# GROUP DISCUSSIONS ON REPRODUCTIVE PERFORMANCE IN SHEEP

The participants were divided into six groups for these sessions, each with a group Chairman. A series of set questions were considered by each group. These related to both the formal paper by T.D. Quinlivan and the two case studies by A.N. Bruere and D.M. West. The findings of each group were reported to all members at the concluding discussion for the workshop. These have been summarised as follows:

Question 1:

What are the three major causes of poor reproductive performance in New Zealand sheep?

Comment:

a. Nutrition was regarded as the factor largely responsible for the failure of young female sheep to achieve target weights at the time of first mating. Low body weights led to lowered lifetime lambing performance. Inadequate flushing in many cases also affected the fecundity of older ewes.

b. Farmer motivation to increase production was lacking in New Zealand's current agricultural climate. Many farmers regarded increased effort as unlikely to be rewarded by increased profit.

c. Poor animal selection techniques

   i. Rams: Many flock sires are still not selected on performance data; this was true even where the data was available. In many ram breeding flocks however such data was still not collected.

   ii. Ewes: In many flocks animals with high genetic potential were still not being identified and used. An optimal culling policy would include removing all dry/dry and wet/dry ewes.

As an addendum to this question the comment was made that there was still an information gap. Many practical techniques for improving flock performance available were not being used to any extent.

Question 2:

Is the computerisation of records as outlined in the paper presented by Dr Quinlivan necessary?

Comment:

It was generally considered that computerisation of records was desirable though not absolutely necessary. The advantages of computerisation were seen to be:

a. Standardisation of both questionnaire and data collected on a national basis although it was conceded that a computer was not necessary for this alone.

b. The increased ease with which useful comparisons could be made between flocks, breeds and areas within New Zealand.

c. Computerisation of records was likely to help initiate investigation of a number of animal production problems which would be more rapidly identified.

Question 3:

Is the concept of a 'mini flock' established alongside the main flock a worthwhile method of investigating flock reproductive problems?

Comment:

One point of view was that the mini flock idea would be a worthwhile diagnostic tool in selected flock situations, such as:

a. Where flocks are large, (that is more than 2000 ewes), extensively managed and run on rougher hill country.

b. Where tupping data needed to be collected (e.g. submission rates, return rates).

c. Where lambing data needed to be collected and where information on such parameters as wet/dry ewes, multiple births, lamb necropsy results, lambs docked, ewes assisted, ewe deaths and body weights was required.

d. Where special trials e.g. trace element response trials were to be run.

Mini flocks were considered to be especially useful where set stocking systems were used though they could still be used with rotationally grazed groups. They could form a useful public relations exercise to illustrate possible approaches to the whole farm problem. It was suggested that the mini flock could be run within the main flock over winter and then separated at lambing to allow easier data collection. (Many disagreed with such an approach since it would introduce an obvious bias).

Other important points noted in respect to the mini flock were:

a. That management should be comparable in both the main flock and the mini flock if results were to be meaningful and

b. That the selection of animals from the main flock should be random.

(Dr Quinlivan, in response to these comments, agreed that the mini flock concept was not always practical. In large flocks he suggested about 10% of ewes be selected in the summer, identified, and returned to the main flock for the winter).

Question 4:

Do you agree that subclinical disease contributes in only a small way to poor reproductive performance in sheep?

Comment:

A number of members agreed with the statement but expressed caution in their reply since they thought that the profession had little information on subclinical disease in sheep on which to base any worthwhile opinion. Others disagreed with the statement because:

a. Subclinical disease was most frequently expressed as a component of the failure to achieve target body weights.

b. Parasitism was considered to be very important particularly in lambs and hoggets and the suggestion was made that worm burdens should be monitored using faecal egg counts.

c. Chronic subclinical diseases such as facial eczema or periodontal disease could be important in some localities and in some seasons.

d. Some infectious diseases often went undetected e.g. Brucella ovis, gram negative pleomorph infections of the male genital tract, infections by the BVD/hairy shaker agent in some flocks.

e. Toxic agents could also be important, e.g. lucerne and other pasture legumes that contained phytoestrogens and which consequently interfered with reproduction. 'Ovine white liver diseases' is another condition that can be insidious and which may be caused by a pasture toxin.

Question 5:

Can all the parameters discussed by Dr Quinlivan in his paper be readily obtained? Which of these are the most important?

