Diagnostic laboratories/Laboratoires diagnostiques

CROP: Diagnostic Laboratory Report - Alfalfa

LOCATION: Manitoba

NAME AND AGENCY:
R.G. Platford
Manitoba Agriculture
Crop Diagnostic Centre
201-545 University Crescent
Winnipeg, Manitoba R3T 5S6

TITLE: DISEASES DIAGNOSED ON ALFALFA, SUBMITTED TO THE MANITOBA AGRICULTURE CROP DIAGNOSTIC CENTRE IN 1992

METHODS: The Manitoba Agriculture Crop Diagnostic Centre 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. Diagnosis is based on visual examination for symptoms and culturing onto artificial media.

RESULTS AND COMMENTS: Results are presented in Table 1. Black stem *(Phoma medicaginis)* was detected in 6 samples, common leaf spot *(Pseudopeziza medicaginis)* in 4 samples, and crown rot *(Fusarium* sp.) and yellow leaf blotch *(Leptotrochila medicaginis)* in 2 samples each. In addition to the fungal diseases noted 5 samples were found to be affected by nutrient deficiencies, **5** by environmental stress and 1 sample showed evidence of a herbicide injury.

Table 1. Summary of diseases diagnosed on alfalfa submissions to the Manitoba Agriculture Crop Diagnostic Centre in 1992.

DISEASE	PATHOGEN	NUMBER OF SAMPLES
Black Stem	*Phoma medicaginis*	6
Common Leaf Spot	*Pseudopeziza medicaginis*	4
Crown Rot	*Fusarium* spp.	2
Yellow Leaf Blotch	*Leptotrochila medicaginis*	2
Environmental Stress	winter injury	5
Nutrient Deficiency	potassium deficiency	5
Herbicide Injury	undetermined	1

CROP: Diagnostic Laboratory Report - Forages and Field Crops

LOCATION: Alberta

NAME AND AGENCY:
J.D. Holley
Regional Crop Laboratory
Alberta Special Crops and Horticultural Research Centre
Brooks, Alberta T I R 1E6

TITLE: DISEASES DIAGNOSED ON FORAGES AND FIELD CROPS

METHODS: The Regional Crop Laboratory (RCL) at the Alberta Special Crops and Horticultural Research Centre (ASCHRC) received samples on field crops from district agriculturalists, farmers, and from fertilizer or chemical companies. Diagnoses were made from symptoms or by isolating plant pathogens from diseased tissues in the laboratory.

RESULTS: The RCL at ASCHRC received a total of 125 requests for disease identification on forages and field crops in 1992. Results are summarized in Table 1 below.

Table 1. Summary of diagnoses made on forage and field crop samples submitted to the RCL in 1992

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Alfalfa	Anthracnose	*Colletotrichum destructivus*	2
	Black Stem	*Phoma medicaginis*	1
	Chlorosis	Iron Deficiency	1
	Crown/Root Rot	*Fusarium roseum*	2
		Rhizoctonia solani	2
	Damping off	*Pythium* spp.	1
	Grey Mold	*Botrytis cinerea*	1
	Leaf/Stem Spot	Pesticide Injury	1
		Alternaria brassicae	1
		Phoma medicaginis	1
		Stemphylium botryosum	1
		Ascochyta imperfecta	1
	.Wilt	*Verticillium albo-atrum*	1
Barley	Barley Yellow Dwarf	BYDV	1
	Black Point	*Alternaria* spp.	2
		Fusarium spp.	2
		Cladosporium spp.	1
	Chlorosis	WSMV	1
	Crown/Root Rot	*Cochliobolus sativus*	7
		Fusarium spp.	8
		Pythium spp.	2

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Barley (cont'd)		*Rhizoctonia* spp.	1
	Double Heads	Pesticide Injury	1
	Leaf Purpling	Phosphorus Deficiency	1
	Leaf Blotch	*Septoria avenae*	1
	Leaf Stripe	*Pyrenophora graminea*	1
	Loose Smut	*Ustilago nuda*	1
	Net Blotch	*Pyrenophora teres*	10
	Spot Blotch	*Cochliobolus sativus*	4
Canola	Blackleg	*Leptosphaeria maculans*	1
	Black Spot	*Alternaria brassicae*	2
	Canker	*Sclerotinia sclerotiorum*	3
	Leaf Distortion	Pesticide Injury	1
	Leaf Spot	Hail	1
	Pod Spot	*Alternaria brassicae*	2
		Sclerotinia sclerotiorum	1
	Stem Rot	*Alternaria* spp.	1
Chickpea	Root Rot	*Pythium* spp.	1
Coriander	Head Blight	*Gloeosporium* spp.	1
		Alternaria spp.	1
Field Beans	Chlorosis	Pesticide Injury	1
		Nutrient Deficiency	1
	Leaf Distortion	Pesticide Injury	1
	Pithy Root	Environmental Stress	1
	Root Rot	*Fusarium* spp.	1
	Seed Decay	*Fusarium* spp.	1
		Pythium spp.	1
		Rhizopus spp.	1
Flax	Pasmo	*Septoria linicola*	1
	Root Rot	*Fusarium* spp.	1
		Pythium spp.	1
	Wilt	*Fusarium oxysporum*	1
Oats	Root Rot	*Fusarium* spp.	1
Peas	Leaf Blight	*Mycosphaerella pinodes*	3
	Leaf Spot	*Ascochyta pinodella*	2
		Hail	1
	Mildew	*Peronospora viciae*	1
	Pod Spot	Hail	1
Peppermint	Storage Rot	*Alternaria* spp.	1
		Fusarium spp.	1
		Penicillium spp.	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Spearmint	Root/Crown Rot	*Fusarium* spp.	2
		Pythium spp.	1
		Rhizoctonia spp.	1
Wheat	Black Point	*Alternaria alternata*	**5**
		Fusarium spp.	1
	Chlorosis	Nutrient Deficiency	1
	Crinkle Joint	Pesticides	1
	Crown/Root Rot	*Bipolaris sorokiniana*	1
		Cochliobolus sativus	28
		Fusarium spp.	37
		Pythium spp.	9
	Ergot	*Claviceps purpurea*	1
	Glume Blotch	*Alternaria* spp.	1
	Head Blight	*Fusarium graminearum*	**5**
	Leaf Spot	Environmental Stress	**3**
		WSMV	**3**
	Scab	*Fusarium* spp.	1
	Seedling Blight	*Fusarium* spp.	1
	Sooty Leaf Mold	*Cladosporium* spp.	1
	Spot Blotch	*Cochliobolus* sativus	12
	Stem Distortion	Pesticide Injury	2
		Rapid Early Growth	1
	Stunting	Cool Temperatures	1

CROP: Diagnostic Laboratory Report - Cereals

LOCATION: Manitoba

NAME AND AGENCY:
R.G. Platford
Manitoba Agriculture
Crop Diagnostic Centre
201-**545** University Crescent
Winnipeg, Manitoba R3T **5S6**

TITLE: DISEASES DIAGNOSED ON CEREAL CROPS BY THE MANITOBA AGRICULTURE CROP DIAGNOSTIC CENTRE IN 1992

METHODS: The Manitoba Agriculture Crop Diagnostic Centre 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. Diagnosis is based on visual examination for symptoms and culturing onto artificial media.

RESULTS AND COMMENTS: Results of cereal submissions are presented in Table 1. The most commonly encountered problem in barley was net blotch. Scald and barley stripe were found to be the cause of damage in two samples. These two diseases were favoured by cool spring weather in 1992. Bacterial blight was a common problem in samples of oats submitted during the month of June, however it did not result in significant economic loss. Tan spot was the most frequent problem detected in wheat. Leaf rust was found in five samples however it did not result in as much loss as in 1991 as the disease did not become a problem until late July about 3 weeks later than normal.

Table 1. Summary of diseases diagnosed on samples submitted to the Manitoba Agriculture Crop Diagnostic Centre in 1992.

