Diagonistic laboratories / Laboratoires diagnostiques

Crop / Culture: Diagnostic Laboratory Report

Location/ Emplacement: Manitoba

Title / Titre: Diseases of Fruits Diagnosed on Samples Submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1989.

Name and Agency / Nom et Organisation: Platford, R.G.
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METHODS: Fruit samples, submitted to the Manitoba Agriculture Plant Pathology Laboratory were examined for the presence of disease.

RESULTS:

Apple: Of 187 samples of apple trees, 29 showed cytospora canker (Cytospora spp.), 21 fire blight (Erwinia amylovora), 8 frogeye leaf spot (Physalospora obtusa), 8 silver leaf (Chondrostereum purpureum), 3 unspecified virus diseases, and 5 scab (Venturia inaequalis). In 42 samples, nutrient deficiencies, primarily of iron, were diagnosed. The majority of the fire blight infected samples were from Winnipeg and also showed symptoms of environmental stress and drought stress over the past 2 years.

Plum: Of 8 samples of plum, 2 showed plum pockets (Taphrina communis), 2 shot hole (Coccomyces spp.), and 4 were affected by environmental stress.

Pear: Of 24 samples of pear, 8 were affected by fire blight (Erwinia amylovora), 3 by cytospora canker (Cytospora spp.), and 13 by environmental stress.

Raspberries: In 61 samples of raspberries examined for disease, 13 showed spur blight (Didymella applanata), 9 cane blight (Leptosphaeria coniothyrium), 5 root rot (Fusarium spp.), 5 fruit rot (Botrytis cinerea), 3 fire blight (Erwinia amylovora), 2 anthracnose (Elsinoe veneta), 2 powdery mildew (Sphaerotheca macularis), 1 virus (unspecified virus), 1 crown gall (Agrobacterium spp.), and 14 showed symptoms of environmental stress. In 6 samples, insect injury rather than disease, was the problem diagnosed.

Saskatoon: Of 11 samples of saskatoons, 3 were affected by rust (Gymnosporangium spp.), 2 powdery mildew (Podosphaera clandestina), 1 crown gall (Agrobacterium radiobacter var. tumefasciens), 1 cytospora canker (Cytospora spp.), 1 cylindrocarpon root rot (Cylindrocarpon spp.) and 5 environmental stress.

Strawberries: In 56 samples of strawberries, 16 showed root rot (Fusarium spp.), 7 fruit rot (Botrytis cinerea, Discohainesis oenotherae), 13 showed environmental stress (including drought, high temperature, and nutrient stress), 4 showed slime mold, 3 showed root rot (Pythium spp.), and 4 showed root rot (Cylindrocarpon spp.). In 16 samples, insect injury rather than disease was the problem.

Crop/Culture: Diagnostic Laboratory Report

Location/Emplacement: Prince Edward Island

Title/Titre: Diseases Diagnosed on Potatoes Submitted to the Prince Edward Island Pathology Laboratory, From 1984 to 1989

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METHODS: The P.E.I. Plant Pathology Diagnostic Service provides identification and recommendations on disease problems related to potatoes and other crops. This is a provincial disease service and the following results are based only on the potato samples submitted to the Plant Pathologist. Hence, this data does not necessarily reflect the most prevalent disease problems in the province. The majority of samples were from potato producers, shippers, dealers, Agriculture Canada inspectors, and chemical company representatives.

Isolation procedures varied depending on symptom expression. The three most common media used on a regular basis included potato dextrose agar (PDA), potato dextrose agar with antibiotics (PDA+), and water agar (WA). The data was collected on an annual basis from November 1 to October 31 of the following year.

