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Roshni Patel; July 28, 2006

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REPORT
ON THE
PREVALENCE OF PLANT DISEASES
IN THE
DOMINION OF CANADA
FOR THE YEARS
1927 AND 1928

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D I S E A S E S O F C E R E A L C R O P S .

WHEAT.

STEM RUST -- Puccinia graminis Pers.

PRINCE EDWARD ISLAND

- 1927 - General but not considered serious. There was little noticeable variation in the degree of infection upon the standard varieties in the rust nurseries.
- 1928 - Infection general in the three counties, in some districts being unusually heavy.

NOVA SCOTIA

- 1927 - Though common, rust did not appear to cause much damage. Infection was somewhat heavier on account of wet period.
- 1928 - General infections observed in different parts of the province. Several severe cases Hants and Kings counties.

NEW BRUNSWICK

- 1927 - Observed generally in York and Sudbury counties. Infection heavier than usual.
- 1928 - Widespread but of no serious consequence.

QUEBEC

- 1927 - Trace reported in rust nurseries at Ste. Anne de la Pocatière.
- 1928 - Only a trace of this rust was observed this year and it developed very late, although there was a heavy infection of the few barberry bushes in the vicinity.

ONTARIO

- 1927 - This disease was general throughout the province. Especially severe case reported from Kapuskasing.
- 1928 - Occurred in different localities but no serious cases reported.

MANITOBA and
SASKATCHEWAN

- 1927 - "Rust developed in epidemic form in most parts

of Manitoba and Saskatchewan. The first traces of rust were discovered at Winnipeg and in the experimental plots at Morden on July 6. By July 18 a light infection was general in Manitoba as far north as Winnipeg. Little change was evident in the amount of rust in the fields until towards the last of July. Several days of hot weather, from July 23 to July 27, evidently stimulated the development of the organism in the plants for infections became considerably more common by the first of August. The first eight days of August were cool, and both wheat and rust made slow progress during that time, although heavy dews made conditions favourable for infection of the plants. The temperature for the week beginning August 9 was hot and imparted a decided stimulus to the development of the rust mycelia in the wheat plants, so that by August 16 the situation was decidedly alarming. Following that date, the progress of the rust proceeded apace, with the result that Western Canada suffered one of its worst rust epidemics in history."

1928 - "In 1928 the damage from rust was negligible. The first trace of rust was discovered at Winnipeg on July 9th and at Morden on July 12. Evidently the infections from which these first two pustules arose, occurred at approximately the same time. By July 21 rust development had progressed somewhat. Secondary infections were becoming common on Garnet wheat in the Carmen-Morris-Morden district, although only a trace was yet present on Marquis and other common wheats. Only traces of rust were found further west in Manitoba through Treberne, Glenboro, and Killarney to Deloraine. In the durum-growing area in southwestern Manitoba, no rust was found up to this time, and, in fact, the durum wheats remained almost free of rust all the season. Along the Winnipeg-Brandon line, scattered infections could be found. "It was not until July 20 that any trace of rust was found in southeastern Saskatchewan. By this date also a few infections were found at Saskatoon. Secondary infection was found in a winter-wheat plot at the University at Saskatoon."

WHEAT

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The dull wet weather cleared up about the first of August, and the grain ripened fast during the next two weeks. In both Manitoba and Saskatchewan the rapid ripening of the grain brought to a sudden ending the advance of rust."

ALBERTA

- 1927 - "In Alberta rust was less severe and did not cause any appreciable damage, although as high as 60 per cent infections occurred around Camrose, where shrinking of the kernels was noticed, but in general the loss due to rust was negligible. The good fortune of Alberta is evidently attributable not to lack of conditions favourable for rust development, for there was abundant rainfall, but to the failure of spores to arrive early enough and in sufficiently large numbers to initiate an epidemic. However, more rust was present in Alberta this year than ever before, for the unusual amount of precipitation delayed the early maturing of the grain, and gave the earlier arriving spores an opportunity of becoming established. Rust was found, moreover, farther north than in any previous year, occurring at Beaver Lodge for the first time on record."
- 1928 - Collected first (August 8) at Aldersyde, just south of Calgary. Very light infections found scattered over the province as far north as Edmonton. Scarcely more than a trace appeared anywhere in Alberta, and no appreciable damage resulted.

BRITISH COLUMBIA

- 1927 - Trace present on Vancouver Island.
- 1928 - Slight infections reported from Salmon Arm and Sidney.

LEAF RUST -- Puccinia triticina Eriks.

PRINCE EDWARD ISLAND

- 1927 - General infection on all varieties causing slight damage.
- 1928 - Light infections reported.

WHEAT

NOVA SCOTIA

- 1927 - Severe infections observed in rust nurseries at Kentville. Also in Musquodoboit on the Garnet variety.

NEW BRUNSWICK

- 1928 - Generally distributed in York county but of little importance.

QUEBEC

- 1928 - Very prevalent as usual but damage caused most-likely slight.

ONTARIO

- General infection in experimental plots in 1927 and 1928.

MANITOBA and
SASKATCHEWAN

- 1927 - Leaf rust of wheat appeared in southern Manitoba and southeastern Saskatchewan during the third week of June. Its spread and development were rapid, so that by the middle of July, it had become fairly abundant and was obviously beginning to do a good deal of harm.

- 1928 - Leaf rust was present as usual but appeared somewhat later than last year and was much less severe.

ALBERTA

- 1927 - Leaf rust was very prevalent being similar in distribution to that of stem rust. This rust was heavy enough to appear to be causing injury. While present in the experimental plots at Edmonton, it was not abundant.

- 1928 - Earliest collection at Edmonton on June 28 on winter wheat. General in most fields. Light to medium infections. Damage - trace to slight.

STRIPE RUST -- Puccinia glumarum (Schm.) Erikss. & Henn.

ALBERTA

- 1927 - This disease, which was recorded for the first time in Western Canada in 1926, was again observed this year on August 20, on both leaves

WHEAT

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and glumes of a number of varieties of wheat growing in a plot impractically the same location as the plot in which the infection occurred the year before. The Hordeum jubatum nearby was also, again, infected with stripe rust, so that overwintering of the inoculum is suggested. On September 20 stripe rust was observed only on the leaves in eleven wheat fields from Cardston, southeast toward the Montana boundry, and also on Hordeum jubatum. Only two cases of severe infection were seen.

- 1928 - This disease was found on a number of varieties of spring and winter wheat. Of 64 varieties exposed to infection, only one variety (Chagot) was severely rusted, one variety had medium infection, and 53 varieties showed a trace. These observations indicate that the commonly grown varieties of wheat are fairly resistant to the form of stripe rust in Alberta.

Spring wheat field showing a general infection found at Hanna. Damage slight.

BRITISH COLUMBIA

- 1928 - Stripe rust occurred commonly on Vancouver Island but no extensive survey was made of the province. It was also reported from Sidney.

BUNT OR STINKING SMUT -- Tilletia Caries (DC.) Tul.
and Tilletia foetens (Berk) Trel.

PRINCE EDWARD ISLAND

- 1927 - Light infection at Experimental Station.
1928 - Rarely found.

NEW BRUNSWICK

- 1928 - Slight occurrence in widely separated fields in York County.

QUEBEC

- 1928 - Infection of about 3 per cent was found in Kamouraska County on Preston wheat. In several other varieties a few affected heads were found.

WHEAT

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MANITOBA

- 1927 - Severe infection at Miniota in Mindum wheat.
- 1928 - Eight to twelve per cent in Experimental plots grown from untreated seed at Brandon.

SASKATCHEWAN

- 1927 - Infections of 2.4 per cent at Indian Head and 5.7 per cent at Scott.
- 1928 - Infection in untreated plots at Indian Head ranged from 16.5 to 20.3 per cent.
Other cases of bunt were recorded from fields throughout the grain-growing area, causing appreciable loss. Reports from Carnduff and Maryfield showed 5 and 6 per cent respectively.

ALBERTA

- 1927 - Relatively scarce, especially in older settled and better farmed districts. Occasional fields with a serious amount of infection.
- 1928 - Widely scattered traces of infection. In no case abundant, except in experimental plots.

LOOSE SMUT -- Ustilago Tritici (Pers.) Jens.

PRINCE EDWARD ISLAND

- 1927 - Generally distributed but rarely severe.
- 1928 - Infection slight except in rare cases. Found in all three Counties.

NOVA SCOTIA

- 1928 - One field of Marquis in Pictou county showed about 3 per cent infection, while another field was infected to about 10 per cent.

NEW BRUNSWICK

- 1927 - Observed in York county. Slight infection only.
- 1928 - Slight occurrence in plots at Experimental Farm, Fredericton.

QUEBEC

- 1927 - One field in Kamouraska county showed 10 per cent infection.

WHEAT

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- 1928 - Several heavy infections reported from St. Pascal, Kamouraska county, varying from 16 to 36 per cent.

ONTARIO

This disease was observed in the Ottawa district both years.

SASKATCHEWAN

- 1927 - Reported from different parts of the province. Trace to 2 per cent.

- 1928 - Many reports received from widely separated points; trace to 2 per cent.

ALBERTA

- 1927 - Infection general but not severe.

- 1928 - Much more common than bunt. Light infections generally distributed in fields scattered over the province.

ERGOT -- Claviceps purpurea (Fr.) Tul.

QUEBEC

- 1928 - Trace only reported.

MANITOBA

- 1928 - Very common in some fields. At Morden, 1 per cent infection found in a field of Marquis. Also a trace in a field of Garnet.

SASKATCHEWAN

- 1927 - Slight infections reported from Indian Head and from the University experimental plots at Saskatoon.

- 1928 - Occurrence common. Traces found at Benson, Summerberry, and Maryfield.

ALBERTA

- 1927 - Very common lowering grades of common wheat. Red Bobs particularly susceptible.

- 1928 - Much less abundant than in 1927. Only a few infected plants found in the field though Sclerotia were noted in several seed samples.

WHEAT

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WHEAT SCAB OR HEAD BLIGHT - Gibberella Saubinetii
(Mont.) Sacc.

PRINCE EDWARD ISLAND

1927 - This disease caused considerable damage in Huron and Red Fife.

NEW BRUNSWICK

1927 - Isolated infections only observed. Of no serious consequence.

QUEBEC

1928 - One two-per cent infection found in experimental plots at Ste. Anne de la Pocatiere.

MANITOBA

1928 - This disease was very prevalent in Manitoba this year, the warm moist season providing favourable conditions for its development. Plants were attacked by a light general infection varying from a trace to 3 per cent, except in certain low spots where plants were heavily attacked. In plots of Reward at Winnipeg 80 to 100 per cent of the plants were infected.

SASKATCHEWAN

1927 - Traces found at Indian Head and Saskatoon.

1928 - Slight infection found on Marquis wheat at Saskatoon and Trossachs.

ALBERTA

1928 - One collection of a typical blighted head was made at Edmonton.

FOOT AND ROOT ROTS

MANITOBA

1927 - Root rot caused by Helminthosporium sativum P.K. & B. was reported from different parts of the province, indicating a well distributed infection ranging from slight to 18 per cent.

1928 - The survey this year again showed this disease to be widely distributed. Infection - trace to 5 per cent.

WHEAT

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SASKATCHEWAN

1927 - Root rot caused by Helminthosporium. Light to moderate general infection present in field crops (trace to 12 per cent). In experimental plots 27 to 60 per cent was noted, being much more severe than the previous year.

1928 - Common causing variable loss.

1927 - Take-all caused by Ophiobolus graminis Sacc. Eighty-three reports received from different points indicated a wide distribution, infection varying from a trace to as high as 25 per cent.

ALBERTA

1927 - Root rots caused by Helminthosporium sativum P.B. & B., Fusarium spp., Wojnowicia graminis (McAlp.) Sacc. & D. Sacc., and Leptosphaeria herpotrichoides De Not. These rots were common on the University plots, especially on early varieties.

1928 - Damage in individual fields usually less than that caused by take-all. Aggregate damage, however, considerable and extending over a wider area than take-all. As frequently more than one organism was present, it was impossible to estimate the damage done by each. Wheat in practically every field affected with one or more of these organisms.

Take-all caused by Ophiobolus graminis Sacc., was prevalent and destructive in 1928. Damage ranged 5 to 30 per cent of the crop in individual fields. Although found in all soil types, the disease was most common and destructive on the black soils and next on the transitional type.

GLUME BLOTCH -- Septoria nodorum Berk.

NEW BRUNSWICK

1927 - Serious infection observed at the Dominion Experimental Farm.

1928 - Moderate infection in York county.

MANITOBA

1928 - Reported from Graysville, Plum Coulee, and Jordan. Considerable injury to heads of fully

WHEAT

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grown plants. Disease seemed to be developing rapidly on late wheat.

SASKATCHEWAN

- 1927 - Slight infections reported from Glasnevin, Carnduff, St. Gregor, Speddington, Perdue, St. Brieux, and Dysart. Severe on some plots at Indian Head.
- 1928 - In a field of Marquis at Maryfield about 50 per cent of the heads were infected. One section of a field at St. Brieux showed about 60 per cent infection. Light infections from a trace to 5 per cent were reported from Cudworth, Rosthern, Resource, Plunkett, Macoun, Humbolt, Melaval, Hitchcock, Alemada, Forbisher, and Boharm. Damage caused was greater where heads had been knocked down by hail.

ALBERTA

- 1927 - Glume blotch of wheat was exceptionally prevalent throughout the entire area surveyed. It was most severe in the general High River - Nanton - Vulcan - Claresholm area. This severity seemed to have been increased by hail damage.
- 1928 - First report made July 16 from Morrin. This disease was very prevalent all over the province but more common in southern Alberta than farther north. It was not as severe as in 1927 and the damage caused was apparently slight. It was noticeable that late stools were often the most heavily infected.

POWDERY MILDEW -- Erysiphe graminis DC.

NEW BRUNSWICK

- 1928 - A few slight cases reported in York county.

SASKATCHEWAN

- 1928 - Mere trace reported. There was, however, a moderate infection on late sown Little Club in the experimental plots at Saskatoon.

ALBERTA

- 1927 - Abundant on winter and spring wheat in field plots at the University of Alberta on October 18.

WHEAT

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- 1928 - First collection on June 11 on winter wheat at Edmonton. Later found on spring wheat at Edmonton, Spruce Grove, Vermilion, and Tofield. Some damage in the experimental plots at Edmonton, no damage observed elsewhere.

BRITISH COLUMBIA

- 1928 - Collected at Armstrong.

LEAF SPOT -- Septoria Spp.

SASKATCHEWAN

- 1928 - Moderate to heavy infection sometimes killing leaves prematurely. Reported from Yorkton, Wroxton, Melville, Prud'homme, Carmel, Kamsack, Muenster, Englefeld, St. Gregor, and Verigin. Traces of leaf spot caused by Septoria Tritici Desm. were found at Saskatoon, Duff, Totzke, Dane, and Bruno.

ALBERTA

- 1928 - Small brown spots with light borders. Common in southwestern Alberta. Lighter infections found elsewhere. Possibly caused by Septoria sp. Not identified.

BACTERIAL DISEASES

BLACK CHAFF -- Pseudomonas translucens J.J. & R. var undulosum J.J. & R.

NEW BRUNSWICK

- 1927 - Slight infections reported from York county.
1928 - Widespread but of no serious consequence.

MANITOBA

- 1928 - Very severe attack of this disease on some hybrids and new varieties at Winnipeg, causing severe damage. At Graysville a field of Ceres wheat was badly attacked, in some areas 100 per cent of the Ceres plants were severely infected causing considerable loss.

ALBERTA

- 1927 - A trace of black chaff was collected at such widely separated points as Westlock, Lacombe, Youngstown, and Claresholm. It was easiest to find in what proved to be one of the driest parts of the crop area. Damage - trace to light.

WHEAT

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BASAL GLUME ROT -- Bacterium atrofaciens McCulloch

NOVA SCOTIA

1927 - This disease was present to a slight extent on Ceres variety of wheat in the rust nurseries at Kentville.

SASKATCHEWAN

1927 - This disease was common this season and quite severe in some localities. Traces of this disease were found at Balcarres, St. Brieux, Carnduff, Indian Head, Kerrobert, and Disley. About 10 per cent infections were found at Waseca, Dysart, and Carmel. In one patch in a field at the latter point easily 90 per cent of the plants were diseased.

ALBERTA

1927 - Observed in many fields, but never more than a trace, it being usually confined to one spikelet per head, here and there, throughout the field. In view of the moist season which prevailed, it would seem that other factors were lacking for a serious development of this disease.

1928 - This disease was very common, being found in all parts of the province. Red Bobs appeared to be especially susceptible. Damage caused was usually slight, - about 2 to 3 per cent.

MISCELLANEOUS

LEAF SPOT (Cause undetermined).

SASKATCHEWAN

1928 - Heavy infection of a small white-centred leaf spot about 1 to 2 mm. in length was found at Patrick. This condition was accompanied by dark brown linear spots on the stems.

ALBERTA

1928 - Numerous small "colourless" spots on leaf blades. Especially prevalent at Edmonton. Different varieties of wheat showed marked differences in reaction.

HAIL DAMAGE

ALBERTA

1928 - Large losses from hail experienced. Damage 100 per cent in several districts.

