

DATA FROM WALK-OVER WEIGHING – WHERE ARE WE AT?

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Walk-over weighing (WOW) utilises the concept of remote individual animal management (RIAM). It monitors sheep without human intervention by electronically capturing and recording an individual sheep's tag and weight as it passes over weigh scales on its way to feed or water. It is well suited to pastoral settings where labour is scarce and the stress and cost of mustering sheep are important factors. It can also be used in feedlot or rotational grazing systems where regular monitoring of a sheep's weight applies.

WOW incorporates a set of trap yards and a race so the sheep's weight can be recorded as part of its natural movement to feed or water. Capturing weights of animals by WOW is achieved through animals with a radio-frequency identification (RFID) tag in their ear having the tag scanned and their weight recorded as they walk over a weighing platform. These individual weights can vary dramatically according to the animal's position on the platform and how long the animal remained there. A single weight measurement using this method could be inaccurate. By using a number of repeated weights over a specified time period an accurate weight measure of each particular animal can be achieved.

Results from walk-over weighings include many sets of weights for each animal which need to be analysed in a way that producers can use the data to better manage their flocks. An Excel-based program has been developed to calculate an average weight for each animal over a specified weighing period. Data with no linked RFID tag or animals recorded as having a zero weight are removed and the remaining data are entered into the program. An “acceptable” weight range is established based on a starting weight value for each animal and a fixed range either side of this value. An average of these “accepted” weights is used as the weight of that animal. The starting weight can be an earlier weight using conventional weighing or a processed walk-over weight relying on both the current set of data and any previous data on the individual animals as well as the whole flock. The result is a list of estimated weights for each animal for each weighing period. The growth rates for the mob or for quartiles within the mob can be calculated and reported to determine how the animals are performing.

A trial was conducted at Bourke, N.S.W., where about 200 animals were weighed over a period of 2 months (with some gaps), separated into 4 arbitrary periods of 1-2 weeks each. After ignoring zero weights or those without any associated animal identity, there was an average of 39.8 weight records per animal over the 48 days of recording. After data analysis, 75% of all records (a range of 69 to 78% across time periods) were included in the liveweight estimation for each animal in each time period. The average weight of the mob in each time period was estimated with a standard error of less than ± 0.5 kg with a mean of about 55 kg.

Information on individual animal performances was the most significant outcome. Average correlations among animal weights across time periods were all very high (0.89 to 0.93) but substantial differences between groups of animals within the mob were apparent. The average growth rate of the mob was a loss of 26 g/day (-1.7 kg over the whole experimental period). When the data were split into quartiles according to liveweight gain over the 2 months, the top quartile had an average gain of +33 g/day (+2.1 kg gain in liveweight over the whole period) whilst the bottom quartile were losing weight at a rate of 90 g/day (-5.1 kg loss in liveweight). Even though the growth was negative for this trial there was still an obvious difference between the top and bottom quartiles of animals within the flock. This is useful information to the producer to either identify the lowest ranked animals to sell before losing more money, or to identify those for differential management to the rest of the animals (e.g. health or nutritional management). It also allows identification of animals for different target markets depending on their weight and growth rates.

The use of WOW has the potential to allow producers to obtain simple weight measurements of their flock and improve their flock management without high labour costs normally associated with mustering and weighing. This will reduce the stress on animals as well as improving the options for management.

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