

The AI stud is a seed reservoir which has a vital bearing on the growth in quality of the commercial herds because it contains proven bloodlines of many breeds. For this reason dairy sire appraisals, instituted as an adjunct to ROP and sire reports, have become an essential part of dairy ROP. Sire appraisal is based on contemporary comparisons and a bull is rated only when he has a minimum of 20 effective daughters to his credit. These reports on sires are of considerable significance to both the AI industry and to the breed associations. They rate bulls of each breed on the average performance of their daughters compared with the performance of contemporary cows in the same herd but from other sires. The identification of plus-producing and minus-producing sires from these ratings permits identification of the superior and inferior sires.

Beef Cattle.—Although the ROP program for beef cattle has been in effect for only ten years, it has already proved to be a sound means of identifying the performance traits of greatest economic importance to the beef industry. Beef cattle testing is carried out as a joint federal-provincial program with the guidance and co-ordination of the Livestock Division of the Department of Agriculture's Production and Marketing Branch. Performance testing seeks to measure the ability of breeding stock to perform in all traits of basic economic importance; in the case of beef cattle this includes reproduction efficiency, longevity, gainability, feed efficiency and carcass value.

Testing is carried out at three levels: the federal-provincial ROP herd test program; the station testing of individual bulls and sire progeny groups of bulls; and the beef sire progeny testing through the performance test and carcass appraisal of steers. The second and third levels come under the recently established Canadian Beef Cattle Test Station policy.

The basic objective of the *herd test program* is to identify those sires and dams that have a high rate of reproductive efficiency, and progeny that demonstrate above-average ability to make rapid and economic gains. In this manner, future herd sires and replacement females are positively identified as well as the dams and sires that should be removed from the herd. In the 1965-66 test year, approximately 10,500 calves were tested in 330 herds representing all but two provinces, the number being approximately 11 p.c. of all beef calves registered in 1965; this record may be compared with that of 1956 when a total of 341 calves from 15 herds in three provinces were tested. The federal Livestock Division co-ordinates the program and compiles and issues the results. The provincial governments provide the extension and supervision required to operate the program within each province. Ontario operates its own provincial herd testing program.

The second year of *beef bull station testing* under the ROP policy was completed in 1966 with 700 bulls passing through stations in Alberta, Saskatchewan and Manitoba. Ontario operates its own testing program but the federal Livestock Division co-ordinates and reports the operations of all stations for the information and use of the industry. This form of testing supplements and complements the ROP test carried on within breeders' herds and gives a contemporary comparison of individual bulls or sire progeny groups of at least five bulls tested under uniform conditions.

Beef sire progeny testing through performance and carcass appraisal requires ten steer progeny and is designed for use by breeders participating in the ROP herd test. The test has been mainly used in the appraisal of sires for AI batteries. Since 1959 over 100 sires in AI studs have been tested through this program. Such testing represents the ultimate currently available in the assessment of beef cattle performance traits. It is by far the most expensive form of testing and therefore needs to reflect the activities carried out in the less expensive procedures of herd testing and station testing of bulls. A great deal can still be done through the progeny test to appraise the value of sires in breeders' herds in comparison with those in use at the AI centres. Beef sire progeny testing is at present carried out only in British Columbia and Alberta.

The progressive livestock farmer who applies these proved testing procedures assures himself of a larger income and the nation of a higher beef and milk productivity.