DISEASE	SCIENTIFIC NAME	NUMBER OF SAMPLES
BARLEY		
Net blotch	*Pyrenophora teres*	27
Common root rot	*Cochliobolus sativus, Fusarium spp*	**5**
Ergot	*Claviceps purpurea*	**4**
Flame chlorosis	Flame chlorosis (virus like agent)	3
Bacterial blight	*Xanthomonas translucens*	2
Barley Yellow Dwarf	Barley yellow dwarf virus	2
Barley stripe	*Pyrenophora graminea*	1
Leaf rust	*Puccinia recondita*	1
Scald	*Rhynchosporium secalis*	1
Environmental stress		**8**
Physiological leaf spot		**6**
Herbicide injury		3
Nutrient deficiency		1

DISEASE	SCIENTIFIC NAME	NUMBER OF SAMPLES
OATS		
Bacterial blight	*Pseudomonas syringae* pv. *coronafaciens*	11
Barley yellow dwarf	Barley yellow dwarf virus	**2**
Crown rust	*Puccinia coronata* f. sp. *avenae*	1
Environmental stress		**2**
Herbicide injury		1
WHEAT		
Tan spot	*Pyrenophora tritici - repentis*	**42**
Barley yellow dwarf virus	Barley yellow dwarf	11
Common root rot	*Cochliobolus sativus, Fusarium* spp.	**6**
Head molds	*Alternaria* spp., *Cladosporium* spp.	**6**
Leaf rust	*Puccinia recondita*	**5**
Septoria leaf rust	*Septoria* spp.	**5**
Glume blotch	*Septoria* spp.	**3**
Wheat streak mosaic	Wheat streak mosaic virus	**3**
Head blight	*Fusarium* spp.	2
Environmental stress		**25**
Herbicide injury		18
Nutrient deficiency		**5**

CROP: Diagnostic Laboratory Report - Fruit Crops

LOCATION: Alberta

NAME AND AGENCY:
J.D. Holley
Regional Crop Laboratory
Alberta Special Crops and Horticultural Research Centre
Brooks, Alberta T1R 1E6

TITLE: DISEASES DIAGNOSED ON FRUIT CROPS

METHODS: The Regional Crop Laboratory (RCL) at the Alberta Special Crops and Horticultural Research Centre (ASCHRC) received samples on fruit from district agriculturalists, farmers, market gardeners and from greenhouse growers. Diagnoses were made from symptoms or by isolating plant pathogens from diseased tissues in the laboratory.

RESULTS: The RCL at ASCHRC received a total of 63 requests for disease identification on fruit crops in 1992. Results are summarized in Table 1 below.

Table 1. Summary of diagnoses made on fruit crop samples submitted to the RCL in 1992.

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Apple	Apple Scab	Venturia inaequalis	1
	Canker	Cytospora spp.	3
		Sunscald Injury	1
	Chlorosis	Iron Deficiency	2
	Fireblight	Erwinia amylovora	22
	Leaf Distortion	Frost Injury	4
	Leaf Spot	Frost Injury	1
		Nutrient Deficiency	1
		Pesticide Injury	1
	Sooty Mold	Capnodiaceae	1
Apricot	Fireblight	*Erwinia* amylovora	1
Cherry	Chlorosis	Iron Deficiency	1
	Silver Leaf	Stereum *purpurea*	1
Chokecherry	Bud Necrosis	Frost Injury	1
	Crown Gall	Agrobacterium *tumefaciens*	1
	Fireblight	Erwinia amylovora	2
	Leaf Spot	Frost Injury	1
Crabapple	Canker	Cytospora spp.	1
	Fireblight	Erwinia amylovora	7
	Leaf Tattering	Wind Damage	1
	Russetting	Sunscald Injury	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Currant	Chlorosis	Nutrient Deficiency	1
	Leaf Spot	*Mycosphaerella ribis*	2
Pear	Fireblight	*Erwinia amylovora*	1
Plum	Brown Rot	*Monolinia fructicola*	1
	Fireblight	*Erwinia amylovora*	1
Raspberry	Bacterial Blight	*Pseudomonas syringae*	1
	Dieback	Low Temperature Injury	1
	Fireblight	*Erwinia amylovora*	2
Saskatoon	Bud Necrosis	Frost Injury	2
	Crown Rot	*Phytophthora cactorium*	1
	Fireblight	*Erwinia amylovora*	1
	Leaf Distortion	Frost Injury	1
	Rust	*Gymnosporangium* spp.	1
Strawberry	Crown/Root Rot	*Fusarium* spp.	4
		Rhizoctonia solani	3
		Rhizopus spp.	2
		Penicillium spp.	1
	Grey mold	*Botrytis cinerea*	2
	June Yellows	Not Known	1
	Leaf Spot	Nutrient Deficiency	1
		Botrytis cinerea	1
		Mycosphaerella fragariae	1
	Powdery Mildew	*Sphaerotheca mucularis*	1
	Root Rot	*Cylindrocarpon* spp.	2
	Pythium spp.		1
	Slime Mold	*Physarum* spp.	1

CROP: Diagnostic Laboratory Report - Potato

LOCATION: Manitoba

NAME AND AGENCY:
R.G. Platford
Manitoba Agriculture
Crop Diagnostic Centre
201-545 University Crescent
Winnipeg, Manitoba R3T 5S6

TITLE: DISEASES DIAGNOSED ON POTATO SUBMITTED TO THE MANITOBA AGRICULTURE CROP DIAGNOSTIC CENTRE IN MANITOBA IN 1992

METHODS: The Manitoba Agriculture Crop Diagnostic Centre 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. Diagnosis is based on visual examination for symptoms and culturing onto artificial media.

RESULTS AND COMMENTS: Results of submissions are presented in Table 1. Fusarium root rot was the most common problem associated with potatoes submitted to the Crop Diagnostic Centre. Early blight was observed on fewer samples than in 1991. Late blight was found on samples from several commercial potato fields in the Winkler area. Late blight is only very infrequently observed in Manitba but its development in 1992 was favoured by abnormally cool weather almost throughout the growing seasons. Rhizoctonia was also seen more frequently than usual.

Table 1. Summary of diseases diagnosed on potato samples Submitted to the Manitoba Agriculture Crop Diagnostic Centre in 1992.

DISEASE	SCIENTIFIC NAME	NUMBER OF SAMPLES
Fusarium root rot	*Fusarium* spp.	**8**
Early blight	*Alternaria solani*	5
Rhizoctonia root rot	*Rhizoctonia solani*	4
Fusarium dry rot	*Fusarium* spp.	3
Blackleg	*Erwinia carotovora* var. *atroseptica*	2
Bacterial soft rot	*Erwinia carotovora* var. *carotovora*	2
Late blight	*Phytophthora infestans*	2
Verticillium wilt	*Verticillium dahliae*	2
Virus	PVS, PVX	2
Common scab	*Streptomyces scabies*	1
Purple top	Aster yellows MLO	1
Sclerotinia	*Sclerotinia sclerotiorum*	1
Environmental stress	drought, black heart	3

CROP : Diagnostic Laboratory Report - Vegetable Crops

LOCATION: Alberta

NAME AND AGENCY:
J.D. Holley
Regional Crop Laboratory
Alberta Special Crops and Horticultural Research Centre
Brooks, Alberta T I R 1E6

TITLE: DISEASES DIAGNOSED ON VEGETABLE CROPS

METHODS: The Regional Crop Laboratory (RCL) at the Alberta Special Crops and Horticultural Research Centre (ASCHRC) received samples from district agriculturalists, market gardeners, farmers, extension specialists or from the general public. Diagnoses were made from symptoms or by isolating plant pathogens from diseased tissues in the laboratory.

RESULTS: The RCL at ASCHRC received a total of 108 requests for disease identification on vegetables in 1992. Results are summarized in Table 1 below.

