Lifetime Wool – Ewe Management Guidelines

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ABSTRACT

Lifetime Wool is a national project that has developed draft management guidelines that will assist sheep producers to optimise production from their Merino ewe flocks. Central to the guidelines are condition score targets for ewes at key times during the reproductive cycle, and feed on offer boundaries to meet these targets are also provided. This essential information will allow better management of sheep and pastures.

INTRODUCTION

Lifetime Wool (LTW) is a national project developing guidelines for the nutritional management of ewes. The guidelines are based on condition score (CS) targets at key times during the reproductive cycle, and have been derived from five years of research and development that has taken place on commercial properties across southern Australia. Intensive plot-scale research in Western Australia and Victoria involving more than 10,000 sheep was initially used to develop relationships between ewe CS profile and: the reproduction, mortality, and wool production of ewes, and the survival and lifetime performance of progeny (Thompson and Oldham, 2004). A draft set of guidelines and decision support tools (DST's) were developed using these prediction equations. Results from the plot-scale research were supported by the outcomes of the paddock-scale research (Behrendt, 2006), and the resultant draft guidelines and decision support tools (DSTs) were road-tested for their feasibility and practicality by over 120 farmers involved in the demonstration/development phase of Lifetime Wool in 2005-06.

REVIEW

Ewe condition score profiles

Sheep producers from four states involved in the demonstration/development phase of LTW managed their ewes to an "optimum" CS profile devised for spring lambing flocks. The CS profile has five key targets during the year: joining (ram introduction), day 90 after joining (pregnancy scanning), just before lambing (pre-lambing vaccination and/or drenching), weaning (approximately day 240 after joining) and at joining in the following year. These targets were shown to produce the "optimum" return (90% of the maximum values of the various dose response curves for ewe and progeny parameters) based on economic modelling of the self replacing merino ewe flock enterprise and the likely pasture season and ewe response (Young and Oldham, 2005).

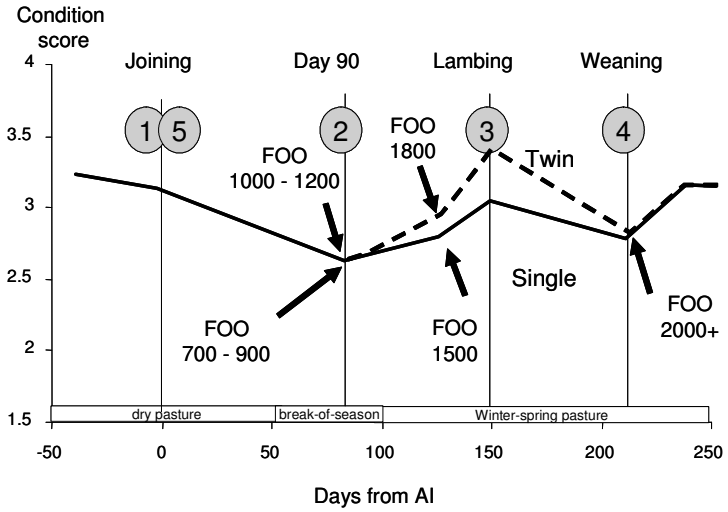

Figure 1. Schematic representation of a condition score profile for a winter-spring lambing in Western Australia, showing separate profiles for single and twin bearing ewes and feed on offer (FOO) boundaries at the break of season, leading up to lambing and at weaning.

Two crucial points in the ewe reproductive calendar (condition at joining and condition at lambing) set the framework of the profile and the environmental conditions, including expected level of supplementary feed, then dictate the shape of the profile for a particular region. CS at joining sets the reproductive rate (RR) and determines the potential number of lambs to be born. Our analysis has shown that the RR is linear with increasing CS to at least CS 3.5 although there are different slopes for different genotypes. Producers need to set the RR they want to achieve, and manage their ewes to attain the CS target by joining (and maintain over the joining period). CS at lambing influences the lamb and ewe mortality, lamb birth weight and progeny wool production. There are differences in the profile for singles and twin bearing ewes.

Depending on the probability of green feed in late pregnancy and lactation and the ewe's response to it, the shape of the CS profile from joining to the point of minimum CS and then to lambing can be determined. For example, in WA, LTW has shown that ewes can gain in condition on as little as 700 FOO from day 90 of pregnancy and will rapidly respond to increasing availability of FOO as late as day 130. Hence, average flock CS could be as low as CS 2.5 at day 90 but recover to CS 3 for singles (requires 1500 FOO at day 130) and 3.5 for twins (requires 1800 FOO at day 130) and therefore achieve targeted performance by lambing if sufficient FOO were available. However, in other areas, and during autumn lambing, the minimum CS should never be allowed to fall below their chosen target by lambing. This requires the ewe CS profile to be quite flat and closer to the original 'maintain at condition score 3' recommendations that have been promoted previously.

Key messages from 'Lifetime Wool'

- Whole farm profit is sensitive to the changes in condition of ewes during the year.
- Production from ewes and their progeny can be predicted from knowledge of the ewe's condition score profile.
- 'Measure to Manage' – CS is a quick and reliable tool for managing ewes to targets.
- CS can be managed to achieve predictable ewe fleece weight, fibre diameter and staple strength outcomes.
- Ewes higher in CS at joining conceive more lambs and the response varies between farms.
- Lamb survival can be predicted from changes in CS between joining and lambing; however, the response is modified by environmental conditions at lambing.
- Improved ewe condition during pregnancy increases the clean fleece weight of progeny by up to 0.2 kg and decreases their mean fibre diameter by up to 0.4 um.
- These effects are permanent for the lifetime of the progeny and are independent of birth type and sire source.
- Managing twin bearing ewes better will increase production.
- Ewes with higher CS at lambing will have less mortality than ewes with lower condition score.

CONCLUSION

Further economic analysis is being undertaken for five regions across Australia and at differing lambing times to provide optimal ewe management and decision tools for a particular enterprise. The setting of targets by the producer for joining and lambing provides the framework for managing ewes over the rest of year. The response of the flock to a particular target can be predicted and will give important information as to how supplementary feeding regimes and pastures are managed.

KEY WORDS

Lambing, ewe management, Lifetime Wool

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