"New" Pests of Ornamentals

Dave Woodske, P.Ag.
BC Ministry of Agriculture

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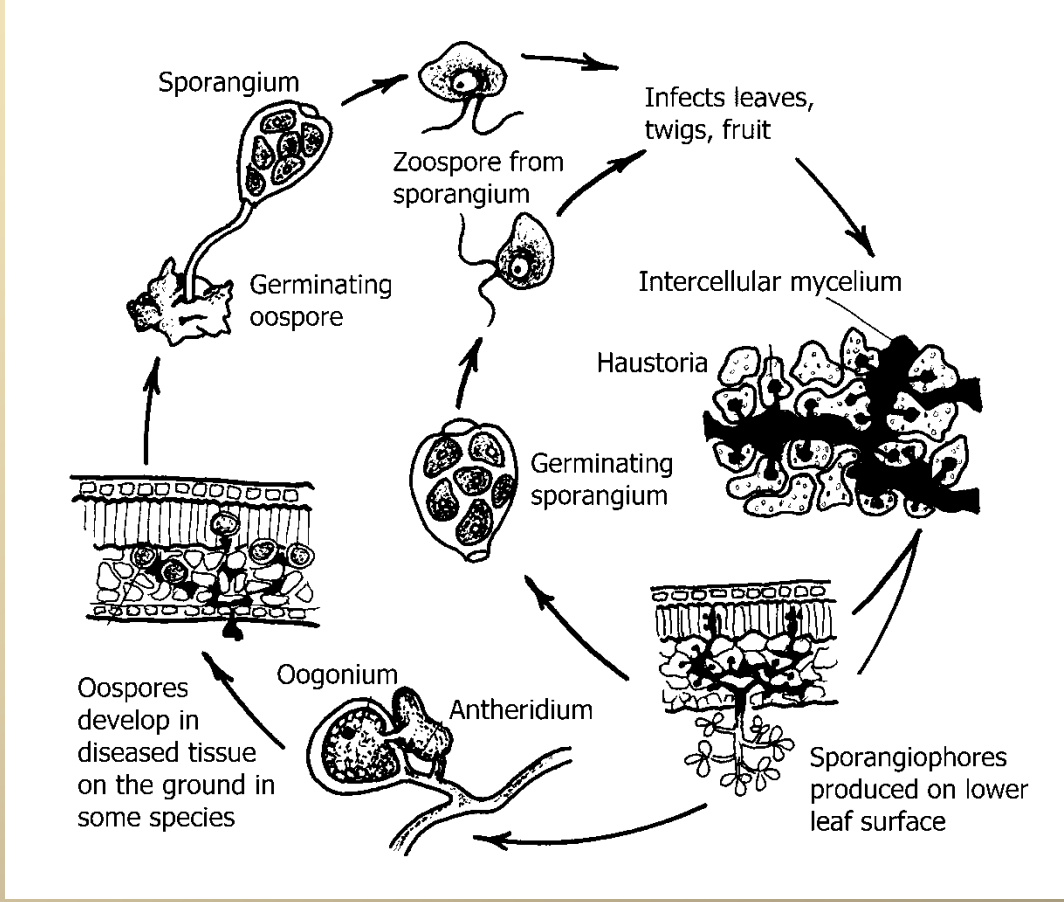
New Pest Introductions

- Downy Mildew on Impatiens (*Plasmopara obducens*) and Basil (*Peronospora belbahrii*)
- Box Blight (*Cylindrocladium buxicola*)
- European Pine Sawfly (*Neodiprion sertifer*)
- Green Immigrant Weevil (*Polydrusus sericeus*)
- Hellebore Leafminer (*Phytomyza hellebori*)?
- Red Lily Leaf Beetle *(Lilioceris lilii)*?
- European Fire Ant (*Myrmica rubra*)

Downy Mildew

- water mold, related to *Pythium* and *Phytophthora*
- infection requires leaf wetness



