Diagnostic laboratories / Laboratoires diagnostiques

Crop / Culture:
Diagnostic Laboratory Report

Location/ Emplacement:
Manitoba

Title/Titre:
Diseases diagnosed on alfalfa samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991

Name and Agency / Nom et Organisation:
Platford, R. G.
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Agricultural Services Complex
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Winnipeg, Manitoba
R3T 5S6

Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: The Manitoba Agriculture Plant Pathology Laboratory received 45 samples of alfalfa. Diagnostic results are presented in Table 1. Dry weather in early spring delayed growth of alfalfa. Common leaf spot was the most common problem isolated from alfalfa. Crown rot continued to be a major problem in stands over 4 years old. There appears to be a relationship between winter injury, snow mould and invasion of damaged crowns by Fusarium spp. There were no surveys conducted in 1991 for verticillium wilt and none of the samples submitted were found to be infected with verticillium. One field of alfalfa was found to be heavily infected by rust (Uromyces striatus).

Table 1: Summary of diagnoses on alfalfa samples submitted to the Manitoba Agriculture Plant Pathology Laboratory.

DISEASE	PATHOGEN	NUMBER OF SAMPLES
Common leaf spot	Pseudopeziza medicaginis	14
Black stem	Phoma medicaginis	5
Crown rot	Fusarium spp.	4
Yellow leaf blotch	Leptotrochila medicaginis	4
Rust	Uromyces striatus	1
Nutrient deficiency	undetermined	11
Physiological stress	winter injury, white spot	4
Herbicide injury		2
	Total	45

Crop / Culture:
Diagnostic Laboratory Report

Location/ Emplacement:
Manitoba

Title / Titre:
Diseases diagnosed on cereal crops submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991

Name and Agency / Nom et Organisation:
Platford, R. G.
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Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri-business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: The Manitoba Agriculture Plant Pathology Laboratory received 489 submissions of cereal samples in 1991. Results are presented in Table 1.

Wheat — Tan spot was present at very high levels when wheat was in the seedling stage in all regions. The highest incidence of tan spot occurred in fields of wheat planted into wheat stubble in the central region. Wet weather in July favoured further development of leaf diseases resulting in severe yield losses. Wheat streak mosaic was prominent in 8 fields of spring wheat in the southwest regions of Killarney and Melita. Leaf rust was very severe on Biggar wheat throughout most of southern Manitoba. Head blight occurred at high levels in the Red River Valley. A combination of fungal leaf diseases, root rot and head blight resulted in below average yields for wheat in Manitoba.

Barley — Wet weather in June favoured the development of high levels of net blotch in the central, interlake and eastern regions. Continued wet weather in July favoured further development of the leaf diseases and resulted in severe yield losses. Barley yellow dwarf virus was quite prevalent particularly in the central and southwest regions, but losses due to barley yellow dwarf virus were low. Stem rust was prominent in late planted fields of barley in the central, eastern and interlake regions.

oats — The most prominent disease of oats in 1991 was barley yellow dwarf virus. Severely infected fields were reported in the interlake, southwest and eastern region but barley yellow dwarf virus was found in almost all fields of oats in southern Manitoba at levels from trace to severe. The most heavily infected were late planted fields.

Table 1: Summary of diagnoses on cereal samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991.

CROP	DISEASE	NUMBER OF SAMPLES
Wheat	Tan spot (Pyrenophora *triciti-repentis*)	51
	Septoria leaf blotch (Septoria spp.)	50
	Leaf rust (Puccinia *recondita*)	36
	Glume blotch (Septoria spp.)	27
	Common root rot (Cochliobolus *sativus*, Fusarium spp.)	17
	Head blight (Fusarium *graminearum*)	12
	Barley yellow dwarf virus	11
	Wheat streak mosaic virus	8
	Herbicide injury	30
	Environmental stress	26
	Nutrient deficiency	1
	Total	269
Barley	Net blotch (Pyrenophora *teres*)	78
	Stem rust (Puccinia *graminus*)	34
	Barley yellow dwarf virus	31
	Leaf rust (Puccinia horedii)	24
	Common root rot (Cochiobolus sativus, Fusarium spp.)	9
	Loose smut (*Ustilago nuda*)	1
	Herbicide injury	15
	Environmental stress (seeding problems)	9
	Total	201
Oats	Barley yellov dwarf virus	14
	Crown rust (Puccinia *coronata*)	2
	Septoria blotch (Septoria spp.	1
	Environmental stress	1
	Herbicide injury	1
	Total	19

Crop / Culture: Diagnostic Laboratory Report

Location/Emplacement: Manitoba

Title / Titre: Diseases diagnosed on samples of ornamental trees and shrubs submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991.