Comment:

There was general agreement that it would not be possible to obtain accurate figures on all the parameters outlined. The following were considered to be the most important:

a. Ewe deaths. Farmers would probably only have approximate figures for ewe losses particularly where the farm was an extensive or undeveloped property. However, many would have information on ewe numbers from shearing and crutching (these should be accurate where the farmer pays for the work) and also after age drafting of sheep in January. From this information a reasonably reliable estimate could be obtained.

b. Dry/dry ewes. This parameter would be difficult to obtain on many properties. These ewes can be easily confused with both aborted ewes (particularly early losses) and wet/dry ewes. Dry/dry ewes can most easily be estimated on udder appearance at lambing. As an alternative, dry/dry ewes could be picked out at the end of mating by using a harnessed teaser ram. (It was noted, however, that many ewes marked by an active teaser may still be in lamb). Each property needs to establish a standard for dry/dry ewes - this depends upon the period over which the ewes are to be mated.

c. Ewes which abort. Small numbers of abortions can be difficult to detect unless there has been an abortion storm. Total abortions, and their cause, are difficult to estimate without a detailed neonatal mortality investigation.

d. Percentage ewes which lose all or some of their lambs. This data can be difficult to obtain but a reasonable estimate can be attempted by separating the dry/dry ewes from the wet/drys by udder palpation.

e. Percentage lambs survived. Total lambs born can be estimated by adding the slink skin tally to the number of lambs docked. % lambs surviving = lambs marked x 100/total lambs born.

f) The percentage of ewes which lamb singles and multiples are important figures that
g) can be calculated from docking tallies.

There was considerable disagreement in respect to the relative importance of these parameters. Some considered that the lambing percentage calculated at docking was the most important figure and that this was a figure that most farmers would know. Others concluded that the dry/dry ewes (b) and percentage of lambs which survive (e) were the most important factors and that the percentage of ewes which lose all or some of their lambs (d) ranked next. The percentage of ewes which abort was considered of least importance unless there had been an abortion storm.

In summary it was agreed that while all the parameters listed were important, careful checks on the reliability of the information were imperative. Investigating veterinarians should use records from previous seasons to help in dealing with problems, particularly records available from sheep and flock recording schemes where this could be obtained.

Question 6:

What are the important indicators that lead you to suspect nutrition is playing a major role in producing poor reproductive performance in a sheep flock?

Comment:

The following were factors which should precipitate an investigation of the flocks nutritional status

a. Small sized sheep.

b. Higher than expected numbers of dry/dry two tooth ewes in a flock.

c. Spread lambing.

d. Poor hogget growth rates.

e. Requests from farmers for medicaments such as mineral drenches.

f. High incidence of dystocia.

g. Low money return into the property per stock unit, i.e. reinvestment/stock unit.

h. Low relative fleece weight.

i. Low body weight.

The weighing of all classes of sheep will give the best indication of suspect nutrition; farmers should be encouraged to weigh sheep to try and achieve target weights. Two particularly important weights were considered to be weight "off shears" and pre tupping weights. Ewes could also be condition scored. It was considered that veterinarians should be able to use this technique and be able to teach farmers.

Other local factors including teeth wear, stocking rate compared to other farms, size of farm, soil type, trace element possibilities and parasitism were also considered to be matters which should be evaluated in respect to the factors outlined above.

DISCUSSION ON CASE STUDY PRESENTED BY A.N. BRUERE

The three groups requested to consider this case study, commented as follows:

a. The problem had been well defined with an 82% lambing and low hogget and ewe body weights. Both the parasitism and cobalt deficiency required treatment and this had been instigated.

   While the groups accepted the importance of the financial considerations as presented they suggested that stocking rate per hectare could be profitably considered in relation to dry matter production per hectare for that class of country. Furthermore, although the range of examinations and number of necropsies, blood and faecal samples were adequate for a first visit, a second series of livers should have been taken after the anthelmintic treatment but before cobalt topdressing for an additional assessment of vitamin B12, and hence cobalt, status.

b. The groups were in agreement with the recommentations made for drenching the ewes prepartum, selling the wether hoggets, the use of cobaltised superphosphate (provided post anthelmintic liver vitamin B12 estimations indicated a requirement), the purchase of weighing scales and the carrying out of faecal egg counts.

   In addition it was felt that vitamin B12 might have been used to overcome the cobalt deficiency anorexia more quickly; tupping management and tupping and lambing records should be investigated and, in consultation with a MAF Advisor, overall grazing management as well as sheep/cattle interaction should be looked at in an effort to maximise pasture dry matter production.

