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Farmers’ estimations of sheep weights to calculate drench dose

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Underdosing with drenches is a major cause of anthelmintic (drench) resistance in worm parasites of sheep.

When farmers use a drench at less than the recommended dose rate, some worms may survive, and their ability to resist treatment with the chemical involved is passed to their offspring. Over a period of time, matings between worms with different degrees of resistance can produce individuals able to resist the drench at the recommended dose rate or even higher.

Farmers must use adequate dose rates so that worms do not have a chance to survive treatment.

Correct dose volume is essential

Underdosing with sheep drenches appears to have been common in the past. Many farmers simply used a fixed dose volume for all drenches, regardless of the recommended dose rate for particular products (e.g., a standard dose of 10 mL per adult sheep for all drenches was often used).

In recent years, the Department of Agriculture has stressed the importance of adjusting the dose volume according to the weight of the sheep to be drenched. It has extended this practice to farmers through the CRACK worm control campaign. Many farmers appear to have adopted this approach, but calculation of the correct dose volume depends upon an accurate estimation of the weight of the sheep.

We tested the ability of farmers to estimate the weight of sheep at field days held at Mt. Barker, Wongan Hills and Badgingarra in the spring of 1987 (Besier and Hopkins, 1988). Small groups of sheep were held in pens, and farmers were invited to estimate the weight of the heaviest sheep in separate pens of weaners, ewes and wethers at Mt Barker, or the heaviest, lightest and average weight of a group of ewes at Wongan Hills and Badgingarra. A total of 237 farmers participated over the three locations.

Poor judges of sheep weights

Most farmers were poor judges of sheep weights, and most would have underdosed sheep on the basis of their weight estimations.

• Ninety-seven per cent of farmers were more than 10 per cent out, and 77 per cent more than 20 per cent out, in their estimations of all three weights.
• The average estimate was 18 per cent below the true weight.
• Eighty-five per cent of farmers would have underdosed the sheep.
• Weight estimations were best for heavier sheep.

There were no major differences between the results from each of the three locations. Results would probably be typical of most groups of farmers in Western Australia.

Solution

Farmers should weigh sheep before calculating the drench dose, rather than relying on their estimation of the weight.
Farmers' estimations of ewe weights at Wongan Hills and Mt. Barker. Most of these farmers would have underdosed their sheep.

Several of the largest sheep in the flock should be weighed, and the dose of drench for the flock calculated from the weight of the heaviest. If the flock is very uneven in size, it can be drafted into more than one line, and different doses calculated for each line. (This often occurs with goats, where a range of ages and sizes may run as one group.)

Dosing to the weight of the heaviest sheep results in most sheep receiving a larger dose than actually required, but this should cause no harm. There is a wide safety margin with modern drench products, and overdosing is far preferable to underdosing.

A CRACK update

The CRACK campaign recommendation to weigh sheep before drenching apparently has had considerable impact. In a recent telephone survey 57 per cent of farmers had weighed sheep at some time before drenching them, and 70 per cent were aware that the dose should be calculated on the basis of the weight of the heaviest sheep in the flock (Edwards, et al. this issue). This is a great increase from a survey completed in 1984 when only 29 per cent of farmers knew of this recommendation (Edwards, et al. 1986).

References


Calculating the drench dose

Once the weight of the heaviest sheep in the flock is known, a farmer can calculate the dose of drench needed from the dosage scale on the drench container. Dose rates vary between products, from 1 mL of drench for each 4 kg of sheep weight, to 1 mL per 10 kg for concentrated drenches.

Take care in calculating the dose. At one meeting where farmers estimated sheep weights, they were also asked to calculate the dose of drench, from a sample label of a drench product. Nearly 30 per cent of responses differed by more than 10 per cent from the dose needed for the estimated weight. The effort of weighing sheep is not rewarded if farmers don't calculate the drench dose accurately.