FROST DAMAGE

ALBERTA

1928 - Most of the grain except that of the earliest varieties was frosted in the head before maturity. Damage from lowered grades very great.

CHEMICAL INJURY, ETC.

ALBERTA

1928 - Much damage to seed and seedlings resulted from using over strength solutions, sowing in dry soil, etc.

OATS

STEM RUST -- Puccinia graminis Pers.

PRINCE EDWARD ISLAND

1927 - On early crops this rust caused little damage. The infection observed on the rust nurseries at Charlottetown was trace to 5 per cent. It was more severe, however, on later maturing fields as a result of excessive moisture.

1928 - Slight infections observed; less than in 1927.

NOVA SCOTIA

1927 - Very prevalent, but not doing serious damage.

1928 - No report.

NEW BRUNSWICK

1927 - Light infection appeared late in the season.

1928 - No report.

QUEBEC

1927 - Trace to 5 per cent reported from Sté. Anne de la Pocatière.

1928 - No report.

OATS

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ONTARIO

1927 - This disease was reported slight to moderate from different parts of the province; especially prevalent in low-lying fields. A very severe case was reported from Kapuskasing. In the rust nurseries at Ottawa a trace to 10 per cent was recorded.

1928 - Light to moderate infections on late sown oats, especially on low land.

MANITOBA

1927 - Percentage of stem rust in 18 varieties of oats grown in uniform rust nurseries at Winnipeg, Brandon, and Morden in 1927.

Variety	<u>Percentage infection of stem rust.</u>		
	Winnipeg	Brandon	Morden
Victory	31	45	80
Gold Rain	30	40	80
Richland	tr.	0	0
Alaska	26	45	50
Red Rustproof	20	30	70
Monarch Strain	2	0	5
Joanette	15	30	60
White Tartar	tr.	0	10
Rusakura	32	45	10
Miniota x White Tar- tar.	tr.	0	0
Green Mountain	tr.	0	0
Heigira Strain	tr.	0	0
Banner	20	40	80
Victory x White Tar- tar.	tr.	0	0
O.A.C. No. 72	16	40	70
Iowar	12	35	30
Iogold	tr.	0	10
Iowa 444	8	35	10

1928 - Trace to 100 per cent of plants infected, severity ranging from 5 to 20 per cent.

SASKATCHEWAN

1927 - Percentage of stem rust in uniform rust nurseries.

Variety	Saskatoon	Indian Head	Swift Current	Rosthern	Scott
Victory	45	8	3	28	25
Gold Rain	48	6	3	25	10

OATS

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Richland	10	0	0	5	25
Alaska	50	40	5	20	22
Red Rustproof	20	2	tr.	55	45
Monarch Strain	10	0	0	5	5
Joanette	25	tr.	tr.	15	15
White Tartar	25	tr.	0	5	5
Ruakura	40	5	2	15	15
Miniota x White Tartar	10	tr.	tr.	5	5
Green Mountain	15	tr.	0	8	7
Heigira Strain	10	0	0	5	5
Banner	50	7	7	28	29
Victory x White Tartar	15	5	3	6	5
O.A.C. No. 72	45	8	3	27	26
Iowar	45	6	3	27	27
Iogold	12	tr.	tr.	5	6
Iowa 444	45	25	6	8	8

1928 - No reports received.

ALBERTA

1927 - Percentage of stem rust in uniform rust nurseries.

<u>Variety</u>	<u>Lethbridge</u>	<u>Lacombe</u>	<u>Edmonton</u>	<u>Beaver- lodge</u>
Victory	tr.	tr.	tr.	0
Gold Rain	tr.	tr.	tr.	0
Richland	0	0	tr.	0
Alaska	0	tr.	tr.	0
Red Rustproof	0	0	tr.	0
Monarch Strain	0	0	0	0
Joanette	0	0	tr.	0
White Tartar	0	0	tr.	0
Ruakura	tr.	0	tr.	0
Miniota x White Tartar	0	0	0	0
Green Mountain	0	0	tr.	0
Heigira Strain	0	0	0	0
Banner	0	tr.	tr.	0
Victory x White Tartar	0	0	0	0
O.A.C. No. 72	0	tr.	tr.	0
Iowar	0	tr.	tr.	0
Iogold	0	tr.	0	0
Iowa 444	0	0	0	0

OATS

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- 1928 - The first report of this rust was made on August 1st, a specimen having been collected about 20 miles west of Edmonton. Numerous infections were found later, south and east of Edmonton, but the damage in no case exceeded a trace.

BRITISH COLUMBIA

- 1927 - Apparently absent (Summerland).

CROWN or LEAF RUST -- Puccinia coronata Cda.

PRINCE EDWARD ISLAND

- 1927 - As a result of the moist season there was a considerable amount of crown rust, particularly damaging late maturing crops.

- 1928 - General moderate infection observed.

NOVA SCOTIA

- 1927 - Several severe cases reported in Kings and Colchester counties.

- 1928 - Light to severe infections reported from Colchester, Cumberland, Kings and Pictou counties, doing considerable damage.

NEW BRUNSWICK

- 1927 - Moderate infection appeared late in the season.

- 1928 - Infection widespread but of no serious consequence.

QUEBEC

- 1927 - Reported from Megantic and Cap Rouge.

- 1928 - No report received.

ONTARIO

- 1928 - Light infections observed in the Ottawa district. One low-lying field severely infected. No other reports received.

MANITOBA

- 1928 - Reported from Rosebank, Winkler, and Graysville. Trace to 100 per cent of plants affected; severity 10 to 25 per cent. Damage very light.

SASKATCHEWAN

1928 - Reported from Lorie, Chaplin, Carlyle, Grenfell, Humboldt, Wolsely, Percival, and Saskatoon. Only a slight trace observed at any point. A moderate infection was reported from Indian Head.

ALBERTA

1928 - Apparently absent (Edmonton).

LOOSE SMUT -- Ustilago Avenae (Pers.) Jens.

NOVA SCOTIA

1927 - Moderate infections observed in Colchester, Antigonish, Kings, and Pictou counties.

NEW BRUNSWICK

1927 - Very slight infection in York county.

1928 - Quite severe generally.

QUEBEC

1927 - Moderate infections reported from Megantic, Chicoutimi, and North Wakefield.

1928 - A very severe case was reported from Kamouraska county; 60 per cent of the heads being infected.

ONTARIO

1928 - Observed generally in the Ottawa district. Specimens for examination were received from a correspondent in Peterborough county.

MANITOBA

1928 - General infections reported from Morden, Miami, Winnipeg, and Brandon; trace to 4.5 per cent.

SASKATCHEWAN

1927 - Trace to 5 per cent reported from Moose Jaw, Indian Head, Qu'Appelle, Antler, Storthoaks, Kelliher, Fillmore, and Whitewood.

1928 - Eighteen reports from points widely separated, showed this disease to be distributed generally throughout southern Saskatchewan. Infections, however, were not serious ranging from a trace to 3 per cent.

OATS

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ALBERTA

- 1928 - Scattered infections over the province but much less common than covered smut.

BRITISH COLUMBIA

- 1928 - Reported from Victoria

COVERED SMUT -- Ustilago levis (K. & S.) Magn.

NOVA SCOTIA

- 1928 - In Colchester and Pictou counties 5 to 12 per cent was found in fields where seed had not been treated.

NEW BRUNSWICK

- 1927 - Very slight infection of covered smut was observed in York county. Damage caused was below the average.

- 1928 - Infections found general in distribution, sometimes doing severe damage.

ONTARIO

- 1928 - Found in several fields in the vicinity of Ottawa.

MANITOBA

- 1927 - Untreated seed produced 4 per cent covered smut at Brandon.

- 1928 - General infection ranging from a trace to 5 per cent.

SASKATCHEWAN

- 1927 - Thirty-two reports showed that covered smut was very common in southern Saskatchewan. Most of the fields examined had slight to 5 per cent infections. However, reports from Balcarres and Dysart recorded 15 per cent infection, Markinch, Balgonie, and Stranraer 20 per cent, and Stealeam 30 per cent.

- 1928 - Reports from thirty-four points recorded general occurrence of this disease ranging from very slight to 6 per cent. Reports from Willows, Heward, and Macoun recorded 10 per cent, 15 per cent, and 20 per cent respectively.

ALBERTA

- 1928 - This disease was very common causing considerable

damage. In one field more than 30 per cent of the heads were destroyed.

HEAD BLIGHT -- Gibberella Saubinetii (Mont.) Sacc.

NEW BRUNSWICK

1927 - Slight scattered infection reported from York county.

HALO BLIGHT -- Pseudomonas coronofaciens (Ch. Elliott) Stev.

NEW BRUNSWICK

1927 - Fairly common but not severe.

1928 - General in distribution but not serious.

QUEBEC

1927 - Serious on certain varieties.

ONTARIO

1928 - Reported from Simcoe county.

ALBERTA

1928 - This disease was observed, but was not very common.

BRITISH COLUMBIA

1928 - Found at Sidney.

LEAF SPOT -- Helminthosporium Avenae Eidam.

NEW BRUNSWICK

1927 - Light infection reported.

ERGOT -- Claviceps purpurea (Fr.) Tul.

ALBERTA

1927 - Found several times, but not abundant.

1928 - Light infection observed at Edmonton.

FOOT ROT -- Fusarium sp.

ALBERTA

1928 - Reported from Stettler.

OATS
BARLEY

- 20 -

ROOT ROTS -- Cause undetermined.

MANITOBA

1928 - Very general infection; many plants stunted and killed. Appeared to be caused by either Helminthosporium sp. or Fusarium sp.

NON-PARASITIC DISEASES

BLASTING OF HEADS

SASKATCHEWAN

1928 - Slight damage noticed at Indian Head in July.

ALBERTA

1928 - Caused much damage throughout the province.

BARLEY

STEM RUST -- Puccinia graminis Pers.

NEW BRUNSWICK

1927 - Infection general, sometimes severe.

1928 - Only a few cases reported.

ONTARIO

1928 - Moderate infection in Ottawa district. Very severe case at Kapuskasing.

BRITISH COLUMBIA

1928 - Reported from Sumas Prairie.

LEAF RUST -- Puccinia anomala Rostr.

MANITOBA

1927 - This disease was very prevalent; severest epidemic so far. From 60 to 100 per cent of the plants were affected, showing a trace to 5 per cent.

SASKATCHEWAN

1927 - Moderate infection reported from Indian Head.

BARLEY

- 21 -

ALBERTA

1927 - Not abundant, but easy to find on green volunteer barley.

1928 - A light infection of this rust was found at Strathmore.

STRIPE RUST -- Puccinia glumarum (Schm.) Erikss. & Henn.

ALBERTA

1928 - A light infection of this rust was found at Strathmore in the same field where leaf rust was found. Neighbouring Hordeum jubatum was also infected with stripe rust.

LOOSE SMUT -- Ustilago nuda (Jens.) Rostr.

NEW BRUNSWICK

1928 - Quite general but not severe.

ONTARIO

1928 - Light infections observed at the Central Experimental Farm and in a few fields in the Ottawa district. Several specimens sent from eastern Ontario by correspondents.

MANITOBA

1928 - Very light trace reported from Plum Coulee.

SASKATCHEWAN

1928 - Trace to 3 per cent reported from Rosthern, Dundurn, Alameda, Melville, Tiny, Kelliher, and Indian Head.

ALBERTA

1927 - Loose smut of barley scarcely ever exceeded one per cent, but being rather common, the aggregate loss was important.

1928 - Widely distributed, but less abundant and destructive than covered smut.

COVERED SMUT -- Ustilago Hordei (Pers.) K. & S.

NEW BRUNSWICK

1928 - Few slight cases reported.

BARLEY

- 22 -

SASKATCHEWAN

1927 - Trace to 2 per cent reported from different localities.

1928 - Eighteen reports from different points recorded light infections general in distribution. Infections varied from a trace to 6 per cent.

ALBERTA

1928 - This smut was very common and caused important losses. In one field between 30 and 40 per cent of the plants were infected.

ERGOT -- Claviceps purpurea (Fr.) Tul.

QUEBEC

1928 - Trace of ergot reported from Kamouraska county.

SASKATCHEWAN

1928 - Traces found at Indian Head and Rosthern.

ALBERTA

1927 - Fairly common; more than the usual amount being present.

1928 - Reported only once.

STRIPE -- Helminthosporium gramineum Rabh.

NEW BRUNSWICK

1928 - General in Carleton county.

QUEBEC

1928 - About 2 per cent found on Mensury barley at Ste. Anne de la Pocatiere.

MANITOBA

1928 - Barley stripe was quite prevalent, especially in late low fields. About 60 per cent of the plants were infected quite heavily.

SASKATCHEWAN

1927 - Slight infections at Indian Head and Saskatoon.

1928 - Trace reported from Rosthern. In a plot of Colless barley at Indian Head about 5 per cent of the plants were affected. Other varieties nearby were practically free.

ALBERTA

1927 - Common at University, especially on Canadian Thorpe.

1928 - Found in a number of fields throughout the province. Damage was slight. In experimental plots, however, considerable damage occurred, possibly as a result of earlier seeding than on farms.

FALSE STRIPE -- Cause undetermined.

SASKATCHEWAN

1928 - Trace observed at Rosthern.

NET BLOTCH -- Pyrenophora teres (Died.) Dreschl.
(Helminthosporium teres Sacc.)

NEW BRUNSWICK

1927 - Fairly common, but not of economic importance.

SASKATCHEWAN

1927 - Slight infection found throughout the southern part of the province.

1928 - This disease was reported from eighteen different localities, infections being usually light to moderate. However, at Headlands, Humboldt, and Vonda, severe cases were reported.

ALBERTA

1928 - Very abundant and widely distributed. Fields showing 100 per cent of the plants infected not uncommon. Appreciable damage in severe cases.

SPOT BLOTCH -- Helminthosporium sativum P.K. & B.

NEW BRUNSWICK

1927 - Slight infection generally distributed.

ALBERTA

1927 - This disease was common and at times severe.

1928 - Much less common and important than net blotch.

BRITISH COLUMBIA

1928 - Reported from Sidney.

BARLEY
RYE

- 24 -

SCALD -- Rhynchosporium secalis (Heins.) Davis.

SASKATCHEWAN

1927 - This disease was general in distribution, infection ranging from slight to moderate. A severe case occurred in the plots at Saskatoon.

1928 - Traces found at Rosthern and Alameda. Light infection reported from St. Gregor and Carlyle.

ALBERTA

1928 - A common disease in this province. In a few instances slight damage resulted.

TAKE-ALL -- Ophiobolus graminis Sacc.

SASKATCHEWAN

1928 - At Annaheim one dead plant of volunteer barley was noticed in a patch of wheat where take-all was plentiful. Upon examination this specimen was found to bear typical Ophiobolus mycelium.

LEAF BLOTCH -- Septoria Passerinii Sacc.

SASKATCHEWAN

1927 - Observed at Alameda.

1928 - At Maryfield a case was reported in which 25 to 30 per cent of the leaf area was affected.

BACTERIAL BLIGHT -- Pseudomonas translucens J.J. & R.

NEW BRUNSWICK

1928 - Only one case observed at the Dominion Experimental Station at Fredericton.

SASKATCHEWAN

1927 - Slight but general infection reported from Herbert.

RYE

STEM RUST -- Puccinia graminis Pers.

SASKATCHEWAN

1928 - Moderate infection at Lorlie.

LEAF RUST -- Puccinia dispersa Erikss.

SASKATCHEWAN

- 1928 - Light infections found from Indian Head, Bradwell, Semans, Mikado, and Yorkton. Heavy infections reported from Lipton and Duff.

ALBERTA

- 1927 - Very abundant on winter rye at Edmonton.
1928 - Collected at Edmonton, Tofield, and Vermilion. Damage, trace to slight.

ERGOT -- Claviceps purpurea (Fr.) Tul.

QUEBEC

- 1928 - A slight infection of 2 per cent found in a four-acre field at La Perade.

ONTARIO

- 1928 - Slight infection observed at Ottawa.

SASKATCHEWAN

- 1927 - Slight to moderate infections reported from Indian Head, Mikado, Carlyle, and Saskatoon. At Mortlach about 20 per cent of the heads were affected.
1928 - Trace to light infections reported from different parts of the province, moderate case at Indian Head, and a severe infection at Carnduff.

ALBERTA

- 1927 - Very abundant, several severe cases recorded.
1928 - Moderately common, 10 per cent damage in one field.

BLACK CHAFF -- Pseudomonas translucens J.J.& R.
var. Secalis (R.G.& J.) Stapp.

ALBERTA

- 1928 - One report from Coronation district.

FOOT ROT -- Helminthosporium sativum P.K.& B.

MANITOBA

- 1928 - Found in cultivated plots at Morden. Infection heavy and uneven. Damage 2 to 5 per cent.

RYE
ALFALFA

- 26 -

ALBERTA

1928 - One report. Very little damage.

ROOT ROT -- Fusarium sp.

SASKATCHEWAN

1928 - Modern infection at Rosthern.

LEAF AND STEM SPOT -- Cause undetermined

SASKATCHEWAN

1928 - Severe on an isolated plot at Rosthern.

POWDERY MILDEW -- Erysiphe graminis DC.