Table 1. Summary of diagnoses made on vegetable samples submitted to the RCL in 1992.

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Bean	Chlorosis	Nutrient Deficiency	2
	Pithy Root	Environmental Stress	1
Broccoli	Head Blight	Alternaria brassicae	1
	Hollow Heart	Calcium Deficiency	1
Cabbage	Black Speckle	Physiological Aging	1
	Heat Canker	High Soil Temperature	1
	Leaf Spot	*Alternaria* brassicae	2
	Soft Rot	Sclerotinia sclerotiorurn	1
	Stem Distortion	Pesticide Injury	1
Canteloupe	Anthracnose	Colletotrichurnorbiculare	1
	Leaf Spot	Pseudornonaslachryrnans	1
Carrot	Crown Gall	Agrobacteriurn turnefaciens	1
	Soft Rot	Frost Injury	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Cauliflower	Leaf Spot	*Alternaria brassicae*	1
	Stem Gall	Pesticide Injury	1
	Wirestem	*Rhizoctonia solani*	1
Celery	Early Blight	*Cercospora apii*	1
	Late Blight	*Septoria apiicoli*	2
Corn	Common Smut	*Ustilago maydis*	1
	Leaf Spot	*Pseudomonas syringe*	1
	Stalk Rot	*Fusarium* spp.	1
	Stunting	Pesticide Injury	1
Cucumber	Chlorosis	Nutrient deficiency	2
	Crown/Root Rot	*Pythium* spp.	1
	Leaf Spot	Frost Injury	1
		Pseudomonas syringe	1
	Wilt	*Fusarium* spp.	1
Lettuce	Soft Rot	*Etwinia carotovora*	1
Onion	Crown/Root Rot	*Botrytis allii*	1
	Leaf Spot	*Botrytis allii*	1
		Botrytis squamosa	1
Pea	Crown/Root Rot	*Fusarium* spp.	2
		Rhizoctonia solani	1
	Leaf/Pod Spot	*Ascochyta pisi*	1
Pepper	Anthracnose	*Colletotrichum capsici*	1
	Fruit Spot	*Alternaria* spp.	1
		Colletotrichum capsici	1
	Soft Rot	*Sclerotinia sclerotiorum*	1
Potato	Blackening	Frost Injury	1
	Black Heart	Chilling Injury	1
	Blackleg	*Etwinia carotovora*	6
	Black Scurf	*Rhizoctonia solani*	7
	Bruising	Mechanical Injury	2
	Canker	*Rhizoctonia solani*	2
	Chlorosis	PVX/PVY	1
	PLRV		1
	Common Scab	*Streptomyces scabies*	11
	Dieback	Pesticide Injury	1
	Dry Rot	*Fusarium* spp.	14
	Early Blight	*Alternaria solani*	7
	Fiddlehead	Tordon Injury	6

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Potato (cont'd.)	Gangrene	*Phoma exigua*	1
	Late Blight	*Phytophthora infestans*	16
	Leaf Roll	Pesticide Injury	1
		PLRV	2
	Leaf Spot	Frost Injury	1
	High Soil Salinity		2
	Leak	*Pythium debaryanum*	19
	Mahogany Browning	Environmental Stress	1
	Net Necrosis	PLRV	1
	Mouse Damage	*Mus musculus*	1
	Powdery Scab	*Spongospora subterranea*	1
	Seed Decay	*Erwinia carotovora*	1
	Skin Spot	*Oospora* spp.	1
	Silver Scurf	*Helminosporium solani*	5
	Soft Rot	*Envinia carotovora*	24
	Frost Injury		1
	Vascular	*Fusarium oxysporum*	1
	Browning	Rapid Topkilling	1
		Verticillium spp.	3
	Wilt	*Verticillium* spp.	3
Pumpkin	Leaf Spot	*Pseudomonas lachrymans*	1
Tomato	Blossom End Rot	Nutrient Deficiency	1
	Canker	Environmental Stress	2
	Chlorosis	Nutrient Deficiency	1
	Early Blight	*Alternaria solani*	5
	Flower Distortion	Frost Injury	2
	Late Blight	*Phytophthora infestans*	2
	Leaf Distortion	Pesticide Injury	2
	Wilt	*Fusarium oxysporum*	1
Watermelon	Leaf Spot	*Alfernaria* spp.	1
		Pseudomonas lachrymans	1
Zucchini	Blossom End Rot	Nutrient Deficiency	1
	Wilt	*Fusarium* spp.	1

CROP: Diagnostic Laboratory Report - Vegetables

LOCATION: Manitoba

NAME AND AGENCY:
R.G. Platford
Manitoba Agriculture
Crop Diagnostic Centre
201-545 University Crescent
Winnipeg, Manitoba R3T 5S6

TITLE: DISEASES DIAGNOSED ON VEGETABLES SUBMITTED TO THE MANITOBA AGRICULTURE CROP DIAGNOSTIC CENTRE IN MANITOBA IN 1992

METHODS: The Manitoba Agriculture Crop Diagnostic Centre 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. Diagnosis is based on visual examination for symptoms and culturing onto artificial media.

RESULTS AND COMMENTS: The disease submissions on vegetable crops are presented in Table 1. Fusarium crown rot of asparagus was diagnosed in samples from Portage. Phoma leaf spot was found on cabbage. Aster yellows was the most common problem affecting carrots. Black root rot was found on carrots returned from Winnipeg stores to the Manitoba Vegetable Marketing Board. Angular leaf spot and root rot were the most commonly encountered diseases of cucumbers. The environmental stress of prolonged cool summer temperatures resulted in a severe reduction of the commercial cucumber crop. White rot was diagnosed for the first time in Manitoba from a commercial onion crop in the Stonewall area. Environmental stress of prolonged cool temperatures resulted in immaturity of much of the onion crops at harvest and storage losses due to neck rot were prevalent in onions from Portage and Winkler. Septoria leaf spot was the most common disease in samples of tomatoes submitted.

Table 1. Summary of diseases diagnosed on vegetable samples submitted to the Manitoba Agriculture Crop Diagnostic Centre in Manitoba in 1992.

DISEASE	SCIENTIFIC NAME	NUMBER OF SAMPLES
ASPARAGUS		
Root Rot	*Fusarium* sp.	1
Total		1
CABBAGE		
Phoma leaf spot	*Leptosphaeria maculens*	2
Root rot and wilt	*Fusarium* sp.	1
Rhizoctonia rot	*Rhizoctonia solani*	1
Environmental stress		2
Total		6
CARROT		
Aster yellows	Aster yellows MLO	3
Black root rot	*Thielaviopsis basicola*	1
Herbicide injury		1
Total		5
CUCUMBER		
Angular leaf spot	*Pseudomonas lachrymans*	2
Root rot	*Fusarium* & *Pythium* spp.	2
Environmental stress		1
Total		6
ONION		
Blast	*Botrytis* spp.	2
Neck rot	*Botrytis* spp.	2
White rot	*Sclerotium cepivorum*	2
Downy mildew	*Peronospora destructor*	1
Environmental stress		2
Total		9
TOMATO		
Septoria leaf spot	*Septoria lycopersici*	6
Early blight	*Alternaria solani*	3
Bacterial speck	*Pseudomonas syringae* pv. tomato	2
Root rot	*Fusarium* sp.	1
Herbicide injury		8
Environmental stress		6
Nutrient deficiency		1
Total		27

CROP: Diagnostic Laboratory Report - Greenhouse Crops

LOCATION: Alberta

NAME AND AGENCY:
J.D. Holley
Regional Crop Laboratory
Alberta Special Crops and Horticultural Research Centre
Brooks, Alberta T I R 1E6

TITLE: DISEASES DIAGNOSED ON GREENHOUSE CROPS

METHODS: The Regional Crop Laboratory (RCL) at the Alberta Special Crops and Horticultural Research Centre (ASCHRC) received samples from district agriculturalists, florists, extension specialists or directly from commercial greenhouses. Diagnoses were made from symptoms or by isolating plant pathogens from diseased tissues in the laboratory.