Downy Mildew

Host	Pathogen	Year
Boston Ivy	*Plasmopara viticola*	Oregon '01
Virginia Creeper	*Plasmopara viticola*	Oregon '01
Impatiens walleriana	*Plasmopara obducens*	California'04
Hellebores	*Peronospora pulveracea*	BC '05
Rudbeckia (*Centaurea, Coreopsis, Erigeron, Helianthus, Verbena*)	*Plasmopara halstedii*	Virginia '05
Coleus	*Peronospora belbahrii*	Oregon '07
Basil	*Peronospora belbahrii*	Florida '07

Downy Mildew

Impatiens	Basil	Rudbeckia

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Impatiens Downy Mildew (*Plasmopara obducens*)

- detected sporadically US greenhouses in 2004
- began to damage landscapes in 2011; detected in 33 US states by 2012
- detected in Quebec and Ontario, and for the first time in BC in June 2013

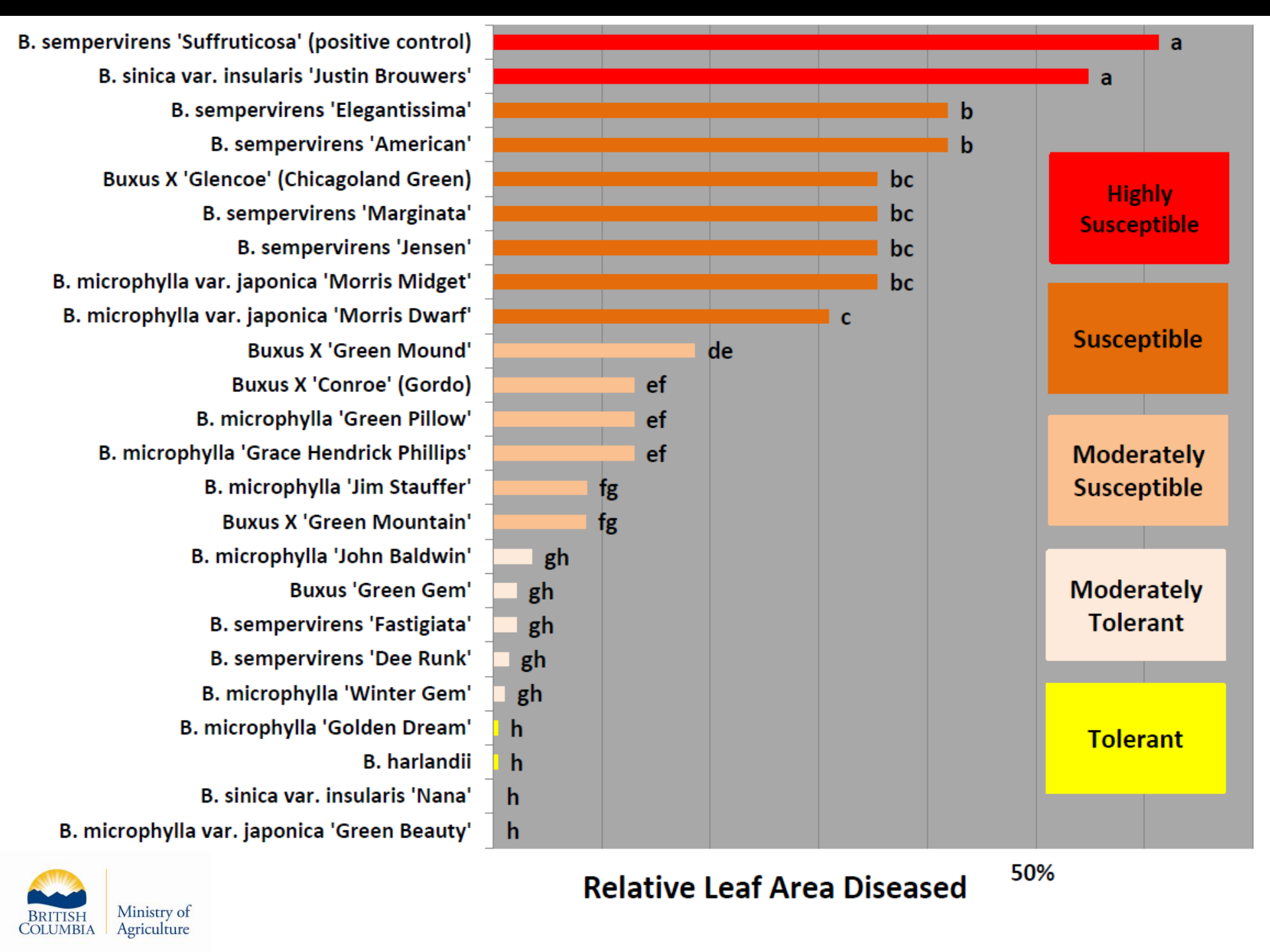
Impatiens Downy Mildew (*Plasmopara obducens*)

