WHERE WE ARE AT IN SHEEP BREEDING

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INTRODUCTION

The central flock concept which had served the writers well for 20 years is being replaced with the new technology of sire referencing. Sire referencing became available to the sheep industry through recent advances in AI and recording and data processing technology. Sheeplan had been a within flock selection tool only and fitted in with the central flock concept where top ewes were gathered into one flock and compared in one environment. Animalplan along with BLUP technology allows for animal performance to be compared across flocks through the use of link sires.

SIRE REFERENCING

The writers have pooled their animal breeding resources through a Massey University based sire referencing scheme under the direction of Dr. Dorian Garrick and Prof. Al Rae. Ultimately, the Massey scheme will rank animals for maternal characteristics as well as paternal, and will rank all ewes in participating flocks.

Participating flocks will test their best two-tooths as home sires, and use sire referencing to link progeny test results. The best tested sires will later be used as link sires across flocks and for the production of the next generation of improved rams.

Although it is recognised that AI offers an excellent means of effecting the use of link sire in a sire referencing scheme, the writers have so far managed to avoid the additional cost and work involved with this method. One of the properties happens to have a block on early lambing country, thus the link sires are used for the first mating cycle on this block and then go to the other properties for the rest of mating. Natural mating is preferred because it allows large progeny groups to be obtained from link sires at low cost. AI will probably be used to aid this system when and as required.

TRAITS REFERENCED

(i) Fleece weight The writers believe that their ram breeding flocks must thrive in commercial conditions i.e. ram breeding should not require a low stocking rate. They are thus looking for sheep which can produce high fleece weights under ordinary commercial conditions.

(ii) Fertility The animal based sire referencing scheme is able to identify rams with high fertility and survival characteristics in their progeny. Again an important aspect is that sheep are run in a normal commercial environment.

(iii) Lean Meat Weaning weights, winter weights and fat depth measurements are being used to rank sires for their lean growth potential. Some of the flocks are also grading ram hoggets for muscle rating to improve eye muscle area and dressing out percentage.

ADDITIONAL TRAITS

In one flock, selection has been carried out since 1975 for improved tooth wear, and this has resulted in the productive life of breeding ewes being extended in the flock by approximately one year.

The writers have extended their selection procedures to include several important diseases. They are mindful that selection for too many traits weakens the selection pressure that can be applied to each trait. The decision to include new traits was deemed feasible only because of the 30 to 40 years of intensive selection that has already been carried out in these flocks for fundamentally important traits of fertility, survival rate and fleece weight, and because the flocks involved are large.

The disease traits chosen were facial eczema, footrot and internal parasites, all costly in their effect on the sheep industry.

(i) FE Young rams have been tested with sporidesmin dosing, since 1985, to identify those with natural resistance to the disease, and third generation tested sires are now being mated to ewes with a background of resistance. In some regions of the North Island this disease is decreasing productivity to the extent that resistance to it has become a priority amongst farmers in those areas.

(ii) Footrot In 1979 in conjunction with Wallaceville, trials were set up to scientifically assess all sheep, in one of the flocks to identify all types of foot conditions affecting or contributing to footrot. Over the ten year period that followed, these assessments were related back to sire groups and the incidence of footrot in progeny groups identified. These differences were exploited by using sires from resistant strains, leading to a high degree of resistance over the whole flock.

(iii) Internal Parasites Concern over worm resistance to the currently available drenches led to the decision to include selection for this trait into our programme. Naturally no progress in this area could be made while regular drenching was taking place. It was thus decided to withhold drenching from the young stock during the critical autumn months, something that has probably not often been done in a ram breeding flock.

Again Wallaceville came to our assistance and a joint venture programme was set up under the direction of Dr. Stewart Bissett and Dr. Alex Vlassoff. For the last two seasons all ewe hoggets (approx. 1000) were withheld from drenching during the early autumn. Live weights were recorded at the beginning and end of the period and faecal egg counts were taken twice during the final two weeks. These records were analysed on an individual basis, and also related back to sire groups. In 1989, 200 top ram hoggets were withheld from drenching, and three ram hogget sires with the highest weight gain (under the no dosing regime) and with the lowest egg count were immediately mated to the ewe hoggets from the previous year (now two-tooths) with similar records. By April or May next year we should know if a gap has opened up between the progeny of the selectively mated group and the rest.

RECORDING

Collection of data in the field has been enhanced on one property with the use of data loggers. These are pre-loaded with a list of ewes, and the machine beeps if an incorrect number is punched in. They are easier to use in wet, muddy conditions (than notebooks), and download direct to the computer. Body weights (at weaning and winter or spring) are loaded direct to the computer from electronic scales.

The writers are all operating with MAFTech's Animalplan recording scheme and some have their own P.C.'s. While some teething troubles have occurred, we feel that the system has enormous potential and, along with the technology of sire referencing, opens up great possibilities for progress in livestock breeding.