With the arrival of the new wormer Zolvix™, there has been a lot more discussion of wormer resistance with clients - and it’s difficult to give accurate advice without knowing just what the local situation is. Very few of our clients have any idea of their resistance status. With this in mind I decided to offer free pre and post treatment faecal testing to our sheep clients to try to build up a picture of what levels of problems are around.

Wormer resistance in sheep

Polly Gratwick Penbode Veterinary Group

We’ve got around 150 sheep clients in the practice area ranging from a few pet sheep, to flocks with 2,000 ewes. Clients were mailed with invitations to participate (I followed this by hassling any I saw over the next few months!) and 30 took part over this year. Although only a relatively small number were involved, they ranged from small flocks of 15-30 ewes up to the largest with 1,400 - so hopefully were a good representation of the sheep flocks in our area. In total 41 groups of sheep were sampled. All the clients taking part were sent a pack with instructions for the sampling intervals, sample pots and a questionnaire about their usual worming practices.

This wasn’t being done strictly scientifically - I asked farmers to weigh the heaviest sheep (where they had the facilities) and to dose the group for that weight and I also asked them to check the calibration of the dosing gun (but not all did). The idea was to get a rough impression of how effective their wormer was. Some clients marked the sheep that they sampled so that they could sample the same ones post treatment. When examining the faeces I repeated the test to ensure a good flock average. To allow for any inaccuracy I considered a 75% egg reduction to be adequate efficacy (for the purposes of this study).

The faeces were examined under a microscope using the standard McMaster flotation technique, which should give a sensitivity of 50 epg (worm eggs per gram of faeces). When examining the faeces I classified the eggs into three groups: Strongyle type eggs, Strongyloide eggs and Nematodirus eggs. I also noted down any other findings e.g. coccidia, tapeworm eggs/segments and lungworm larvae.

Most farmers get their worming advice from the merchants where they buy their wormer, rather than asking their vet, so often we are only approached if they perceive that the wormer ‘hasn’t worked’.
There has been little or no reported evidence of resistance in the Nematodirus species and I found no evidence in the samples I examined. Strongyloides spp. are not generally thought to be very clinically significant and unless we find large numbers associated with a scour we don’t specifically recommend treating. I bear in mind that a strongyloides count can be much more unreliable as there may have been larval hatching. I therefore decided to look at the results specifically relating to the strongyle counts as these have much more clinical importance.

I was expecting to find evidence of white drench resistance as historically we have been told this has been around for a long time — and I was mindful that there has been triple resistance found in North Devon. What concerned me most was that on 9 groups of sheep the post treatment worm egg count was unchanged or higher than the pre treatment sample — sometimes considerably higher.

One particular farm with a flock of around 700 ewes has three distinct groups of sheep. This farmer marked the sheep that he sampled so that he could take the second sample from the same animals. In two out of three groups the egg count increased after treatment with an avermectin. The third group had only a 43% reduction. He was advised to change his wormer! Later in the season he brought a faeces sample from lambs dosed three weeks previously with a levamisole; this had an egg count over 2,000 epg. I would be reasonably sure that this farm is likely to have triple resistance.

Looking at the responses to the questionnaire — it’s not surprising that there is so much resistance around. About half the farmers quarantine dose incoming sheep, but generally it is not being done according to SCOPS (Sustainable Control of Parasites in Sheep) recommendations. Several of the worm egg counts early in the season were low and the flocks did not require dosing. Very few farmers (other than organic farms) regularly have faecal egg counts done to determine if dosing is needed and most are treating their ewes more than once a year, which in the majority of cases is not necessary.

In total, only half the flocks sampled achieved over 75% egg reduction after dosing and more worryingly a third are getting less than 50% egg reduction. If this applies to all flocks in the area that’s a lot of resistant worms! On the whole SCOPS principles are not being followed in full on the majority of farms. A lack of effective quarantine dosing and over-treatment seems to be allowing resistance to continue to spread. Most farmers also get their worming advice from the merchants where they buy their wormer, rather than asking their vet, so often we are only approached if they perceive that the wormer ‘hasn’t worked’. Now I’ve got some idea of the resistance levels in our area hopefully I can encourage our clients to involve us in their worming management plans.

**OVERALL RESULTS**

Overall egg reduction (of all three egg types):

**Benzimidazole (15 treatments)**
- 73% had less than 50% reduction
- 20% had over 75% reduction

**Levamisole (10 treatments)**
- 30% had less then 50% reduction
- 60% had over 75% reduction

**Avermectin (16 treatments)**
- 25% had less than 50% reduction
- 50% had over 75% reduction

**STRONGYLE TYPE EGG REDUCTION**

**Benzimidazole**
- 46% less than 50% reduction
- 40% over 75% reduction

**Levamizole**
- 40% less than 50% reduction
- 50% over 75% reduction

**Avermectin**
- 25% less than 50% reduction
- 63% over 75% reduction

These store lambs purchased at market were carrying a high worm burden.