

RECENT PROGRESS IN DISEASE ERADICATION IN CANADA*

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The most important problem facing farmers today is maintaining productive health in their flocks and herds. Productive performance in laying flocks and milking herds is proportional to the number of healthy animals. Only with vigour additional to the requirements of self-preservation can a profit of reproduction occur. Efficiency of production is at its peak when animals are healthy.

Even to-day, many owners accept the insidious losses resulting from such disease conditions as parasitism and mastitis. These losses can be prevented. If not controlled, they become liabilities and are an economic burden to the livestock industry. It is the job of the veterinarian to put the herd or flock on an efficient level of production and keep it there.

In considering efficient livestock production, I should like to deal with the part played by regulatory control in the prevention and eradication of disease. Regulatory disease eradication programs must be pursued on a long-term basis so as not to disrupt the livestock industry too drastically. The Tuberculosis and Brucellosis Control Programs are good examples of this.

TUBERCULOSIS

Today, all of Canada is a Restricted Area. Ninety-five per cent of the cattle have been tested, and the incidence of infection has been reduced to an all-time low of 0.14 per cent. The significance of this is fully appreciated when translated into the number of tests required to uncover a reactor. To-day, at this level of infection, we have to test 715 cattle in order to uncover one reactor. In the early years of the program, one reactor was uncovered, on the average, for every thirty cattle tested, and in heavily infected areas where the rate of infection was as high as 20 per cent, this figure of thirty cattle to be tested would be considerably lower.

We believe that, if our goal of total eradication is to be achieved, we must place a greater emphasis on the proper training of our field inspectors. This is no easy task. Years ago, we could provide excellent on-the-job training with the assurance that we would be able to demonstrate tuberculin reactions within a very short period of time. These conditions no longer prevail. To offset this lack of field training, arrangements have been made to have animals sensitized with killed tuberculin organisms for demonstration purposes at the veterinary colleges.

As we approach complete eradication, we are emphasizing two particular operations in our testing program. One of these involves the tracing of non-reactor cattle which have lesions of tuberculosis on post mortem. This tracing is possible through our ear tag distribution system. The other operation stressed

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is the tracing of movements from any herd in which we find reactors. All sales and purchases for the past two years are traced. All herds from which reactor animals originate and all animals sold for breeding purposes are submitted to a special test. By studying the epidemiology of reactor herds, we have uncovered residual sources of infection.

BRUCELLOSIS

In general, the livestock industry, and, in particular, cattlemen across the country have been very receptive to the program, and, with few exceptions, have co-operated in assembling herds for test. There have been a few irregularities observed in blood samples submitted for testing. These are the exception, however, and by and large, samples submitted for test are received in very good condition. Occasionally, irregularities in shipping specimens in poor shipping cartons, the use of dirty needles, or some other factor results in hemolyzed or spoiled samples being received at the laboratory. This, again, is the exception rather than the rule, and usually, by following up the incident through our sub-district office the condition is corrected.

Since the inception of the program, 32,690 reactors, involving 110,781 herds, have been identified under the program.

The incidence of infection has been somewhat lower than the estimate by the National Brucellosis Advisory Committee suggested. On a national basis, it was anticipated that a 4.2 per cent level of infection might be expected. To date, the level of infection on a per head basis is actually 1.06 per cent and on a herd basis, 8.51 per cent. Naturally, there are extremes within these figures.

The Federal-Provincial Calfhood Vaccination Program, of course, continues to supplement the national blood testing program. During the last fiscal year, 1,044,566 calves were vaccinated in Canada. This number represents approximately 65 per cent of the eligible calf population. Obviously, tremendous strides are being made in brucellosis control. There is still a long way to go of course, but, based on the results that have been achieved, there is every reason to believe that brucellosis can be eradicated by using the tools we have today; that is to say, calfhood vaccination as an adjunct to the test and slaughter program. Calfhood vaccination alone could not accomplish complete eradication of this disease. It offers partial control, but not eradication. At the same time the burden of an expensive vaccination program goes on indefinitely, and the disease continues to take its toll. Vaccination will reduce the percentage of diseased animals in an infected herd and slow down the spread of infection. In addition, it may moderate the symptoms in most vaccinated animals that contract the disease. However, vaccination alone cannot be relied upon to stamp out the disease in infected herds.

