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## Use of ultrasonic pregnancy scanning information for farmer extension

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### ABSTRACT

Ultrasonic pregnancy scanning is a new technology that provides sheep farmers with information that can significantly improve flock performance. The effective use of this information requires participation from the scanner operators, consultants, scientists, veterinarians and company representatives. Farmer networks such as the Sheep Council and monitor farms also have an important role in maximising the benefits to individual farmers by sharing knowledge and experience on the management changes made possible by pregnancy diagnosis.

**Keywords:** Ultrasonic scanning; sheep; pregnancy diagnosis.

### INTRODUCTION

The introduction and widespread use of ultrasound pregnancy scanning in New Zealand sheep flocks during the past decade has provided new opportunities for farmer extension. As with all forms of farm monitoring, scanning information needs to be assessed and used judiciously for individual farm benefits. Therefore emphasis on use of scanning information for extension needs to be in the context of individual farms though there is scope for industry-wide recommendations.

This paper discusses the potential benefits from extension using scanning information and opportunities for application in extension programmes and on individual farms.

### USE OF SURVEY DATA

The use of scanning information from groups of farms can be invaluable for estimation of regional or group trends in reproductive performance including lamb survival. For example, estimates of lamb survival as in Geenty (1997) give trends in relationships between scanning and tailing percentage, which can be used by consultants and farmers for benchmarking of individual farms. In addition survey information can add to farm benchmarking along with other production measures as in the CF2000 farm monitoring scheme (G.H. Davis, pers. comm.)

Such benchmarking exercises allow identification of high producing case study farms by consultants and farmers for identification of opportunities for production improvement by other farmers at lower performance levels. Extension from such benchmarking can include both discussion groups and field days as well as individual farmer interaction with each other and consultants.

### USE OF INDIVIDUAL FARM DATA

Knowledge of the proportions of ewes carrying single or multiple pregnancies at scanning, which normally corresponds with the start of the last third of pregnancy (around day 90), is useful for both preferential treatment of

ewes with multiples and improved survival of lambs born as multiples.

Results from Davis *et al* (1983) indicate that with lamb drops up to 170% there are normally very few ewes having triplets, but these increase progressively to 20% at 200% lambing when there would be expected to be 60% with twins and 20% with singles.

Therefore, the benefits of scanning progressively change from the ability to identify ewes carrying singles versus twins up to 170% lambing, and then singles versus twins versus triplets above 170%.

### Benefits to the ewe

During late pregnancy ewes require 20-30% more feed for each additional foetus carried (Geenty & Rattray, 1987). This means that a ewe carrying twins will need approximately 3-4 MJ ME/day additional energy intake while a ewe carrying triplets will need 3-4 MJ ME/day more than for twins.

If these additional energy requirements are not met during the final third of pregnancy ewe body fat reserves will be mobilised and udder development hindered (Geenty, 1997) with negative impacts on lamb survival. In addition, the ability of ewes to produce colostrum and milk during early lactation will be negatively affected due to poorer udder development and depleted body reserves.

During the lambing period it has been observed (Geenty, 1997) that with feed covers over 1,200 kg DM/ha there is less likelihood of mismothering of lambs, particularly multiples. This is largely because ewes are less likely to move significant distances looking for feed, and in the process desert weak or newly born multiple lambs.

### Benefits to the lamb

The ability of lambs to survive and thrive following birth depends to a large extent on provision of shelter in case of inclement weather. This applies particularly to multiple born lambs, which normally have lower birth weights and body fat reserves than singles and also have more likelihood of being mismothered. The occurrence of mismothering is generally greater where feed cover is low.

The ability of farmers to preferentially feed ewes either identified from scanning as carrying twins or carry-

ing triplets is important for better lamb survival in these higher risk groups compared with singles.

### **EXTENSION MESSAGES**

The important extension messages to farmers from these above potential benefits to ewes and lambs from preferential treatment for ewes with multiples are:

- higher late pregnancy feeding levels for ewes carrying twins and/or triplets compared with singles to enhance the production of colostrum and early lactation milk in ewes with better lamb viability;
- use of paddocks with the best shelter and lambing conditions for ewes with multiples to minimise lamb losses due to the mismothering/exposure/starvation syndrome;
- selection of lambing paddocks with relatively greater feed covers to minimise the risk of mismothering with multiple births.

### **EXTENSION OPPORTUNITIES**

Effective use of the above information and recommendations for farmer adoption can include the following: advice to individual farmers by pregnancy scanners;

inclusion by consultants, scientists and veterinarians at field days, workshops and discussion groups; awareness among other farmer servicing groups including company representatives; interaction among farmer network groups such as Sheep Council and monitor farms.

Examples of these above extension opportunities during the 1997-98 period include a workshop organised by the Northern South Island Sheep Council at Lincoln University for scanners, farmers, scientists and veterinarians and some 12 regional seminars for similar groups in Otago and Southland facilitated by the Southern South Island Sheep Council. The catalyst for these meetings has been widespread use of pregnancy scanning and judging by the very good attendances ranging from 25 to 150, and positive media reviews, this form of extension has been very effective.

Therefore, effective interpretation and use of scanning information needs to comprehensively involve the above farmer and servicing groups for meaningful adoption and realisation of benefits by farmers. The extent of these benefits will vary largely from farm to farm and will be dependent on setting of realistic goals for improved lamb survival and viability.