RESULTS: The RCL at ASCHRC received a total of 101 requests for disease identification on greenhouse crops in 1992. Results are summarized in Table 1 below.

Table 1. Summary of diagnoses made on greenhouse samples submitted to the RCL in 1992.

CROPS	DISEASES	CAUSAL AGENTS OR PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Alstroemeria	Bud Distortion	Pesticide Injury	1
	Root Rot	*Fusarium* spp.	1
		Pythium spp.	1
Aster	Leaf Speckle	Nutrient Deficiency	1
Babaco	Leaf Spot	Environmental Stress	1
Begonia	Root Rot	*Pythium* spp.	1
Bellflower	Leaf/Stem Spot	*Botrytis cinerea*	1
Browalia	Leaf Distortion	TSWV	1
	Leaf Spot	TSWV	1
Cactus	Leaf Spot	Nutrient Deficiency	1
Campanula	Leaf Spot	*Botrytis cinerea*	1
Chrysanthemum	Bud Necrosis	TSWV	1
	Leaf Distortion	TSWV	1
	Leaf Spot	TSWV	1
	Leaf Spot	Pesticide Injury	1
	Stem Splitting	Environmental Stress	1
	Wilt	*Fusarium* spp.	1

CROPS	DISEASES	CAUSAL AGENTS OR PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Cucumber	Albinoism	Pesticide Injury	1
	Canker	Environmental Stress	1
		Cladosporium spp.	1
		Fusarium spp.	1
	Chlorosis	Environmental Stress	2
		Nutrient Deficiency	2
		Pesticide Injury	1
	Crown/Root Rot	*Fusarium* spp.	2
		Pythium spp.	3
	Leaf Crinkle	Environmental Stress	1
	Leaf Mottle	Virus/Not Identified	1
	Leaf Spot	*Alternaria cucumeris*	1
		Environmental Stress	2
		Nutrient Deficiency	1
		Pseudomonas lachrymans	1
	Oedema	Excessive Humidity	1
	Powdery Mildew	*Erysiphe cichoracearum*	1
		Sphaerotheca fuliginea	1
	Soft Rot	*Sclerotinia sclerotiorum*	1
	Stunting	Environmental Stress	1
	Wilt	Environmental Stress	1
Cyclamen	Leaf Spot	Pesticide injury	1
	Ring Spot	TSWV	1
	Wilt	*Fusarium* spp.	1
Eucalyptus	Leaf Burn	Environmental Stress	1
Freesia	Corm Rot	*Penicillium* spp.	1
		Fusarium oxysporum	2
Geranium	Chlorosis	Nutrient Deficiency	1
	Crown/Root Rot	Fertilizer Burn	1
		Fusarium spp.	1
		Pythium spp.	3
		Rhizoctonia solani	1
	Damping-Off	*Rhizoctonia solani*	2
	Fasciation	*Corynebacteriums fascians*	2
Gladiolas	Bulb Rot	*Fusarium oxysporum*	1
		Erwinia carotovora	1
Gloxinia	Ring Spot	TSWV	1
Gopher Purge	Crown/Root Rot	*Pythium* spp.	1
		Rhizoctonia spp.	1
Gypsy	Leaf Spot	Low Temperature Stress	1
Hibiscus	Leaf Spot	*Phyllosticta syriaca*	1

CROPS	DISEASES	CAUSAL AGENTS OR PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Hydrangea	Stunting	Soil Compaction	1
Impatiens	Chlorosis	TSWV	1
	Crown/Root Rot	*Fusarium* spp.	2
		Pythium spp.	1
		Rhizoctonia solani	1
	Leaf Spot	TSWV	1
Lavatera	Leaf Spot	*Botrytis cinerea*	1
Lily	Grey Mold	*Botrytis cinerea*	1
Magnolia	Frog-Eye Spot	*Botryosphaeria obtusa*	1
	Leaf Spot	Environmental Stress	1
Marigold	Stunting	Environmental Stress	1
Orchid	Leaf Spot	Virus/Not Identified	2
Pepper	Fruit Mottling	Environmental Stress	1
Petunia	Root Rot	High Soil Salinity	1
Poinsettia	Grey Mold	*Botrytis cinerea*	1
	Crown\Root Rot	*Fusarium* spp.	2
		Pythium spp.	1
	Leaf Spot	Nutrient Deficiency	1
		Pesticide Injury	1
Primula	Leaf Spot	TSWV	1
Rose	Grey Mold	*Botrytis cinerea*	3
	Petal/Stem Spot	*Botrytis cinerea*	1
		Poor Sanitation	1
Tomato	Blossom End Rot	Calcium Deficiency	1
	Canker	*Clavibacter michiganensis*	5
	Chlorosis	CMV	1
		Nutrient Deficiency	1
		Environmental Stress	1
		Virus/Not Identified	1
	Early Blight	*Alternaria solani*	5
	Grey Mold	*Botrytis cinerea*	2
		Nutrient Deficiency	2
	Leaf Distortion	Pesticide Injury	2
	Leaf Spot	Environmental Stress	1
		Nutrient Deficiency	2
		Pesticide Injury	1
	Root Rot	*Pythium* spp.	
	Soft Rot	*Erwinia carotovora*	3
Verbena	Leaf Spot	Pesticide Injury	1
		TSWV	1

CROP: Diagnostic Laboratory Report - Greenhouse Crops

LOCATION: British Columbia

NAME AND AGENCY:
D.M. Scott-Hsiung
B.C. Ministry of Agriculture
Fisheries and Food
17720-57th Avenue
Surrey, British Columbia V3S 4P9

TITLE: DISEASES DIAGNOSED ON COMMERCIAL CROPS IN BRITISH COLUMBIA, 1991 AND 1992

METHODS: The B.C.M.A.F.F. Plant Diagnostic Lab provides the diagnosis of, and control recommendations for disease problems of commercial crops. The following data reflects samples submitted to the lab by ministry extension staff, growers and agribusiness. Diagnosis was accomplished by microscope examination, culturing onto artificial media and ELISA. Assisting with the diagnoses were Leslie MacDonald and Dave J. Ormrod, Plant Pathologists at the B.C.M.A.F.F. Viruses were identified with the assistance of Dr. R. Stace-Smith, Dr. D. MacKenzie and Dr. P. Ellis, Agriculture Canada Research Station, Vancouver, through sap inoculation onto indicator plants, electron microscopy and ELISA.

RESULTS AND COMMENTS: The total number of submissions for each crop category is listed at the bottom of each table. Only diseases of significance are listed in the attached summaries. Problems not listed include: nutritional stress; pH imbalance; water stress; poor sample; physiological response; chemical damage (unless more than 1 plant); insect-related damage; and samples where no conclusive disease-causing organism was identified. These submissions are grouped under the heading 'OTHER' at the bottom of each table. Sample numbers are based on submissions received from January through December in 1991 and from January through to October of 1992.

Table 1. Summary of greenhouse vegetable crop diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Cucumber	*Botrytis cinerea*	1	
	Cladosporium cucumerinum	1	
	Didymella bryoniae	2	
	Powdery mildew	2	
	Pythium crown and root rot	17	1
	Sclerotinia sclerotiorum -stem rot	1	2
	Bacterial stem end rot of fruit	1	
	Pale fruit viroid?		1
Water spinach - *Ipomoea aquatica*	Oedema	1	
	Pythium root rot	1	
Lettuce	*Sclerotinia sclerotiorum* - bottom rot		1

CROP	DISEASE	No. of Samples	
		1991	1992
Pepper	*Fusarium solani* -stem rot	1	2
	Pythium root rot	3	1
	Rhizoctonia damping off	1	
	TSWV - Impatiens strain (TSWV-I)	2	**3
	TSWV - Lettuce strain (TSWV-L)	1	
	Pepper mild mottle virus (PMMV)	*26	*23
	Xanthomonas campestris pv *vesicatoria?* -black spot		1
	Sclerotinia sclerotiorum -stem rot		1
Tomato	Botrytis stem rot	2	
	Fusarium oxysporum f. sp. *radicis-lycopersici*	2	
	Pythium root rot	5	2
	Pith necrosis	1	
	Cladosporium leaf mold		3
	Phytophthora infestans		1
	Pyrenochaeta lycopersici		1
	TSWV - L	3	
	TSWV - I	1	
	Herbicide damage		2
OTHER		52	18
Total		128	62

* Samples submitted from 7 sites with PMMV.
** Samples submitted from 1 site with TSWV.

