

# Wormer resistance is a huge issue in beef cattle

Ciarán Lenehan looks at the growing threat of wormer resistance in beef cattle

**A**nthelmintic (wormer) resistance occurs when worms are able to survive a normally effective dose of an anthelmintic. Within worm populations, resistance is heritable. So, new generations of worms on a farm with resistance will carry the trait too. While worm resistance in cattle was suspected in Ireland for years beforehand, the first report of resistance in the country was published in 2014 by Teagasc Walsh Fellow, James O'Shaughnessy. Based in Grange, James carried out faecal egg reduction tests on Friesian calves there and Teagasc Johnstown Castle. Approximately 2g of dung was taken from each calf before and after (seven/14 days) the animals were dosed.

The calves (60) at Johnstown Castle were divided into four groups of 15 and randomised by age, weight and initial faecal egg count (FEC). Calves were 4.9 months of age, 132kg and had an average FEC of 407 eggs per gramme (epg) beginning the trial. The four groups were:

- Untreated control.
- Ivermectin injection (Ivomec Classic).
- Levamisole injection (Levacide).
- Fenbendazole drench (Panacur).

The Grange calves (24) were split into two groups of 12: (1) untreated control and (2) ivermectin injection (Ivomec Classic). They were 8.3 months of age and weighed 154kg. Their initial FEC was 473 epg.

## Comment

The concern around anthelmintic resistance is two-pronged. Firstly, the work above has highlighted that it is a real problem for Irish cattle farmers and cannot be ignored. What's sinister about the phenomenon though, is that we are poor at picking it up. Had Ricky not been partaking in the trial and using a cheap generic ivermectin-based product, he would never have known that the worm population on his particular farm was resistant. His calves still performed well (1.17kg daily weight gain) following an ivermectin dose, so alarm bells would not have been ringing. However, Ricky would have missed out on 281kg of

potential weight gain in one month across his 39 calves with this strategy, based on the results with the Fenbendazole. That's the equivalent of an extra calf's weight in one month. Diagnostics is the problem. On Tullamore Farm this year, it was cheaper for us to go with a prophylactic (blanket, calendar-based) treatment of a generic ivermectin-based product than to take spot faecal samples of the group every fortnight and determine whether we needed to dose or not. Thankfully, technology being developed in South America to identify tick species might soon be applied to test for common internal parasites at the crush side.



Above: Sheep and suckler farmer Kenneth Leavey from Oldcastle, dosing weanlings.

## Egg count

A fully effective anthelmintic dose reduces egg count to zero. If the egg count reduction is less than 95%, then anthelmintic resistance is present. In both locations, significant resistance to ivermectin was detected.

The report acknowledged that this was the first documented case of anthelmintic resistance in Ireland but stated that further work on farm level was required to determine whether these were isolated cases. Crucially, no physical performance data on the calves was included in the report.

In 2016, work began on similar farm-based trials which would include animal performance data. Guided by Dr Orla Keane in Grange, Walsh Fellow Anne Kelleher carried out work similar to the above on 16 dairy calf-to-beef enterprises.

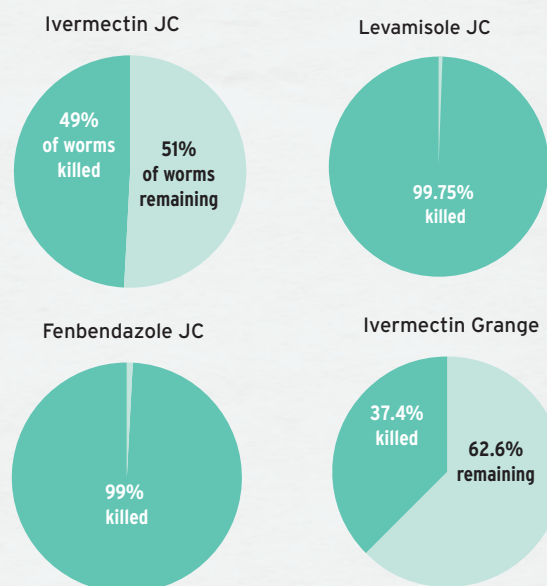
The work is ongoing, though year one results were startling. Ivermectin and Fenbendazole were the ingredients examined.

On 16 out of 16 farms, ivermectin resistance (<95% worm kill) was detected. Resistance to fenbendazole was detected on 12 out of 16 farms.

Commenting on the results, Dr Keane stressed that the results were preliminary and that validity lab work was ongoing.

The researchers are also seeking more farms for a follow-on in 2018.

## Wormer effectiveness in calf-to-beef. Teagasc, 2014: Grange and Johnstown Castle (JC)



## ✳️ Wormer resistance dos and don'ts

- Take faecal samples from a couple of calves in a group directly before and 14 days after dosing (seven days with levamisoles) to establish a product's efficacy.
- Dose bought in stock with a product that is known to work on your farm and quarantine indoors. Turn out to a contaminated (previously grazed) pasture 48 hours post treatment.
- Dose according to heaviest animals in group. If there are big differences, split group in two.
- Don't rely on a single indicator/symptom to dose. Where animals are scouring or growth is poor, take a faecal sample to determine if the problem is parasite-driven.
- When dosing cattle do not move them onto a fresh pasture straightaway. Wait a few days.
- Consider spot dosing - some animals may not need a dose at all. Base the decision on performance.
- Don't treat animals too frequently (every 3-4 weeks).



