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Weighing scales for sheep do pay

By Danny Roberts, Regional Epidemiologist, Katanning

Sheep producers can improve production by using weighing scales and keeping accurate records of:

- weights of sale sheep,
- weights when calculating the correct dose rate for drenching or applying a backline lice chemical,
- weights for selection of breeders at the hogget stage, and
- weights when calculating the stocking rate.

Without some objective measurement, such as weighing, producers have no accurate method of identifying the heaviest, lightest and average weight of a group of sheep. They could try to estimate weight by eye - but most people are poor judges of body weight (see "Farmers’ estimations of sheep weights to calculate drench dose" on page 120).

Mechanical weighing scales cost between $700 and $800, while electronic scales cost between $1,500 and $3,000 and up to $5,000 with accessories. The cost of buying a set of weighing scales is quickly recouped from improved returns and productivity.

Marketing of sheep

Most people underestimate sheep weights, and even experienced buyers often are out by 10 per cent. A novice could be up to 25 per cent out. Producers who sell lambs direct to the Western Australian Meat Marketing Commission are paid in cents per kilogram carcass weight (derived from liveweight). In June 1989, fat score 2 and 3 lambs of 12.1 to 14.0 kg carcass weight were worth 26 c/kg less than those 14.1 to 18.0 kg.

Market quotations from sales at Midland and Katanning are also based on carcass weight and condition score for lambs and ewes or liveweight for shipping wethers.

It pays to use scales. If producers know the weight of their sheep when they sell them, they can negotiate a better price.

One sheep producer bought a second-hand scale for $1,100 in August 1987. In September, before a shipper buyer came out to inspect 341, 18-month-old wethers, the farmer weighed 10 per cent of the flock. The average weight was 59 kg. The buyer indicated he thought the average weight for this flock was below 55 kg and only offered $23.50 per head. However, the price for wethers averaging more than 55 kg was $27.00. The farmer knew he was not receiving a fair price, said so, and was able to negotiate with the buyer. The difference of $3.10 per head would have paid for the scales.

In a group of Merinos, the body weight of 95 per cent of the sheep will be within 15 per cent of the average weight. That is, 95 per cent of the sheep will be between 50 kg and 68 kg if the average weight of the group is 59 kg. The producer in the above example used scales as part of the decision-making procedure and made an extra $1,193 compared with just accepting the initial price of the buyer.

Importance of the correct drench dose

Worms are a major limitation to weaner performance in medium to high rainfall areas of Western Australia. Under-dosing with drenches is a major cause of anthelmintic (drench) resistance in worm parasites of sheep.

Seventy per cent of farmers in a survey completed in 1986 by Edwards et al. were aware that the drench dose should be calculated on the basis of the weight of the heaviest sheep in the flock, but only 57 per cent of farmers had weighed sheep at some time before drenching. Some backline lice chemicals have failed to eradicate sheep lice on a few farms. Under-dosing with these chemicals because of incorrect estimation of body weight could be one reason for the lack of efficacy and the development of resistance. For example, the dose rate of some lice products should be varied according to the weight of the heaviest sheep in each mob. However, in a recent survey, many sheep producers used one dose rate for all sheep.

Culling hoggets

Farmers usually cull and select breeders at the hogget stage, selecting on traits or characteristics considered to be desirable for that environment. Selection criteria include bodyweight, fleece weight, fleece characters, and conformation.

The quality of the selected or retained portion of the mob will improve according to the percentage of culls removed, and the extent of variation in the quality of the mob (initial population). Table 1 shows how culling will affect the new average for bodyweight and clean fleece weight.

Farmers need to cull a large proportion of the mob if they want a worthwhile change in the new average bodyweight or clean fleece weight.
weight. The subsequent lifetime performance of the retained hoggets will be less than the response shown in Table 1.

Many farmers, however, cull hoggets without some form of objective measurement such as bodyweight or clean fleece weight. Such a culling procedure achieves, at most, only half of what could be achieved if they took measurements, and improvements in productivity are very small.