Professor Bruere's reply:

farm moving, and after the diagnosis of cobalt deficiency was made in July, cobaltised superphosphate was applied by September. The cobalt problem was difficult to diagnose; cattle showed no signs but the hoggets had obviously grown poorly in their first year. The use of either cobalt or vitamin B12 was not considered,

a. Because of the short duration of action using this type of therapy and,

b. Because the hoggets would be unlikely to respond in mid winter.

Andrews has noted that the damage in cobalt deficiency is done at an early stage in the animal's life. He doubted that a trial could have given a similar result. Hogget trials can be misleading and cobalt trials cannot be done in winter. Since superphosphate topdressing was to be carried out anyway it was simple to just add cobalt.

DISCUSSION ON CASE STUDY PRESENTED BY D.M. WEST

The three groups requested to examine this case study, commented as follows:

While agreeing that the problem had been defined as far as possible at the current stage of investigation, and that the conclusions drawn were justified on the evidence presented, a number of additional factors should have been considered, notably:

a. A cash balance should have been presented and the farmer's objectives outlined. An economic analysis may have indicated that sale of 'Cast for Age' ewes would have given a better return than their retention as a means of improving lambing percentage.

b. The brucellosis status of the rams should have been examined using the complement fixation test.

c. Careful prelamb feeding could have been considered to reduce the incidence of dystocia.

d. The lack of information to justify the use of selenium pretupping.

e. The hoggets could be weighed in April and October with the objective of reaching target weights that would enable more two tooth ewes to be successfully mated.

f. Because hogget mismanagement may have been important in this case the desirability of culling dry/dry two tooth ewes could be questioned.

g. The advisability of a pretupping anthelmintic drench might be questioned - improved grazing management for parasite control could be a better approach.

h. An effective mating date should be established e.g. when 90% of a group of mixed age ewes are cycling.

i. Selection of twins was considered to be impractical.

j. Ewes might be examined for udder soundness after weaning.

Mr West's reply:

a. The farmer's objectives were quite clear when he approached us about the problem. He wanted more lambs from his ewes. Although a cash balance is used by us and found very useful in helping solve some problems, I do not consider that it would have been of benefit in this case. The farmer was 'well off' financially but still wanted to know why his flock was not performing to expectation. I doubt the claim that there may be more profit in selling older ewes rather than consider their retention since one of the biggest costs in the industry is the rearing of replacements.

b. As a general rule the brucellosis status of ram flocks should be established by the use of the C.F. Test. This was not done in this investigation because of:

i. The absence of palpable lesions of epididymitis in the rams when examined, and a problem-free history.

ii. The rams were to be joined with the ewes the day after examination making it impossible to obtain a result before joining.

c. Advice on prelamb feeding of the ewes was given to the owner. He realised that there was a dystocia problem and made every effort to keep the level of nutrition down without precipitating pregnancy toxaemia.

d. Although we did not know the selenium status of this flock the farmer was advised to use selenium pretupping because:

i. Large areas of New Zealand are selenium responsive.

ii. Selenium affects fertility which was the problem that we were investigating (there was a history of 12.5% dry/dry two tooths the previous year).

iii. Results of selenium analysis of blood or liver could not be obtained before tupping because of lack of time.

iv. Selenium is cheap and safe when administered properly and allows this 'variable' to be eliminated from the investigation. While some may consider that selenium trials can be used in this situation I would emphasise that these are frequently impractical. To measure 5% differences in ewes lambing for example, you require about 500 ewes in each treatment group to obtain significant results using the "Chi square" method of analysis. Much time and effort has been wasted in the past on pointless selenium dosing trials to attempt to measure differences in lambing percentage to the exclusion of an overall appraisal of the problem.

e. Regular weighing of hoggets is very useful but was not incorporated because the 1976 hoggets were progressing very well and on visual assessment were well up to target weights.

f. I consider that culling dry/dry two tooths is a sound practice because their <u>lifetime</u> production has been shown to be lower.

g. There are few practical opportunities for controlling internal parasites by improving grazing management on a farm where the cattle numbers are so low, relative to the sheep. I consider that when investigating and correcting problems of low lambing percentage all gains (albeit small) are important. Faecal egg counts have been shown to be useful predictors of responsive flocks (Lewis, 1975).

h. For optimum mating dates we use information from the local district coupled with the Romney survery data on latitude and altitude effects.

i. As mentioned during my presentation the identification of twin lambs was only suggested to the farmer and at the time considered impractical. Gains in fertility would only be small compared to the labour requirements.

j. The examination of ewes for udder soundness is a sound management practice especially if mastitis has been a problem in the flock. There was no evidence that this was so in this case.