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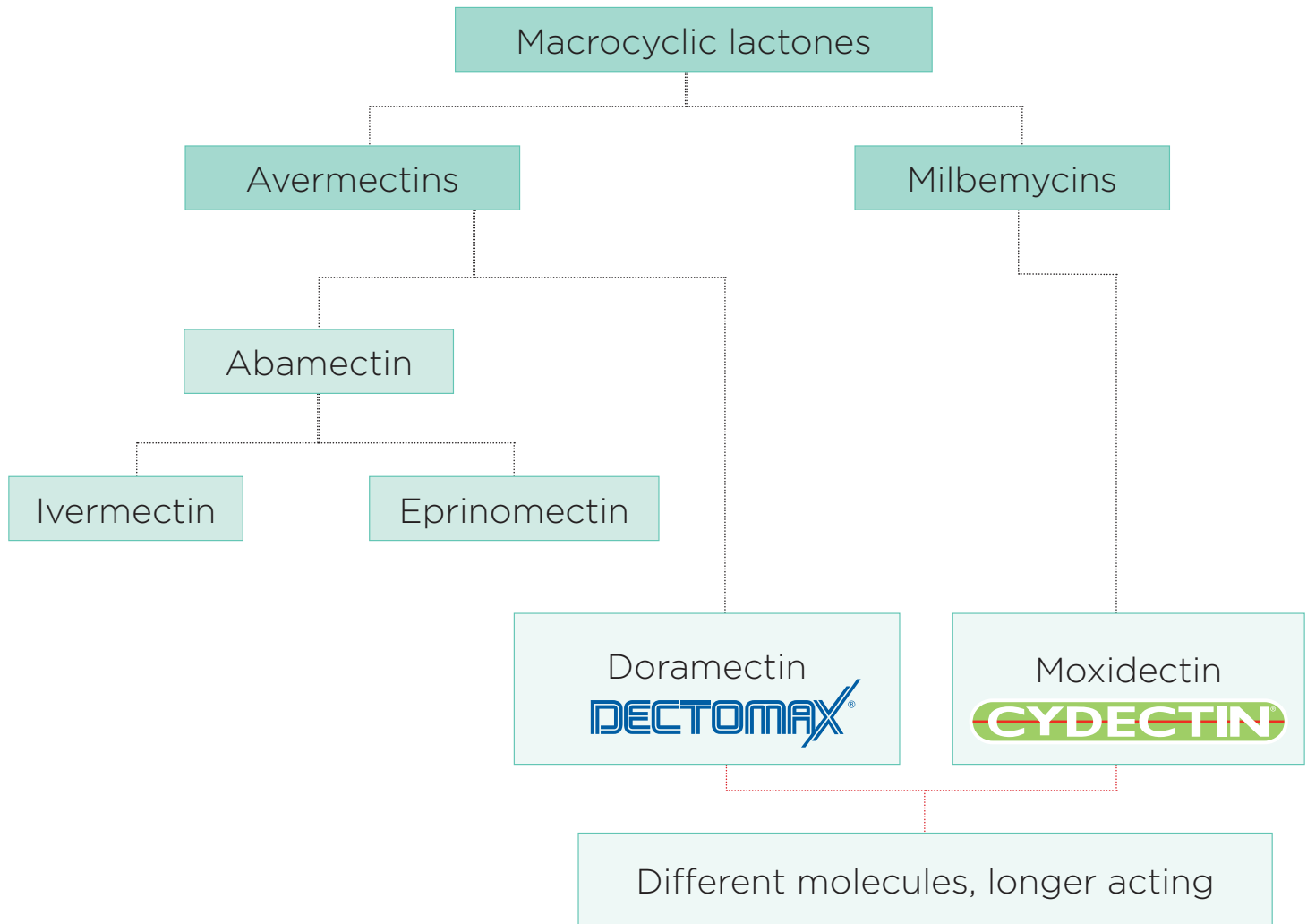
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## EVOLUTION OF MACROCYCLIC LACTONES



### Case study

Ricky Milligan is the Kildare participant in the BETTER farm beef programme. In 2017, he was one of the 16 farmers to take part in the dosing trial.

Two weeks post-dosing, Ricky's ivermectin-treated calves showed a 78% kill according to faecal samples, while fenbendazole had achieved a 99% kill.

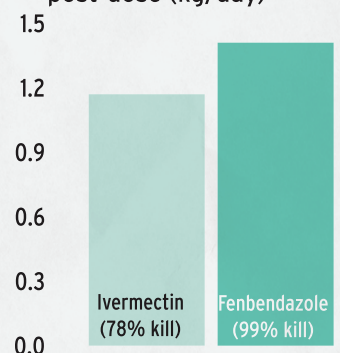
Interestingly, his ivermectin calves actually grew faster in the fortnight post-

dosing than the fenbendazole calves (ADG 1.13kg v 0.87kg), which is likely to be due to the more intense worm kill from fenbendazole causing slightly more stress to the calves initially.

One month post-dosing the benefits of the more-complete fenbendazole worm kill showed in a massive 0.24kg daily average daily gain response for the complete month post-treatment (1.41kg v 1.17kg).

### Calf weight

Weight gain for 30 days post-dose (kg/day)





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