- **Hosts:**
  - common garden impatiens (*I. walleriana)*
  - garden balsam (*I. balsamina)*
- **Symptoms:**
  - leaf yellowing, downward curling margins
  - premature leaf drop and stunted growth
  - sporulation on underside of leaf


(Conway Lum)

Box Blight (*Cylindrocladium buxicola*)

- first detection Oct 2011 ⇨ rapid loss >15,000 boxwood at a nursery in NC
- detected in 10 U.S. states and 3 provinces
- **Hosts:** *Buxus* spp., *Sarcococca* spp., and *Pachysandra terminalis* and *P. procumbens*
- **Cultivar Susceptibility:**
  - *B. sempervirens* >> *B. microphylla*
  - rhododendron, pieris, azalea are not hosts



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Box Blight
(*Cylindrocladium buxicola*)

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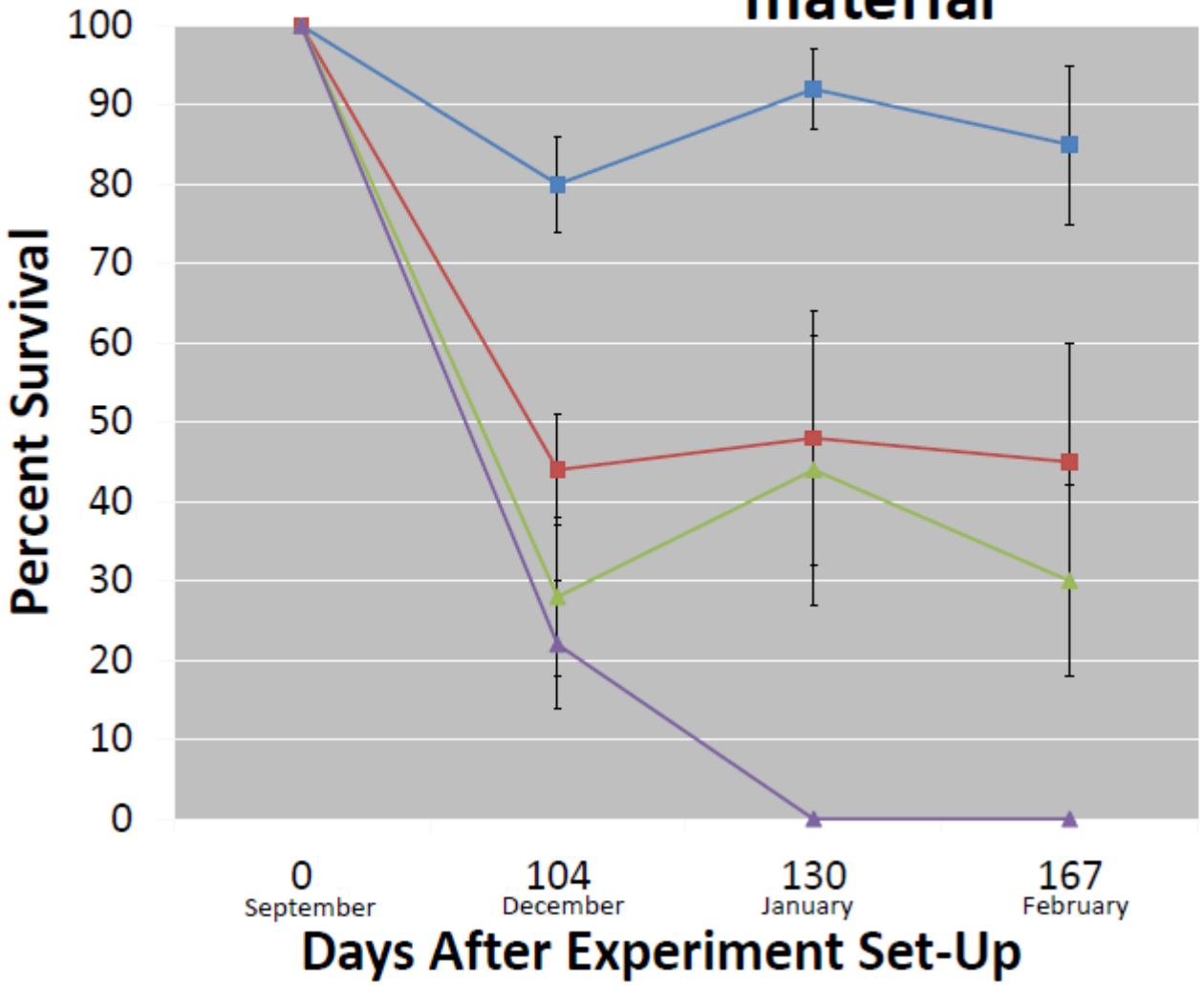
Viability of *Cylindrocladium buxicola* in leaf material



