

California's Brucellosis Vaccination Law

enacted as a public health measure, now in force

W. E. Maderious and C. M. Haring

CALIFORNIA'S first law pertaining to the control of bovine brucellosis became effective on January 2, 1948. The vaccination of all female dairy calves with *Brucella abortus* Strain 19 now is compulsory under the provisions of the new law.

The vaccination, which will be free of charge to cattlemen, may be extended to male dairy calves and all beef calves at the owner's option.

The age at which calves will be vaccinated under the state program has been fixed between limits of six and 12 months. This will permit the vaccination of all eligible calves on a given ranch by only two visits yearly, which will facilitate the execution of the program.

Plans

Present plans indicate that the actual vaccination and the identification of vaccinated calves will be carried out by accredited practicing veterinarians who will be furnished vaccine and reimbursed for their services by the State Department of Agriculture. No blood testing is provided for under the law as it exists at present.

Research in the use of Strain 19 vaccine has shown, during the past 12 years, that while vaccinated animals are usually not solidly immune to the challenge provided by exposure to virulent field strains of *Brucella*, they do show, under most conditions, a sufficient degree of resistance to protect a relatively high percentage from developing the infection.

In addition, there is evidence to indicate that even in those animals which become infected, the results of this infection are usually softened and not so severe as might be expected in the absence of vaccination.

Public Health Measure

In view of the growing importance of brucellosis or undulant fever as a human disease, the new law was intended primarily as a measure in the interests of public health.

This legislation was sponsored primarily by the dairy industry because of the knowledge that consumption of raw milk produced by *Brucella* infected cattle may serve to produce human infection. The control and gradual elimination of the disease in dairy cattle would be an important factor in lowering the incidence of human brucellosis, although it is known

that brucellosis may be contracted by humans in several ways other than by the consumption of raw milk contaminated with virulent *Brucella*.

Strain 19

Calfhood vaccination with Strain 19 has, on the whole, been satisfactory, perhaps even more so than expected. In some herds, for instance, the resistance produced by Strain 19 vaccination has been sufficient to completely eradicate *Brucella* infections. The accompanying table illus-

DEL NORTE COUNTY SUMMARY

Year	Total Cows Tested	Number Positive	Per cent Positive
1939	2698	797	29.5
1940	2958	1090	36.8
1941	3708	945	25.4
1942	3697	588	15.9
1943	2911	283	9.7
1944	2503	220	8.7
1945	2603	221	8.4
1946	2523	163	6.4
1947	2366	126	5.3

trates the progress made in brucellosis control in Del Norte County dairy herds. This field experiment, carried on by the Department of Veterinary Science of the University has been duplicated elsewhere when vaccination was conducted on an area basis.

While it has been shown that calfhood vaccination will serve to control and even eliminate bovine brucellosis in certain herds, research by University veterinarians has also proved that the resistance produced by Strain 19 vaccine can be overwhelmed by massive field exposure to infection.

Not all vaccinated animals will resist exposure. In some cases measures other than calfhood vaccination alone must be adopted to produce herds free from brucellosis. These supplementary procedures may include efficient sanitation and segregation of infected animals, or in some cases, the vaccination or revaccination of older cattle.

Age at Vaccination

Experimental work at the University has shown that the resistance produced in animals vaccinated at older ages is greater than that produced in cattle vaccinated when very young.

The vaccination of grown cows has therefore been recommended in certain cases, especially as an aid in controlling the damages produced by brucellosis in very badly infected herds. While this

adult vaccination seems relatively efficient because of the resistance produced in the vaccinated animal, it has the disadvantage of producing a positive blood test reaction which may last for a prolonged period or even for the life of the animal. Recently developed improved diagnostic methods may minimize this disadvantage.

Beef Calves

The vaccination of beef calves is optional under the new state law. While brucellosis usually is not a major problem in herds of beef cattle maintained under range conditions, Strain 19 vaccination has been very encouraging in controlling brucellosis in those beef herds where infection has been proved to exist.

In one large beef herd of approximately 2000 cows, positive blood test reactors have been reduced from 9.9% in 1940 to only 1.6% in 1946.

Goal of New Law

The hope of those persons administering the California brucellosis control law is that systematic vaccination will in time produce a cattle population relatively resistant to field infection. It is hoped that this resistance will at least reduce the incidence of brucellosis to such a level that the elimination of infected animals would become economically practical. The ultimate goal, of course, is the elimination of bovine brucellosis in California.

Since the most that can be expected from the vaccine is a reduction in the prevalence of the disease, its complete eradication will eventually require the slaughter of diseased cattle.

Such a program of slaughter, based on the results of repeated blood tests on all breeding cattle in the state, is considered unsuitable under present economic conditions but may become practicable after a low incidence of infection has resulted from several years of systematic vaccination of calves as now required by state law, beginning January 2, 1948.

W. E. Maderious is Junior Veterinarian in the Experiment Station, Berkeley.

C. M. Haring is Dean of the School of Veterinary Medicine, Professor of Veterinary Science, and Veterinarian in the Experiment Station, Berkeley.

Inquiries concerning this law and the dates when vaccination will be started in the respective counties should be addressed to the Division of Animal Industry, California Department of Agriculture, Sacramento, California.