RESULTS and COMMENTS: Diseases diagnosed on potato samples between 1984 and 1989, are presented in table 1. Frequencies are expressed as a percent of the total potato samples received in a given year. Disease frequencies vary between years due to variations in rainfall, temperature, and other environmental conditions. Physiological disorders were most frequently diagnosed in 1986, 1987, and 1989, with frequencies of 32%, 14%, and 22% of total samples, in each year, respectively. During 1984, 1986, and 1989, late blight (*Phytophthora infestans*), was the most common infectious disease diagnosed on potato samples, with annual frequencies of 238, 33%, and 21%, respectively. In 1988, verticillium wilt (*Verticillium* spp.) was diagnosed on 25% of total potato samples received. Early blight (*Alternaria solani*) was the disease diagnosed most frequently in 1985 (11%) and 1989 (10%).

Positive laboratory identification of a disease will assist a producer in deciding the most effective control measures required to alleviate or control disease problems.

Table 1 UENCY OF POTATO DISEASES D
EXPRESSED AS PERCENT TOTAL ANNUAL POTATO SAMPLES SUBMITTED*

	1984	1985	1986	1987	1988	1989
Late blight (Phytophthora infestans)	23	10	33	3	8	21
Common scab (Streptomyces scabies)	14	6	-	8	1	2
Fusarium dry rot (Fusarium spp.)	12	1	5	3	7	3
Bacterial soft rot (Erwinia spp.)	8	6	2	6	2	2
Blackleg (Erwinia spp.)	4	6	2	3	2	3
Pocket rot (Phoma sp.)	8	1	-	-	1	2
Early blight (Alternaria solani)	4	11	4	13	6	10
Verticillium wilt (Verticillium spp.)	4	8	6	10	25	7
Rhizoctonia (Rhizoctonia solani)	4	10	5	11	10	9
Gray mold (Botrytis cinerea)	2	17	5	10	8	2
Pink eye (Pseudomonas florescens)	2	1	-	3	4	2
Seed piece decay	-	-	-	5	-	2
Black dot (Colletotrichum coccodes)	-	4	-	-	-	1
Mosaic viruses	-	-	-	2	-	1
Leak (Pythium spp.)	-	-	-	2	1	3
Silver scurf (Helminthosporium spp.)	-	-	-	2	1	-
Physiological disorders	10	15	32	14	15	22
No diseases	5	5	6	6	7	9
Total Number Annual Potato Samples	106	105	91	56	84	106

*The year indicated is the year in which 10/12 months of each sampling period, fell.

Crop / Culture: Diagnostic Laboratory Report

Location / Emplacement: Manitoba

Title / Titre: Diseases Diagnosed on Samples of Pulse Crops and Alfalfa Submitted to the Manitoba Agriculture Plant Phthology Laboratory in 1989.

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METHODS: Ten samples of field beans, 21 of field peas and 15 of lentils submitted to the Manitoba Agriculture Plant Pathology Laboratory in 1989, were examined for disease. Twenty-one samples of alfalfa submitted by agricultural representatives and grassland specialists, were also examined.

RESULTS:

Field Beans: In 10 samples of field beans, 5 showed bacterial blight (Xanthomonas campestris pv. phaseoli), 3 showed environmental stress, and 2 herbicide injury.

Field Peas: In 21 samples of field peas, 10 showed root rot (Fusarium spp.), 1 showed Mycosphaerella blight (Mycosphaerella pinodes), 1 showed anthracnose (Colletotrichum spp.) and 1 showed environmental stress. In addition to disease, 8 samples showed symptoms of herbicide injury.

Lentils: In 15 samples of lentils, 8 showed anthracnose (Colletotrichum truncatum), 2 ascochyta blight (Ascochyta fabae f. sp. lentis), and 5 samples were found to be affected by environmental stress (high temperatures, low soil moisture).

Alfalfa: In 21 samples of alfalfa examined for disease, 5 showed blackstem (Phoma medicaginis), 1 brown rot (Plenodomus meliloti), 1 crown rot (Fusarium spp.), 1 yellow blotch (Leptotrochila medicaginis), 6 environmental stress, and 3 no detectable disease. Alfalfa fields in southern Manitoba were under severe moisture stress in 1989.

