

Records of mating and lambing are being kept for a flock of 200 two-tooth ewes with the object of relating any occurrences of twinning, barrenness, and neo-natal deaths to mating data. Causes of lamb mortality will be determined, if possible. In addition, it is proposed to kill some 50 of the above ewes six or seven days after their first service. Observations are being made on the condition of the ovaries, and if possible the ovum (or ova) will be recovered and examined to see whether fertilization and cleavage appear normal. The reproductive tract of each animal killed will be preserved so that if any abnormalities of fertilization or implantation are noted an examination can be made for anatomical or histological abnormalities in the organs of the ewes concerned.

*Fecundity in Ewes.*—As part of the general programme for the investigation of fertility in sheep it has seemed desirable to establish how the fecundity of the ewe may be affected by selective breeding. To this end a long-term selective breeding experiment has been commenced. Three flocks of approximately 100 ewes each, with the same age distribution, have been selected:—

- (1) High-fertility Flock: Selected on basis of previous performance (or dam's performance in the case of maiden ewes).
- (2) Random Flock: Selected with no attention paid to previous lambing history of ewes or their ancestors.
- (3) Low-fertility Flock: Selected on similar basis to high-fertility flock, but in the reverse direction.

In the high-fertility flock all subsequent selection will be for a high incidence of twinning; in the low-fertility flock it will be for a low incidence of twinning. Within the random flock selection will be directed neither for nor against twinning, except in so far as this may occur by chance.

*Mammary Gland Development in Ewes.*—An investigation has been commenced on the normal growth of the mammary gland, the relationship of this to the gonads in each sex, and the nature of the growth produced by oestrogen treatment. Ewes were killed at monthly intervals during the last three months of pregnancy, and two male and two female foetuses, as well as udders of ewes in their first pregnancy, were obtained at each stage. Normal male and female lambs were killed at monthly intervals from birth to four months. A further series were de-sexed and/or implanted with stilboestrol tablets before they were five days old. These were ultimately killed to provide two examples of each treatment at the ages of two months and four weeks. Mammary glands and reproductive organs were collected in every case. From the weight and gross appearance of the organs it is apparent that stilboestrol treatment had a noticeable effect, but detailed histological data are not yet available.

*Deaths in New-born Lambs.*—Preliminary investigations have been continued. Properties were visited in Hawke's Bay, Gisborne, Waikato, and the King-country. Recorded losses on the properties investigated ranged from 5 per cent. to 15 per cent. In some cases there was evidence that a proportion of the lambs were premature, but the problem was shown to be essentially one of still-birth and death within twenty-four hours of birth rather than of abortion. Over one hundred dead lambs, representing all districts visited, were examined. The lambs ranged in weight from 4 lb. to 16 lb.; approximately half had breathed, some of these having only partly aerated lungs.

*Infertility associated with Subterranean Clover.*—Reports from Australia on infertility of ewes grazing almost pure swards of subterranean clover prompted an examination of such pastures in New Zealand. No reports of low lambing percentages have been received, and provided a reasonable percentage of grass is maintained in subterranean-clover pastures no trouble need be anticipated. However, samples of subterranean clover from different districts are being assayed to determine if this plant could become dangerous under New Zealand conditions.