Table 2. Summary of floriculture crop diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Achillea sp.	Root rot (Phycomycete)		1
Aeschynanthus pulcher	TSWV - I		1*
Alyssum sp.	*Peronospora* sp. -downy mildew	1	1
Alstroemeria sp.	Phytophthora crown and root rot	2	
Anemone sp.	Botrytis collar rot	1	
Antirrhinum spp.	Botrytis damping off	1	
	Damping off (Phycomycete)	1	
	Puccinia antirrhini		1
	Peronospora sp. -downy mildew	2	2
Aralia sp.	TSWV - I	1	
Aubretia sp.	*Albugo* sp. -white rust		1
Begonia spp.	*Xanthomonas campestris* pv. *begoniae*	2	2
	TSWV - I	3	2
	Pythium root rot		1

CROP	DISEASE	No. of Samples	
		1991	1992
Brachycome iberidifolia	TSWV - I	1	
	TSWV - L	1	
Calceolaria sp.	TSWV - I		1
Chrysanthemum x *morifolium*	Unknown wilting		2
	TSWV - L	1	
Crassula arborescens	*Sphaerotheca macularis*	1	
Cyclamen persicum	TSWV - I	1	1
Delphinium sp.	Powdery mildew	1	
Dianthus barbatus	Erwinia soft rot		1
	Cladosporium leaf spot	1	
Dracaena fragrans	Fusarium stem rot	1	
	Root rot (Phycomycete)		1
Centaurea cineraria	*Sclerotinia sclerotiorum* -stem rot		1
	Downy mildew		1
Echinops ritro	TSWV - I and L		1
Episcia dianthiflora	TSWV - I	1	
Eryngium planum	Fusarium crown rot		1
Euphorbia pulcherrima	Pythium root rot	3	3
	Rhizoctonia stem rot	1	
	Undetermined branch wilt-physiological	5	
Exacum affine	TSWV - I	1	
Ficus elastica	TSWV - I	1	
F. pumila	TSWV - I	1	
Freesia sp.	*Stomatinia gladioli*		1
Fuchsia x *hybrida*	Pythium root rot	2	3
	Thielaviopsis basicola	1	
	TSWV - I	1	
	Pucciniastrum epilobii		2
Gerbera sp.	Root rot (Phycomycete)	1	1
Gladiolus sp.	*Stomatinia gladioli*		1
Impatiens wallerana	Alternaria leaf spot	1	
	TSWV - I	9	2
	TSWV - L	3	
	TSWV - I and L	1	
Iris spp.	*Mycosphaerella macrospora*	1	1
	Penicillium rot		1
Kalanchoe spp.	Pythium root rot	1	
	Rhizoctonia root and stem rot		1
Kangaroo Paw	Fusarium crown rot	1	
Lantana sp.	TSWV - I	1	
Lilium spp.	Fusarium bulb rot	1	
	Erwinia soft rot		1
Limonium vulgare	Fusarium crown rot	1	
Lisianthus spp.	Fusarium crown rot	1	
	Pythium crown rot	1	1
	TSWV - I	1	

CROP	DISEASE	No. of Samples	
		1991	1992
Lupinus sp.	Downy mildew		2
Narcissus pseudonarcissus	Fusarium bulb rot	1	1
Mimulus sp.	TSWV - I	1	
Paeonia spp.	Botrytis leaf spot	1	
	Pythium root rot	1	
Papaver sp.	Downy mildew	1	
Pelargonium x *hortorum*	*Botrytis cinerea*	2	1
	Pythium root rot	1	
	Puccinia pelargonii-zonalis		*1*
	Rhizoctonia stem rot	1	
	Pseudomonas chichorii		*1*
	Xanthomonas campestris pv. *pelargonii*	*3*	6
	TSWV -I	1	
	Nutritional disorder	8	
	Oedema		1
P. peltatum	Pythium root rot	3	
	Oedema	3	
Phalaenopsis sp.	*Erwinia chrysanthemi*	1	
Primula sp.	Pseudomonas leaf spot	1	
Radermachera sinica	TSWV - I	1	
Schefflera spp.	*Pseudomonas cichorii*	*1*	
	TSWV - I	1	
Senecio cruentus	TSWV - I	2	
Sinningia speciosa	TSWV - I	1	
Spathiphyllum sp.	TSWV - I	1	
Tulipa spp.	*Botrytis tulipae*	1	
	Pythium bulb rot	1	
Tradescantia sp.	Pythium root rot	1	
Viola spp.	Ramularia leaf spot	2	3
	Thielaviopsis basicola	1	
Zinnia sp.	*Botrytis cinerea*		*1*
OTHER		36	31
Total		**142**	**87**

* Most of the TSWV work in 1991 was done by Iris Bitterlich as part of **D.A.T.E.** Project 311.

Table 3. Summary of small fruit diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Blueberry	*Botrytis cinerea*	10	10
	Godronia cassandrae	3	2
	Monilinia vaccinii-corymbosi	4	3
	Phomopsis canker	1	
	Root and crown rot (Phytophthora?)		5
	Pseudomonas syringae	8	3
	Agrobacterium tumefaciens?	2	2
	Nutrient deficiency	3	2
	Environmental stress	4	6
Cranberry	*Exobasidium vaccinii*	1	
	Phyllosticta vaccinii		1
Raspberry	Phytophthora root rot	2	3
	Agrobacterium tumefaciens		2
	Phragmidium rubi-idaei	1	
	Elsinoe veneta	1	
	Didymella applanata	1	
	Verticillium wilt	1	
	Pseudomonas syringae	1	
	Environmental stress		2
Strawberry	Fusarium crown rot	2	
	Mycosphaerella fragariae	3	
	Phytophthora fragariae	2	13
	Rhizoctonia crown rot		1
	Verticillium albo-atrum	1	2
	Water damage		2
	Winter injury	2	
OTHER		13	26
Total		66	85

Table 4 . Summary of specialty crop diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Basil	Fusarium stem rot	1	
Ginseng	*Alternaria panax*	6	9
	Cladosporium leaf spot (saprophyte)	2	
	Root rot (Fusarium/Rhizoctonia)	2	3
	Phytophthora cactorum		4
	Sclerotinia sclerotiorum		2
	Heat stress		2
OTHER		16	11
Total		27	31

Table 5. Summary of tree fruit diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Apple	Alternaria leaf spot	1	
	Nectria coccinea	3	
	Nectria galligena	3	3
	Pezicula malicorticis		4
	Erwinia amylovora (on Gala)	4	
	Winter injury	2	
Apricot	*Stigmina carpophila*	1	1
Cherry	*Stigmina carpophila*	1	
	Winter injury	1	
Filbert	*Xanthomonas campestris* pv. *corylina*		1
	Winter injury	1	
Peach	*Stigmina carpophila*		1
	Taphrina deformans		1
Saskatoon	*Cylindrosporium* sp. -leaf spot	1	
	Gymnosporangium sp. -leaf rust	2	
	Phytophthora root rot	1	
Walnut	*Mierostroma juglandis*	1	
	Xanthomonas campestris pv. *juglandis*	1	
OTHER		3	19
Total		26	30