JOHNE'S DISEASE

A regulatory disease program introduced recently under the Animal Contagious Diseases Regulations was the Johne's Tested Herd Program. This is a program available to owners who are experiencing cattle losses suspected to be due to Johne's disease. We employ both the johnin intradermal test and the complement-

fixation serum agglutination test to detect infected animals. The former test relies on an allergic reaction and it is employed where an animal has been recently sensitized, but is not showing clinical symptoms. In the later stages of the disease, some animals may become desensitized and may fail to give a positive reaction when submitted to the intradermal test. Such animals usually demonstrate a large number of antibodies in their blood stream, and it is on these antibodies that the complement-fixation test is based. Briefly, then, during the early stages of the disease, the johnin intradermal test is used as a diagnostic agent, and as the disease progresses, the complement-fixation test is employed.

Reactor animals are identified by a positive reaction to one or both tests, and by the presence of clinical symptoms of the disease. Owners of infected herds where the animals are ordered slaughtered are compensated at the same rates payable for brucellosis and tuberculosis reactors. Specimens are obtained from reactor animals ordered slaughtered, and the correlation of animals identified by test with the recovery of the Johne's bacillus in specimens has been very high.

The program has been in effect approximately a year, and, to date, twenty-five herds, involving 2,823 cattle, are under supervision; 169 reactors have been slaughtered from these infected herds.

SCRAPIE

Considerable attention has been given in the past year to the control and eradication of scrapie. Scrapie can be defined as a chronic disease of sheep, and possibly goats, involving the central nervous system and characterized by nervous symptoms, such as itching and inco-ordination, terminating in paralysis and death.

In the early stages of the disease, there is a loss of bloom or condition of the fleece, with a slight alteration in the normal gait. Sometimes, animals are described as being clumsy, particularly in their hind quarters. The neck is held erect, the animal is slightly nervous, and the term "sharp sheep" is often used to describe these symptoms. Later in the course of the disease, itchiness commences and the animal rubs its buttocks and shoulders against posts or similar hard objects. This itchiness is often so intense that large areas of wool are rubbed off. Frequently, when an infected sheep is scratched over the lumbar region in a continuous manner a scratch reflex can be produced, with the animal extending and retracting its tongue in rapid succession. As the animal becomes progressively weaker, it is not able to stand and usually dies. All these symptoms are not always present, and the duration of the symptoms is extremely variable—from six weeks to six months may elapse between the initial indications of the disease and death.

In Canada, the first case of scrapie was diagnosed in 1938 in a Suffolk ewe imported from Scotland. The disease was established as a reportable disease under the Animal Contagious Diseases Act in 1945. In 1954, to prevent the introduction of scrapie into Canada from the United Kingdom, a Ministerial Order was signed to prohibit further importations. In the ensuing years, 16 infected flocks were identified and ordered destroyed. As of August 31, 1959, our program was revised, providing for the slaughter of infected flocks and also for the

slaughter of any animal moved from these infected flocks, together with their immediate progeny. This new program includes the slaughter of source flocks also, together with any sheep moved during the preceding 42 months from the date of the scrapie diagnosis, and their immediate offspring. By incorporating these new features, it is felt that the Canadian Scrapie Eradication Program will be made much more effective.

Since the adoption of this revised program last August, approximately 3,242 sheep have been slaughtered and compensation awarded to the owners.

RABIES

A review of the disease situation would not be appropriate without reference to rabies. Since April 1st to the end of December, 1959, a total of 471 cases have been confirmed in Ontario. These include 249 in wildlife, largely foxes, 198 in the domestic animal species, and only 24 in dogs. In this same period a year ago in Ontario, there were 1,974 confirmed cases, involving 1,028 in wildlife, again principally foxes, 894 in domestic animals, and 52 in dogs.

In June, 1959, arrangements were made with our Department, the Province of Ontario, and various municipalities to award owners of livestock which died from rabies indemnity or compensation. The amounts payable under this program are: cattle, \$250; horses, \$100; sheep, \$40; swine, \$40; and goats, \$40. No payment, however, can be made for any animal which has died unless the Federal Minister of Agriculture has received a certificate signed by a veterinary inspector stating that the animal died as a result of rabies. This co-operative rabies indemnification policy, retroactive to April 1st, 1958, provides that the Federal Government assumes 40 per cent of the cost of the indemnity payment, the province 40 per cent, and the municipality 20 per cent. Each county appoints its own evaluator who appraises the animal under the provisions of the indemnity program.