Crop/Culture: Diagnostic Laboratory Report

Location/Emplacement: British Columbia

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Title/Titre: 1989 VEGETABLE, TURF AND ORNAMENTAL DISEASES IN BRITISH COLUMBIA

DIAGNOSTIC LAB

Over 640 submissions from commercial operations came into the diagnostic lab from January to November, 1989. Many types of crops were represented because of the wide diversity of British Columbia agriculture. The only home garden samples were those brought in by garden centres and landscape maintenance companies. A sudden cold snap in early February was responsible for damage to perennials and the very wet growing season promoted foliar blights.

VEGETABLES

There were 78 vegetable submissions with noteworthy ones reported here (Table 1). Carrot black root rot (Thielaviopsis basicola) was severe this year. Bacterial blight of celery (Pseudomonas syringae pv. apii) was introduced for the first time on infected imported transplants. Bacterial blight of pepper (Xanthomonas campestris pv. vesicatoria) was likely introduced on infected seed and transplants. Tomato spotted wilt virus (TSWV) infected lettuce transplants while in a greenhouse next to infected tomato.

Table 1. Vegetable diseases of note in British Columbia in 1989.

Crop	Disease	No. of Samples
Asparagus	Purple Spot (Stemphylium sp.)	3
	Rust (Puccinia aspargi)	1
Brussels Sprouts	Sclerotinia stalk rot (Sclerotinia sclerotiorum)	1
Cabbage	Black rot (Xanthomonas campestris)	1
Carrot	Black root rot (Thielaviopsis basicola)	2
	Cavity spot (Pythium sp.)	2
Cauliflower	Black rot (Xanthomonas campestris)	1
Celery	Bacterial blight (Pseudomonas syringae pv. apii)	5
Lettuce	Lettuce Drop (Sclerotinia minor)	1
	Tomato spotted wilt virus (TSWV)	1
Melon	Verticillium wilt (Verticillium dahliae)	1
	Angular leaf spot (Pseudomonas lacrymans)	1
Pepper	Bacterial blight (Xanthomonas campestris pv. vesicatoria)	2
	Verticillium wilt (Verticillium dahliae)	1
Potato	Silver scurf (Helminthosporium solani)	1
	Rhizoctonia (Rhizoctonia solani)	3
	Bacterial ring rot (Corynebacterium sepidonicum)	1
	Blackleg (Erwinia carotovora)	2
	Early blight (Alternaria solani)	2
	Pink rot (Pythium sp.)	2
	Late blight (Phytophthora infestans)	1
	Sclerotinia stem rot (sclerotinia sclerotiorum)	1
Tomato	Tobacco mosaic virus (TMV)	3
	Bacterial canker (Corynebacterium michiganense)	1

TURF

There were 43 turf samples submitted to the lab in 1989 (Table 2.) Most grass species were Poa, Festuca, or Agrostis. Red thread (Laetisaria sp.) was severe on many lawns in Salmon Arm and Sicamous in September due to the wet conditions. Problems due to poor turf management were common. Necrotic ring spot (Leptosphaeria korrae) was diagnosed on six lawns and appears to be restricted to the Okanagan.

Table 2. Turf problems in B.C. in 1989.

Disease	No. of Samples
Take-All patch (Gaeumannomyces graminis)	1
Blister smut (Entyloma dactylidis)	2
Anthracnose (Colletotrichum graminicola)	3
Nectrotic ring spot (Leptosphaeria korrae)	3
Melting out (Curvularia lunata, Drechslera)	3
Rust (Puccinia sp.)	1
Rhizoctonia blight (Rhizoctonia solani)	4
Pythium blight (Pythium sp.)	4
Red thread (Laetisaria sp.)	6
Poor cultural conditions	16
Miscellaneous	1

NURSERY CROPS

There were 125 submissions of nursery crops. Cold damage from a sudden cold snap in early February 1989 caused damage to many nursery crops. Maple anthracnose, causal agent as yet undetermined, was severe, possibly because of the wet growing season. Fireblight (Erwinia amylovora) occurred on cotoneaster in coastal B.C. Phytopthora root rot (Phytophthora sp.) was common on juniper.