Name and Agency / Nom et Organisation:

Platford, R. G.
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R3T 5S6

Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri-business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: Results of 385 submissions of ornamental trees and shrubs are presented in Table 1.

Table 1: Summary of diagnoses on ornamental tree and shrub samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991.

CROP	DISEASE	NUMBER OF SAMPLES
Spruce	Cytospora canker (Leucostoma *kunzei*)	5
	Needle cast (Rhizosphaera *kalkhoffii*)	5
	Seedling damping off (*Fusarium* spp, Botrytis *cinerea*)	1
	Environmental stress (winter injury, drought)	30
	Nutrient deficiency	9
	Herbicide injury	1
	Total	51
Pine	Needle cast (*Cyclaneusma niveum*)	5
	Canker (Leucostoma spp.)	3
	Gall rust (Endocronartium *harknessii*)	2
	Environmental stress (winter injury)	4
	Herbicide injury	2
	Total	16
Elm	Dutch elm disease (*Ophiostoma ulmi*)	42
	Canker (*Botryodiplodia* spp.)	I
	Black spot (*Gnomonia ulmea*)	1
	Dothiorella wilt (Dothiorella *ulmi*)	1
	Slime flux (*Erwinia* cloacae)	1
	Verticillium wilt (Verticillium sp.)	1
	Environmental stress (drought)	10
	Herbicide injury	8
	Total	71

Willow	Cytospora canker (*Cytospora* spp.)	2
	Leaf rust	1
	Herbicide injury	14
	Nutrient deficiency	11
	Environmental stress	6
	Total	34
Poplar	Canker (*Cytospora chrysosperma*)	9
	Septoria canker & leaf spot (*Septoria musiva*)	9
	Shoot blight (*Pollacia* spp.)	7
	Leaf rust (*Melampsora* medusae)	2
	Herbicide injury	8
	Environmental stress (winter injury)	7
	Nutrient deficiency	6
	Total	48
Birch	Birch decline (environmental stress)	5
	Cytospora canker (*Cytospora* spp.)	2
	Herbicide injury	4
	Nutrient deficiency	3
	Total	14
Ash	Anthracnose (*Gloeosporium* spp.)	2
	Canker (unidentified cause)	2
	Rust (*Puccinia sparaganioides*)	1
	Herbicide injury	16
	Environmental stress (drought, winter injury)	
	Total	21
Maple	Canker (*Cytospora* spp.)	3
	Anthracnose (*Gloeosporium* spp.)	3
	Tar spot (*Rhytisma acerinum*)	1
	Herbicide injury	13
	Nutrient deficiency	9
	Environmental stress	3
	Total	32

Oak	Oak decline (environmental stress)	2
	Leaf blister (*Taphrina* caerulescens)	2
	Anthracnose	1
	Herbicide injury	1
	Total	6
Basswood	Canker (unidentified cause)	1
	Leaf spot (unidentified)	1
	Environmental stress	6
	Herbicide injury	1
	Total	9
Caragana	Crown rot (*Fusarium* spp.)	4
	Canker (unidentified)	1
	Septoria leaf spot (Septoria *caraganae*)	1
	Herbicide injury	8
	Environmental stress	2
	Total	16
Mountain Ash	Canker (Cytospora spp.)	12
	Fireblight (*Erwinia* arnylovora)	10
	Leaf spot (unidentified cause)	3
	Nutrient deficiency (iron chlorosis)	7
	Environmental stress (drought, winter injury)	2
	Total	34
Cotoneaster	Fireblight (*Erwinia amylovora*)	7
	Canker (*Cytospora* spp.)	4
	Nutrient deficiency (iron deficiency)	4
	Environmental stress	2
	Total	17
Rose	Botrytis bud blast (*Botrytis cinerea*)	3
	Black spot (*Diplocarpon rosae*)	3
	Rust (*Phragmidium* spp.)	3
	Powdery mildew (*Sphaerotheca macularis*)	1
	Nutrient deficiency (iron chlorosis)	4
	Herbicide injury	2
	Total	16

Crop / Culture:
Diagnostic Laboratory Report

Location/ Emplacement:
Manitoba

Title/Titre:
Diseases diagnosed on fruit crops submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991.