- Subsurface of soil-less potting media
- Surface of soil-less potting media
- Subsurface of field soil (5cm)
- Surface of field soil

Error bars indicate standard error of percent survival averaged across replicates for each treatment at each sample time

Management Strategy

- Inspect plants; isolate & test suspect plants
- Do not co-mingle plants from different suppliers
- Sanitation (debris, shears)
- Preventive fungicides
- Do not introduce new boxwoods into gardens with mature boxwoods

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European Pine Sawfly (*Neodiprion sertifer*)

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European Pine Sawfly (*Neodiprion sertifer*)

- overwinters in egg stage
- eggs hatch in April-early May
- feed on old needles until June, then drop to the ground to pupate
- adults emerge Sept-early Oct; lay eggs in current-year needles
- can consume all of old foliage on a heavily-infested tree

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Other Pest Introductions

Green Immigrant Weevil

Red Lily Leaf Beetle

Hellebore Leafminer

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Other Pest Introductions

Green Immigrant Weevil	Red Lily Leaf Beetle	Hellebore Leafminer
Fraser Valley in 2011	Spring 2012 - Bellevue , WA	?
birch 'fruit and forest trees'	*Lilium, Fritillaria, Polygonatum, Solanum, Smilax, Nicotiana*	*Helleborus foetidus*
adults notch leaves larvae feed on roots	adults feed on leaf margins larvae skeletonize leaves, may feed on flowers	damage develops from late summer - early spring most of foliage can be disfigured by spring
eggs laid in soil in summer overwinter as larvae pupate in spring; adults June-July	adults overwinter in soil eggs (orange) laid in rows on underside of leaves eggs hatch in summer	remove mined leaves before the adult flies emerge

European Fire Ant (*Myrmica rubra*)

THE VANCOUVER SUN

B.C. gardeners cry 'uncle' as European fire ants return in force

Argentine ants, one of the 100 worst invasive species on the planet, have also show up in B.C.

BY ZOE MCKNIGHT, VANCOUVER SUN JULY 9, 2013

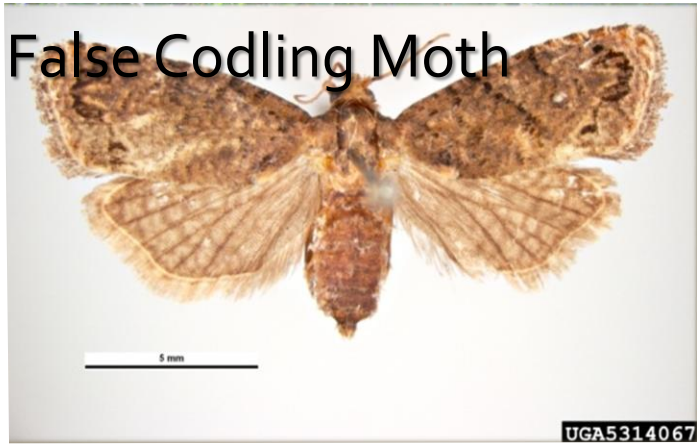
European Fire Ant (*Myrmica rubra*)

