

Observations have shown that the best results are obtained only when penicillin is used in the early stages. This makes it important to have penicillin available in a form which can be used safely by the farmer himself. Two preparations have been tried. Results are quoted for a patent preparation in which penicillin is incorporated in a solid stick of soluble wax which is inserted into the teat. Another promising preparation is one in which the penicillin is incorporated in a paste enclosed in a small collapsible metal tube with a nozzle which can be inserted into the teat, thus enabling the paste to be squeezed into the udder. Although detailed figures are not available for this latter preparation, it has been tested by a number of veterinary surgeons with excellent results. It is hoped that one or both of these preparations will be available in adequate quantities for the coming season.

Control Measures.—Two seasons' results are now available on the testing of control measures based on segregation, disinfection, and treatment at Ruakura. At No. 1 dairy 44 cases of mastitis occurred in 137 cows during the current season, as compared with 24 cases in 93 cows the previous year. The picture this season has been complicated by the addition to the herd of 24 purchased pedigree cows, 2 of which calved with infection and 2 of which developed mastitis later. At No. 2 dairy 4 cases occurred in 93 cows, of which 48 were first calvers. The previous year 9 cases occurred in 79 cows, of which 47 were first calvers.

No. 1 herd thus continues to suffer a fairly high incidence, while No. 2 herd shows a reasonably low figure.

Contagious Abortion.—Vaccination continues to give excellent results. The following records for cows vaccinated as calves include all calvings up to the end of the 1946 season: 67,974 first calvings, 2.9 per cent. abortions; 23,420 second calvings, 2.4 per cent. abortions; 10,064 third calvings, 2.2 per cent. abortions. In these herds during the season immediately preceding that in which first-vaccinated heifers calved, 19 per cent. unvaccinated two-year-olds and 7 per cent. unvaccinated older cows aborted. In an examination of bloods from vaccinated cows which aborted, 42 per cent. gave negative results. It would therefore appear that vaccination has reduced contagious abortion to less than 2 per cent.

In a trial in which the injection of 1 c.c. of vaccine into the tail was compared with the injection of 5 c.c. subcutaneously, the results obtained from the tail inoculations were not quite as good as those from the subcutaneous method, which will therefore continue to be used.

Trichomoniasis.—Sterility and early abortion in dairy cows due to the protozoan parasite trichomonads has been known to exist in New Zealand for a number of years. During the past few years there have been an increasing number of outbreaks showing the characteristic symptoms of trichomoniasis, but it has not been possible to discover the organism. Recently, however, improved technique has enabled definite diagnosis of the disease in a number of dairy herds and also in two beef herds. Control measures depend on destruction of infected bulls and periods of two to three months of sexual rest for cows. This should be relatively easy in dairy herds, but may prove very difficult in beef herds in hill country, where cattle are not under close control.

Johne's Disease.—Preliminary investigations have been commenced with a view to the possible use of a vaccine for the control of Johne's disease.

Thistle Poisoning.—By means of feeding experiments carried out in Hawke's Bay, the toxicity of variegated thistle (*Silybum marianum*) to cattle was confirmed. Material containing 13.1 per cent. to 14.4 per cent. of potassium nitrate on the moisture-free basis was toxic, while that containing 1.4 per cent. to 4.1 per cent. was harmless.

The high- and low-nitrate samples were collected at the same time from two different farms only a few miles apart, and thus it can be concluded that climatic conditions are not a factor affecting the level of potassium nitrate in this particular plant.

It was significant that the experimental animals did not relish the thistles, but had to be starved on to them.