the low conception rates of 1944–45, a pilot experiment involving 272 cows was organized in town-supply winter-milking herds handy to Ruakura. Approximately equal numbers were inseminated by the uterine and by the cervical technique. The same semen was used to an equal extent for both systems, and all other conditions were standardized. Results were equal to natural mating and are as follows: cervical, 104 conceptions from 173 inseminations (60·1 per cent.); uterine, 95 conceptions from 153 inseminations (62·0 per cent.).

There was no difference in conception rate for semen used at three different ages—0–4 hours, 16–20 hours, 24–28 hours. The good results obtained by the cervical system are well above expectation and might be due to the short heat periods which appeared to be typical in winter, resulting in ovulation being more closely related to heat than in spring- and summer-breeding cows.

During spring the main experimental group of 1,302 cows in 18 herds was handled in the same way. Farmers were asked to provide their whole herds for a minimum period of one month. Many carried on for a longer time and some for the whole mating period. In the first six weeks 1,462 inseminations were given and 71 per cent. of cows mated were in calf after this period. During the first month both methods were used to an equal degree, and at the end of this time the following results had been obtained: cervical, 270 conceptions out of 577 inseminations (46·9 per cent); uterine, 383 conceptions out of 604 inseminations (63·5 per cent.).

The work was done with a team of 5 proven sires working on a five-day collection rota, supported by a team of 5 yearling sons of proven sires from Lifetime Merit Register cows. These latter were mated with sufficient cows in the group to give a progeny test in due course and is one of the methods adopted to ensure a supply of proven sires for such work. The value of different methods of laboratory examination of semen for estimating fertility of a bull will be investigated from the data obtained.

The season's work has shown that results comparable with natural mating are possible with the uterine technique, but that the cervical technique gives results that are not good enough for commercial use. Its efficiency might be improved by increasing the dose, but this would defeat the main purpose of artificial insemination of increasing the use of a proven sire. In fact, a higher dilution than that used at present is necessary if artificial insemination is to be extensively employed in New Zealand.

The added experience of the year leads us to the opinion that two factors—(*a*) the short breeding season, and (*b*) the extreme shortage of proven sires of high fertility, together with the probable need to use the uterine technique—make it likely that previously held ideas of herd improvement through artificial insemination on a national scale will have to undergo considerable modification. In particular, it is felt that these limitations mean that the system might contribute more effectively to the efficiency of the national herd by its use with pedigree rather than with grade cattle. Such use would be more practicable in terms of available bulls, numbers of cows, and technique, and would aim at lifting herd efficiency by providing large numbers of sons of proven sires for use in commercial herds by natural mating. Under the first scheme a proven sire would mate with 600 cows during his artificial insemination life, contributing thereby approximately 250 daughters to the industry. The same bull under the second scheme would leave 150 selected sons, which, mated each with 90 cows during a three-year life, would contribute 6,000 granddaughters to the industry. It might be re-emphasized here that, contrary to the position in overseas countries, our interest in artificial insemination is solely as a herd-improvement measure, and not as a method of replacing the bull on the farm.

Next season's work envisages an attempt to increase the coverage per bull by increasing dilution rate, using again a winter "pilot" experiment and a spring "main" experiment, together with an attempt to investigate the possibilities of extending the method on pedigree cows of the Waikato. For the latter the co-operation of the stud breeder is essential.