Table 6. Summary of vegetable crop diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Bean	*Botrytis cinerea*	All fields	
	Sclerotinia sclerotiorum	Most fields	
	Pythium crown and root rot		1
Beet	*Botrytis cinerea*	1	
	Sclerotinia sclerotiorum	1	
Carrot	*Alternaria dauci*		1
	Cercospora carotae	2	
	Etwinia carotovora	3	
	Flood damage	3	
Cabbage	*Xanthomonas campestris* pv. *campestris*	1	
Cauliflower	*Etwinia carotovora*	1	
Corn	Fusarium stem rot		1
Cucumber	*Erysiphae cichoraceorum*		1
	Pythium root rot	2	
Eggplant	*Sclerotinia sclerotiorum*		1
Garlic	*Sclerotium cepivorum*	2	1
	Botrytis bulb rot	1	
Lettuce	*Marssonina panattoniana*		1
	Rhizoctonia solani	1	
	Sclerotinia sclerotiorum	1	
	Pseudomonas leaf spot		1
Melon	Alternaria black spot		1
	Sclerotinia sclerotiorum	1	
Onion	Botrytis blast	1	
	Peronospora destructor	2	1
	Pythium sp. -damping off		1
	Phoma terrestris	3	1
	Sclerotium cepivorum	7	2
	Stemphylium blight		1
	Albinism		1
Pea	*Thielaviopsis basicola*		1
	Erysiphe sp. -powdery mildew		1
Pepper	Alternaria stem rot		1
	Sclerotinia sclerotiorum	1	1
	TSWV - L	1	
Cape Gooseberry (*Physalis* sp.)	*Entyloma australe*		1
Potato	*Alternaria solani*	2	2
	Botrytis cinerea	3	
	Helminthosporium solani	1	
	Phytophthora infestans	7	4
	Rhizoctonia solani	1	
	Clavibacter michiganensis subsp. *sepedonicum*	1	1
	Streptomyces scabies	3	
	Current season leafroll virus		3

CROP	DISEASE	No. of Samples	
		1991	1992
Rutabaga	*Plasmodiophora brassicae*	1	1
	Rhizoctonia crater rot	1	
Squash	Cladosporium leaf spot		1
Tomato	*Colletotrichum caccodes*		1
	Fusarium oxysporum		1
	Phytophthora infestans	1	
	TSWV - I	1	
OTHER		35	52
Total		92	87

Table 7. Summary of woody ornamental diseases submitted in 1991 and 1992.

CROP	DISEASE	No. of Samples	
		1991	1992
Abies spp.	*Rhizosphaera kalkhoffii*	3	
	Sclerophoma blight	1	
	Phytophthora crown rot		2
	Current season needle necrosis		2
Acer spp.	*Kabatiella* sp. -anthracnose	3	2
	Nectria canker	1	1
	Verticillium dahliae	1	1
	Pseudomonas syringae		4
Alnus rubra	Pseudomonas leaf spot	1	
Arctostaphylos uva-ursi	Pythium root rot	1	
Aucuba japonica	Fusarium damping off	1	
Cedrus atlantica	Phomopsis canker	1	1
	Sirococcus conigenus	2	
C. deodora	Winter injury	3	
Clematis spp.	Phytophthora root and crown rot	2	3
	Ascochyta stem blight		4
	Botrytis cinerea		1
Cornus spp.	*Discula* sp. -anthracnose	1	
	Nectria canker	1	
	Pseudomonas syringae		2
Cotoneaster spp.	Phytophthora root rot		1
	Winter injury	1	
Erica sp.	Phytophthora root rot	1	1
Eucalyptus sp.	Phomopsis canker		1
Euonymus sp.	Phytophthora root rot		2
Ilex spp.	Phomopsis blight		1
	Phytophthora leaf and twig blight		1

CROP	DISEASE	No. of Samples	
		1991	1992
Juniperus spp.	*Kabatina juniperi*	3	
	Phomopsis dieback	1	1
	Phytophthora root rot	3	3
	Sclerophoma pithiophila		1
Larix decidua	Phytophthora root and crown rot		1
Lonicera spp.	Phoma stem rot	1	
	Pythium root rot	1	
Magnolia grandiflora	Cladosporium leaf spot	1	
Malus floribunda	*Erwinia amylovora*		1
Photinia fraserii	Fabraea leaf spot	1	
Picea pungens	*Botrytis cinerea* -shoot blight	1	
	Rhizosphaera kalkhoffii	2	2
	Phomopsis canker		1
	Slime mold	1	
Pieris japonica	Phytophthora root rot	1	3
	Winter injury	1	
Pinus mugo	Winter injury	1	
P. ponderosa	*Leptomelanconium cinereum*	1	
	Sphaeropsis *sapinea*	1	
P. sylvestsris	Lophodermium needle cast	2	1
Populus tremuloides	*Venturia* **sp.** -shoot dieback	1	
Prunus laurocerasus	Phyllachora leaf spot	1	
	Pseudomonas syringae		1
P. maackii	Cytospora dieback	1	
P. serrulata cv. 'Kwanzan'	*Monilinia fructicola*	1	
	Pseudomonas syringae	2	
Pseudotsuga menziesii	*Botrytis cinerea* -shoot blight	1	
	Phaeocryptopus gaeumannii	3	2
	Phomopsis canker	1	
	Phytophthora sp. -collar rot		3
	Rhabdocline pseudotsuga	2	
	Rhizosphaera kalkhoffii	2	
Pyracantha sp.	Pseudomonas stem blight		1
Pyrus calleryana	*Pseudomonas syringae*		2
Quercus sp.	*Discula* sp. -anthracnose	2	
Rhododendron spp.	Phytophthora crown rot		3
	Colletotrichum sp. -anthracnose	1	
	Pestalotia leaf blight		2
	Winter injury	4	1
Robinia Pseudoacacia	*Nectria gailigena*	1	
Rosa spp.	*Coniothyrium fuckellii*	1	
	Peronospora sparsa	1	1
	Pythium cutting rot	1	
	Root rot *(Phytophthora* sp.?)	1	1
	Winter injury	2	
Salix sp.	Pseudomonas blight		1
Schizanthus sp.	Phytophthora root rot		1

CROP	DISEASE	No. of Samples	
		1991	1992
Sequoiadendron sp.	*Botrytis cinerea* -shoot blight	1	1
Sorbus reducta	Winter injury	2	
Syringa vulgaris	*Pseudomonas syringae*		1
Thuja occidentalis	Armillaria root rot	1	
	Kabatina thujae	5	2
	Pythium cutting rot	1	
	Root rot (Phycomycete)	2	2
	Sclerophoma pithiophila	1	
	Environmental stress	6	4
T. plicata	*Fusarium oxysporum*	1	
	Didymascella thujina	1	3
	Sclerophoma and *Botrytis* sp. -tip dieback		1
	Seiridium cardinale		1
	Winter injury	1	
Vaccinium vitis-idaea var *minus*	Phytophthora root rot	1	
OTHER		74	95
Total		171	174

Table 8. Summary of turfgrass diseases submitted in **1991** and **1992.**

DISEASE	Golf Course		Sod Farm		Lawn	
	1991	*1992*	*1991*	*1992*	*1991*	*1992*
Root rot - *Pythium* sp. and *Pythium graminicola*	4*	2(12*)	4*	2(3*)	**3**	1
Ascochyta leaf blight	1(1*)	3*		1	**6**	8
Rhizoctonia patch		1(5*)		2	1	3
Colletotrichum graminicola	1(3*)	1*			**3**	**4**
Leptosphaeria korrae					*6*	
Curvularia sp. and *Drechslera* sp.	1		1*	1	**5**	**3**
Microdochium nivale	1	1	**2**	**3**	**4**	
Gaeumannomyces graminis var *avenae*	3*	3*	2*	1*	1*?	
Laetisaria fuciformis and *Limonomyces roseipellis*	1		3	**2**	**4**	**2**
Lanzia/Moellerodiscus - (*Sclerotinia homoecarpa)*	3*					
Typhula ishikariensis var *ishikariensis*	1*		2(1*)		1?	
Rust - *Puccinia* sp.				**2**	1	
Sclerotinia borealis					1	
Algae	4*	1			**2**	
Black plug layer	1*	2*				
Total	25	**31**	15	17	38	21

OTHER for **1991** - 6
OTHER for **1992** - 11

* Indicates the number of bentgrass samples, If in brackets, the total is in addition to the number of mixed species. Unstarred numbers refer to mixes of fescues, ryegrass, Kentucky bluegrass and *Poa annua*.

