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Calfhood Vaccination Recommended

Contagious Abortion Losses Significantly Reduced

INVESTIGATIONS to determine the value of calfhood vaccination in reducing the losses from contagious abortion in New Zealand dairy herds have been conducted by the Department of Agriculture since 1941. In this article M. B. Buddle, Department of Agriculture, Animal Research Station, Wallaceville, shows that losses can be significantly reduced in this way, and recommends to dairy farmers the wide application of calfhood vaccination.

ANIMALS vaccinated in heavily-infected commercial dairy herds during 1942 completed their first pregnancies in 1943, and these results are summarised below:—

1942.		1943.	
Heifers Not Vaccinated. Number Mated.	Aborted.	Heifers Vaccinated. Number Mated.	Aborted.
420	135 32%	465	22 4.7%

Steep Reduction

Calfhood vaccination has been responsible for reducing the abortions in the heifers in 1943 to less than 5 per cent. in herds where 32 per cent. of unvaccinated heifers had aborted in 1942. A comparison of the abortion percentages of the unvaccinated mature cows in these herds in 1942 and 1943 revealed 9.7 per cent. and 13.5 per cent. respectively, which indicated that heavy infection had been successfully resisted by the vaccinated heifers in 1943.

In 1942 the Department of Agriculture initiated the scheme whereby calves could be vaccinated against contagious abortion at no cost to the farmer. The farmers who participated in the scheme were required to identify their heifer calves individually and to co-operate in furnishing returns so that the value of vaccination in reducing abortions on these farms could be reliably determined.

In 1943, 18,332 heifer calves in 1,160 herds were vaccinated, and the records of the first pregnancies of 10,725 of these animals in 815 herds last season are shown below:—

1943.		1944.	
Heifers Not Vaccinated. Number Mated.	Aborted.	Heifers Vaccinated. Number Mated.	Aborted.
11,268	2,494 22.1%	10,725	324 3.0%

The average abortion rate for heifers in New Zealand is 12 per cent., so in these herds where the incidence of abortions in heifers in 1942 was as high as 22 per cent. only 3 per cent. of the vaccinated heifers aborted from all causes in 1944.

Not all abortions in vaccinated heifers are due to specific infection with *Brucella abortus*. Blood tests conducted on a large proportion of the vaccinated heifers which aborted in 1944 revealed that 36 per cent. of these animals were not infected with the organism responsible for contagious abortion, so the abortions in these animals must be attributed to some other cause. On this basis less than 2 per cent. of the vaccinated heifers in 1944 failed to resist infection with the causal organism of contagious abortion and terminated their pregnancy with an abortion.

The results from the field investigations will determine the duration of the effective immunity against abortion of animals vaccinated as calves. In 1944 the results of the second pregnancies of the heifers vaccinated in 1942 became available. Only 1.4 per cent. of these animals aborted from all causes in 1944, thus demonstrating that the immunity induced by vaccination during calfhood was adequate to protect against abortion for at least two pregnancies.

Abortions from other causes than specific infection with *Brucella abortus* do occur in cattle in New Zealand, and against these calfhood vaccination cannot afford protection.

Disease-free Herds Quickly

The continuance of the wide application of calfhood vaccination in infected herds will render possible the gradual replacement of infected mature cows as they are culled for economic reasons by animals vaccinated as calves, and will establish in their stead herds of resistant disease-free animals in a relatively short space of time.

In clean herds calfhood vaccination is also advocated as a sound and safe procedure, as heavy losses in unprotected animals result when infection is inadvertently introduced into clean herds. *Brucella abortus* strain 19, the organism utilised for calfhood vaccination, has been shown to be incapable of establishing a permanent infection when inoculated into calves, and it is not secreted by vaccinated animals to menace human or animal health.

As the vaccine is a suspension of living organisms of attenuated viru-