

- (e) Progeny groups showed significant differences in carcass conformation each year.
- (f) Considerable practical difficulties existed in applying progeny-testing even in its simplest form; these were associated with the number of paddocks required for paddock mating and lambing in sire groups; low fertility levels under individual paddock mating conditions; difficulties of allowing for twins in small sire groups; inefficiency of lamb-fleece weight as an index of subsequent fleece weight; disadvantage of keeping wether lambs past the lamb stage; practical difficulties in testing of ram lambs; increasing age of sires if their worth is to be judged on two-tooth characters; labour required in recording necessary data and in analysis of these.

*Inheritance of Count.*—In this experiment extremes of “count” in both ewes and rams were used in selective matings over two seasons’ breeding operations. In neither year did selection of rams for strong or fine wool produce any significant effect on the count of their progeny; comparisons for ewe groups are awaiting analysis of count data for the hogget fleece.

*Inheritance of Carcass Conformation.*—Sufficient data on the Southdown-Romney cross are now available to suggest that in fat-lamb breeding a small difference exists in favour of the short-legged ewe, but that this difference is too small to be of any commercial significance. The problem of inheritance in the straight Romney is more confused owing to the greater variation that exists and the problem of ram individuality. Selected groups of good- and poor-carcass ewes were bred this last season to a pair of closely related intermediate-type rams with similar performance records under progeny test for carcass quality. The dams have already been slaughtered and carcasses measured, and their offspring are to be killed at a standard weight of 90 lb.

*Influence of Ram on Carcass Quality of Fat Lambs.*—A repetition of last year’s work was carried out to obtain a measure of seasonal influence on the progeny of each of the eight fat-lamb ram breeds under study, the same sires being used as in the previous season. The sires have been replaced for the current season to overcome any individuality problem. No critical analysis will be attempted or conclusions drawn until all results are to hand, but it is obvious that the Southdown cross is pre-eminently suited for the present fat-lamb export trade in regard to quality.

*Nutrition of the Breeding-ewe.*—As a background to experimental studies on ewe nutrition, an examination of live-weight changes of breeding-ewes from a month before tupping until two months after the completion of lambing has been carried out, using approximately 1,700 ewes. The work aims at determining whether live-weight changes during the two to four weeks before tupping affect the fertility level and whether subsequent changes are related to ewe losses during pregnancy, lamb mortality, and milk-production in the ewe. A considerable amount of data has been secured and is now in the process of being analysed.

*Sterility in Two-tooth Breeding-ewes.*—Of the 100 two-tooth and 26 four-tooth (with records of barrenness) under observation, 27 per cent. of each group proved empty. Of these empty ewes, only 2 (8 per cent.) of the two-tooths were never seen on heat, while 42 per cent. came on heat only once. Among the four-tooths, comparable figures were lower.

Fifty per cent. of each group lambed to first mating. For ovulation observations, 28 operations were performed on ewes shortly after their second, and, in some cases, also after their third, heat period. Only in 1 case had ovulation failed to occur, so that the results indicate that failure to ovulate is not an important cause of sterility, at least in animals that come into season more than once.

An attempt to increase the fertility level of two-tooth ewes by the injection of a hormone (gonadotrophin) at two different levels before heat was not successful.