Name and Agency/ Nom et Organisation:

Platford, R. G.
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R3T 5S6

Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri-business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: The Manitoba Agriculture Plant Pathology Laboratory received 298 submissions of fruit crops. Results are presented in Table 1.

Table 1: Summary of diagnoses on fruit crop samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991.

CROP	DISEASE	NUMBER OF SAMPLES
Apple	Fireblight (*Erwinia* amylovora)	45
	Cankers (*Cytospora* spp.)	6
	Frogeye leaf spot (Botryosphaeria *obtusa*)	4
	Scab (*Venturia* inaequalis)	1
	Silverleaf (*Chondrostereum purpureum*)	1
	White rust (Botryosphaeria *dothidea*)	1
	Environmental damage (winter injury, water core)	45
	Nutrient deficiency (iron chlorosis)	22
	Herbicide injury	10
	Total	135
Strawberry	Crown rot, root rot (*Fusarium* spp.)	9
	Leaf spot (*Mycosphaerella* fragariae)	4
	Gray mold (Botrytis *cinerea*)	3
	Virus	2
	Nutrient deficiency	9
	Herbicide injury	4
	Total	31

Raspberry	Cane blight (Leptosphaeria coniothyrium)	10
	Fireblight (*Erwinia* amylovora)	6
	Anthracnose (*Elsinoe veneta*)	5
	Powdery mildew (*Oidium* sp.)	2
	Nutrient deficiency (iron chlorosis)	8
	Herbicide injury	4
	Environmental stress	3
	Total	38
Pear	Canker (Cytospora sp.)	3
	Fireblight (*Erwinia amylovora*)	2
	Environmental stress	5
	Total	10
Saskatoon	Cankers (*Valsa* spp.)	2
	Black leaf spot(*Entomosporium* maculatum	1
	Rust (Gymnosporangium spp.)	1
	Environmental stress (winter injury)	3
	Total	7
Currant	Powdery mildew (*Sphaerotheca mors-uvae*)	6
	Canker (unidentified)	2
	Anthracnose (Drepanopeziza spp.)	1
	Environmental damage	1
	Nutrient deficiency	1
	Total	11
Chokecherry	Cankers (Cytospora sp.)	2
	Bacterial blight	1
	Black knot (*Dibotryon* morbosa)	1
	Shot hole (*Blumeriella jaapii*)	1
	Herbicide injury	4
	Nutrient deficiency	1
	Total	10

Plum	Plum pockets (*Taphrina communis*)	6
	Bacterial blight (Pseudomonas sp.)	2
	Canker (Cytospora spp.)	1
	Shot hole (*Coccomyces* spp.)	1
	Environmental damage	7
	Nutrient deficiency	2
	Herbicide injury	1
	Total	20
Crabapple	Fireblight (*Erwinia* amylovora)	8
	Canker (Cytospora sp.)	6
	Black rot (*Botryosphaeria obtusa*)	2
	Environmental stress	13
	Nutrient deficiency	7
	Total	36

Crop/Culture: Diagnostic Laboratory Report

Location/Emplacement: Manitoba

Title/Titre: Diseases diagnosed on potatoes submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991

Name and Agency/
Nom et Organisation:

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Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri-business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: The Manitoba Agriculture Plant Pathology Laboratory received 35 samples of potatoes. The diagnoses are presented in Table 1. Tuber diseases including fusarium dry rot, scab, rhizoctonia black scurf and ring rot were the most frequently submitted problems. One non-commerical sample of potatoes from Thompson in northern Manitoba was found to have a tuber rot diagnosed as being caused by Armillaria mellea. There was only 1 sample submitted with verticillium wilt but this was not a true representation of the problem in Manitoba potato fields. There were many fields in southern Manitoba especially in the Winkler potato growing area that had a severe problem with wilt caused by Verticillium dahliae alone or in combination vith black dot (Colletotrichum *coccodes)* and fusarium root rot. Drought conditions in August reduced yields in the Carberry and Portage la Prairie areas.

