 12-15 lambs. It is important that it is a fresh sample and from lambs only, not from ewes or older sheep on the farm.

In John's case, collecting the sample is usually done by standing the lambs on a clean yard for a short period of time and collecting the droppings left behind.

These samples are then put in a plastic tube (airtight, ziplock bags will also do) and posted to the lab. Samples need to be refrigerated until posting and should only be posted early during the week, to avoid them sitting in a post

box over the weekend, which could cause the eggs in the sample to hatch and render the sample useless.

The results are then used by John to make decisions on dosing lambs, with worm counts in excess of 500-600 eggs per gram required before John doses his lambs.

From mid-May to early August, when the risk from *Nematodirus* has receded and stomach worms become an issue, a levamisole (yellow) and a macrocyclic lactone (clear product) are used when needed (i.e. when the faecal egg count reaches the threshold for dosing).

"We aim to dose sequentially with these products, to try and reduce the increase in resistance to the products on the farm," adds John.

Although both Group 4 (orange) or Group 5 (purple) wormer products are working fully on John's farm, to ensure they stay working on the farm, they are only used as part of the bio-security protocol and for his ewe lambs in early autumn.

"Used as part of a bio-security protocol, this reduces the risk of buying in other resistant worms onto the farm when buying in sheep (e.g. stock rams)," concludes John.