SASKATCHEWAN

1928 - Light infections reported from Indian Head.

D I S E A S E S O F F O R A G E A N D F I B R E C R O P S

ALFALFA

LEAF SPECK -- Pseudopeziza Medicaginis (Lib.) Sacc.

NEW BRUNSWICK

1927 - One slight and one moderate infection reported;
not sufficient to cause defoliation.

1928 - Quite general, but not severe; slight outbreak at
Dominion Experimental Station.

QUEBEC

1927 - Severe occurrence at Macdonald College, causing
yellowing of the leaves.

ONTARIO

1928 - Generally present but no case of defoliation.
observed.

SASKATCHEWAN

1927 - Reported from Kelliher and Saskatoon, causing
considerable fading and loss of the lower leaves.

ALBERTA

1928 - Present but causing no appreciable damage.

BRITISH COLUMBIA

1928 - Diseased specimens received from a correspondent.

CHEMICAL INJURY

BRITISH COLUMBIA

1928 - Sulphur dioxide injury reported from Trail.

WINTER INJURY

Winter killing was reported from western Ontario in 1927.

DOWNY MILDEW -- Peronospora Trifoliorum de Bary

ALBERTA

1928 - Causing considerable damage to individual plants at Edmonton and slight to medium damage in irrigated fields at Brooks. Also found at Olds, but causing no loss.

BRITISH COLUMBIA

1928 - Found at Huntingdon.

ROOT ROT -- Sclerotinia Sclerotiorum (Lib.) de Bary

ONTARIO

Found in plots at Central Experimental Farm both years.

ALBERTA

1928 - Observed in plots at Edmonton.

BRITISH COLUMBIA

1928 - Reported from Trail.

ROOT ROT -- Plenodomus meliloti Dearn. & Sanford.

ALBERTA

1928 - Common on alfalfa.

CLOVER

- 28 -

CLOVER.

RUST -- Uromyces Trifolii (Hedw. f.) Lev. and
U. Trifolii-repentis (Cast.) Lirc.

NEW BRUNSWICK

1927 - General infection but no serious damage.

1928 - Only a few cases observed.

ONTARIO

1928 - Common at Ottawa.

POWDERY MILDEW -- Erysiphe Polygoni DC.

NEW BRUNSWICK

1927 - General moderate infection.

1928 - Quite general and severe in many localities.

QUEBEC

1927 - Reported from Lachute and St. Felicien.

SASKATCHEWAN

1927 - Fairly heavy infection on lower leaves at
University plots, Saskatoon.

ALBERTA

1927 - Abundant in different parts of the province.

1928 - Fairly common on different species of Trifolium,
but caused little loss.

ROOT ROT -- Plenodomus Meliloti Dearn. & Sanford.

ALBERTA

1928 - This disease was very common, often causing severe
damage.

LEAF SPOT -- Pseudopeziza Trifolii Fuck.

NEW BRUNSWICK

1927 - Slight general infection.

1928 - Only one case reported.

CLOVER
SWEET CLOVER
CORN

SOOTY SPOT -- Dothidella Trifolii (Pers.) Bayl.
Elliott & Stansf.
(Polythrincium Trifolii Kunze).

NEW BRUNSWICK

1927 - Slight general infection.

1928 - A few cases were observed in York county.

MOSAIC

NEW BRUNSWICK

1927 - Isolated specimens only found.

1928 - Of quite rare occurrence.

SWEET CLOVER.

STEM CANKER -- Ascochyta Meliloti (Trel.) Davis

SASKATCHEWAN

1927 - Light injury reported from Saskatoon and Yorkton.

ALBERTA

1928 - Often severe accompanied by appreciable damage.

WHITE SPOT -- Cause undetermined.

BRITISH COLUMBIA

1928 - Reported at Trail.

CORN.

SMUT -- Ustilago Maydis (DC.) Cda.

NEW BRUNSWICK

1927 - Slight infection in York county.

1928 - There was quite a severe outbreak at the Dominion
Experimental Station, Fredericton.

QUEBEC

1928 - A 5 per cent infection was found in a small half-
acre field at Ste. Anne de la Pocatiere. The
disease was very severe.

CORN
FLAX

-30-

ONTARIO

- 1927 - Observed at Ottawa both years. Several specimens
1928 submitted by correspondents. Isolated cases
reported from the Niagara district in 1928.

MANITOBA

- 1928 - Very heavy infection of corn smut on a piece of
land which had grown corn continuously for many
years. Severity of infection 8 to 10 per cent.

SASKATCHEWAN

- 1927 - Slight infections reported from Indian Head and
Montmartre.

BRITISH COLUMBIA

- 1928 - Observed at Nelson.

FLAX

RUST -- Melampsora Lini (Pers.) Desm.

ONTARIO

- Present in the experimental plots at Ottawa both years.

MANITOBA

- 1928 - In an excellent crop of flax at Graysville, 100 per
cent of the plants were infected with rust.
Severity of infection varied from a trace to 8 per
cent.

SASKATCHEWAN

- 1927 - Common throughout the southern part of the province.
1928 - Flax rust was common this year in southern
Saskatchewan but generally slight or a mere trace.
Reported from Indian Head, Almeda, Admiral, Plato,
Young, Nokomis, Radville, and Hitchcock.

ALBERTA

- 1928 - Traces of this rust were found at Brooks and
Edmonton.

WILT -- Fusarium Lini Bolley

SASKATCHEWAN

- 1927 - A plot at the University of Saskatchewan, which had
been sown to flax continuously for some years was
practically wiped out.

ANTHRACNOSE -- Colletotrichum linicolum Perth. & Laff.

ALBERTA

1928 - Occurred in the experimental plots at Edmonton.

N O N - P A R A S I T I C D I S E A S E S

HEAT CANKER

ALBERTA

1928 - Slight damage in the experimental plots at Edmonton.

SUNFLOWER

WILT -- Sclerotinia Sclerotiorum (Lib.) Mass.

NEW BRUNSWICK

1927 - One case observed in Stanley township, York county.

1928 - Isolated specimens only observed.

QUEBEC

1927 - Severe cases observed in Kamouraska county.
Infection about 6 per cent.

1928 - A 5 per cent infection was found in a two-acre field. The disease appeared later this year and was not as severe as during the preceding year.

ONTARIO

1927 - Observed in the experimental plots at Ottawa
1928 both years.

SASKATCHEWAN

1927 - Several occurrences were reported. In a windbreak around a garden 3 per cent of the plants were affected. At Buchanan, in a similar windbreak the disease was present in about 40 per cent of the plants.

1928 - Trace observed at Indian Head. At Saltcoats over 10 per cent of the plants were affected.

ALBERTA

1928 - This disease was destructive in one field at Edmonton, causing 8 to 15 per cent loss.

SUNFLOWER
GRASSES

-32-

RUST -- Puccinia Helianthi Schw.

NEW BRUNSWICK

1927 - Isolated specimens observed in York county.

ONTARIO

- Observed at Ottawa in 1927 and 1928. No other reports received.

SASKATCHEWAN

1927 - Several slight occurrences reported from several points.

1928 - Trace reported at Rosthern.

ALBERTA

1928 - Light infections of this disease were observed at Edmonton.

LEAF SPOT -- Septoria Helianthi Ell. & Kellerm.

SASKATCHEWAN

1928 - The lower leaves were found heavily diseased in a small patch of sunflowers at Rosthern.

GRASSES (Cultivated)

Awnless Brome (Bromus inermis Leyss)

ERGOT - Claviceps purpurea (Fr.) Tul.

Trace to light infections found in different parts of Saskatchewan in 1927 and 1928. Traces were also found in Alberta in 1928.

LEAF BLOTCH - Pyrenophora Bromi (Died.) Drechs.

Moderate infection in Saskatchewan in 1927.

Kentucky Blue (Poa pratensis L.)

POWDERY MILDEW -- Erysiphe graminis DC.

This disease was very common in Alberta in 1928.

Timothy (Phleum pratense L.)

ERGOT -- Claviceps purpurea (Fr.) Tul.

In Nova Scotia light infections were reported from Kings county in both years.

RUST -- Puccinia Phlei-pratensis Erikss. & Henn.

Moderate infection reported from Kings county Nova Scotia in 1927. Reports of heavy infections on roadside plants were received from different points in Saskatchewan. Records for 1928 showed it to be common on wild plants in Alberta.

LEAF SPOT -- Scolecotrichum graminis Fckl.

This disease was reported from Alberta in 1928 having been found at Red Deer and Pincher Creek.

LEAF SPOT -- Heterosporium Phlei Gregory

Reported from Alberta in 1928. Common but not causing any appreciable damage.

WESTERN RYE GRASS (Agropyron tenerum Vasey)

ERGOT -- Claviceps purpurea (Fr.) Tul.

Traces reported from Saskatchewan in 1927.

SMUT -- Ustilago Agropyri Clinton

Traces found at Rosthern and Middle Lake, Saskatchewan in 1928.

STRIPE RUST -- Puccinia glumarum (Schm.) Erikss.

Collected at Edmonton, Alberta in 1928.

MILLET - (Setaria italica Beauv.)

BACTERIAL LEAF SPOT -- Pseudomonas sp.

Reported from Alberta in 1928; caused slight damage at Brooks and Claresholm.

Canada Blue Grass (Poa compressa L.)

POWDERY MILDEW -- Erysiphe graminis DC.

Common at Buchanan, Saskatchewan in 1927.

DISEASES OF FRUIT CROPS

APPLE

SCAB -- Venturia inaequalis (Cke.) Wint.

NOVA SCOTIA

- 1927 - This disease caused a serious loss to Nova Scotia orchardists.
- 1928 - Generally speaking, ascospore inoculum was scarcer during 1928 than in any of the three previous years. There was sufficient to cause severe injury in many sections but in some experimental orchards the scabby fruit did not exceed 30 per cent, in comparison with the previous three seasons when unsprayed trees yielded from 90 to 100 per cent scabby fruit, much of which was cracked and worthless.

NEW BRUNSWICK

- 1927 - Very severe especially on McIntosh and Fameuse varieties.
- 1928 - Quite general and severe in unsprayed orchards.

QUEBEC

- 1927 - Reported from Ste. Anne de la Pocatiere, St. Hilaire, Hemmingford, Mt. Johnson, Abbotsford, Rougemont, and St. Roch des Aulnais. Scab lesion on both leaves and fruit were much more severe than usual.
- 1928 - Reports from Kamouraska, Iberville, Quebec, and Rouville counties showed that apple scab was fairly severe. Infection varied from a trace in well sprayed orchards to 100 per cent in unsprayed orchards.

ONTARIO

- 1927 - Apple scab was reported from different parts of the province. In the Niagara district it was more prevalent than during the past four years.

- 1928 - This disease, though not so prevalent as the previous year was nevertheless quite general.

SASKATCHEWAN

- Slight infections reported from Indian Head both years.

BRITISH COLUMBIA

- 1927 - The exceptionally moist season of 1927 has caused a marked spread of this disease to sections of the fruit-growing areas which are usually entirely free from it, and its presence has been noted considerably farther south, that is, to the drier sections of the valley, than is usual. Many late infections on the fruit, appearing as pin-point infections at the time of picking, have caused a very considerable loss in storage.

- 1928 - Throughout the northern section of the valley where this disease fluctuates with the seasons, a moist autumn in 1927 saw a marked spread of scab, and the fall's forecast was borne out by the increase again apparent in the spring and summer of 1928. Growers, anticipating the spring increase, applied the recognized sprays, but often without obtaining satisfactory control. Observation, however, points to the cause of this condition as being a lack of sufficiently close adherence to the proper dates for spraying. In the southern end of the valley where the disease is practically unknown, a specimen was obtained for the first time from each of the districts of Penticton and Summerland. The later summer and fall of the present year were dry and generally favourable for scab development.

PERENNIAL CANCKER -- Gloeosporium perennans Zeller & Childs

BRITISH COLUMBIA

- 1928 - A sufficient amount of survey work has already been carried out on the extent of this disease to show us that it is now well established in most of the orchard sections from Kelowna north, excepting Salmon Arm. Survey work on the southern Okanagan is not completed, but up to the present the canker has been found in three orchards in the Summerland district, and in two orchards in the Penticton district. The survey is being pressed forward as rapidly as possible.

APPLE

ANTHRACNOSE -- Neofabraea malicorticis (Cordley) Jackson

BRITISH COLUMBIA

1928 - There was a decided increase of anthracnose reported in the Salmon Arm district, attributable doubtless to the unusually moist season of 1927. The increase was so considerable as to cause the grower grave anxiety. In answer to many requests the laboratory at Summerland has undertaken an experimental spray programme in an endeavour to gain an effective control.

BLACK ROT -- Physalospora Malorum Shear.

NOVA SCOTIA

1927 - Reported from Middleton. Very prevalent in a few orchards.

1928 - Reported from Cornwallis, Telford, and French River. Common in old uncared-for orchards.

NEW BRUNSWICK

1927 - Slight infection in York county.

1928 - Very prevalent in the province this year. Stage on fruit and limb cankers quite rate.

MISCELLANEOUS DISEASES

CEDAR RUST -- Gymnosporangium Juniperi-virginianae Schw.

Slight occurrences reported from Ontario in 1927 and in Nova Scotia in 1928.

EUROPEAN CANKER -- Nectria galligena Bers.

Slight cases in York county, New Brunswick in 1927 and 1928.

SILVER LEAF -- Stereum purpureum

Present on many trees at Ste. Anne de la Pocatiere in 1927. Isolated cases observed in New Brunswick in 1927 and 1928.

PINK ROT -- Trichothecium roseum Link.

In 1927 a few specimens were observed in storage in York county, New Brunswick.

In 1928 it was general but not of serious consequence.

SOOTY BLOTCH -- Gloeodes pomigena (Schw.) Colby

Observed at Kentville, Nova Scotia in 1927.

LEAF SPOT -- Alternaria Mali J. W. Roberts.

In New Brunswick slight infection in isolated cases were observed in York county in 1927. The following year, however, this disease was quite prevalent in orchards in the Saint John Valley.

BROWN ROT -- Sclerotinia americana (Worm.) Nort. & Ezekiel

Slight infection reported from New Brunswick in 1927.

POWDERY MILDEW -- Podosphaera leucotricha (E.&E.) Salm.

A few restricted areas in British Columbia suffered severely in 1927. It also occurred at Metchosin, British Columbia in 1928.

COLLAR ROT

Of the orchards examined in British Columbia in 1927 many were found to be suffering heavily from the trouble. In some, the disease in some stage of development was found to occur on as many as 80 per cent of the trees in the orchard.

DROUGHT SPOT, DIE BACK, & CORKY CORE

Losses suffered from this type of disease were greatly reduced in 1927 from those of the previous season. The general improvement in the water supply throughout the Okanagan has, no doubt, had considerable influence. The losses, nevertheless, are still severe, and with many orchardists their occurrence constitutes the greatest problem which they have to face in orchard work.

Orchards growing in open types of soil, which have in the past been subject to these diseases, were, owing to the wet fall of 1927, very much freer from disease in the season of 1928. In orchards growing in a heavy type of soil, where these diseases have been severe, and where super moisture prevails, there was no decrease.

FRUIT SPOT -- Phoma pomi Pass.

A very slight occurrence of this disease was reported from York county New Brunswick in 1927.

CANKER -- Cytospora sp.

One case reported from Winnipeg, Manitoba in 1927.

BLUE MOULD -- Penicillium expansum (L.K.) Thom.

Observed in storage in New Brunswick in 1927 and 1928.

BITTER PIT

Severe in western Ontario in 1927. Also reported as common in Quebec the same year. In British Columbia it was more prevalent than usual in 1928, causing severe losses in many orchards.

FROST INJURY

Severe cases of frost injury were reported from Nova Scotia in 1927. Frost occurred on the nights of May 21st and May 23rd. Up to 8 degrees of frost was recorded in some sections. Youngest leaves showed pronounced crinkling on the upper surface. The lower surface showed necrotic areas causing puckering of the leaves. The buds, however, were not severely injured.

FLY SPECK -- Leptothyrium Pomi (Mont. & Fr.) Sacc.

This disease was very abundant on the Wagner variety in closely planted orchards in Nova Scotia in 1928.

WINTER INJURY

Severe cases of winter injury were reported from Cape Breton and Kings, Nova Scotia in 1927.

The winter of 1927-28 was kind to the orchards in British Columbia. In only a few cases was any winter injury found. Where this did occur, it was usually confined to a browning of the most recently formed bark and wood tissue, the cambium being, in practically every case, uninjured. It is probable that the moist fall of 1927 has much to do with the very favourable conditions this spring. It is possibly worthy of note that the largest crop ever produced in this valley, this year's crop, occurred after the wettest fall on record. Such is an indication of what might be expected if moisture could be properly applied to the orchards at all times during the whole year.

FIRE BLIGHT -- Bacillus amylovorus (Burr.) de Toni

Quite severe in Quebec and Ontario in both years. In the Ottawa district this disease has been very severe for the past four years.

There was a considerable increase in the amount of this disease in British Columbia in 1928 largely due to climatic conditions following the blossoming period. The infection during the blossoming period itself did not appear to be more severe than usual, but rainy weather, which followed almost immediately, served to distribute the organism widely throughout trees, where any blossom infection had occurred. As a result, severe twig and, later, limb blight developed, and the losses caused this year have been much heavier than for several years past.

