

## MASTITIS.

The work of several years, performed to find whether the scheme-grouping could be relied upon, was finalized during the year and put into the form of a thesis.

The immense amount of work carried out in connection with the routine examination of milk samples can be seen in the first table. Mr. A. E. Kidd, working in Hamilton, has kept farmers of the Waikato belonging to the control scheme interested and enthusiastic. He is to be congratulated on his work. In his annual report he has shown that the farmers in the scheme have been able to increase the number of their cows annually, probably as a result of the benefits derived from the scheme, in that culling has been considerably reduced. In the 1931-32 season the average number of cows milked in each herd was 50.3 per cent.; in 1932-33, 55.1 per cent.; in 1933-34, 58.8 per cent.; and in 1934-35, 62.2 per cent.

It is very satisfactory to note that the acute cases of mastitis in the scheme have dropped from 11.5 per cent. last year to 7 per cent. this year, and that normal cows have advanced from about 70 per cent. to 74 per cent.

The Ngakura herds under Government supervision have definitely improved since their entry into the grouping-system.

Mr. T. A. Blake, performing investigation work in the field, has shown that in his experimental herds, although a slight drop has occurred in his number of normal cows, yet such herds are still on a high level of efficiency this year, even though a number of old standing mastitis cases have been retained in the herds since 1930.

As far as the mammitis-control scheme goes, it has been accepted in the Waikato as a very useful aid in controlling mastitis. It is, however, impossible to make such a scheme New-Zealand-wide unless the factories take the matter up and appoint assistants to examine samples from suppliers regularly. It would cost a considerable amount for the Department to open up the necessary centres for the work. The scheme could do with more supervision by a specially appointed officer, and this might be borne in mind as the number of herds in the scheme increases. Apparently the Bureau of Animal Industry is taking up a somewhat similar method of control in United States of America, and intend paying compensation for condemned cows.

Mr. Blake has carried out treatment trials with some success in certain of them. With azamine and entozon results were not striking. With chlorine, however, ten quarters were successfully treated, while three resisted treatment. This chlorine treatment will require much more extensive trials this coming season, and if at all beneficial might be taken up by advisory departmental officers.

## STERILITY.

The work on sterility of a temporary nature has been carried on by Messrs. T. A. Blake in the Waikato, and W. M. Webster at Wallaceville. Further feeding experiments with rats on proteins have been carried out by Dr. I. J. Cunningham at Wallaceville. Mr. Blake has carried on with his seminal examination for morphological changes in bulls, and also in boars and stallions. His total classification figures over a period of years are as follows:—

Fertility.					Number of Bulls.	Average Percentage of Successful First Services.	Average Number of Cows served.
Good	..	..	..	..	87	69	36
Fair	..	..	..	..	56	55	37
Poor	..	..	..	..	55	41	32
Bad	..	..	..	..	53	29	30
Sterile	..	..	..	..	13	..	20

Some of the bulls have been kept under observation for three years. In order to gain more information as to the cause of the poor morphology Messrs. Webster and Blake worked together for some weeks. Mr. Webster has a method of collection of seminal fluid into a sterilized container which, although not perfect, gives a fairly reliable indication of the state of the semen from a bacteriological viewpoint. The sheath method has been used for bulls, rams, and boars and works satisfactorily. As a result of the bacteriological examinations, it has been found that certain bulls with a fairly good sperm morphology but producing few calves were affected with streptococci in a similar way to many bulls in Taranaki reported some years ago. Mr. Webster considers that in the Waikato, of the bulls he examined, those inefficient by reason of bacterial damage are as 1 : 2 of those inefficient by reason of some other factor. The reverse is true in Taranaki. It is suggested that this nonbacterial factor is a dietary one. The diet factor is possibly associated with the protein value of the pasture, and more work is planned to investigate this point. At present rats, boars, and ram lambs are being fed high-protein diets at Wallaceville, while cockerels and rats and boars are on a maize diet, which appears to be deficient in one of the amino acids necessary for the upkeep of the testes. We are as yet too short of the necessary information to advocate different pastures for bulls, but it is hoped to finalize that phase of the work in the coming year.

Dr. Cunningham has noted that sterility in males arises from high first-class proteins in the diet of rats and also when the protein is derived from maize, though with a wheat protein the rat remains normal. Atrophy of the testis occurs, but the growth of the rat is not interfered with in maize-feeding. With high-protein feeding growth is partially stopped. Females receiving both maize and high-protein diets remain fertile.

Sterility in sheep has also been the subject of investigation by Mr. Webster, and in his examination of seminal fluid he has noted that in the past tupping season the seminal fluid has been excessively alkaline while morphology was normal. Both Wallaceville rams suddenly developed sterility and finally failed to produce sperm for a short period. This was a common experience amongst sheep-farmers following the excessive drought conditions and the heavy flush of pasture shortly before tupping commenced.

The insemination method tried in the ewe flock at Wallaceville and mentioned in the last report was very successful, for 70 per cent. of the inseminated ewes held to first attempt, while to ram service 82 per cent. of the ewes held. The method is being tried by a prominent breeder with an imported ram.

## TYMPANY OF THE RUMEN IN DAIRY COWS.

Mr. Webster undertook a preliminary examination into bloat in dairy cows while material was available. A series of electrometric pH determinations were carried out by Mr. Josland, while Dr. Cunningham performed analyses of the rumen gases from normal and tympanitic cows. Dr. Cunningham reports that there is a wide variation in both normal and bloated cows in such gases as carbon dioxide, oxygen, methane, nitrogen, and hydrogen.