

The test was not a complete success because none of the major blights, such as septoria leaf blight and late blight developed, neither in the non-sprayed nor in any other of the 42 plots. If it had been a year in which these destructive blights developed, as they often do, some of the sprays no doubt would have proved even more valuable. With only minor diseases to deal with the best spray, Zerlate gave an increase in yield of about 7 per cent. The next best spray, as shown by this test, was tribasic copper sulphate with an increase of about 3 per cent. The test does not indicate which fungicide would be most effective for the important tomato blights when the season is favorable for their development.

## THE STATE VETERINARY DIAGNOSTIC LABORATORY

By

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One of the functions of the Department of Veterinary Science of the North Dakota Agricultural Experiment Station is to act as a veterinary diagnostic laboratory. When use is made of this laboratory by veterinarians and farmers our reports furnish information which may be used by the state Livestock Sanitary Board in formulating policies as well as by the veterinarians and farmers in solving their immediate problems. It is more or less the general policy of the department to conduct research projects that fit into a study of the types of diseases most frequently encountered in diagnostic work. It is more or less an established fact that once an entirely satisfactory method has been developed for the control of a certain disease that this disease ceases to be one of major importance.

The report of diagnostic work here presented includes those specimens submitted in the period July 1, 1945, to June 31, 1947. There are certain advantages in making a biennial report in that direct comparisons of certain diseases can be made and the yearly incidence compared.

Since the Brucellosis testing laboratory is located at Bismarck our report contains only those tests made in diagnosing acute conditions which have arisen in certain instances where actual abortions have occurred or where some practitioner has erroneously submitted blood samples. The possibility of trichomoniasis, vibrio fetus, and listerellosis abortions arising in sheep and cattle make it necessary to conduct the Brucellosis agglutination test as a routine in differential diagnosis. For the most part these tests are not recorded in the tables presented.

This report is confined to those diagnostic services exclusive of poultry.

A comparison of the incidence of some of the diseases encountered show certain trends. In 1945-46 there were 110 cases of swine diseases investigated. The diseases most frequently encountered were erysipelas 18, ascariasis 21, necrotic enteritis 9, and poisoning 8. During 1946-47 there were 127 cases of swine disease investigated; of these 47 had erysipelas, 15 necrotic enteritis, 11 parasites, and 10 poisoning. If we compare the two years we find as the four most common diseases:

	% 1945-46	% 1946-July 1947
Erysipelas	16.4	37.0
Parasitism	19.0	8.6
Necrotic Enteritis	8.1	11.8
Poisoning	7.2	7.9

This information would suggest that there is a definite decrease in parasitism and more or less constant number of cases of poisoning but that swine erysipelas and necrotic enteritis are increasing in frequency in North Dakota.

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During the fiscal year 1945-46 there were 97 cases of diseases of cattle investigated. Twenty-one herds submitted samples of milk for mastitis tests, there were also 14 cases of suspected anthrax, 10 cases of suspected blackleg and 8 of skin scrapings of suspected cases of scabies. During the same period of 1946-47 there were 128 cases. Blackleg suspects were most common with 21 suspects, no diagnosis was given in 14 cases and anthrax suspects followed with 13 negative cases. There were 10 herd samples for mastitis tests.

These data show some very interesting trends. Of the 21 (1945-46) cases of suspected blackleg 13 were positive. This indicates a 61.4% presumptive correct diagnoses under field conditions. The laboratory findings indicate that in additional cases the actual cause of death was due to closely related bacteria of the clostridium group.

For direct comparison of the incidence of the various diseases of animals, the following summaries are given:

### Swine

Disease	1945-46 No. Cases		1946-47 No. Cases	
	Suspected	Positive	Suspected	Positive
Amoebiasis	2	2		
Anthrax	1		2	
Ascariasis	21	21	8	8
Atelectosis	1	1		
Coryn. Bact. Infection			1	1
Cholera	7	7	7	7
B Complex Deficiency	1	1		
Tuberculosis	1		1	1
Decomposed	1	1		
Erysipelas	38	18	57	47
Ictero Anemia	1	1	7	7
Impaction of Stomach	1	1		
Malignant Edema			2	2
Malnutrition	1	1	1	1
Navel Infection	1	1		
Necrotic enteritis	9	9	15	15
No diagnosis	3	3	4	4
Pasteurellosis			3	3
Paratyphoid	3	3		
Calcium Deficiency	1	1		
Abscesses	2	2		
Poisoning	8	8	10	10
Staphylococcic enteritis	4	4		
Tetanus	1	1		
Trichuriasis	1	1	2	2
Trichinosis	1			
Pneumonia			3	3
Pylonephritis			1	1
Nephritis			1	1
Sarcoptic Mange			1	1
Oesophagostomosis			1	1

In 1945-46 there were 54 cases of sheep diseases while in 1946-47 there were 58. The four most frequently encountered diseases in 1945-46 were parasitosis 11, overfeeding 7, no diagnosis 7, and tetanus 3. A no diagnosis report is given when the cause of the loss is not determined. During the 1946-47 period the four most frequently encountered diseases were parasitosis 11, listerellosis 10, pneumonia 6, and coccidiosis and malnutrition with four each.

There are many types of diagnostic work submitted to the laboratory besides those enumerated above. A summary of the other types of specimens submitted is given in the following table.

#### Summary of Miscellaneous Diagnoses

Specimen	No. Submitted 1945-46	No. Submitted 1946-47
Rabbit	4	3
Cat	4	2
Love Bird		1
Deer		1
Horse	4	2
Mink	1	4
Meat sample	9	17
Bones		3
Miscellaneous	5	2
Feed	16	14
Dogs	8	17
<b>TOTAL</b>	<b>51</b>	<b>66</b>

For the most part the miscellaneous samples indicate only individual problems rather than problems of statewide interest. The increase in the number of meat samples submitted is of significance. These were for the most part samples of meat that had either spoiled or taken up disagreeable odors in public cold storage lockers. The sanitation of cold storage lockers is important and these data would indicate that some lockers are not maintained under the best of conditions.

The increase in the number of dog specimens submitted is a direct result of epidemic poisonings in several North Dakota and Minnesota cities.

## CROP PLANT DISEASE FORECASTING<sup>1</sup>

By

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Federal and State plant pathologists are trying to set up a crop disease forecasting service that would give growers more advance information on the approach of crop disease epidemics. If such a service can be made to work effectively it will remove some of the hazards on farms. Late blight of potatoes in particular has caused heavy losses to the crop in some years.

The forecasting project, now beginning under the Federal Research and Marketing Act will be on a limited scale, including late blight of the potato, late blight of the tomato, mildews of vine crops and blue mold of tobacco, where this crop is grown.

The warning service will have three parts. 1. Disease survey, consisting of visits to fields and gardens, throughout the country, by trained pathologists. 2. Collecting the information they obtain into one central point, the Plant Disease Survey, and 3, dissemination of information, together with recommendations of state pathologists, in regions where danger threatens.

<sup>1</sup>This article is a brief review of a processed bulletin released by the Bureau of Plant Industry, Soils and Agricultural Engineering, March 1948, under title "The Crop Plant Disease Forecasting Project as authorized under the Research and Marketing Act."