CROWN ROT

BRITISH COLUMBIA

1928 - Every year more and more attention is being given by growers to this as a very serious disease. Survey work carried out this year by the laboratory staff verifies the fears of the growers as to its extent, a conservative estimate placing the annual loss at one per cent of all trees. Its continued and sometimes rapid increase in orchards, where as yet we cannot explain its cause, greatly intensifies the urgency for the investigation of this problem being pressed forward with all possible haste.

APRICOT
BLACKBERRY
CHERRY

APRICOT

RUSSETTING -- Physiological ?

BRITISH COLUMBIA

- 1927 - Russetting in apricots was one of the newly met with conditions this year which did a considerable amount of damage in the orchards where it occurred. Its cause is not known, but from observational evidences it would appear to be of physiological origin.
- 1928 - This condition was again troublesome this season. Observations seem to indicate that the trouble is brought about by a condition of wet feet of the trees.

BLACKBERRY

ANTHRACNOSE -- Plectodiscella veneta (Speg.) Burk.

NEW BRUNSWICK

- 1927 - One case reported from York county.

ORANGE RUST -- Gymnoconia Peckiana (Howe) Trotter

Observed on wild blackberries in Nova Scotia and New Brunswick in 1927 and 1928. Also reported from south-western Ontario both years on cultivated blackberries.

CHERRY

SHOT-HOLE - Coccoomyces hiemalis Higgins
(Cylindrosporium hiemalis Higgins)

NOVA SCOTIA

- 1927 - Quite common on sour cherries in Canard district.
- 1928 - On June 5th, first leaf spotting was reported abundant in King's county.

NEW BRUNSWICK

- 1928 - Only a few isolated cases were reported.

ONTARIO

- 1928 - This disease was reported from different parts of the province, being very general in the Niagara peninsula. In some cases the trees were completely defoliated.

CHERRY

CORYNEUM BLIGHT -- Coryneum Beijerinckii Oud.

This disease was fairly abundant especially on the lower limbs at Saskatoon Saskatchewan in 1927 and 1928.

BLACK KNOT -- Dibotryon morbosum (Schw.) Theiss. & Syd.

PRINCE EDWARD ISLAND

Prevalent throughout the province on wild cherries in 1927 and 1928.

NEW BRUNSWICK

Several cases reported in 1927.

QUEBEC

1927 - This disease appeared to be very prevalent and often severe in different parts of the province. In one case in Kamouraska county twelve out of twenty trees were badly covered with the disease.

1928 - Severe cases were reported from Temiscouata, Kamouraska, and Champlain. In the latter county 25 to 30 per cent infection was reported in one orchard.

ONTARIO

Severe cases were reported in both years.

BROWN ROT -- Sclerotinia americana (Worm.) Nort. & Ezekiel

ONTARIO

1928 - Usual amount of infection reported from Lincoln county.

LEAF CURL -- Taphrina minor Sadeb.
(=Exoascus minor Sadeb.)

NOVA SCOTIA

1927 - Fairly severe cases occurred in King's county, nearly all the leaves on some branches browning and curling up.

BOTRYTIS -- Botrytis cinerea Pers.

NOVA SCOTIA

1928 - From 10 to 15 per cent infections found on both sweet and sour cherries, occurring on young green fruit about three weeks after setting. The orchard from which this case was reported had been sprayed.

CURRENT

WHITE PINE BLISTER RUST -- Cronartium ribicola Fischer

NOVA SCOTIA

1927 - Fairly common at Kentville.

1928 - Severe cases were reported from Pictou county, two thirds of the bushes being more or less defoliated.

NEW BRUNSWICK

1927 - Moderate general infections occurred in York county.

1928 - This disease was widespread on currants throughout the province.

QUEBEC

1927 - Very severe at Macdonald College, Lennoxville, and Huntingdon especially on black currants, causing premature defoliation.

1928 - Very severe infection reported from Cap Rouge.

ONTARIO

1927 - This disease was very prevalent in the Ottawa district in 1927 and 1928, being more severe on the black currants. Many badly diseased specimens were submitted by correspondents in different parts of the province both years.

SEPTORIA LEAF SPOT -- Mycosphaerella Grossulariae (Fr.)
(Septoria Ribis Desm.) Lindau

ONTARIO

- Common both years. A severe case was reported in 1928 near Toronto, York county.

SASKATCHEWAN

1927 - Severe occurrence at Indian Head.

1928 - Severe infection of lower leaves causing some defoliation at Saskatoon. This was chiefly on the black currants. The red and white currants showed very little infection.

ALBERTA

1928 - This disease was collected at Brooks but was not severe.

CURRENT
GOOSEBERRY

GLOEOSPORIUM LEAF SPOT -- Pseudopeziza Ribis Kleb.
Gloeosporium Ribis (Lib.)
Mont & Desm.

NOVA SCOTIA

1928 - A severe general infection was observed in Pictou county. Many of the bushes were almost defoliated.

NEW BRUNSWICK

1927 - A slight infection was observed in York county.

1928 - One case was reported in a city garden, Fredericton.

SASKATCHEWAN

1927 - Very common in the University garden at Saskatoon especially on the lower leaves, causing some defoliation.

POWDERY MILDEW -- Sphaerotheca Mors-Uvae (Schw.) Berk.

NEW BRUNSWICK

1927 - A slight infection occurred in York county.

1928 - A moderate infection of this disease was observed at the Dominion Experimental Station, Fredericton.

SASKATCHEWAN

1927 - In the University garden at Saskatoon 80 per cent of this year's growth was more or less severely infected.

GOOSEBERRY

WHITE PINE BLISTER RUST -- Cronatium ribicola Fischer

QUEBEC

1927 - Reported from Huntingdon. The gooseberry bushes were affected later in the season than the black currants and the infection was not so severe.

ONTARIO

1927 - Observed on wild gooseberries in the Ottawa district.

POWDERY MILDEW -- Sphaerotheca Mors-Uvae (Schw.) Berk.

NEW BRUNSWICK

1927 - A slight general infection was observed in York county.

GOOSEBERRY
GRAPE

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1928 - This disease was very general but not severe.

QUEBEC

1927 - A severe case was observed at Ste. Anne de la Pocatiere, about 20 per cent of the fruits being attacked by the disease.

ONTARIO

1927 - This disease was fairly common in the vicinity of
1928 - Ottawa both in 1927 and in 1928. A few specimens of the disease were also received from other parts of the province.

GLOEOSPORIUM LEAF SPOT -- Pseudopeziza Ribis Kleb.
(Gleosporium Ribis (Lib.)
Mont & Desm.)

NEW BRUNSWICK

1927 - A slight infection occurred in York county.

SEPTORIA LEAF SPOT -- Mycosphaerella Grossulariae (Fr.)
(Septoria Ribis Desm.) Lindau

SASKATCHEWAN

1927 - Light infection of this disease causing some defoliation of the lower leaves was reported from Saskatoon and Kelliher.

CLUSTER CUP RUST -- Puccinia Pringsheimiana Kleb.

NOVA SCOTIA

1927 - The early stage of this disease was observed at Middleton on June 5th; the pustules had not ruptured.

QUEBEC

1927 - A trace of this disease was found at Ste. Anne de la Pocatiere.

GRAPE

POWDERY MILDEW -- Uncinula necator (Schw.) Burr.

QUEBEC

1927 - This disease was present at Macdonald College but was of no economic importance.

GRAPE
LOGANBERRY
PEACH

DOWNY MILDEW -- Plasmopara viticola (Berk. & Curt.)
Berl. & de Toni

QUEBEC

1927 - Light infection at Macdonald College.

BRITISH COLUMBIA

1928 - Observed at Sidney.

BLACK ROT -- Guignardia Bidwellii (Ell.) Viola & Ravaz.

ONTARIO

1928 - A very severe infestation occurred in an 18 acre vineyard showing very vigorous growth and heavy foliage. No spray had been applied to the vines which were of the Concord and Niagara varieties. The disease was much worse on the vines of the latter variety.

LOGANBERRY

BACTERIAL FRUIT BLIGHT -- Bacillus desiccans Foster

BRITISH COLUMBIA

1928 - This disease was very prevalent this year in some cases upwards of 50 per cent of the fruits being blighted, causing considerable loss.

PEACH

LEAF CURL -- Taphrina deformans (Berl.) Tul.

ONTARIO

1928 - Peach leaf curl infection was quite general in the Niagara district, especially on Elbertas.

SCAB -- Gladosporium carpophilum Thüm

ONTARIO

1927 - Severe in the Niagara district. Elbertas and St. Johns were badly infected.

1928 - Twig infection was noted on two and three-year-old wood of the St. John variety.

PEACH
PEAR

-46-

BROWN ROT -- Sclerotinia americana (Worm.) Nort. & Ezekiel

ONTARIO

1928 - The average infection was noted this year both as to twig blight and rotting of the fruit.

WILT -- Verticillium sp.

ONTARIO

1928 - This disease was reported from Niagara county. It was found involving fairly large limbs and twigs on a few trees of the South Haven variety. The Elbertas were not affected.

PEAR

FIRE-BLIGHT -- Bacillus amylovorus (Burr.) de Toni

ONTARIO

1928 - Reported from Durham county.

SCAB -- Venturia pyrina Aderh.

NOVA SCOTIA

1927 - Moderate infection reported from King's and Annapolis counties.

1928 - Slight infections on leaves and fruit of a few trees at Berwick. Severe infections on leaves and fruit in many orchards at Middleton.

NEW BRUNSWICK

1927 - Slight isolated infection observed in York county.

QUEBEC

1927 - Very severe infections (75 to 100 per cent) on unsprayed trees. Most of the fruit showed cracks in the larger lesions.

LEAF BLIGHT -- Fabraea maculata Atk.
(Entomosporium maculatum Lev.)

BRITISH COLUMBIA

1928 - Observed at Sayward.

DROUGHT SPOT OF PEAR

BRITISH COLUMBIA

- 1928 - A so-called drought spot condition of pears was severe in certain orchards where super moisture conditions prevail throughout the late summer months. This drought spot condition is characterized by an uneven and lumpy condition of the calyx end of the fruit and by the presence in the flesh, in the same area, of dead spots and an excessive number of stone cells.

PLUM

BLACK KNOT -- Dibotryon morbosum (Schw.) Theiss. & Syd.

NOVA SCOTIA

- 1928 - Reported from Hants county.

NEW BRUNSWICK

- 1927 - Moderate infections were observed in York county.
1928 - Generally severe on wild species but of slight occurrence on cultivated varieties.

QUEBEC

- 1927 - Severe in many parts of Quebec. Reports received from Montreal, Quebec, Ste. Anne de la Pocatiere, St. Basile, Mistassini, and L'Islet.

ONTARIO

- 1927 - This disease was of wide distribution both years and was very often severe. In the Niagara district it was much more prevalent in 1928 than usual, Reine Claude, and Lombard varieties being particularly susceptible.

PLUM POCKETS -- Taphrina Pruni Tul.

NOVA SCOTIA

- 1928 - This disease was of wide distribution and was very severe on Japanese varieties to which the dormant spray had not been applied. Several slight infections on partly sprayed trees were reported.

PLUM
RASPBERRY
QUEBEC

1928 - Quite severe in different parts of the province, in some orchards 50 to 100 per cent of the trees being affected. Reports were received from Jacques Cartier, Champlain, Kamouraska, and St. Jerome.

ONTARIO

1927 - This disease was present to a moderate degree both
1928. years.

SASKATCHEWAN

1927 - Slight infection reported from Indian Head and Verigin.

BROWN ROT -- Sclerotinia americana (Worm.) Nort. & Ezekiel

NEW BRUNSWICK

1927 - Moderate infections on all varieties observed in York county.

1928 - Infection was general, but not of serious consequence.

ONTARIO

1928 - Reported from the Niagara district.

SHOT-HOLE -- Coccomyces prunophore Higgins
(Cylindrosporium prunophore Higgins)

SASKATCHEWAN

1927 - Moderate to severe infections occurred at Indian Head.

ONTARIO

1928 - Infection was general in the Niagara district. A severe attack on the German Prune was observed at Queenston.

RASPBERRY

CANE BLIGHT -- Leptosphaeria Coniothyrium (Fuck.) Sacc.

NEW BRUNSWICK

1927 - Slight infection was reported from York county.

1928 - A slight occurrence was noted in some gardens in Fredericton.

BRITISH COLUMBIA

1928 - Reported from Elk Lake.

ANTHRACNOSE -- Plectodiscella veneta Burk.

NEW BRUNSWICK

1927 - A slight infection occurred in York county.

1928 - This disease was general but not severe.

POWDERY MILDEW -- Sphaerotheca Humuli (DC.) Burr.

NEW BRUNSWICK

1928 - Reported from one locality in York county.

ONTARIO

1928 - This disease was found to be attacking certain varieties more than others in Lincoln and Wentworth counties. The Latham variety appeared to be particularly susceptible.

SASKATCHEWAN

1928 - Found to be severely injuring the raspberries on the Illustration Farm at Guernsey.

SPUR BLIGHT -- Didymella applanata (Niessl) Sacc.

NEW BRUNSWICK

1927 - Slight infection in York county.

ONTARIO

1927 - Observed in the Ottawa district both years. Also
1928 reported from Niagara as killing the fruit buds.
The Herbert variety appears to be very susceptible.

SEPTORIA LEAF SPOT -- Mycosphaerella Rubi Roark
(Septoria Rubi Westend.)

NEW BRUNSWICK

1927 - A moderate infection in an isolated case was
observed at Grand Lake (Sunbury).

RASPBERRY

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ORANGE RUST -- Gymnoconia Peckiana (Howe) Trotter

NEW BRUNSWICK

1927 - Very severe on wild varieties.

1928 - This disease was quite prevalent over the entire province on wild varieties.

BRITISH COLUMBIA

1928 - Observed at Burnaby and Cobble Hill.

LATE YELLOW RUST -- Kuehneola albida Kuhn) Magn.

NOVA SCOTIA

1927 - In Cambridge, King's county, 10 per cent of the new growth was affected in a plantation of the Viking variety. About 5 per cent infection was observed at Kentville.

ONTARIO

1928 - At Grimsby this disease was found attacking the lower leaves of the Viking variety.

VIRUS DISEASES

MOSAIC

PRINCE EDWARD ISLAND

1927 - Mosaic was widespread in the Herbert variety, only two plantations having been certified.

NOVA SCOTIA

1928 - In King's county 10 per cent of mosaic plants were rogued from a plantation of the Viking variety.

NEW BRUNSWICK

1927 - Moderate amount of this disease of general distribution.

1928 - This disease was quite prevalent over the entire province.

QUEBEC

1928 - Very prevalent and severe in Montmorency and Kamouraska counties, infection varying from 10 to 100 per cent.

ONTARIO

- 1927 - Infection widespread involving all varieties,
1928 and causing appreciable reduction in yield.

LEAF CURL

NEW BRUNSWICK

- 1927 - A general infection of moderate degree was observed
in York county.
1928 - This disease was quite prevalent and severe in many
localities.

QUEBEC

- 1928 - On the Ile of Orleans from 2 to 100 per cent
infections were reported averaging about 30 per
cent, causing considerable reduction in yield.

ONTARIO

- 1927 - This disease was widespread in the Niagara district.
1928 Little leaf curl was observed in the vicinity of
Ottawa. When present it was usually in the Cuthbert
variety.

STRAWBERRY

LEAF SPOT -- Mycosphaerella Fragariae (Schw.) Lindau
(Ramularia Tulasnei Sacc.)

NOVA SCOTIA

- 1927 - This leaf spot was very abundant in many parts of
the province on both wild and cultivated plants. It
was very severe on light soils and on plants growing
under poor cultural conditions.
1928 - According to report from Colchester county all the
fields in that strawberry-growing district showed
100 per cent leaf infection. The crop was scarcely
more than one half this season.

NEW BRUNSWICK

- 1927 - Leaf spot was present to a moderate extent this year
but was not of economic importance.
1928 - This disease was quite prevalent throughout the
entire province.

STRAWBERRY

ONTARIO

- 1927 - Reported from different parts of the province in
1928 1927 and 1928, but did not appear to cause appreciable loss. Specimens also submitted by correspondents.

SASKATCHEWAN

- 1927 - This disease was plentiful but apparently not very injurious.

1928 - Fairly heavy infections reported from Saskatoon, Guernsey, and Kamsack, but little loss resulted.

ALBERTA

- 1928 - This disease was present on cultivated varieties at the University but the damage caused was negligible.

LEAF SCORCH -- Diplocarpon Earliana (Schw.) Lindau

NEW BRUNSWICK

- 1927 - Slight general infection in York county.

1928 - This disease was quite general and more severe this year than usual.

POWDERY MILDEW -- Sphaerotheca Humuli (DC.) Burr.

NEW BRUNSWICK

- 1927 - A slight infection was reported from York county.

1928 - Quite severe infections occurred in the St. John Valley and in Westmoreland county.

ONTARIO

- 1928 - Mildew was present in different parts of the province, being more prevalent in patches with heavy foliage. It was noted that Parson's Beauty and Glen Mary varieties were very susceptible.