CROP: Diagnostic Laboratory Report - Ornamentals

LOCATION: Alberta

NAME AND AGENCY:
J.D. Holley
Regional Crop Laboratory
Alberta Special Crops and Horticultural Research Centre
Brooks, Alberta T I R 1E6

TITLE: DISEASES DIAGNOSED ON HERBACEOUS AND WOODY ORNAMENTALS

METHODS: The Regional Crop Laboratory (RCL) at the Alberta Special Crops and Horticultural Research Centre (ASCHRC) received samples on woody and herbaceous ornamentals from district agriculturalists, landscaping companies, florists, municipal parks and recreation staff, extension specialists and the general public. Diagnoses were made from symptoms or by isolating plant pathogens from diseased tissues in the laboratory.

RESULTS: The RCL at ASCHRC received a total of 352 requests for disease identification on woody and herbaceous ornamentals in 1992. Results are summarized in Table 1 below.

Table 1. Summary of diagnoses made on woody and herbaceous ornamental samples submitted to the RCL in 1992.

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Aspen	Canker	Cytospora spp.	1
	Dieback	Venturia populina	1
Aster	Aster Yellows	MLO	1
Avacado	Leaf Drop	Low Light Intensity	1
Blue Spruce	Brown Blight	*Herpotrichia juniperi*	1
	Bud Bleaching	Pesticide Injury	1
	Bud Necrosis	Frost Injury	12
	Canker	Cytospora spp.	2
		Frost Injury	2
	Chlorosis	Pesticide Injury	1
	Leaf Distortion	Frost Injury	4
	Lichens	*Thamnium vermicularis*	1
		Lecidea fuscoata	1
	Needle Browning	Mechanical Damage	1
		Moisture Stress	1
		Pesticide Injury	9
		Winter Desiccation	44
	Needle Cast	*Rhizosphaera kalkhoffi*	2
		Low Light Intensity	6
	Pitch Deposit	Mechanical Injury	1
	Twig Distortion	Frost Injury	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Birch	Canker	*Cytospora* spp.	1
	Chlorosis	Iron Deficiency	1
		Physiological Yellowing	5
	Coral Spot	*Nectria cinnabarina*	1
	Dieback	Winter Desiccation	8
	Leaf Spot	Frost Injury	1
		Marssonina spp.	1
		Moisture Stress	1
		Pesticide Injury	2
	Shelf Fungus	*Polyporus* spp.	1
	Wetwood	*Enterobacter* spp.	1
Black Ash	Anthracnose	*Gloeosporium aridum*	1
Bougainvillea	Chlorosis	Low Light Intensity	1
		Iron Deficiency	1
		Pool Chlorine	1
	Leaf Burn	Pesticide Injury	1
	Leaf Shatter	Mechanical injury	1
Caragana	Leaf Distortion	Pesticide Injury	1
Cedar	Needle Browning	High Soil Salinity	2
		Winter Desiccation	10
	Needle Cast	Low Light Intensity	1
Chokecherry	Coral Spot	*Nectria cinnabarina*	1
Clematis	Canker	*Septoria* spp.	1
	Leaf Spot	*Septoria* spp.	1
	Rust	*Puccinia clematis*	1
Cotoneaster	Bacterial Blight	*Pseudomonas syringe*	1
	Bud Necrosis	Frost Injury	1
	Canker	*Botryosphaeria obtusa*	1
		Cytospora spp.	1
		Nectria cinnabarina	1
	Chlorosis	Iron Deficiency	1
	Fireblight	*Erwinia amylovora*	3
Dogwood	Canker	*Botryosphaeria dothidea*	1
		Cytospora spp.	1
		Frost Injury	1
	Leaf Spot	Moisture Stress	1
Dieffenbachia	Leaf Drop	Low Light Intensity	1
		Overwatering	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Elm	Canker	*Cytospora* spp.	2
	Chlorosis	Iron Deficiency	1
	Coral Spot	*Nectria cinnabarina*	1
	Dieback	Winter Desiccation	1
	Leaf Distortion	Pesticide Injury	3
	Leaf Scorch	*Xylemella fastidiosum*	1
	Leaf Spot	*Gnomonia ulmea*	2
		Frost Injury	2
		Pesticide Injury	1
	Wilt	*Botryosphaeria dothidea*	1
		Moisture Stress	2
		Phoma spp.	1
English Ivy	Leaf Spot	Environmental Stress	1
Flowering Crabapple	Fireblight	*Erwinia amylovora*	2
	Scab	*Venturia inaequalis*	1
Flowering Cherry	Fireblight	*Erwinia amylovora*	1
Flowering Plum	Coral Spot	*Nectria cinnabarina*	1
	Fireblight	*Erwinia amylovora*	3
	Leaf Spot	*Alternaria* spp.	1
		Coccomyces lutenscens	1
		Environmental Stress	1
Geranium	Canker	*Xanthomonas pelargonii*	1
	Chlorosis	Nutritional Deficiency	2
	Leaf Spot	Environmental Stress	1
		Xanthomonas pelargonii	1
Gladiolus	Corm Rot	*Fusarium oxysporum*	1
Golden Elder	Leaf Spot	Environmental Stress	1
Green Ash	Anthracnose	*Gloeosporium aridum*	2
	Bud Necrosis	Frost Injury	2
	Canker	*Cytospora* spp.	3
		Enterobacter spp.	1
		Sunscald	1
	Leaf Distortion	Frost Injury	2
		Pesticide Injury	4
	Leaf Spot	Moisture Stress	1
		Pesticide Injury	2
	Shelf Fungus	*Polyporus* spp.	1
	Sooty Mold	Capnodiaceae	1
	Wilt	Moisture Stress	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Hawthorn	Bacterial Blight	*Pseudomonas syringe*	1
Honeysuckle	Leaf Spot	*Insolibasidium deformans*	2
Hibiscus	Leaf Spot	*Alternaria* spp.	1
		High Soil Salinity	1
Hollyhock	Rust	*Puccinia malvacearum*	2
Impatiens	Leaf Spot	Mechanical Injury	1
Iris	Bulb/Crown Rot	*Erwinia carotovora*	1
		Fusarium oxysporum	2
		Penicillium spp.	2
		Mucor spp.	1
Juniper	Crown/Root Rot	Low Temperature Injury	1
	Scale Browning	Winter Desiccation	2
Lilac	Bacterial Blight	*Pseudomonas syringe*	3
	Chlorosis	Iron Deficiency	1
	Dieback	Low Temperature Injury	1
	Leaf Distortion	Frost Injury	1
	Leaf Spot	Pesticide Injury	1
	Sooty Mold	Capnodiaceae	1
Lily	Black Scale	*Colletotrichum lilii*	1
Lupin	Crown/Root Rot	*Fusarium* spp.	1
		Mucor spp.	1
		Rhizoctonia solani	1
Maple	Anthracnose	*Kabatiella apocrypta*	1
	Canker	*Cytospora* spp.	1
	Leaf Distortion	Pesticide Injury	1
	Leaf Spot	*Alternaria* spp.	1
		Pesticide Injury	1
	Sooty Mold	Capnodiaceae	1
	Tar Spot	*Rhytisma acerinum*	2
Marigold	Canker	*Phytophthora cryptogea*	1
Mayday	Canker	*Cytospora* spp.	2
		Frost Injury	1
		Enterobacter spp.	1
	Coral Spot	*Nectria cinnabarina*	2
	Chlorosis	Iron Deficiency	1
		Nitrogen Deficiency	1
		Pesticide Injury	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Mayday (cont'd)	Dieback	Low Temperature Injury	1
	Leaf Spot	*Coccomyces lutescens*	2
		Moisture Stress	4
	Leaf Shatter	Wind	1
	Powdery Mildew	*Podospora clandestina*	1
	Saprophytic Mold	*Fusarium* spp.	1
		Capnodiaceae	1
Mugo Pine	Needle Browning	Winter Desiccation	1
Mountain Ash	Bacterial Blight	*Pseudomonas syringe*	2
	Canker	*Cytospora* spp.	1
	Chlorosis	Iron Deficiency	1
	Dieback	Winter Desiccation	1
	Fireblight	*Erwinia amylovora*	11
	Leaf Distortion	Frost Injury	1
	Leaf Spot	Frost Injury	1
		Pesticide Injury	1
		Venturia inaequalis	1
	Powdery Mildew	*Podospora clandestina*	1
Norfolk Pine	Needle Cast	Low Light Intensity	1
Oak	Leaf Blister	*Taphrina caerulescens*	1
Oleander	Leaf Spot	Environmental Stress	1
Ostrich Fern	Leaf Distortion	Pesticide Injury	1
Peony	Bud Necrosis	Frost Injury	1
Petunia	Abnormal Petal Pigmentation	Genetic Anomally	1
Pine	Chlorosis	Low Light Intensity	5
	Needle Browning	Winter Desiccation	5
	Needle Cast	*Dothistroma pini*	1
		Lophodermium pinastrum	1
Poplar	Bud Necrosis	Frost Injury	1
	Canker	*Cytospora* spp.	2
		Enterobacter spp.	1
		Hypoxylon mammatum	1
		Mechanical Injury	2
	Coral Spot	*Nectria cinnabarina*	1
	Dieback	Winter Desiccation	1

