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Experiences of a pioneer in the commercial sheep pregnancy scanning business

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ABSTRACT

Since 1991, ultrasonic pregnancy scanning has developed from a tool used initially to identify dry ewes, into one that accurately identifies ewes carrying singles, twins and triplets. The use of scanning to determine litter size has expanded from stud flocks into a large proportion of commercial flocks. Satisfying the demand for pregnancy scanning has in eight years grown into an industry that employs about 90 scanner operators in the South Island during the peak of the season. Scanning is well established as a vital tool for the monitoring and management of breeding ewes.

Keywords: Sheep; ultrasonic scanning; pregnancy detection.

INTRODUCTION

Although the Stockscan (NZ) business was established in 1991 to use ultrasonic scanning technology to scan sheep for eye muscle area, it soon became obvious that to survive it would need to expand into pregnancy scanning. Initial experience with managing Texel cross sheep in quarantine at the Invermay Agricultural Centre convinced R.J. Farmer of the benefits of ultrasonic pregnancy scanning and kindled a desire to provide this service to the industry. Following an extensive door knocking campaign in 1991 a total of 10,000 sheep were scanned. By today's standards the system was primitive. All sheep were dragged across the shearing board and were only scanned to identify pregnant and dry. In 1992 much time was put into designing two rather cumbersome crates to improve stock handling and throughput. Fortunately, an engineering company became interested in developing a superior crate the following year and this improved design subsequently became available.

SCANNING FOR MULTIPLES

In 1992, 50,000 sheep from North Canterbury to Southland were scanned and about 20% were scanned for twins in addition to dries. The number scanned doubled to 100,000 the following year with about 70% scanned for twins. In 1994 the number of operators employed increased from the initial one up to three and 300,000 sheep were scanned. There were now 90% of the scanned sheep being examined for twins, and for the first time about 3% requested scanning for triplets.

Since 1997 all pregnancy scanning has been to identify multiple births as well as dry ewes. Pregnancy scanning continued its rapid growth and by 1998 Stockscan (NZ) had 11 employees scanning 960,000 sheep for 280 clients. The season extended from mid-June in South Otago through to late August in the Mackenzie Country.

Although in 1998 there were 100,000 sheep scanned

for triplets there are signs that this number will decline by about 25% in 1999. Initially the interest in scanning for litter size was to separate out single bearing-ewes so that the management focus could be directed to the twin-bearers. As scanning percentage increases beyond 180% a growing number of farmers have decided that the number of single ewes being identified is insufficient to justify the expense of scanning. Some that scanned for triplets have found that lambing these as a separate group has been unsatisfactory. To ease congestion at lambing time they have resorted to spreading triplet-bearers amongst twin-bearers which negates one of the purposes of scanning. However, others have found that the benefits of separating triplet-bearers for winter feeding is justification for identifying triplet-bearers even if they are run with twin-bearers over lambing. The management of triplet-bearing ewes has emerged as a significant concern in many prolific flocks and there is a need for effective recommendations for their management.

SCANNER COMPETENCE

Because of feed restrictions often applied to the single-bearing mob and to ensure that winter feed and shepherding resources at lambing are allocated appropriately it is important that scanning is carried out with a high degree of accuracy. Top scanner operators achieve >99% accuracy, and generally >98% is regarded as acceptable. Before employing an operator it can be helpful to ask his previous clients about his performance. However, because there is so much importance attached to accurate results it is important to test an operator before he scans alone and then have him working alongside an experienced operator for the first three weeks. New technology that enables the operator to enter 'dry', 'single', 'twin' or 'triplet' with separate buttons as the sheep are scanned allows for instant updates of the scanning percentage and is very useful for monitoring operator performance. Where two operators working in the same flock vary by >2% it is a warning that

errors are occurring. Trainee scanner operators should not be used where there are significant numbers of fat ewes (>80 kg) or very thin ewes as these are more difficult to scan. An operator needs two year's experience before reaching full potential.

TIMING OF SCANNING

The timing of scanning relative to joining is critical and is the area where greater farmer education is needed. For accurate results, the most recently mated ewe should have been separated from the ram for 40-45 days and the earliest mated ewe should not be more than 90-95 days pregnant. Thus, in practice the maximum period in which scanning is carried out is between 40 days after the rams are removed and 95 after rams were joined. Where rams are out for two cycles (34 days) this gives a period of only 21 days in which a flock can be scanned. A major problem in the industry is farmers who don't strictly observe these time limits. Too often farmers leave rams in until 30 days before scanning. Worst are farmers who leave their rams with the flock, which prompts the comment from Stockscan (NZ) that they scan 'heaps' of rams. In 1998 the problem of late presented sheep was such that Stockscan (NZ) had two operators fulltime for two weeks rechecking mobs of 100-300 ewes which initially could only be assigned as dry/late because rams had been left in too long.

SCANNING THROUGHPUT

Although the very best operators can accurately scan for twins at the rate of 4000 sheep per day, the average is 2000-2500. Beyond these levels there quickly becomes a trade-off with accuracy. Recent advances in image resolution have helped reduce fatigue among operators. Technology advances such as foot operated gel-dispensers and higher resolution screens have also helped increase throughput.

In very large flocks where 10,000 ewes may be scanned by three operators in a day there are major logistical problems for the farmer. Scanner operators may work 7 days a week for up to 90 days. To minimise operator fatigue it is important that the time spent at the screen does not exceed 6-8 hours per day.

SEPARATING EWES

The identification of sheep following scanning has usually involved raddle and manual drafting. Manual drafting requires full concentration and personnel should be changed every two hours. Some large properties have electronic autodrafters, which avoids the need for raddle marks but there is the risk of undoing a day's work if mobs become mixed inadvertently.

CONTAGIOUS DISEASES

Where farmers have eradicated footrot from their properties they may insist that the truck and crate are water-blasted and footwear cleaned. Gloves should not be removed from a farm as a precaution against transferring disease from any aborting ewes. The recent outbreak of *Salmonella* Brandenburg is likely to result in more stringent cleaning of equipment between properties, although there is no evidence implicating scanner operators in the transfer of this disease between properties.

FUTURE GROWTH

In 1998 there were 72 local scanner operators in the South Island and about 20 from overseas. The total number of ewes scanned in the South Island is unknown but is likely to be between seven and eight million which represents 40-45% of breeding ewes. The future growth rate is likely to slow, but the 1990s have seen scanning established as a key management tool in a large proportion of the ewe flock.