FRUIT ROT -- Botrytis sp.

NEW BRUNSWICK

- 1927 - This rot was severe in low damp areas.

1928 - Only a few slight cases were recorded this year.

SASKATCHEWAN

- 1928 - At Saskatoon there were a number of light infections where the plants were thick.

STRAWBERRY
QUINCE

SASKATCHEWAN

1928 - At Saskatoon there were a number of light infections where the plants were thick.

QUINCE

RUST -- Gymnosporangium germinale (Schw.) Kern.

NOVA SCOTIA

1928 - Light infections observed in King's county on June 5th. Sori were prominent but immature.

DISEASES OF VEGETABLE AND FIELD CROPS

ARTICHOKE

WILT -- Sclerotinia

NEW BRUNSWICK

1927 - Severe in one patch in York county.

ASPARAGUS

RUST -- Puccinia Asparagi DC.

ONTARIO

1927 - Quite prevalent in the Ottawa district both years.

1928 - Light infection occurred in the Niagara district.

BEAN

ANTHRACNOSE -- Colletotrichum Lindemuthianum (Sacc. & Magn.) Bri. & Gav.

NEW BRUNSWICK

1927 - A moderate infection occurred in York county.

1928 - This disease was worse than the preceding year being quite general and severe in different parts.

QUEBEC

1927 - At St. Nicolet (Nicolet county) 5 per cent of a field was badly affected with the diseases, while about 2 per cent of the plants showed a slight infection only. At Macdonald College it was more severe than during the previous year.

1928 - Anthracnose was quite severe in Portneuf, Quebec, and Champlain counties. The canning factories suffered much loss, and yields were greatly reduced. One variety, Petite Parisienne appeared to be resistant.

ONTARIO

1927 - This disease was very prevalent in the Ottawa district both years, especially in 1928. There were several severe cases reported from the Niagara district in 1928. In one field of the Refugee variety practically 100 per cent loss resulted.

BACTERIAL BLIGHT -- Pseudomonas Phaseoli E.F.Sm.

NEW BRUNSWICK

1927 - A slight infection occurred at the Dominion Experimental Station, Fredericton.

1928 - Only one case was observed in York county.

QUEBEC

1928 - In one field at Ste. Anne de la Pocatiere about 7 per cent of the plants were severely infected.

ONTARIO

1928 - Severe occurrence reported from Durham county. Also occurred at Ottawa.

SASKATCHEWAN

1928 - Common at Indian Head. Infection varied from a trace in Robust and Darling varieties, 5 per cent in Beauty and Norwegian to 20 per cent in Navy Pilot and 50 per cent in Navy.

ALBERTA

1928 - Moderate infections were found in gardens in Edmonton.

MOSAIC -- Virus

NEW BRUNSWICK

1927 - A slight infection was reported from York county.

1928 - General occurrence but not important.

RUST -- Uromyces appendiculatus (Pers.) Lev.

NEW BRUNSWICK

1927 - Isolated cases only observed.

WILT -- Sclerotinia Sclerotiorum (Lib.) Mass.

NEW BRUNSWICK

1927 - A slight infection occurred at the Dominion Experimental Station, Fredericton.

1928 - This disease was very severe in garden patches in York county. Injury to the extent of 60 per cent in one field of three acres.

BEET

BEET

(Including Sugar Beet & Mangel)

CERCOSPORA LEAF SPOT -- Cercospora beticola Sacc.

NEW BRUNSWICK

1927 - A moderate amount of spotting was found on the older leaves in York county.

1928 - Infection general but slight.

ALBERTA

1928 - Light infection found at Raymond.

SCAB -- Actinomyces scabies (Thax.) Güssow

NEW BRUNSWICK

1928 - One case reported from a city garden in Fredericton.

QUEBEC

1928 - Quite common in some localities in Rimouski where beets and potatoes had been planted on the same land year after year.

ONTARIO

1927 - Moderate infection occurred in a field in Middlesex county in which scabby potatoes had formerly been produced.

1928 - One case observed at Ottawa.

ROOT ROT -- Phoma sp.

ALBERTA

1928 - Quite severe causing 20 per cent damage in some field. The base of the root is affected with black or dark brown rot. Leaves flagging and petioles often blackened. Found in sugar beets and mangels in irrigated field, especially those in poor physical condition.

ROOT ROT -- Rhizoctonia sp.

ALBERTA

1928 - This disease was destructive in irrigated fields at Raymond. Young beets were affected, the upper part of the root being girdled and the plants stunted.

SOFT ROT -- Bacillus carotovorus Jones

NEW BRUNSWICK

- 1927 - A slight outbreak was observed both 1927 and 1928
1928 at the Dominion Experimental Station at Fredericton.

CABBAGE

CLUB ROOT -- Plasmodiophora Brassicae Wor.

NEW BRUNSWICK

- 1927 - A moderate infection was found on young plants in
York county.
1928 - One light case was reported from Sunbury.

QUEBEC

- 1927 - In a field in Temiscouata county about 5 per cent
of the plants were severely attacked.
1928 - Very severe in gardens on the Magdalen Islands,
being found in about 70 per cent of them.

BRITISH COLUMBIA

- 1928 - A severe outbreak occurred in the Armstrong district,
the disease being new to this section. A survey
showed that over 50 per cent of the acreage was
affected and in over 70 per cent of this area, from
90 to 100 per cent of all plants were affected.

BLACK ROT -- Pseudomonas campestris (Pamm.) E.F.Sm.

ONTARIO

- 1928 - A very severe case was reported from Humberstone in
York county. About 80 per cent of the crop was
destroyed.

SOFT ROT -- Bacillus carotovorus

NEW BRUNSWICK

- 1927 - Slight infection occurred in York county.
1928 - Infection general but usually slight. Only one
serious case was reported.

CABBAGE
CARROT
CAULIFLOWER

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DROP -- Sclerotinia Sclerotiorum (Lib.) Mass.

QUEBEC

- 1927 - Three heads of cabbage very severely affected were found at Ste. Anne de la Pocatiere.
- 1928 - A few badly affected specimens were again found at Ste. Anne de la Pocatiere, but the disease was not common this year.

BLACK-LEG -- Phoma lingam (Tode) Desmazieres

One case reported from New Brunswick in 1927.

WIRE STEM -- Corticium vagum B.&C.

One case reported from a garden in Edmonton, Alberta, in 1928.

DAMPING OFF -- (Caused by various fungi).

One case reported from the province of Quebec in 1927.

CARROT

WILT -- Sclerotium Sclerotiorum (Lib.) Mass.

A slight infection was observed in York county, New Brunswick in 1927.

CAULIFLOWER

CLUB ROOT -- Plasmodiophora Brassicae Wor.

NOVA SCOTIA

1927 - One slight case reported near Halifax.

NEW BRUNSWICK

- 1927 - Slight infections in young plants were observed in York county.
- 1928 - Infections were general but slight in the same county.

CAULIFLOWER
CELERY

BRITISH COLUMBIA

1928 - Severe infections reported from the Armstrong district.

BLACK ROT -- Pseudomonas campestris (Pamm.) E.F.Sm.

ONTARIO

1928 - A very severe case was reported from Humberside in York county. About 80 per cent of the crop was destroyed.

SOFT ROT -- Bacillus carotovorus Jones

NEW BRUNSWICK

1927 - Isolated cases reported from York county.

1928 - Only one slight case observed.

CHINESE CABBAGE (Brassica pekinensis)

CLUB ROOT -- Plasmodiophora Brassicae Wor.

BRITISH COLUMBIA

1928 - This plant was severely attacked in the Armstrong district. It is believed that this is the first record of this host being attacked either in Canada or in the United States.

CELERY

LATE BLIGHT -- Septoria Apii Chester

NEW BRUNSWICK

1927 - Severe cases occurred in York county causing partial defoliation.

1928 - Infections general but slight in York county.

QUEBEC

1928 - All celery near Montreal was badly infected with late blight. One field showed 70 to 80 per cent loss.

CELERY

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ONTARIO

- 1927 - Reported from different parts of the province
1928 both years. Heavy infestations in the Ottawa district in 1928.

EARLY BLIGHT -- Cercospora Apii Fr.

QUEBEC

- 1928 - Several cases were reported from the Agricultural School and the Experimental Farm at Ste. Anne de la Pocatiere. Infections, however, were not severe.

SLIME MOULD -- Physarum cinereum (Batsch.) F.

ONTARIO

- 1927 - A very interesting case of a slime mould over-running celery was observed this past season. About two dozen celery plants out of several hundred, growing under unusually moist conditions in a cold frame, were over-run by a slime mould which was later identified as Physarum cinereum (Batsch.) P. in two or three cases the celery plants were almost completely suffocated by the slime mound, and the plants eventually died. On the whole, however, little damage was done.

BACTERIAL SOFT ROT -- Bacillus carotovorus Jones

ONTARIO

- 1927 - Several cases of loss in storage were reported from western Ontario.
1928 - A heavy infestation was reported from Middlesex county.

YELLOW? -- Fusarium sp.

ONTARIO

- 1928 - One small area in a patch of celery in Grantham township, Lincoln county was suspected of being affected by Fusarium "Yellows".

CRESS

DOWNY MILDEW -- Peronospora parasitica (Pers.) De Bary

SASKATCHEWAN

1927 - A fairly heavy infection was observed in a small garden in Saskatoon.

CUCUMBER

SCAB -- Cladosporium cucumerinum Ell. & Arth.

QUEBEC

1927 - This disease was found in the vicinity of Beauport about 3 per cent of the cucumbers being infected.

1928 - In a field comprising one quarter acre, about 12 to 15 per cent loss was caused by this disease, being much worse than during the previous year.

BACTERIAL WILT -- Bacillus tracheiphilus E.F.Sm.

NEW BRUNSWICK

1927 - Slight infection was reported from York county.

1928 - This disease was quite severe in the garden section on the east side of the St. John River.

RUST -- Fusarium sp.

One case was reported from York county New Brunswick in 1928.

ANGULAR LEAF SPOT -- Pseudomonas lachrymans (Sm. & Bryan) Carsn.

NEW BRUNSWICK

1928 - A few isolated cases were reported from Sunbury, St. John valley.

QUEBEC

1928 - Only one case recorded for this province, being submitted by a correspondent.

MOSAIC -- Virus

A few cases were observed in York county, New Brunswick in 1927.

CELERY
ONION

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HORSE RADISH

LEAF SPOT -- Ramularia Armoraciae Fckl.

A slight infection occurred in York county, New Brunswick in 1927.

LETTUCE

DROP -- Sclerotium Sclerotiorum (Lib.) De Bary.

NEW BRUNSWICK

1927 - Moderate infections observed in older plants in York county.

1928 - Quite prevalent in the St. John valley.

GREY MOULD -- Botrytis cinerea Pers.

NEW BRUNSWICK

1927 - Severe cases were observed in damp locations in York county.

BACTERIAL ROT -- Bacillus carotovorus Jones

ONTARIO

1927 - Reported from Todmorden, York county.

ONION

DOWNY MILDEW -- Peronospora Schleideni Unger

NEW BRUNSWICK

1927 - This disease was generally present in Sunbury county and proved a considerable factor in onion production in this area.

1928 - This disease was quite serious this year on the east side of the St. John river.

QUEBEC

1927 - There was a very high infection at Macdonald College. In two fields practically every plant was attacked, the yield being reduced considerably. Both the red and the white varieties were attacked equally severely. The white ones succumbed first however.

ONTARIO

1928 - This disease was fairly prevalent in a plantation in Lincoln county near St. Catharines. The disease attacked the white varieties more severely than the red ones.

SASKATCHEWAN

1927 - A moderate infection was observed in the garden at the Experimental Farm at Indian Head.

NECK ROT -- Botrytis Allii Mann.

NEW BRUNSWICK

1927 - Only one specimen observed in York county.

ONTARIO

1928 - One plantation badly diseased in the vicinity of Prescott.

BRITISH COLUMBIA

1927 - The early and excessive fall rains contributed greatly in causing the large amount of neck-rot which occurred this year. Practically the whole crop grown on the upper bench lands in the Kelowna district was a total loss. It is estimated that approximately 2,000 tons of onions were not even removed from the fields.

1928 - Neck-rot is the most serious disease confronting the onion growers of the Okanagan valley. Its severity is dependent largely on climatic conditions prevailing during the late growing season and during the harvesting and field during period. An exceptionally favourable autumn this year enabled the growers to harvest their crop with practically no loss. It is worthy of note, however, that, in a few sections on the upper bench lands, even under such favourable climatic conditions, heavy losses again occurred. In these areas the disease becomes so thoroughly established in the crop before it is pulled, that favourable harvesting weather is of no avail in preventing the loss. It would seem, therefore, that such areas are not suitable for the growing of this commodity.

ONION
PARSNIP
PEA

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BULB ROT -- Fusarium sp.

BRITISH COLUMBIA

1927 - A survey has shown that this disease occurred in approximately one-half of the onion acreages in the Kelowna district. Throughout the affected area, losses varied greatly, running from 1 to 60 per cent. An estimate over the whole area indicated that possibly 5 per cent of all the bulbs in this area were affected.

1928 - The survey carried out this year shows that this disease is now widespread throughout the main onion growing sections. It is more severe on the lower lying lands, but was found this year on the higher levels. Where it has been longest established, it is now so severe that it is discouraging the growing of the crop.

SMUT -- Urocystis Cepulae Frost

ONTARIO

1928 - Observed in Lincoln county infecting young seedlings.

PARSNIP

LEAF SPOT -- Ramularia pastinacea Bubak

NEW BRUNSWICK

1927 - A moderate infection was reported from York county.

1928 - Only one case was observed in the same locality as in the preceding year.

PEA

POWDERY MILDEW -- Erysiphe Polygoni DC.

NEW BRUNSWICK

1927 - A slight infection was reported from York county.

QUEBEC

1928 - At Ste. Anne de la Pocatiere a very severe case was reported, the peas in the garden being covered with the fungus.

BRITISH COLUMBIA

1928 - Reported from Victoria.

LEAF AND POD SPOT -- Ascochyta Pisi Lib.

SASKATCHEWAN

1927 - This disease was quite severe. Considerable injury was caused to stems and pods. Infection occurred on land which was flooded during part of the early growing season.

1928 - Infections were very light at Rosthern but heavy at Saskatoon.

BRITISH COLUMBIA

1928 - Reported from Sidney.

MOSAIC -- Virus

NEW BRUNSWICK

1928 - Light infections in isolated cases observed in York county.

POTATO INSPECTION AND CERTIFICATION

Acreage Entered for Inspection

A total of 31,601 acres of potatoes was entered for field inspection with a view to certification, in 1927. This is an increase of approximately 18,000 acres, or 130 per cent over the acreage inspected in 1926.

In 1928 a total acreage of 40,497 was entered for field inspection. This represents an increase of 8,896 acres, approximately 28 per cent more than was entered for inspection in 1927, the previous record year. In spite of the large increase in acreage entered for inspection in 1928, the percentage which passed to our standard was also higher, 77.8 compared with 75.6 in 1927.

Year	Number of fields inspected	Number of acres inspected	Number of fields passed	Number of acres passed	Percentage of fields passed	Percentage of acres passed
1921	2,646	7,900.0	1,634	4,290.0	61.7	54.3
1922	3,283	11,250.0	2,139	6,991.0	65.3	62.1
1923	2,914	9,681.0	2,061	7,099.7	70.7	73.3
1924	5,586	19,238.87	3,868	13,916.64	69.25	72.3
1925	4,542	14,451.51	3,307	10,856.88	72.8	75.1
1926	4,212	13,714.57	3,094	10,392.61	73.5	75.8
1927	8,388	31,601	6,125	23,875	73.0	75.6
1928	9,610	40,497	7,156	31,509	74.5	77.8

Summary of the Field Inspection Work by Provinces 1927.

Province	Number of applica- tions	Number of fields inspected	Number of fields passed	Per- centage	Number of acres inspected	Number of acres passed	Per- cent- age.
Prince Edward Island ...	4,385	5,642	4,471	79.2	24,845	19,915	80.1
Nova Scotia	248	336	185	55.0	620	377	60.8
New Brunswick.....	338	654	418	63.9	2,777	1,732	62.4
Quebec	319	398	261	65.6	590	385	65.3
Ontario	354	467	359	76.9	1,205	950	78.8
Manitoba	24	53	32	60.4	145	57	39.3
Saskatchewan	50	113	50	44.2	407	131	32.2
Alberta	72	115	63	54.8	250	50	20.0
British Columbia	320	610	286	46.9	762	278	36.6
Total (Canada)	6,110	8,388	6,125	73.0	31,601	23,875	75.6

Summary of the Field Inspection Work by Provinces 1928

Province	Number of applications	Number of fields inspected	Number of fields passed	Percentage	Number of acres inspected	Number of acres passed	Percentage
Prince Edward Island ..	4,629	6,254	4,875	77.9	32,079	25,883	80.6
Nova Scotia	214	382	251	65.7	645	425	65.8
New Brunswick	470	853	536	62.8	3,540	2,276	64.3
Quebec	746	807	548	68	1,107	724	65.4
Ontario	420	597	453	75.8	2,043	1,480	72.4
Manitoba	33	80	46	57.5	246	124	50.4
Saskatchewan	60	118	84	71.2	301	199	66.2
Alberta	44	82	67	81.7	100	80	80
British Columbia	197	437	296	67.7	436	318	72.9
Total (Canada)	6,813	9,610	7,156	74.5	40,497	31,509	77.8

Fields Rejected for Certification, 1927 - Reasons for Rejection

Province	Black leg	Leaf roll	Mosaic	Foreign varieties	Lack of vigour	Adjacent to disease	Lack of cultiva- tion and insect injury	Miscell- aneous #	Total Rejections	
									Fields	Acres
P.E.I.	294	6	401	154	66	78	172	1,171	4,930
N.S.	11	9	26	42	24	4	35	151	243
N.B.	49	7	155	8	17	236	1,045
Que.	17	3	50	7	40	8	12	137	205
Ont.	23	16	25	8	27	6	3	108	255
Man.	9	1	2	3	5	1	21	88
Sask.	30	2	11	8	9	3	63	276
Alta.	22	6	11	6	2	4	1	52	200
B.C.	6	132	22	22	89	53	324	484
Totals	461	50	813	258	95	289	19	278	2,263	7,726

Includes rejections for all other reasons than those specified, viz.: Wilts, streaks, frozen down, drowned out, etc.