Weaner management

Weaners are the most difficult class of sheep to manage. They have much lower reserves of fat than mature sheep and their maintenance needs over summer must be fully met by feed intake. When pasture dries off, weaners should average at least 45 per cent of adult body weight. Target weights for weaners when pastures dry off are:

- Mature weight (kg) 45 50 55 60 65 70
- Weight at drying off pasture (kg) 20 23 25 27 29 32

To minimize deaths of medium frame Merinos wethers (50 to 55 kg mature weight) for least cost, all weaners should weigh more than 25 kg when the pasture dries off.

Weaners weighing less than 25 kg need to maintain their weight over summer and should be drafted into a separate flock in late December. Weaners weighing more than 25 kg can lose 0.5 kg per month. This change cannot be seen by eye and condition scoring is too insensitive for this class of sheep, so they must be weighed.

It is pointless to start to hand-feed weaners too late in summer when they are losing weight rapidly. The best method of determining when to provide a supplement is to identify 50 weaners in each mob when the pasture dries off and to weigh them regularly. The amount of supplementation needed is determined by the average weight of these 50 weaners and whether their body weight is to be maintained or increased.

The reduction in death rate and the extra wool growth from supplemented sheep will maximize production from weaners for least cost. On one farm losses were reduced from 5 to 1 per cent in a group of 2,000 weaners by following this strategy. The net gain from feeding a supplement for maintenance was $1,600.

Calculating the stocking rate

The 'livestock equivalent' systems are used to compare the feed requirements of different classes of stock and also to assess the carrying capacity of farms or the potential productivity and value of grazing land. The Dry Sheep Equivalent (DSE) system assumes that a two-year-old sheep weighing 45 kg in condition score 3 needs 7.2 megajoules (MJ) of metabolizable energy daily. The DSE varies with the size of the sheep, whether or not they are pregnant or lactating, and the rate at which sheep gain weight.

Stocking rate is often quoted in units of DSE/ha (where a dry sheep is considered to be a 45 kg wether or dry ewe at maintenance). Grazing intensity refers to the number of animals per unit of available forage but stocking rate refers to only the number of animals per unit area. If the stocking rate increases without an attempt to increase pasture production, then grazing intensity will also increase, and the animals will lose weight.

The variation in size between sheep of different strains and breeds will influence grazing intensity at any given stocking rate. For example, a 60 kg Merino wether is 1.3 DSE compared with 1 DSE for a 45 kg Merino wether of the same age and condition score. Hence, if the best stocking rate with wethers of a small strain is 8 DSE/ha, then the best stocking rate for a strain of wethers 15 kg heavier is 6.1 DSE/ha.

This difference is important when comparing the feed requirements of different classes of stock on a farm; 120 single-bearing Merino ewes (45 kg) would eat as much as 100 single-bearing Border Leicester-Merino ewes (60 kg) in the last five weeks of pregnancy and first seven weeks of lactation. The average DSE for a 60 kg ewe over 12 months old is now 1.9 DSE compared with 1.5 DSE for a 45 kg ewe.

The optimum stocking rate is that which maximizes the sum of annual net farm income over a number of years. Sheep producers must constantly re-evaluate their farm records to an optimum stocking rate for their farm. By weighing sheep at strategic times during the year farmers can calculate the relative stock carrying capacity of individual paddocks. The stocking rate can then be adjusted up or down based on that information.

Table 1. The new average bodyweight or clean fleece weight of the mob after culling

<table>
<thead>
<tr>
<th>Culled (%)</th>
<th>Selected average, % above the initial population average</th>
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<tr>
<td>10</td>
<td>1.6 2.5</td>
</tr>
<tr>
<td>20</td>
<td>2.7 4.4</td>
</tr>
<tr>
<td>30</td>
<td>3.9 6.2</td>
</tr>
<tr>
<td>50</td>
<td>6.2 10.0</td>
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References