

The reason why bulls become low in fertility is not known. In some cases high protein feeding has been considered a possibility, and in one case of such nature the bull when put on poor pasture was able to get 93 per cent. of 43 cows in calf as against 13 per cent. the year before. However, in the third season the bull got two cows in calf out of twenty-four, and he has been discarded. The one season's results is nevertheless felt to be significant. Unfortunately the dairy-farmer is not in a position to put his bull on poor pasture, but he could feed grain meals to assist in widening the ration. In other cases of low fertility infection has been suspected, but a considerably greater amount of work is desirable in this direction before the question of temporary sterility can be considered settled.

Mr. W. M. Webster has, with a view to using the information on sterility experimental work, tried artificial insemination of ewes in the Wallaceville flock. The method is simple and as reliable as ordinary ram service and could easily be utilized by farmers if they wished to do so.

MASTITIS OF DAIRY COWS.

Considerable work involving the examination of very large numbers of milk samples was undertaken for the year, and, apart from routine examination in connection with the mastitis-control scheme, several thousands of samples were put through a variety of tests, leucocyte and bacterial counts, to further verify that the method of examination being adopted for the control scheme—viz., leucocyte assessment of gravity cream—was a fair test compared with any other tests which could be applied. In a paper presented to the veterinary faculty of the Melbourne University this and previous work has been tabulated and shows—(1) The method of sampling of milk from the cow gave comparative results, (2) the method of smearing for examination gave comparative results, (3) the assessment and actual counts were in agreement, (4) the organisms depending on numbers and depending on toxicity of the type present induced definite leucocytic reactions which were comparable, and (5) leucocyte assessment agreed or was superior to indicators, chloride, catalase, sediment, and bacterial plate tests.

The control scheme is believed by farmers practising it to be efficacious in enabling control of the disease to be exercised. Up to the present enough comparable herds have not been under trial for a sufficiently lengthy period to evaluate the effect of the scheme on a statistical basis. However, the farmer particularly appreciates the fact that he can use better judgment in culling cows seasonally.

Examination of figures throughout the mammitis-control scheme shows that more or less acute mastitis in herds at any one time is in the vicinity of 10 per cent. to 12 per cent. on the average.

During the year the percentage of cows which showed acute mastitis during the season was 23 per cent. in forty-eight herds, but only 6·4 in heifers in those herds. Quarter samples showed that at any one time 20 per cent. gave a high leucocyte count. Mr. Webster has been able to carry out cultural work on a herd commencing as heifers, and his results after a few seasons' work should be of value. A second herd commencing as heifers was able to be immunized experimentally against cowpox, and at the end of the first season the state of the udders of this herd was much better than is generally seen in Taranaki, no cowpox having been seen during the season. Only two quarters had shown streptococcal infection in this herd during the year.

Mr. Blake has produced the following table (which shows the percentage of normal cows) from four herds which he supervises himself where there has been definite increase in absolutely normal cows. This is attained by culling and building up with heifers each season.

Herd.				1930.	1931.	1932.	1933.	1934.	Treatment.
				Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	
P.	..	..	..	24	53	52	59	67	Mammitis-control scheme.
M.	..	..	..	15	60	40	46	47	"
B.	..	..	..	..	48	48	59	63	"
K.	..	..	..	26	66	28	31	47	Vaccines only.

Trials of entozon, azamine, and chlorine as curative agents and of vaccine as an aid to suppressing the purulent types of mastitis have been carried out by Mr. Blake, who is of the opinion that some good can be got from all these methods. In the hands of Mr. Webster rivanol and entozon were not of much benefit, while at Wallaceville rivanol was found to be at times successful in treatment, more particularly in dry cows.

Work on mastitis from a different angle than heretofore was tried at Wallaceville. It was thought that the udder was frequently not invaded by organisms which, however, appeared in large numbers in the milk, and that frequently large numbers of streptococci, for example, might be found in milk which was to the naked eye normal. A swab method of examination was therefore devised, plating on blood agar. This proved most useful and suggested that the leucocyte count was very largely connected with the flora (quantity and type) of the teat-duct, that portion of the teat enclosed by the sphincter muscle. In furtherance of this idea organisms of various kinds were placed by swab into the teat-duct and the rise of leucocytes noted. On occasion the organism as it establishes itself may get into the udder and set up acute inflammation of the gland, but as a general rule there was a rise in leucocytes only in the milk obtained by test-tube. There is a tendency in teat-ducts to have one type of flora predominating or even present in pure culture. The suggestion from this work is that many cows are carriers of streptococci, staphylococci, or other organisms which get established by accident in any one duct and, depending on the leucocytic response from the gland, mastitis may or may not develop. Leucocytic response observed in the milk suggests acute mastitis in many cases, but samples taken from the body end of the teat by test-tube rather tend to deny this condition. Confusion may therefore exist in differentiating mastitis from duct inflammation in simple leucocyte assessment. Such confusion does not matter in the control scheme, as one is thereby picking out carriers. Treatment of the duct by swabs dipped in antiseptic solution does on occasion clear up the flora and reduce the leucocyte count, but such treatment is as yet unreliable.

CONTAGIOUS ABORTION.

The number of blood samples received decreased considerably at Wallaceville but increased in Taranaki. No experimental work has been able to be carried out in this disease during the year. Several herds which have been negative for some time are being blood-tested from time to time. Two of these herds have allowed infection in through carelessness, and one of these already has had a serious abortion storm through buying in affected in-calf heifers.

Of the 601 guinea-pigs killed after inoculation with town milk-supplies 117, or 20 per cent., gave positive abortion lesions, while 148, or 24·6 per cent., gave a positive agglutination titre in their sera. Only 24 (4 per cent.) showed the organism by cultural method.