Field Rejected for Certification, 1928 - Reasons for Rejection

Province	Black leg	Leaf roll	Mosaic	Foreign varieties	Lack of vigour	Adjacent to disease	Poor culti- vation and insect injury	Miscell- aneous #	Total Rejections	
									Fields	Acres
P.E.I.	245	9	608	196	160	97	64	1,379	6,196
N.S.	5	22	49	18	13	10	14	131	220
N.B.	35	12	226	14	3	18	3	6	317	1,264
Que.	29	23	105	4	84	6	8	259	383
Ont.	32	45	16	1	20	16	14	144	563
Man.	8	1	13	4	6	2	34	122
Sask.	10	4	15	1	4	34	102
Alta.	3	3	5	2	2	15	20
B.C.	2	1	83	4	3	14	34	141	118
Totals	369	120	1,120	244	168	256	35	142	2,454	8,988

Includes rejections for all other reasons than those specified, viz.: Wilts, streaks, frozen down, drowned out, etc.

Percentage of Disease Found - By Provinces 1927.

	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
	%	%	%	%	%	%	%	%	%
Average percentage of disease in total fields inspected -									
Black leg26	.26	.6	.37	.51	1.5	1.54	1.72	.18
Leaf roll01	.3	.2	.13	.35	.04	.07	.52	.09
Mosaic43	1.5	2.5	1.23	.43	.46	.42	.93	1.94
Wilts01	.1	0	.12	0	0	0	0	.16
Average percentage of disease in fields passed -									
Black leg12	.15	.4	.11	.27	.77	.11	.21	.08
Leaf roll	Tr.	.2	.1	.07	.16	.04	.06	.06	.07
Mosaic05	.2	.4	.35	.16	.32	.13	.1	.43
Wilts	Tr.	.12	0	.09	0	0	0	0	.1
Average percentage of disease in fields rejected -									
Black leg74	.48	1.8	.88	1.3	3.22	3.53	3.55	.27
Leaf roll05	.4	.4	.23	.96	.07	.08	.55	.11
Mosaic	1.83	3.8	5.8	2.9	1.3	.62	2.15	1.8	3.27
Wilts11	.11	0	.26	0	0	0	0	.22

Percentage of Disease Found - By Provinces 1928.

Province	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
	%	%	%	%	%	%	%	%	%
Average percentage of disease in total fields inspected -									
Blackleg25	.08	.2	.38	.37	.73	.68	.27	.11
Leaf roll02	.32	.1	.33	.64	.39	.29	.32	.01
Mosaic60	.51	1.8	1.25	.34	.44	.65	.65	1.4
Wilts015	.32	0	.006	.002	0	0	0	.06
Average percentage of disease in fields passed -									
Blackleg13	.03	.1	.16	.24	.32	.3	.09	.07
Leaf roll01	.22	.06	.07	.3	.14	.14	.05	.003
Mosaic06	.11	.4	.31	.13	.1	.21	.14	.19
Wilts008	.15	0	.007	.002	0	0	0	.05
Average percentage of disease in fields rejected -									
Blackleg65	.11	.3	.78	.79	1.23	1.6	1.08	.23
Leaf roll04	.51	.3	.88	1.73	.72	.68	.01	.03
Mosaic	2.4	1.25	3.1	3.19	.98	.91	1.78	2.94	4.7
Wilts037	.64	0	.003	0	0	0	0	.1

Development of the Potato Certification Work.
Three-Year Period Ending 1928.

Province		Fields entered	Fields passed	Percent- age	Acreage entered	Acreage passed	Percent- age	Increase or de- crease in acreage passed
P. E. Island ..	1926	2,300	1,801	78.3	9,275	7,597	82	%
	1927	5,642	4,471	79.2	24,845	19,915	80.1	
	1928	6,254	4,875	77.9	32,079	25,883	80.6	+240.7
Nova Scotia	1926	137	106	77.4	219	172	78.5	
	1927	336	185	55.	620	377	60.8	
	1928	382	251	65.7	645	425	65.9	+147.1
New Brunswick ..	1926	506	278	55.	2,031	1,195	58.8	
	1927	654	418	63.9	2,777	1,732	62.4	
	1928	853	536	62.8	3,540	2,276	64.3	+ 90.5
Quebec	1926	184	107	58.2	340	182	53.6	
	1927	398	261	65.6	590	385	65.3	
	1928	807	548	68.	1,107	724	65.4	+ 297.8
Ontario	1926	440	319	72.5	826	579	70.1	
	1927	467	359	76.9	1,205	950	78.8	
	1928	597	453	75.8	2,043	1,480	72.4	+155.6

Development of the Potato Certification Work.
Three-Year Period Ending 1928. (Cont'd)

Province		Fields entered	Fields passed	Percent- age	Acreage entered	Acreage passed	Percent- age	Increase or decrease in acreage passed
Manitoba	1926	60	41	68.3	146	100	68.6	+24
	1927	53	32	60.4	145	57	39.3	
	1928	80	46	57.5	246	124	50.4	
Saskatchewan	1926	80	71	88.7	214	103	48.1	+93.2
	1927	113	50	44.2	407	131	32.2	
	1928	118	84	71.2	301	199	66.2	
Alberta	1926	75	53	70.7	152	56	36.8	+42.9
	1927	115	63	54.8	250	50	20.	
	1928	82	67	81.7	100	80	80.	
British Columbia..	1926	430	318	74.	512	408	79.7	-22.1
	1927	610	286	46.9	762	278	36.5	
	1928	437	296	67.7	436	318	72.9	
Total for Canada..	1926	4,212	3,094	73.5	13,715	10,392	75.8	+203.2
	1927	8,388	6,125	73.	31,601	23,875	75.6	
	1928	9,610	7,156	74.5	40,497	31,509	77.8	

Standard 1926 - Total of 4 per cent diseased plants allowed.
1928 - Total of 3 per cent diseased plants allowed.

POTATO

LATE BLIGHT -- Phytophthora infestans (Mont.) de Bary

PRINCE EDWARD ISLAND

1927 - The earliest recorded appearance of late blight of potatoes (July 26) and its subsequent alarming development justified much concern among potato growers. Rainy weather in August favoured the development of the disease to a serious extent. Crops that did not receive the regular spray applications were destroyed and conditions threatened to cause a shortage of seed potatoes despite the enormous acreage under cultivation in the province. However, while the premature death of the plants materially reduced the yield, actual loss through blight rot was surprisingly slight as revealed by final reports. Carefully sprayed fields produced a minimum of rotted tubers, and most of these came from the end rows where the required pressure was not maintained in turning the sprayer.

1928 - As stated above, late blight rot was abundant in 1927. As a consequence it commonly occurred that tubers, developed an incipient growth of blight rot which remained inactive throughout the winter. When cut into sets for the 1928 planting this rot, which escaped notice developed in the seed piece in the ground. Cases were noticed where sprouts were produced, but the set decayed before the plant became established.

NOVA SCOTIA

1927 - In Cumberland county several fields were too badly blighted to allow for the determination of other diseases. Considerable injury was observed in King's county where the progress of the disease was hastened by wet weather.

1928 - General in Cumberland and Colchester counties.

NEW BRUNSWICK

1927 - Late blight was very severe especially on late varieties, causing considerable loss.

1928 - This disease although quite common was less severe than during the previous season. Initial conditions in certain sections were conducive to the development of late blight in epiphytotic form, but, later in the season, changes in the weather suppressed it.

POTATO

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QUEBEC

1927 - Weather conditions this year were favourable for the development of late blight, a serious outbreak of which occurred causing considerable loss throughout the province except in the eastern part along the St. Lawrence.

1928 - In St. Maurice county a few vines were killed by blight in unsprayed fields, with a few tubers rotting. At Ste. Anne de la Pocatiere there was not enough rain to favour the development of late blight, and none occurred either on vines or tubers this year.

ONTARIO

1927 - There were a few local outbreaks of late blight in 1927. Some correspondents reported loss due to rot.

1928 - Late blight was severe in different parts of the province this year, especially on fields that were not sprayed or in cases where proper attention had not been given to the late season applications. In the vicinity of Ottawa a high percentage of rot was observed in Irish Cobblers while in one instance Green Mountains were 100 per cent diseased.

BRITISH COLUMBIA

1928 - Reported from Sumas Prairie.

RHIZOCTONIA -- Corticium Solani (Prill. & Del.)
Bourd. & Galz.

PRINCE EDWARD ISLAND

1927 - Very severe on late-harvested potatoes grown in infected land. Irish Cobblers 98 per cent and Green Mountains 84 per cent of tubers affected.

1928 - Tuber infection by Rhizoctonia in 1928 was never severe.

NEW BRUNSWICK

1927 - This disease varied considerably in the degree of infection, but was always a factor in production.

1928 - General and sometimes severe in York county. Slight increase over the previous year.

ONTARIO

1927 - Reported at Ottawa both years and from Durham
1928 county in 1928.

ALBERTA

1928 - This disease was very common, causing the usual amount of damage.

POTATO

EARLY BLIGHT -- Alternaria Solani (Ell. & Mart.) Jones & Grout.

NEW BRUNSWICK

1927 - This disease varied from slight to severe in different localities.

1928 - Quite prevalent over the entire province.

ALBERTA

1928 - Collected at Brooks.

BLACK LEG -- Bacillus phytophthorus (Frank) Appel.

PRINCE EDWARD ISLAND

1927 - Black leg of potatoes was scarce even in the presence of ideal conditions for its development.

NOVA SCOTIA

1927 - Black leg was present throughout the province, some fields showing as high as 11 per cent.

NEW BRUNSWICK

1927 - The loss sustained by the growers this year was slightly below the average.

1928 - Black leg was general throughout the province this year but was not of serious consequence. There was a marked decrease in the amount of disease as compared with the previous year.

ONTARIO

1927 - Several cases were reported from western Ontario, only one of which was severe.

1928 - Common in Carleton county.

SASKATCHEWAN

1928 - About 5 per cent of a garden patch was destroyed at Quill Lake.

ALBERTA

1928 - This disease was prevalent in the Edmonton district.

COMMON SCAB -- Actinomyces scabies (Thax.) Gussow.

NOVA SCOTIA

1927 - Scab was fairly common, sometimes quite heavy infestations being found on Irish Cobblers.

POTATO

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NEW BRUNSWICK

1927 - Scab was present in most stock to varying degrees.

1928 - General and often more severe than usual.

ONTARIO

1927 - This disease could generally be found in stock from
1928 infected land both years. One severe case was reported from Leeds county, the crop having been grown on clay loam fertilized with barnyard manure.

MANITOBA

1928 - One case reported by a correspondent.

ALBERTA

1928 - Common at Edmonton.

SILVER SCURF -- Spondylocadium atrovirens Harz.

NEW BRUNSWICK

1927 - Only a slight infection reported.

1928 - General and severe in North Shore counties.

POWDERY SCAB -- Spongospora aubterranea (Wallr.) Lagerh.

NEW BRUNSWICK

1927 - Only isolated cases observed.

1928 - This disease was not important, only a few cases having been reported.

DRY ROT -- Fusarium spp.

NEW BRUNSWICK

1927 - Severe under poor storage conditions.

1928 - Dry rot, though general this year, was not of serious consequence.

ALBERTA

1928 - Specimens received from Millet.

PHOMA ROT -- Phoma sp.

PRINCE EDWARD ISLAND

1928 - This rot was found in association with powdery scab of potatoes.

MOSAIC -- Virus

NEW BRUNSWICK

1927 - Severe in all localities, especially in table stock.

1928 - General throughout the province, while sometimes severe there was a lower percentage observed than in 1927.

QUEBEC

1928 - At Cap Rouge a field of Irish Cobblers showed a trace of Mosaic while a neighbouring field of Green Mountains had 7 to 10 per cent. At St. Jean (Montmorency county) a two-acre field had 35 per cent mosaic, while in a five-acre field on the same farm 75 per cent of the plants were affected.

LEAF ROLL -- Virus

NEW BRUNSWICK

1927 - Leaf roll was found to be present in most fields but was not the limiting factor in production as was mosaic.

1928 - Leaf roll was general, but conditions showed a decided improvement over the previous year.

QUEBEC

1928 - A field of Irish Cobblers at Cap Rouge showed 2 per cent leaf roll.

CURLY DWARF -- Virus

NEW BRUNSWICK

1927 - Curly Dwarf was present to a slight degree in most localities.

1928 - A few cases were reported from commercial fields.

POTATO
RHUBARB

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SPINDLE TUBER -- Virus

NEW BRUNSWICK

1927 - There appeared to be a slight increase in the amount of this condition over 1926.

1928 - Conditions showed a decided improvement over the previous year which seems to indicate that this, as well as other diseases are yielding well to certification methods.

BRITISH COLUMBIA

1928 - Spindle tuber was observed in one lot of potatoes of the Burbank variety which had been sent to the Dominion Laboratory of Plant Pathology, Fredericton.

NET NECROSIS

NEW BRUNSWICK

1927 - Only a few cases of this trouble were observed each year; of very little importance.

HOLLOW HEART -- Non-parasitic

NEW BRUNSWICK

1927 - Less than the average amount of this condition was observed.

1928 - Only a few cases in Irish Cobblers were reported.

STREAK

NEW BRUNSWICK

1927 - This disease was quite rare in both seasons. A few isolated cases, however, were reported.

RHUBARB

LEAF SPOT -- Ascochyta Rhei E. & E.

In New Brunswick a slight infection was observed in 1927 and 1928 at the Dominion Experimental Station, Fredericton.

SPINACH

DOWNY MILDEW -- Peronospora effusa (Grev.) Rabh.

This disease was very severe in New Brunswick in 1927. One shipment was a total loss.

In Middlesex county, Ontario the disease was worse than usual in 1927. In 1928 there was a general infection in Lincoln county.

TOBACCO

BLACK ROOT ROT -- Thielavia basicola Zopf.

ONTARIO

- 1927 - This disease, while present in Southwestern Ontario, caused less than the usual amount of damage.
- 1928 - Some loss resulted in the Burley and dark-fired sections.

QUEBEC

- 1928 - Root rot was quite general in the cigar binder districts of Quebec owing to the cool weather conditions. The disease is so generally distributed that the almost exclusive use of Resistant Havana (No. 142) will be necessary in the future.

WILDFIRE -- Pseudomonas tabacum (W. & F.) Stev.

QUEBEC

- 1927 - No cases were reported outside of Yamaska valley where it was first found in 1925. Owing to the dry weather in August the damage was comparatively light. It was observed on only two farms in addition to the six on which it had first been found.
- 1928 - The disease was found on over thirty farms in Rouville county as compared with eight the previous year. Most of the infections were traced to one large producer of plants. One case of the disease was reported in Montcalm county north of Montreal.

TOBACCO

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LEAF SPOT -- Cercospora Nicotianae Ell. & Ev.

NEW BRUNSWICK

- 1928 - There was a quite serious outbreak at the Dominion Experimental Station, Fredericton.

ANGULAR LEAF SPOT -- Pseudomonas angulata (Froome & Murray) Stev.

QUEBEC

- 1927 - Considerable damage was caused in certain localities in this province.

- 1928 - Leaf spot was more prevalent than usual in 1928, and caused much damage.

ONTARIO

- 1928 - As in the province of Quebec this disease was more severe than usual in the tobacco growing districts where it caused considerable damage.

MOSAIC -- Virus

QUEBEC

- 1927 - This trouble was present in the Yamaska Valley in widely varying percentages on different farms. Only a few instances were noted in the L'Assomption - Montcalm district.

- 1928 - Loss from mosaic was less than usual.

ONTARIO

- 1927 - About the usual amount of mosaic was observed.
- 1928 - This trouble was much less prevalent than during the preceding years.

BRITISH COLUMBIA

- 1927 - Mosaic was very common and caused considerable damage.

DAMPING-OFF -- Pythium de Baryanum Hesse

- There was considerable loss in the province of Quebec owing to faulty methods of seed-bed management.

FRENCHING -- Non-parasitic

In 1927 this trouble was more prevalent than usual in Quebec and Ontario. It was quite general in British Columbia, some fields being very seriously damaged.