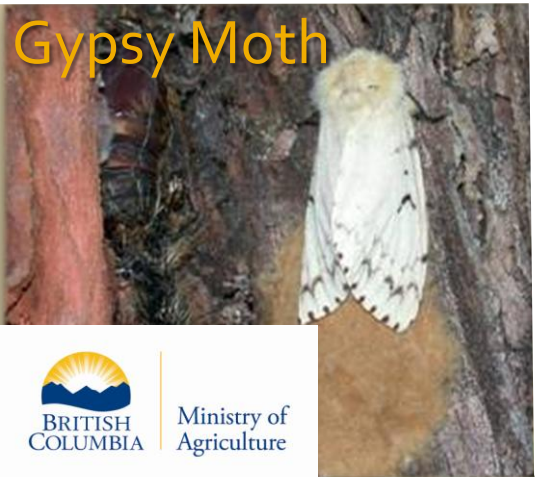
- introduced to NA ~1900 (Boston area)
- North Vancouver (1 city block) – Sept '10
- Burnaby (community garden) – June '11
- Victoria (two residences) – July '11
- Vancouver (2 locations 7 km apart) – Aug '11
- Chilliwack - '12
- likely introduced to new areas via potted plants, soil, compost or other OM

European Fire Ant (*Myrmica rubra*)

- prefers to nest in moist areas, in cultivated soil or under debris placed on lawn
- swarm rapidly and sting when disturbed
- allergic reaction to the sting
- high density of nests (up to 4/m^2)
- attracted to discarded fruit; tend aphids


(Dr. Robert J. Higgins)





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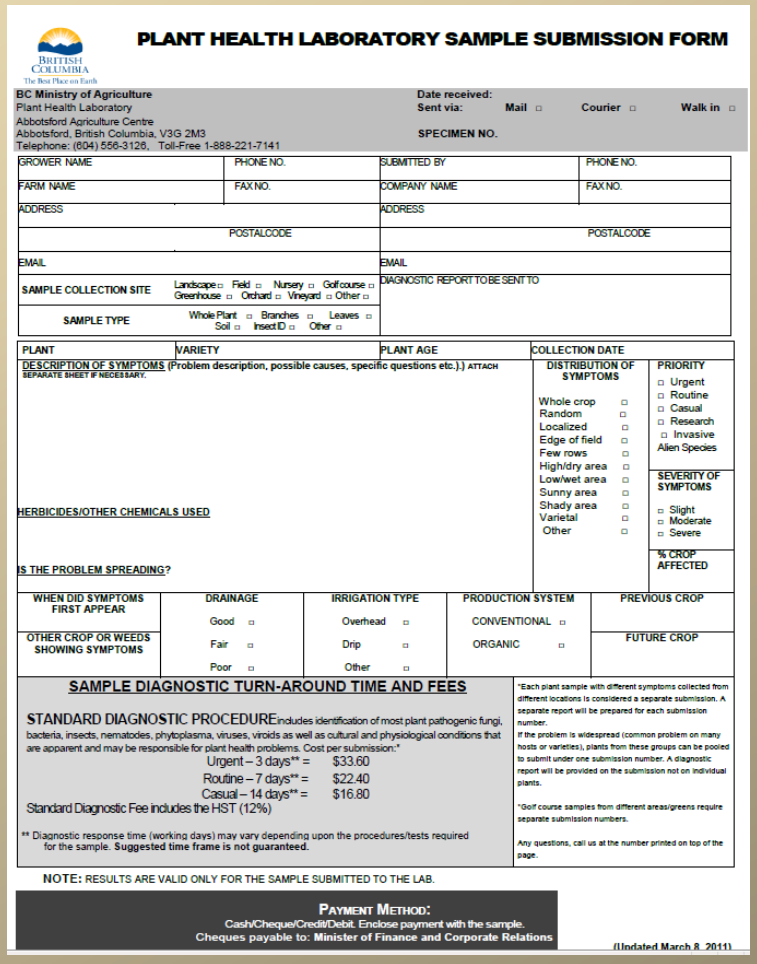
New Pest Identification