ERADICATION

Most of my remarks have dealt with policies and programs which fall into the category of regulatory programs. Let me distinguish, however, between a regulatory program, such as the tuberculosis and brucellosis testing programs, and an eradication program. We, in Canada, fortunately are free from many animal diseases which exist in other countries, and it is our policy that should any of these foreign or exotic diseases enter Canada it is better to eradicate them than to attempt to live with them.

The cost of disease eradication in Canada was most forcibly brought home to Canadians in 1952 when foot-and-mouth disease in Saskatchewan cost the Canadian Government just slightly less than \$1,000,000 in direct expenditures to eradicate it from our Canadian livestock. Markets to which Canadian livestock and agricultural products normally moved were immediately closed, and it has been estimated that the total drop in potential value following the 1952 outbreak of foot-and-mouth disease amounted to approximately \$648,278,000 as compared with a much higher potential in previous years.

Vesicular exanthema, which has never appeared in Canada, is another example of how a disease can influence the market value of animals. This disease at one time existed in 42 states in the United States. Canada imposed an embargo on swine and pork products from the United States, and the disease did not enter the country. The price of hogs, however, in the United States declined rapidly.

Similarly, the control of hog cholera demonstrates that it is cheaper to pay for freedom from a disease than attempt to live with it. Based on the current Canadian hog population of slightly less than 9,000,000 swine, it is estimated that it would cost Canadian swine breeders from \$6,000,000 to \$9,000,000 annually if a vaccination program were pursued. This is based on the approximate cost of \$1.00 per hog marketed to vaccinate against hog cholera as carried out in the United States. The total amount of compensation paid to swine owners for the control of hog cholera in the fiscal year, 1957-58, was only \$1,200, a small price to pay for the freedom from the disease.

Regulatory disease and eradication programs are not applicable in every instance. Many disease problems must of necessity be dealt with by the livestock owner in consultation with his veterinary practitioner. Your services, together with Federal regulatory schemes, are essential to maintaining an efficient and prosperous Canadian livestock industry.

PERSONAL NEWS

BIRTHS

Arnott. To Dr. and Mrs. J. R. Arnott of Brampton, Ontario, in June 1960—a son.

Findlay. To Dr. and Mrs. R. C. Findlay of Erin, Ontario, on June 12, 1960—a daughter.

Fisher. To Dr. and Mrs. L. D. Fisher of Barrie, Ontario on May 12, 1960—a daughter, Susan Kathleen.

Gardiner. To Dr. and Mrs. C. G. Gardiner of Dunnville, Ontario on March 10, 1960—a son, Donald Graham.

Greenway. To Dr. and Mrs. J. Greenway of Acme, Alberta on May 27, 1960—a daughter, Joan.

Machell. To Dr. and Mrs. W. Machell of Olds, Alberta on May 7, 1960—a son.

McQuinn. To Dr. and Mrs. L. E. McQuinn of Moncton, N.B., on March 3, 1960—a son, Donald Leslie.

Moore. To Dr. and Mrs. D. G. Moore of Fredericton, N.B., on December 29, 1959—a son, David Gordon.

MARRIAGES

Barnes-Jacobs. On Saturday, May 28, 1960 the wedding of Dr. J. William Barnes (O.V.C. '59) of Chicago, Illinois and Miss Carol Marie Jacobs of Buffalo, New York took place at Grace Lutheran Church in Buffalo. Dr. and Mrs. Barnes will reside in Chicago.

DEATHS

Carter. Mr. Ernest Richard Carter, third year student at the Ontario Veterinary College, died on June 20, 1960 of cancer. Funeral services were held on June 23 in Toronto.

Labelle. Le Docteur Edouard-Charles Labelle M.V. (1915) a decédé à Rivière-du-Loup, le 25 avril 1960 à l'âge de 68 ans.

Laughlin. Dr. Romy Reese Laughlin (O.V.C. '13) died on June 8, 1960 in Leesburg, Florida at the age of 68. Formerly of Chagrin Falls, Ohio, Dr. Laughlin was father of the late Newton C. Laughlin (O.V.C. '36), Roberta Laughlin Fitts (O.V.C. '45) and brother of Wesley M. Laughlin (O.V.C. '19).