About the usual amount of damage was caused in Quebec and Ontario in 1928.

SORE-SKIN -- Non-parasitic

In 1928 a single case was reported in Kent county, Ontario.

HOLLOW STALK -- Non-parasitic

A few isolated cases were observed in 1928.

LEAF DROP -- Cause unknown

This trouble, characterized by the dropping of the leaves before maturity is reached, was widespread and severe in the tobacco fields in British Columbia in both 1927 and 1928. Quite heavy losses were caused on the bottom lands in the Okanagan valley in 1928.

CURLY DWARF -- Non-parasitic

Appreciable damage was caused in British Columbia in 1927.

SUNBURN -- Non-parasitic

Burning of the leaves by the sun was fairly common in British Columbia in 1928.

LEAF SPOT -- Cause undetermined

In Quebec in 1927 various leaf spots of undetermined cause were noted, particularly on the Canelle variety, which appeared to be particularly susceptible.

TOMATO

LEAF SPOT -- Septonia Lycopersici Speg.

NEW BRUNSWICK

1927 - There was a slight scattered infection in all varieties examined.

TOMATO

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1928 - General and quite severe.

BLACK ROT -- Alternaria Solani (Ell. & Martin) Jones
& Grout.

NEW BRUNSWICK

1927 - Heavy infections were found on the leaves, while
the fruits were only slightly affected.

1928 - There was a slight outbreak in the St. John Valley.

QUEBEC

1928 - This disease was very prevalent this year both on
the leaves and on the fruit.

DOWNY MILDEW -- Phytophthora infestans (Mont.) de
Bary

NEW BRUNSWICK

1927 - A slight infection was observed in York county.

MOSAIC -- Virus

NEW BRUNSWICK

1927 - A few cases were observed both years, but the
1928 trouble was not of any importance.

BLOSSOM END ROT -- Non-parasitic

NOVA SCOTIA

1927 - One specimen submitted by a correspondent.

NEW BRUNSWICK

1927 - Only a few cases observed.

1928 - This condition was quite severe in the greenhouse
at the Dominion Experimental Station, Fredericton.

QUEBEC

1928 - This trouble caused a heavy loss in the tomato
crop this year, especially in Rimouski and
Temiscouata counties.

ONTARIO

1928 - Blossom end rot was very common in the Ottawa
district.

YELLOWS -- Virus

BRITISH COLUMBIA

1927 - Although this disease is present every year in the
1928 southern tomato growing sections, it rarely produces
heavy losses. The degree of prevalence during 1928
was considered normal.

BACTERIAL CANKER -- Bacterium michiganense (E.F.Sm.)
Stev.

BRITISH COLUMBIA

1928 - Losses were very slight this year.

BREAKDOWN -- Cause unknown

BRITISH COLUMBIA

1928 - A breakdown, occurring especially on Earliana, but
also present on other varieties, was severe in the
Keremeos district. The most readily recognized
symptom of the disease was the occurrence in the
fruit, just about ripening time, of soft, mushy
areas in the tissue lying just underneath the
epidermis. These areas, usually occurring towards
the calyx end of the fruit had a water soaked
appearance and the colour was often slightly
redder than that of neighbouring unaffected portions.
To the touch, these areas were soft and watery and,
when the epidermis was broken through with the
finger, the tissue ran out in a water stream.
Badly affected fruits were almost useless for
canning, since so much of the tissue was lost in
peeling. The trouble occurred under practically
all conditions of culture, and was generally present
throughout the whole district. It is true that,
under certain fertilizer treatments, the disease was
not as prevalent as in fields or parts of fields
where the fertilizer was not applied. Its presence,
however, in every field would seem to indicate that
some condition, other than lack of food materials in
the soil, was actually responsible for the trouble.
The fertilizer treatments perhaps only prevented the
actual causal factors from producing the losses that
occurred on less vigorous plants. A protracted
period of hot days and cold nights - 100° F. for
five successive days, with sudden drops at night -
might have played a very definite role in producing
such a trouble.

TURNIP

CLUB ROOT -- Plasmodiophora Brassicae Wor.

NOVA SCOTIA

1928 - Two severe cases were reported from Colchester county.

NEW BRUNSWICK

1927 - Club root varied in intensity in different fields but was seldom severe.

1928 - This disease was generally severe this year.

QUEBEC

1927 - In a two-acre field in Nicolet county 20 per cent of the plants were badly affected. A one-acre field on the Magdalen Islands showed at least 50 per cent infection.

RHIZOCTONIA -- Corticium Solani (Prill. & Del.)
Bourd. & Galz.

NEW BRUNSWICK

1927 - Only one specimen was observed.

1928 - General but slight infection.

LEAF SPOT -- Cercospora albo-maculans (Ell. & Ev.)
Sacc.

NEW BRUNSWICK

1927 - This disease was found in St. Mary's, York county. It was sufficiently severe to cause the death of numerous leaves on the plants.

1928 - Leaf spot was more general in distribution than in 1927 and the infections were severe.

DRY ROT -- Phoma Lingam (Tode) Desm.

QUEBEC

1928 - In Bonaventure county two fields had 50 and 65 per cent dry rot respectively. The former was on wet soil and the latter on dry soil. The seed from which these two fields were grown, as well as another affected field in Beauce county, was all from the same source.

POWDERY MILDEW -- Erysiphe Polygoni DC.

NOVA SCOTIA

1928 - This disease was prevalent on the variety plots at the Dominion Experimental Station, Kentville, but was not a serious factor.

DOWNY MILDEW -- Peronospora parasitica (Pers.) de Bary

NEW BRUNSWICK

1927 - Isolated infections were found in York county.

SCAB -- Actinomyces scabies (Thax.) Güssow

QUEBEC

1928 - Scab was quite common on turnips in some localities, because potatoes and beets had been planted on the same land for years.

DISEASES OF FOREST AND SHADE TREES

BALSAM FIR (Abies balsamea (L.) Mill.

WITCHES' BROOM RUST -- Melampsorella elatina (Alb. & Schw.) Arth.

Occasional occurrences were reported from Nova Scotia and New Brunswick in 1927 and 1928. 3

BEECH (Fagus grandifolia Ehrh.)

LEAF BLIGHT -- Gnomonia sp.

Perithecial stage found in King's county, Nova Scotia in 1927.

BIRCH (Betula spp.)

HEART ROT -- Fomes igniarius Fr.

Commonly present in many localities in New Brunswick in 1927 and 1928.

ANTHRACNOSE -- Gloeosporium betulosum Ell. & Mart.

One case reported from St. John county, New Brunswick in 1928.

LEAF SPOT -- Phyllosticta Betulae Ell. & Ev.

One case observed in York county, New Brunswick in 1928.

BUTTERNUT (Juglans sp.)

LEAF SPOT -- Marssonina juglandis (Lib.) P. Magnus

This disease was quite general in the St. John Valley in Sunbury county, New Brunswick, 1928.

BOX WOOD (Buxus sempervirens Thumb.)

ANTHRACNOSE -- Gloeosporium Louisiae, Bauml?

Caused defoliation of a small tree in London, Ontario in 1928.

The following were also reported from London, Ontario.

Volutella Buxi (Cda.) Berk.

Verticillium Buxi (Link) Awd. & Fleisch.

Blennoria Buxi Fr.

Macrophoma Candollii (B. & Fr.) Berl. & Vogl.

CHESTNUT (Castanea dentata (Marsh.) Borkh.)

BLIGHT -- Endothia parasitica (Murr.) And.

According to reports from Welland county in 1928, this disease caused the death of many chestnut trees in the vicinity of Fenwick.

ELM (Ulmus americana L.)

LEAF SPOT -- Gnomonia ulmea (Sacc.) Thüm.

Slight infections occurred in New Brunswick in 1927 and 1928.

HEART ROT -- Fomes igniarius Fr.

Several cases of Heart Rot reported from New Brunswick in 1927 and 1928.

HAWTHORN (Crataegus sp.)

POWDERY MILDEW -- Phyllactinia corylea (Pers.) Karst.

Reported from Metchosin, British Columbia in 1928.

MAPLE (Acer)

TAR SPOT -- Rhytisma acerinum (Pers.) Fr.

Light infections were reported from York county, New Brunswick, in 1927 and 1928.

WILT -- Verticillium sp.

Reported as being quite severe in maple trees (Acer saccharum L., and Acer rubrum L.) used for shade and ornamental purposes at Fredericton, New Brunswick in 1928.

MAPLE

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POWDERY MILDEW -- Uncinula circinata Cke. & Pk.

Reported from Victoria, British Columbia.

ANTHRACNOSE -- Gloeosporium aprocryptum Ell. & Ev.

Reported from Chatham, Ontario in 1927 (Acer platanoides L.).

CANKER -- Nectria cinnabarina (Tode) Fr.

Observed at Ottawa on Acer platanoides L., in 1928.

OAK (Quercus)

LEAF BLIGHT -- Gloeosporium nervisequum (Fckl.) Sacc.

This disease was very common in the vicinity of Ottawa in 1927 due to the excessive rain in May and June. It appeared to be confined to the White Oak (Quercus alba L.). It also caused premature defoliation at Senneville, Quebec, the white oaks being especially severely attacked.

PINE (Pinus)

WHITE PINE BLISTER RUST -- Cronartium ribicola Fisch.

Isolated cases were reported from Nova Scotia and New Brunswick in 1927 and 1928. One diseased tree found on private grounds at Ottawa in 1927.

POPLAR (Populus)

MILDEW -- Uncinula Salicis (DC.) Wint.

Slight infection reported from Indian Head, Saskatchewan in 1927.

LEAF SPOT -- Septoria populicola Peck.

Fairly heavy infections were observed in certain groves of Populus balsamifera L. at Saskatoon, Saskatchewan in 1928.

HYPOXYLON CANKER -- Hypoxylon pruinaum (Klotzsch) Cke.

This disease was responsible for the killing of several trees at Annaheim, Saskatchewan, in 1928.

SPRUCE (Picea)

RUST -- Melampsoropsis ledicola (Pk.) Arth.

Reported from Kenora, Ontario, and from Jasper Park, Alberta in 1927.

LEAF RUST -- Chrysomyxa Weirii Jackson

A severe infestation was reported from Manitoba in 1928.

WILLOW (Salix)

BLIGHT -- Fusicladium saliciperdu (All. & Tub.)
Lind. and Physalospora Miyabeana Fukushi

This disease was exceedingly widespread in the Maritime Provinces and Quebec in 1927 and 1928 and caused severe damage.

TAR SPOT -- Rhytisma salicinum Fr.

Isolated infections were observed in New Brunswick in 1927 and 1928.

RUST -- Melampsora Bigelowii Thüm.

Light infections were reported in 1928 from King's county, Nova Scotia, St. Gregor, Saskatchewan, and Point Grey, British Columbia.

WILLOW

-92-

POWDERY MILDEW -- Uncinula Salicis (DC.) Wint.

Moderate to heavy infections were reported from Indian Head and Prudhomme, Saskatchewan in 1928.

HEART ROT -- Fomes ignarius Fr.

Several cases observed in some very old trees in York county, New Brunswick.

DIE BACK -- Valsa sp.

In certain years considerable dying back of the younger limbs appears to be due to this fungus at Saskatoon. Reported in 1927.

DISEASES OF ORNAMENTAL PLANTS

ASTER

WILT -- Fusarium conglutinans Woll.
var. Callestephi Beach

This disease was very severe in New Brunswick, Quebec, and Ontario in 1927 and 1928. In some beds 75 per cent of the plants were attacked while others were entirely wiped out.

YELLOW

One report from King's county Nova Scotia.

AZALEA

LEAF GALL -- Exobasidium Vaccini (Fckl.) Wor.

Specimen received from Braeside, Ontario in 1928.

BARBERRY

RUST -- Puccinia graminis Pers.

An abundance of aecia reported from Colchester and King's counties, Nova Scotia, 1928. It was also observed on the barberry bushes at Ottawa in 1928.

BLEEDING HEART

WILT -- Sclerotinia sp.

One specimen observed in York county New Brunswick in 1928.

BUCKTHORN

RUST

Reported from Nova Scotia, Quebec, and Ontario in 1928.

CARAGANA

LEAF SPOT -- Septoria Caraganae (Jacz.) P.Henn.

Severe cases were reported from Indian Head and Saskatoon, Saskatchewan in 1928.

CARNATION

LEAF SPOT -- Alternaria Dianthi F.L. Stevens

A slight infection was reported from York county, New Brunswick in 1927. It also occurred at London, Ontario in the same year. In 1928 the disease was quite serious in garden patches at Fredericton, New Brunswick.

RUST -- Uromyces Dianthi (Pers.) Niessl.
(= Uromyces caryophyllinus (Sch.) Wint.)

General infections, thought slight, were reported from York county, New Brunswick in 1928. The disease was also severe in greenhouse stock at Ottawa in 1928. There was considerable variation in the susceptibility of varieties.

CENTAUREA

RUST -- Puccinia Cyani Pass.

This rust was destructive on cornflower at London, Ontario in 1927.

CLARKIA

WILT or STEM ROT -- Botrytis sp.

One specimen affected with this disease was observed in York county, New Brunswick.

COLUMBINE

POWDERY MILDEW -- Erysiphe Polygoni DC.

A moderate infection appeared on most plants examined in York county in 1927 and 1928.

LEAF SPOT -- Alternaria sp.

A slight infection was observed in York county.

DAHLIA

STORAGE ROT -- Botrytis sp. and Pinotes sp.

Both these organisms were found to be associated with a rot which appeared at Macdonald College, Quebec, in tubers which had been stored in sand which was slightly damp.

LEAF SPOT -- Phoma Dahliae Berk.

Considerable leaf spot and blossom blight was reported from Kentville and Hantsport.

DELPHINIUM

POWDERY MILDEW -- Erysiphe Cichoracearum DC.

This disease was severe on practically all plants examined in York county in 1927 and 1928. It was also reported from Ontario and Alberta in the latter year.

BACTERIAL BLIGHT -- Pseudomonas Delphinii (E.F.Sm.)
Stapp

Reported from Parry Sound, Ontario in 1928.

GERANIUM

STEM ROT -- Bacterium Erodii Lewis

There was a very severe infestation of this trouble in propagation beds in a nursery in King's county, Nova Scotia in 1927.

GLADIOLUS

LEAF SPOT -- Septoria Gladioli Pass.

Several cases reported from New Brunswick and Ontario in 1927 and 1928.

GLADIOLUS
HOLLYHOCK

-96-

DRY ROT -- Sclerotium Gladioli Massey

Several cases were reported from Ontario in 1927 and 1928. One case was reported from New Brunswick in 1928.

SCAB -- Bacterium marginatum McCulloch

Reported from Ontario, Manitoba and British Columbia in 1927. Several reports from Ontario in 1928.

HOLLYHOCK

RUST -- Puccinia Malvacearum Bert.

Hollyhock rust was widespread and severe in Nova Scotia, New Brunswick, Quebec, and Ontario in 1927 and 1928.

WILT -- Sclerotinia sp.

This disease was moderate in New Brunswick in 1927. In 1928 a serious outbreak occurred at the Dominion Experimental Station, Fredericton.

HYACINTH

YELLOW DISEASE -- Pseudomonas Hyacinthi (Wakk.)
E.F.Sm.

One case reported from Toronto, Ontario.

IRIS

LEAF SPOT -- Didymellina macrospora Kleb.
Heterosporium gracile Sacc.

Reported from New Brunswick, Quebec, and Ontario in 1927 and 1928.

LILAC

LEAF SPOT -- Phyllosticta Halstedii E. & P.

One report from Quebec.

POWDERY MILDEW -- Microsphaera Alni (Wallr.) Salm.

Moderate infections were reported from Nova Scotia in 1927 and from New Brunswick and Ontario in 1927 and 1928.

LILY

BLIGHT -- Botrytis elliptica (Berk.) Cke.

One case was reported from Durham county, Ontario in 1927.

NARCISSUS

SMOULDER -- Botrytis narcissicola Kleb.

Reported from Beamsville, Ontario in 1927 and from British Columbia in 1928.

PANSY

ANTHRACNOSE -- Colletotrichum tricoloris R.E.Sm.

Slight infections were reported from Nova Scotia in 1927.

LEAF SPOT -- Alternaria sp.

Slight infections occurred in York county, New Brunswick in 1927 and 1928.

PEONY

BLIGHT -- Botrytis Paeoniae Oud.

Severe cases were reported from Nova Scotia, New Brunswick, Quebec, and Ontario in 1927 and 1928. One report was received from Manitoba in 1928.

WINTER INJURY

There was considerable winter injury at the Dominion Experimental Station in 1928.

PHLOX

POWDERY MILDEW -- Erysiphe Cichoracearum DC.

Severe cases occurred in Ontario and Quebec in 1927 and 1928.

ROSE

BLACK SPOT -- Diplocarpon Rosae Wolf.
(Actinonema Rosae (Lib.) Fr.)

Severe in New Brunswick, Quebec, and Ontario in 1927 and 1928 sometimes causing premature defoliation.

RUST -- Phragmidium speciosum (Fr.) Cke.

