

Over the past four years 177 such cows have been examined. These have all had three or more inseminations artificially, followed by one or two natural matings, before being culled as empty. The following summarizes the findings:—

Diagnosis.	Number.	Percentage.
(1) Luteal cysts	6	4.6
(2) Cystic ovaries (no luteal tissues) ..	7	5.4
(3) Bursal adhesions	3	2.3
(4) Cystic fallopian tube or salpingitis	4	3.1
(5) Advanced tuberculosis	2	1.5
(6) Pyometra	1	0.7
(7) Recent abortion	2	1.5
(8) Anoestrus	1	0.7
(9) Endometritis	14	10.7
(10) Normal	92	70.7

The outstanding finding was that in 70 per cent. of the cases there was no noticeable abnormality. For this reason they have been classified as "normal." Future work may be able to provide more accurate classification of these. The classification "endometritis" included all degrees of this condition, and it is considered that a high proportion would have returned to normal in time or with suitable treatment. Only those cases classified under the headings (1) to (6) can be considered as likely to be sterile in the true sense of the term. On this basis, approximately 80 per cent. of the cows which have failed to conceive in these herds are apparently not sterile. This figure is practically the same as that found by the Herd Recording Department of the Dairy Board as being the percentage of cows that conceive of those carried over empty from one season to the next.

Johne's Disease.—A field experiment to determine the value of vaccination of calves on infected dairy-farms in giving protection against Johne's disease was started last year. One hundred and thirty-nine calves on seven farms in the Taranaki and Waikato districts have been vaccinated. A number of years must elapse before the results of this experiment will become available.

Ketosis and Grass-staggers.—To determine the role of underfeeding in the production of these diseases, recently-calved cows were grazed on small breaks of fresh, short, early-spring pasture and in another experiment in a later stage of lactation on a hard-grazed small paddock of early summer pasture.

In both experiments a mild ketosis (maximum blood ketones, 25 milligrammes per cent.) and a moderate to marked fall in blood magnesium (several cows below 1.4 milligrammes per cent., minimum 0.5 per cent.) occurred following underfeeding, being most pronounced in the recently-calved cows. In several cases the degree of ketosis and hypomagnesaemia was equal to that seen in naturally-occurring cases of ketosis and grass-staggers in which blood ketones are above 16 milligrammes per cent. and magnesium below 1.4 milligrammes per cent. Symptoms of grass-staggers were not observed, though slight generalized muscular tremors occurred in one cow.

The more pronounced degrees of ketosis and hypomagnesaemia were seen in the underfed cows, which continued to produce above 1 lb. butterfat per day at the expense of their body tissue reserves.

To determine the effect of milk-production at the expense of body tissues without dietary restrictions, recently-calved cows were dosed synthetic thyroprotein in the form of iodinated casein at the rate of 36 grammes per 1,000 lb. live weight. Normally-fed cows showed a marked fall in serum magnesium from an average of 2.4 milligrammes per cent. to 1.7 milligrammes per cent. after only three daily doses, and a slight ketosis