

Does improved ewe management offer grain farmers much extra profit?

John Young, Farming Systems Analysis Service

Ross Kingwell, Department of Agriculture and Food, Western Australia and UWA

Chris Oldham, Department of Agriculture and Food, Western Australia

KEY MESSAGES

Even at high grain prices, using target condition scores for ewe management boosts farm profit by up to 6% – through beneficial lifetime impacts on sheep production. The optimum condition score profiles for ewes are robust and are little affected by changing commodity prices, and the relative profitability of the sheep enterprise. The optimal strategy is to aim for a condition score of 2.7 or above at joining then maintain the ewes' condition through to lambing. However, farmers with crop dominant farming systems may find the profit incentive for adopting target condition scoring of ewes to be inadequate to stimulate a change in their sheep management.

AIMS

To assess the profitability of using target condition scoring for ewe management.

METHOD

The effects of condition score management of ewes was examined using plot scale research during the years 2001 to 2003 at various sites. Statistical analysis of the plot data was followed by paddock scale pilots to test the robustness of the findings from the plot trials. The verified findings were then incorporated into the whole-farm bioeconomic model known as MIDAS (Model of an Integrated Dryland Agricultural System) and a wide-ranging sensitivity analysis was conducted to test the robustness of findings.

The Central Wheatbelt version of MIDAS was selected as the modelling tool because it includes a detailed feed budgeting module that optimises feed management across the whole farm. MIDAS is a computer model used to assess the impact of changes in a farming system. It describes the biological relationships of a representative mixed-enterprise farm and selects the appropriate mix of cropping and sheep to maximise profit. Flock profitability is based on the productivity of each class of stock, commodity prices, and the farm's carrying capacity. Being an optimisation model, it calculates the optimum stocking rate and optimum use of feed, including level of grain feeding that will maximise profitability while achieving the condition score targets specified for the ewes.

RESULTS

The trial data indicated that managing ewes' condition scores through their reproductive cycle resulted in:

- a. increased lamb survival and weaning percentages;
- b. increased progeny fleece weight and decreased fibre diameter of their wool;
- c. improved ewe health and survival;
- d. increased ewe wool production and tensile strength;
- e. improved ewe reproduction.

These trial findings were incorporated in the Central Wheatbelt MIDAS model to show how wholefarm profit is affected.

Fifteen different condition score (CS) profiles were evaluated:

- Three alternative condition scores at joining – 2.7, 3.0 and 3.3.
- Three rates of loss of condition to day 90 – no loss, lose 0.2CS and lose 0.4CS; and
- Four rates of condition change after day 90 – gain 0.4CS, no change, lose 0.2CS' lose 0.4CS.

The optimum CS profile that includes progeny effects is to aim for a condition score of 2.7 or above at joining then maintain the ewes' CS through to lambing. At standard prices of commodities, this strategy generates between \$2 180 and \$5 745 more profit than the optimal CS profile that excludes progeny effects (see Table 1).

If feed grain average historical prices increased 25% (e.g. \$278/t for lupins), the stocking rate decreased from 8.5 dse/ha to 7.2 dse/ha. If grain prices increased by 100% then stocking rate decreased further to 6.2 dse/ha. However, the optimum CS profile for either case is robust and the only impact of altering commodity prices or enterprise production relativities is on the joining target. The optimal pattern of ewe condition during pregnancy is unchanged. To achieve these CS targets requires producers to increase their rate of supplementary feeding by about 5% and to alter the allocation of high quality stubbles in summer and autumn.

Table 1. Differences in profitability (\$/yr) for the 2000 hectare MIDAS farm when lifetime (progeny) effects are excluded or included. (based on average seasons and prices over the last five years)

Optimal condition score pattern for ewes	Excluding lifetime effects	Including lifetime effects	
		Paddock trial findings	Plot trial findings
Join CS2.7, maintain to day 90, lose 0.4 to lambing	+\$3880	0	0
Maintain joining to lambing	0	+\$5745	+\$2180
Percentage of farm profit	4%	6%	2%

Improved ewe nutrition profiles is a profitable change in sheep management. However, the increased profit is small relative to wholefarm profit because the majority of income from farms in the central wheatbelt region of Western Australia is from cropping. There is also some uncertainty about the exact nature of the lifetime impacts as evidenced by the different findings from paddock versus plot-based trials. Further, the change in ewe management requires extra work in grain feeding and rationing the stubbles which may be a disincentive to adoption. It is likely that only farmers with highly sheep dominant farming systems will realistically trial the new system of ewe management as their farm profit is based principally on the profitability of their sheep enterprise.

CONCLUSION

Using target condition scores for ewe management boosts farm profit by up to 6%, even at high grain prices, through beneficial lifetime impacts on sheep production. The optimum condition score profiles for ewes are robust and appear to be little affected by changing commodity prices, and the relative profitability of the sheep enterprise. However, farmers with crop dominant farming systems may find the profit incentives and the extra work involved in monitoring the condition score of ewes to be inadequate to convince them to alter their current management of ewes.

KEY WORDS

sheep management, condition score, central wheatbelt, wholefarm profit