In New Brunswick rust was slightly prevalent in 1927, but was quite severe in gardens at Fredericton in 1928. In Quebec it was severe at Macdonald College and in gardens at Senneville. Occasional cases were observed at Ottawa in 1927 and 1928. The disease was common on both wild and cultivated roses at Edmonton in 1928 and was also reported from Swift Current, Saskatchewan the same year.

POWDERY MILDEW -- Sphaerotheca pannosa (Wall.) Lev.

Common in Quebec and Ontario in 1927 and 1928. Also found on house plants at Edmonton, Alberta in 1928.

LEAF SPOT -- Cercospora rosicola

Occurred at Guelph in 1927.

CROWN GALL -- Pseudomonas tumefaciens (Sm. & Towns.)
Dugg.

One case reported from Saskatoon, Saskatchewan in 1928.

SNAPDRAGON

RUST -- Puccinia Antirrhini Diet. & Holw.

Moderate infections were reported from New Brunswick in 1927. Severe cases were reported the following year from New Brunswick, Quebec and Ontario.

ANTHRACNOSE -- Colletotrichum Antirrhini Stewart

One report received from Quebec in 1927.

STOKESIA

BLIGHT -- Botrytis sp.

Reported from Cornwall, Ontario in 1928.

SWEET PEA

POWDERY MILDEW -- Microsphaera diffusa Cke. & Pk.

General infections slight to moderate in severity were reported from York county, New Brunswick in 1927 and 1928.

MOSAIC -- Virus

Isolated specimens were observed in York county, New Brunswick in 1927.

BUD DROP -- Physiological.

A few isolated cases were observed in York county, New Brunswick in 1928.

TULIP

BLIGHT -- Botrytis Tulipae (Lib.) Lind.

Reported from points in Ontario in 1927 and 1928; also from Saskatchewan in 1928.

GREY BULB ROT -- Rhizoctonia Tuliparum (Kleb.)
Whetz. & Arth.

One case reported from New Brunswick in 1927.

FUSARIUM BULB ROT -- Fusarium sp.

In September 1927, specimens of rotted tulip bulbs were received at the Summerland Laboratory from Creston, British Columbia, where it was reported that the trouble was causing considerable losses. Isolations from the rotted tissue consistently gave a Fusarium species which when reinoculated into healthy bulbs was capable of producing a rot similar in all respects to that which occurred on the tulips sent in from the field. As in available check lists on plant diseases, no Fusarium bulb-rot of tulips is reported, this opportunity is taken of drawing attention to this new disease. The trouble is characterized by a number of rotted areas occurring on the outer fleshy scale of the tulip bulb. The areas are somewhat sunken, soft and mealy in texture, dark brown in colour on the outside, shading to light underneath. Outside the distinct margin of the rot, a yellow discolouration was present in the apparently still unaffected tissue.

VACCINIUM

LEAF GALL -- Exobasidium Vaccinii (Fckl.) Wor.

Reported from Ste. Anne de la Pocatiere, Que.

VIOLET

RUST -- Puccinia Violae (Schum.) DC.

Common on wild species in New Brunswick.

LEAF SPOT -- Alternaria Violae

Very severe in greenhouse at Macdonald College, Quebec.

VINCA

RUST -- Puccinia Vincae

Plants in a greenhouse at Ottawa were heavily infected in 1928.

DISEASES OF MISCELLANEOUS PLANTS

- | | | |
|---|-------|--|
| <u>Agropyron repens</u> (L.) Beauv. | | |
| <u>Claviceps purpurea</u> (Fr.) Tul. | | Quebec 1927
Quebec 1928 |
| <u>Puccinia graminis</u> Pers. | | Nova Scotia 1927
Nova Scotia 1928
New Brunswick 1927 |
| <u>Agropyron Smithii</u> Rydb. | | |
| <u>Claviceps purpurea</u> (Fr.) Tul. | | Saskatchewan 1928 |
| <u>Agrostis stolonifera</u> Host | | |
| <u>Puccinia graminis</u> Pers. | | Nova Scotia 1927 |
| <u>Agrimonia gyrosepala</u> Wallr. | | |
| <u>Pucciniastrum Agrimoniae</u> | | Nova Scotia 1927 |
| <u>Amelanchier spicata</u> (Lam.) C. Koch | | |
| <u>Dimerosporium Collinsii</u> (Schw.) Thüm | ... | Alberta 1927
Alberta 1928 |
| <u>Amelanchier canadensis</u> (L.) Medic. | | |
| <u>Gymnosporangium germinale</u> Kern. | | Nova Scotia 1927 |
| <u>Amaranthus retroflexus</u> L. | | |
| <u>Albugo Bliti</u> (Bir.) Kze. | | Alberta 1928 |
| <u>Capsella Bursa-pastoris</u> (L.) Medic. | | |
| <u>Cystopus candidus</u> (P.) Lev. | | Quebec 1927 |
| <u>Peronospora parasitica</u> (P.) Tul. | | Saskatchewan 1927 |
| <u>Chamaesyce glyptosperma</u> (Englm.) Small | | |
| <u>Uromyces proeminens</u> (DC.) Lev. | | Saskatchewan 1927 |
| <u>Chenopodium album</u> L. | | |
| <u>Peronospora effusa</u> (Grev.) Rabh. | | Saskatchewan 1927
Saskatchewan 1928 |
| <u>Cirsium arvense</u> L. | | |
| <u>Puccinia suaveolens</u> (Pers.) Rostr. | | New Brunswick 1927
New Brunswick 1927
Quebec 1927 |
| <u>Cornus canadensis</u> | | |
| <u>Puccinia acuminata</u> Peck. | | Nova Scotia 1927 |
| <u>Elymus innovatus</u> Beal. | | |
| <u>Claviceps purpurea</u> (Fr.) Tul. | | Saskatchewan 1928 |

- Hordeum jubatum L.
Rhynchosporium secalis (Heins.) Davis ... Alberta 1928
Ustilago Lorenziana Thüm. Saskatchewan 1928
Puccinia glumarum (Schm.) Erikss.&Henn. Alberta 1928
- Lepidium sp.
Peronospora parasitica (Pers.) de Bary ... Saskatchewan 1928
- Leontodon sp.
Puccinia Hieracii (Schum.) Arth. Saskatchewan 1928
- Lathyrus venosus Muhl.
Uromyces Fabae (Pers.) de Bary Saskatchewan 1928
- Linguistrium vulgare
Gnomoniopsis cingulata Stoneman Ontario 1928
- Lacinaria punctata (Hook.) Kuntze
Puccinia Liatridis Bethel I Saskatchewan 1928
- Limonium carolinianum (Walt.) Britton
Uromyces Limonii Nova Scotia 1928
- Notta altissima (L.) Britt.
Albugo candida (Pers.) Roussel Saskatchewan 1928
- Oligoneuron canescens Rydb.
Puccinia Stipae (Opiz.) Arth. I Saskatchewan 1928
- Portulacca oleracea L.
Albugo Portulaccae (DC.) Kze. Saskatchewan 1928
- Potentilla sp.
Phragmidium Potentillae (Pers.) P. Karst. II & III
Saskatchewan 1927
- Potentilla sp.
Mycosphaerella sp. New Brunswick 1928
- Rubus melanolasius Focke
Phragmidium imitans Arth. III. Saskatchewan 1928
- Rosa sp.
Phragmidium americanum II & III. Nova Scotia 1928
- Rubus sp.
Gymnoconia Peckiana (Howe) Trotter Nova Scotia 1928
- Sisimbrium altissimum L.
Albugo candida (Pers.) Roussel Alberta 1928

Steironema ciliatum (L.) Raf.

Puccinia Dayi Clint. Saskatchewan 1928

Solanum triflorum Nutt.

Entyloma australe Speg. Saskatchewan 1927
1928

Sphaeralcea coccinea (Nutt.) Rydb.

Puccinia Sherardiana Körn. Saskatchewan 1927

Solidago graminifolia

Rhytisma sp. Quebec 1927

Symphoricarpos sp.

Microsphaera diffusa Cke.&Pk. Saskatchewan 1928

Taraxicum officinale

Puccinia Taraxici (Weber) Plowr. Nova Scotia 1927
Ontario 1928

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TIMOTHY (<i>Phleum pratense</i> L.)	33
<i>Claviceps purpurea</i> (Fr.) Tul.	33
<i>Heterosporium Phlei</i> Gregory	33
<i>Puccinia Phlei-pratensis</i> Erikss. & Henn.	33
<i>Scolicotrichum graminis</i> Fckl.	33
WESTERN RYE GRASS (<i>Agropyron tenerum</i> Vasey)	33
<i>Claviceps purpurea</i> (Fr.) Tul.	33
<i>Puccinia glumarum</i> (Schm.) Erikss.	33
<i>Ustilago Agropyri</i> Clinton	33

LILAC

Microsphaera Alni (Wallr.) Salm.
Phyllosticta Halstedii E. & P.

96
 97
 96

LILY

Botrytis allii (L.) Tul.

97

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POPLAR

Hypoxyylon pruinaum (Klotzsch) Cke.
Septoria populicola Peck.
Uncinula Salicis (DC.) Wint.

90
 91
 91
 90

POTATO

Actinomyces scabies (Thax.) Güssow
Alternaria Solani (Ell. & Mart.) Jones & Grout.
Bacillus phytophthorus (Frank) Appel.
Corticium Solani (Prill. & Del.) Bourd. & Galz.
 Curly Dwarf
Fusarium spp.
 Hollow Heart
 Leaf Roll
 Mosaic
 Net Necrosis
Phoma sp.
Phytophthora infestans (Mont.) de Bary
 Spindle Tuber
Spondylocadium atrovirens Harz.
Spongospora subterranea (Wallr.) Lagerh.
 Streak

66
 77
 77
 77
 76
 79
 78
 80
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 79
 80
 79
 75
 80
 78
 78
 80

QUINCE

Gymnosporangium germinale (Schw.) Kern.

53
 53

RASPBERRY

Didymella applanata (Niessl) Sacc.
Gymnoconia Peckiana (Howe) Trotter
Kuehneola albida (Kühn) Magn.
 Leaf Curl
Leptosphaeria Coniothyrium (Fuck.) Sacc.
 Mosaic
Mycosphaerella Rubi Roark
 (Septoria Rubi Westend.)
Plectodiscella veneta Burk.
Sphaerotheca Humuli (DC.) Burr.

48
 49
 50
 50
 51
 48
 50
 49
 49
 49

RHUBARB

Ascochyta Rhei E. & E.

80
 80

ROSE

Cercospora rosicola
Diplocarpon Rosae Wolf.
 (Actinonema Rosae (Lib.) Fr.)
Phragmidium speciosum (Fr.) Cke.
Pseudomonas tumefaciens (Sm. & Towns.) Dugg.
Sphaerotheca pannosa (Wall.) Lev.

98
 98
 98
 98
 98
 98

Puccinia graminis Pers.	13
Root Rots.	20
Ustilago Avenae (Pers.) Jens.	17
Ustilago levis (K. & S.) Magn.	18
ONION	62
Botrytis Allii Mann.	63
Fusarium sp.	64
Peronospora Schleideni Unger	62
Urocystis Cepulae Frost	64
ORNAMENTAL PLANTS	93
PANSY	97
Alternaria sp.	97
Colletotrichum tricoloris R.E.Sm.	97
PARSNIP	64
Ramularia pastinacea Bubak.	64
PEA	64
Ascochyta Pisi Lib.	65
Erysiphe Polygoni DC.	64
Mosaic	65
PEACH	45
Cladosporium carpophilum Thüm	45
Sclerotinia americana (Worm.) Nort. & Ezekiel	46
Taphrina deformans (Berk.) Tul.	45
Verticillium sp.	46
PEAR	46
Bacillus amylovorus (Burr.) de Toni	46
Drought Spot	47
Fabraea maculata Atk.	46
(Entomosporium maculatum Lev.)	46
Venturia pyrina Aderh.	46
PEONY	97
Botrytis Paeoniae Oud.	97
Winter Injury	97
PHLOX	98
Erysiphe Cichoracearum DC.	98
PINE	90
Cronartium ribicola Fisch.	90
PLUM	47
Coccomyces prunophore Higgins	48
(Cylindrosporium prunophore Higgins)	47
Dibotryon morbosum (Schw.) Theiss. & Syd.	47
Sclerotinia americana (Worm.) Nort. & Ezekiel	48
Taphrina Pruni Tul.	47

RYE	24
<i>Claviceps purpurea</i> (Fr.) Tul.	25
<i>Erysiphe graminis</i> DC.	26
<i>Fusarium</i> sp.	26
<i>Helminthosporium sativum</i> P.K. & B.	25
Leaf and Stem Spot	26
<i>Puccinia dispersa</i> Erikss.	25
<i>Puccinia graminis</i> Pers.	24
<i>Pseudomonas translucens</i> J.J. & R.	25
var. <i>Secalis</i> (R.G. & J.) Stapp.	
SNAPDRAGON	99
<i>Colletotrichum Antirrhini</i> Stewart	99
<i>Puccinia Antirrhini</i> Diet. & Holw.	99
SPINACH	81
<i>Peronospora effusa</i> (Grev.) Rabh.	81
SPRUCE	91
<i>Chrysomyxa Weirii</i> Jackson	91
<i>Melampsoropsis ledicola</i> (Pk.) Arth.	91
STOKESIA	99
<i>Botrytis</i> sp.	99
STRAWBERRY	51
<i>Botrytis</i> sp.	52
<i>Diplocarpon Earliana</i> (Schw.) Lindau	52
<i>Mycosphaerella Fragariae</i> (Schw.) Lindau	51
<i>Sphaerotheca Humuli</i> (DC.) Burr.	52
SUNFLOWER	31
<i>Puccinia Helianthi</i> Schw.	32
<i>Sclerotinia Sclerotiorum</i> (Lib.) Mass.	31
<i>Septoria Helianthi</i> Ell. & Kellerm.	32
SWEET CLOVER	29
<i>Ascochyta Meliloti</i> (Trel.) Davis	29
White Spot	29
SWEET PEA	99
Bud Drop	99
<i>Microsphaera diffusa</i> Cke. & Pk.	99
Mosaic	99
TOBACCO	81
<i>Cercospora Nicotianae</i> Ell. & Ev.	82
Curly Dwarf	83
Frenching	83
Hollow Stalk	83
Leaf Drop	83

Leaf Spot	83
Mosaic	82
<i>Pseudomonas angulata</i> (Froome & Murray) Stev.	82
<i>Pseudomonas tabacum</i> (W. & F.) Stev.	81
<i>Pythium de Baryanum</i> Hesse	82
Sore-Skin	83
Sunburn	83
<i>Thielavia basicola</i> Zopf.	81
TOMATO	83
<i>Alternaria Solani</i> (Ell. & Martin) Jones & Grout.	84
<i>Bacterium michiganense</i> (E.F.Sm.) Stev.	85
Blossom End Rot	84
Breakdown	85
<i>Phytophthora infestans</i> (Mont.) de Bary	84
<i>Septonia Lycopersici</i> Speg.	83
Yellows	85
TULIP	99
<i>Botrytis Tulipae</i> (Lib.) Lind.	99
<i>Fusarium</i> sp.	100
<i>Rhizoctonia Tuliparum</i> (Kleb.) Whetz. & Arth.	100
TURNIP	86
<i>Actinomyces scabies</i> (Thax.) Güssow	87
<i>Cercospora albomaculans</i> (Ell. & Ev.) Sacc.	86
<i>Corticium Solani</i> (Prill. & Del.) Bourd. & Galz.	86
<i>Erysiphe Polygoni</i> DC.	87
<i>Peronospora parasitica</i> (Pers.) de Bary	87
<i>Plasmodiophora Brassicae</i> Wor.	86
<i>Phoma Lingam</i> (Tode) Desm.	86
VACCINIUM	100
<i>Exobasidium Vaccinii</i> (Fekl.) Wor.	100
VEGETABLE AND FIELD CROPS	54
VINCA	100
<i>Puccinia Vincae</i> (DC.) Berk.	100
VIOLET	100
<i>Alternaria Violae</i>	100
<i>Puccinia Violae</i> (Schum.) DC.	100
WHEAT	1
<i>Bacterium atrofaciens</i> McCulloch	12
Chemical Injury, etc.	13
<i>Claviceps purpurea</i> (Fr.) Tul.	7
<i>Erysiphe graminis</i> DC.	10
Foot and Root Rots	8

Frost Damage	13
Gibberella Saubinetii (Mont.) Sacc.	8
Hail Damage	13
Leaf Spot	12
Pseudomonas translucens J.J. & R.	11
var. undulosum J.J. & R.	4
Puccinia glumarum (Schm.) Erikss. & Henn.	1
Puccinia graminis Pers.	3
Puccinia triticina Erikss.	9
Septoria nodorum Berk.	11
Septoria spp.	5
Tilletia Caries (DC.) Tul.	6
and Tilletia foetens (Berk.) Trel.	
Ustilago Tritici (Pers.) Jens.	91
WILLOW	92
Fomes ignarius Fr.	91
Fusicladium saliciperdu (All. & Tub.)	91
Lind. and Physalospora Miyabeana Fukushi	91
Melampsora Bigelowii Thum	91
Rhytisma salicinum Fr.	92
Uncinula Salicis (DC.) Wint.	92
Valsa sp.	92