PRECISION SHEEP PRODUCTION – PIPEDREAM OR REALITY?

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Production potential and management needs of individual sheep vary significantly within a single flock. Approximately 20% of sheep in any flock contribute little to profitability of the enterprise. A similar percentage, but different animals, require management inputs (drenching or nutrition) that are not cost effective if applied to the whole flock. The aims of precision sheep production are: to accurately select and run sheep that best fit production goals and market signals; and manage key inputs such as genetics, nutrition and parasite control to match the needs and potential of each animal. Precision management involves individual animals not flocks, and constitutes a major paradigm change for the industry. Is it a pipe dream or an imperative for the future? This paper summarises the technology currently available and suggests there is nothing to prevent rapid uptake of the technology in response to a well managed plan of commercialisation and adoption.

The major requirements for implementing precision sheep production are relatively straight forward. Their implementation requires some capital investment and significant practice change for most producers.

1 It is essential to know which sheep in the flock contribute to enterprise profit. This involves measurement of the basic characteristics that determine value such as fleece-weight, fibre diameter and body weight. These parameters are easy and cheap to measure. Almost as expensive as the measurements themselves is manual recording of the information and reading/recording visual tag details. The onerous task of manual data recording and record management is seen as the single most important impediment to development of precision sheep production, and it is largely overcome by technologies described in 2 and 3 below.

2 Electronic tags make collection of data easier, cheaper and more accurate. Electronic tags also allow easy re-use of data throughout the life of the animal and facilitate automatic drafting and more sophisticated management techniques dependant on this technology. Electronic tags are therefore regarded as a fundamental component of precision sheep production.

3 Automated data entry, data management and decision support systems are available for practically all aspects of precision sheep production and are becoming more powerful and easier to use.

4 Automatic drafting based on electronic tags and decisions based on an index or single parameter allow precise management of culling, joining and marketing. Automatic drafting systems responding to computer lists, are becoming robust, cost effective management tools.

The technology and support for 1 to 4 above, are considered to be readily available and only dependent on development of support infrastructure to accelerate commercialisation and adoption.

5 Advanced features of precision sheep management include continuous or regular weight monitoring and remote drafting systems that respond to weight change and/or indexed instructions. These systems used together hold potential for precise administration of nutrition to animals in need, early detection of parasite and health problems, management to avoid tender wool and decreased lamb and weaner losses. These advanced features are currently active areas for research and development, and are expected to be available for commercial application within 12 months.

Desktop studies show significant economic benefits from precision sheep management, particularly the management strategies to capitalize on between animal variation in fibre diameter (Atkins and Semple 2005). With many different entry levels, precision sheep production should be considered a continuum, where every producer can start to gain benefits from changes that currently fall within their comfort zone. Commercialisation and widespread adoption will require appropriate infrastructure development and support with data management.

Precision management will be a key factor enabling accelerated development of the Australian sheep industry. The question is not if, but how quickly, it will be adopted.


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