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Poplar (cont'd)	Leaf Distortion	Frost Injury	1
	Leaf Spot	Fertilizer Burn	1
		Frost Injury	3
		Marssonina spp.	11
		Moisture Stress	2
		Septoria spp.	1
	Rust	*Melampsora medusa*	1
Rose	Black Spot	*Diplocarpon rosae*	1
	Chlorosis	Nutritional Deficiency	1
	Dieback	Low Temperature Injury	1
	Rust	*Phragmidium* spp.	2
Russian Olive	Canker	*Cytospora* spp.	1
	Coral Spot	*Nectria cinnabarina*	1
	Leaf Spot	*Septoria elaegni*	1
	Wilt	*Verticillium albo-atrum*	3
Sea Buckthorn	Dieback	Winter Desiccation	1
	Crown/Root Rot	*Phytophthora cactorum*	1
Serviceberry	Chlorosis	Iron Deficiency	1
	Fireblight	*Erwinia amylovora*	1
Sumac	Crown/Root Rot	*Fusarium* spp.	1
		Pythium spp.	1
Umbrella Tree	Chlorosis	Low Light Intensity	1
Viburnum	Leaf Spot	Environmental Stress	1
Vinca	Crown/Root Rot	*Fusarium* spp.	1
		Pythium spp.	1
Virginia Creeper	Leaf Distortion	Pesticide Injury	1
Willow	Black Canker	Environmental Stress	5
		Glomerella miyabaena	4
		Mechanical Injury	1
		High Soil Salinity	1
	Canker	*Cytospora* spp.	1
	Chlorosis	Pesticide Injury	1
	Leaf Spot	*Marssonina* spp.	2
White Spruce	Storage Rot	*Gloeosporium* spp.	1
		Penecillium spp.	1
		Rhizopus spp.	1

CROP: Diagnostic Laboratory Report - Turfgrass

LOCATION: Alberta

NAME AND AGENCY:
J.D. Holley
Regional Crop Laboratory
Alberta Special Crops and Horticultural Research Centre
Brooks, Alberta T I R 1E6

TITLE: DISEASES DIAGNOSED ON AMENITY TURF

METHODS: The Regional Crop Laboratory (RCL) at the Alberta Special Crops and Horticultural Research Centre (ASCHRC) received samples from district agriculturalists, golf courses, municipal parks and recreation departments, and from the general public. Diagnoses were made from symptoms or by isolating plant pathogens from diseased tissues in the laboratory.

RESULTS: The RCL at ASCHRC received a total of 20 requests for disease identification on amenity turf in 1992. Results are summarized in Table 1 below.

Table 1. Summary of diagnoses made on amenity turf samples submitted to the RCL in 1992.

CROPS	DISEASES	CAUSAL AGENTS / PLANT PATHOGENS	NO. OF TIMES AGENTS WERE IDENTIFIED
Bentgrass	Crown/Root Rot	*Drechslera erythrospilla*	1
		Fusarium spp.	1
		Pythium spp.	1
	Dieback	*Bipolaris sorokiniana*	1
		Fusarium spp.	1
	Melting-out	Cold Temperatures	1
		Fusarium spp.	1
Turf	Algae	*Ulotrix* spp.	1
	Anthracnose	*Colletotrichum gramicola*	3
	Brown Patch	*Rhizoctonia solani*	1
	Crown/Root Rot	*Fusarium* spp.	1
		Rhizoctonia solani	1
	Dieback	Environmental	1
		Fusarium spp.	2
		Pesticides	1
	Fusarium Patch	*Fusarium nivale*	1
	Red Thread	*Lactisaria fuciformis*	1
	Slime Mold	*Physarum cinereum*	1
	Snow Mold	*Fusarium* spp.	2
		Saprophytic Fungi	1

CROP: Diagnostic Laboratory Report - Turfgrass

LOCATION: Manitoba

NAME AND AGENCY:
R.G. Platford
Manitoba Agriculture
Crop Diagnostic Centre
201-545 University Crescent
Winnipeg, Manitoba R3T 5S6

TITLE: DISEASES DIAGNOSED ON TURFGRASS, SUBMITTED TO THE MANITOBA AGRICULTURE CROP DIAGNOSTIC CENTRE IN 1992

METHODS: There were 21 samples of turfgrass submitted for diagnosis to the Manitoba Agriculture Crop Diagnostic Centre by Manitoba Agriculture extension staff, farmers, agri-business and the general public in 1992. Samples were examined for disease symptoms and where necessary isolations were made onto Potato Dextrose Agar (PDA) for identification of the causal fungus.

RESULTS AND COMMENTS: The results of the laboratory diagnoses are presented in Table 1. Leaf diseases such as anthracnose, ascochyta and melting-out were less prominent in 1992 than in 1991 primarily as a result of prolonged cool, moist weather during the months of June, July and August. Snow mould was not a major problem in 1992. Slime mold was favoured by wet weather conditions in June.

Table 1. Summary of diseases diagnosed on turfgrass samples submitted to the Manitoba Agriculture Crop Diagnostic Centre in 1992.

DISEASE	SCIENTIFIC NAME	NUMBER OF SAMPLES
Anthracnose	*Colletotrichum graminicola*	6
Melting-out	*Drechslera* spp.	4
Slime mold	*Physarum* spp.	4
Fairy ring	*Marasmius oreades*	3
Leaf Blight	*Ascochyta* spp.	3
Leaf spot	*Septoria* spp.	2
Snow mould	*Typhula* spp.	2
Algae Slime	*Cyanobacteria* sp.	1
Leptosphaerulina leaf blight	*Leptosphaerulina trifolii*	1
Red Thread	*Laetisaria fuciformis*	1
Root Rot		1
Environmental stress		4
Herbicide		2
Total Samples Submitted		21