If you come across a pest that is unfamiliar:

- Submit to the Ministry's Plant Diagnostic Lab for identification
- Contact a Ministry Plant Health Specialist
- Contact the Canadian Food Inspection Agency @ 1-800-442-2342



PLANT HEALTH LABORATORY SAMPLE SUBMISSION FORM

BRITISH COLUMBIA
The Best Place on Earth

BC Ministry of Agriculture
Plant Health Laboratory
Abbotsford Agriculture Centre
Abbotsford, British Columbia, V3G 2M3
Telephone: (604) 556-3126, Toll-Free 1-888-221-7141

Date received:
Sent via: Mail ☐ Courier ☐ Walk in ☐
SPECIMEN NO.

GROWER NAME	PHONE NO.	SUBMITTED BY	PHONE NO.
FARM NAME	FAX NO.	COMPANY NAME	FAX NO.
ADDRESS		ADDRESS	
POSTALCODE		POSTALCODE	
EMAIL		EMAIL	
SAMPLE COLLECTION SITE	Landscape ☐ Field ☐ Nursery ☐ Golf course ☐ Greenhouse ☐ Orchard ☐ Vineyard ☐ Other ☐	DIAGNOSTIC REPORT TO BE SENT TO	
SAMPLE TYPE	Whole Plant ☐ Branches ☐ Leaves ☐ Soil ☐ Insect ID ☐ Other ☐		

PLANT	VARIETY	PLANT AGE	COLLECTION DATE

DESCRIPTION OF SYMPTOMS (Problem description, possible causes, specific questions etc.).) ATTACH SEPARATE SHEET IF NECESSARY.

HERBICIDES/OTHER CHEMICALS USED

S THE PROBLEM SPREADING?

DISTRIBUTION OF SYMPTOMS
Whole crop ☐
Random ☐
Localized ☐
Edge of field ☐
Few rows ☐
High/dry area ☐
Low/wet area ☐
Sunny area ☐
Shady area ☐
Varietal ☐
Other ☐

PRIORITY
☐ Urgent
☐ Routine
☐ Casual
☐ Research
☐ Invasive Alien Species

SEVERITY OF SYMPTOMS
☐ Slight
☐ Moderate
☐ Severe

% CROP AFFECTED

WHEN DID SYMPTOMS FIRST APPEAR	DRAINAGE	IRRIGATION TYPE	PRODUCTION SYSTEM	PREVIOUS CROP
	Good ☐	Overhead ☐	CONVENTIONAL ☐	
OTHER CROP OR WEEDS SHOWING SYMPTOMS	Fair ☐	Drip ☐	ORGANIC ☐	FUTURE CROP
	Poor ☐	Other ☐		

SAMPLE DIAGNOSTIC TURN-AROUND TIME AND FEES

STANDARD DIAGNOSTIC PROCEDURE includes identification of most plant pathogenic fungi, bacteria, insects, nematodes, phytoplasma, viruses, viroids as well as cultural and physiological conditions that are apparent and may be responsible for plant health problems. Cost per submission:*

Urgent – 3 days** = $33.60
Routine – 7 days** = $22.40
Casual – 14 days** = $16.80

Standard Diagnostic Fee includes the HST (12%)

** Diagnostic response time (working days) may vary depending upon the procedures/tests required for the sample. **Suggested time frame is not guaranteed.**

*Each plant sample with different symptoms collected from different locations is considered a separate submission. A separate report will be prepared for each submission number.
If the problem is widespread (common problem on many hosts or varieties), plants from these groups can be pooled to submit under one submission number. A diagnostic report will be provided on the submission not on individual plants.

*Golf course samples from different areas/greens require separate submission numbers.

Any questions, call us at the number printed on top of the page.

NOTE: RESULTS ARE VALID ONLY FOR THE SAMPLE SUBMITTED TO THE LAB.

PAYMENT METHOD:
Cash/Cheque/Credit/Debit. Enclose payment with the sample.
Cheques payable to: **Minister of Finance and Corporate Relations**

(Updated March 8, 2011)

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Questions?