Table 1: Summary of diagnoses on potato samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991

DISEASE	PATHOGEN	NUMBER OF SAMPLES
Fusarium dry rot	Fusarium spp.	6
Fusarium wilt	Fusarium spp.	5
Bacterial ring rot	*Clavibacter* michiganensis subsp. sepedonicus	4
Common scab	Streptomyces scabies	4
Fusarium root rot	Fusarium spp.	3
Early blight	*Alternaria* solani	2
Rhizoctonia	Rhizoctonia solani	2
Black dot	Colletotrichum coccodes	2
Armillaria tuber rot	Armillaria mellea	1
Verticillium wilt	Verticillium dahliae	1
Environmental stress	drought	3
	Total	33

Crop/Culture: Diagnostic Laboratory Report

Location/Emplacement: Manitoba

Title/Titre: Diseases diagnosed on turf samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991

Name and Agency/ Nomet Organisation:

Platford, R. G.
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Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri-business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: The Manitoba Agriculture Plant Pathology Laboratory received 87 samples of turf (Table 1). The most frequently submitted problem was melting out diagnosed on 36 samples followed by anthracnose (19), ascochyta leaf spot (12), fusarium patch (6) and septoria leaf spot (5). In addition to infectious diseases, browning of grass in 7 samples was caused by drought. Herbicide injury was found to affect 2 samples.

Leaf diseases were very prominent in Manitoba in 1991 due to high levels of moisture particularly in June and July. Anthracnose, melting out and ascochyta leaf spot were the most frequently observed leaf diseases. Snow mould was not a major problem in 1991. Decline of lawns, attributed to Fusarium patch and late season drought, was a frequent problem in Winnipeg.

Table 1: Summary of diagnoses on turf samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991

DISEASE	PATHOGEN	NUMBER OF SAMPLES
Melting out	Drechslera poae	36
Anthracnose	*Colletotrichum* graminicola	19
Ascochyta leaf spot	Ascochyta spp.	12
Fusarium patch	Fusarium spp.	6
Septoria leaf spot	Septoria spp.	5
Environmental stress	drought	7
Herbicide Injury		2
	Total	87

Crop/Culture: Diagnostic Laboratory Report

Location/Emplacement: Manitoba

Title/Titre: Diseases diagnosed on vegetable crops submitted to the Manitoba Agriculture Plant Pathology Laboratory in Manitoba in 1991.

Name and Agency/ Nom et Organisation:

Platford, R. G.
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Methods: The Manitoba Agriculture Plant Pathology Laboratory provides diagnoses and control recommendations for disease problems of crops and ornamentals. Samples are submitted by Manitoba Agriculture extension staff, farmers, agri-business and the general public. Diagnoses are based on visual examination for symptoms and culturing on artificial media.

Results: The Manitoba Agriculture Plant Pathology Laboratory received 74 submissions of vegetable crops in 1991. Results are presented in Table 1.

Table 1: Summary of diagnoses on vegetable samples submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1991.

CROP	DISEASE	NUMBER OF SAMPLES
Tomato	Septoria leaf spot (*Septoria lycopersici*)	11
	Root rot (*Fusarium* spp.)	4
	Herbicide injury	13
	Nutrient deficiency	4
	Environmental stress	1
	Total	33
Broccoli	Downy mildew (Peronospora parasitical	1
	Black rot (Xanthomonas *campestris*)	2
	Total	3
Cauliflower	Downy mildew (Peronospora parasitica)	1
Cabbage	Black rot (Xanthomonas campestris)	1
	Root rot and wilt (Fusarium spp.)	1
	Phoma leaf spot (Leptosphaeria maculans)	1
	Total	3

Cucumber	Scab (*Cladosporium* cucumberinum)	4
	Angular leaf spot (*Pseudomonas lachrymans*)	2
	Root rot (*Fusarium* spp., Pythium spp.)	1
	Environmental stress	2
	Herbicide injury	1
	Nutrient deficiency	1
	Total	11
Garlic	Bulb rot (*Penicillium* spp.)	2
Lettuce	Aster yellows (Aster Yellow MLO)	2
	Herbicide injury	1
	Nutrient deficiency	1
	Total	4
Onion	Basal rot (*Fusarium* sp.)	5
	Blast (*Botrytis* sp.)	1
	Smut (*Urocystis cepulae*)	1
	Herbicide injury	2
	Environmental stress	1
	Total	10
Radish	White rust (*Albugo candida*)	1
Green Beans	Halo blight (Pseudomonas phaseolicola)	1
Carrots	Aster yellows (Aster Yellows MLO)	4
	Black rot (*Thielaviopsis basicola*)	1
	Total	5