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Title Import Requirements for *Pelargonium* spp. and *Solanum* spp. Propagative Material to Prevent the Entry of *Ralstonia solanacearum*, Race 3 (Biovar 2) into Canada

File

SUBJECT:

This directive contains the interim phytosanitary requirements for the importation of *Pelargonium* spp. and *Solanum* spp. propagative material. **This interim policy is being implemented on an emergency basis as a precaution to prevent the introduction of *Ralstonia solanacearum*, Race 3 (Biovar2) into Canada.**

This directive has been revised to modify the sampling requirements for regulated commodities.

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Review

The Canadian Food Inspection Agency (CFIA) is developing a certification program to approve individual production facilities permitted to export *Pelargonium* spp. and non-tuber bearing *Solanum* spp. into Canada. This directive will be reviewed when this certification plan is available. The contact for this directive is Joanne Rousson. For further information or clarification, please contact the Horticulture section.

Endorsement

Approved by:

<hr/> <p>Director Plant Health Division</p>

Amendment Record

Amendments to this directive will be dated and distributed as outlined in the distribution below.

Distribution

1. Directive mail list (Regions, PHRA, USDA)
2. Provincial Government, Industry (via Regions)
3. National Industry Organizations (determined by Author)
4. Internet

Introduction

Ralstonia solanacearum is the causal agent of bacterial wilt of geranium and brown rot of potato. This bacterium is highly variable and heterogenous and has an extremely wide host range including over 200 plant species, in over 50 families. Strains are differentiated into 5 races, according to host range, and into 5 biovars, according to the utilization of various carbohydrates. In nature, potatoes are attacked by Race 1 (Biovars 1, 3, and 4) and Race 3 (Biovar 2).

Race 1 has a very wide host range and is typically found in warm, tropical and subtropical areas. It is considered incapable of overwintering outdoors in cool temperate climates and, therefore, is not considered a quarantine pest by Canada.

Race 3 has a more restricted host range and is typically found on potato. However, *Pelargonium* spp. (geranium), *Solanum* spp. (eggplant, nightshade, etc.), *Lycopersicon* spp. (tomato), *Capsicum* spp. (pepper) and certain weed species are reported as occasional hosts. Race 3 occurs in many tropical and sub-tropical regions of the world and has recently been found in some temperate areas, such as the Netherlands and the United Kingdom, where it is treated as a quarantine pest. Race 3 is the most likely of the races to cause disease in potato, and is the only race able to establish in temperate climates. It does not occur in Canada or the United States.

Because of its ability to cause disease at cooler temperatures, Race 3, Biovar 2 of the pathogen poses the greatest risk to Canada, particularly with regards to potato production. With this in mind, the North American Plant Protection Organization (NAPPO) recently listed *R. solanacearum*, Race 3 (Biovar 2) as a quarantine pest of potatoes for the NAPPO region. Imported propagative host material is considered a potential pathway for introducing this bacterium into Canada.

Scope This directive is for the use of Canadian importers, CFIA inspectors, Canada Customs and Revenue Agency, producers, exporters and plant protection organizations in countries exporting regulated commodities to Canada. This directive outlines the import requirements for *Pelargonium* spp. and non-tuber bearing *Solanum* spp. It also lists the countries in which *R. solanacearum*, Race 3 (Biovar 2) has been reported and provides sampling, testing and notification requirements for exporting facilities located in these countries.

References ISPM No. 5, *Glossary of Phytosanitary Terms*, 2002, FAO, Rome
ISPM No. 4, *Requirements for the establishment of Pest Free Areas*, 1996, FAO, Rome
ISPM No. 13, *Guidelines for notification of non-compliance and emergency actions*, 2002, FAO, Rome
Department of the Secretary of State of Canada. *The Canadian Style: A Guide to Writing and Editing*. Toronto, 1993.

This directive supercedes D-95-04: Revised Plant Protection Import Requirements for Geranium and Pelargonium Propagative Material: Removal of Requirements for Geranium Rust and Geranium Plume Moth, April 24, 1995.

Definitions, Abbreviations and Acronyms

CFIA	Canadian Food Inspection Agency
NAPPO	North American Plant Protection Organization
National Plant Protection Organization (NPPO)	Official service established by a government to discharge the functions specified by the IPPC (FAO, 1990)
Permit to Import	Official document authorizing importation of a commodity in accordance with specified phytosanitary requirements
Pest free place of production	Place of production in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained for a defined period (ISPM Pub. No. 10, 1999)
Phytosanitary Certificate	A certificate patterned after the model certificates of the IPPC (FAO, 1990).
Planting	Any operation for the placing of plants in a growing medium, or by grafting or similar operations, to ensure their subsequent growth, reproduction, or propagation. (FAO 1990; revised CEPM 1999)
Plants	Living plants and parts thereof, including seeds and germplasm (FAO, 1990; revised IPPC, 1997)
Quarantine Pest	A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled. (FAO, 1990; revised FAO, 1995; IPPC 1997)
Rooted Plant	Refers to the presence of living roots or root initials on plants and plant parts that allows anchorage, absorption and conduction of water and minerals within the plant material.
Unrooted Plant	Plants or plant parts that do not exhibit any roots or root initials.

1.0 General Requirements

1.1 Legislative Authority

The Plant Protection Act, s.c. 1990, c.22

The Plant Protection Regulations, SOR/95-212

Canadian Food Inspection Agency Fees Notice, Canada Gazette, Part 1 (05/13/2000)

1.2 Fees

The CFIA is charging fees in accordance with the *Canadian Food Inspection Agency Fees Notice*. For information regarding fees associated with imported product, please contact the Import Service Centres (ISC) at the following phone numbers: Eastern ISC 1-877-493-0468; Central ISC 1-800-835-4486; Western ISC 1-888-732-6222. Anyone requiring other information regarding fees may contact any local CFIA office or visit us at our website at www.inspection.gc.ca.

1.3 Regulated Pests

Ralstonia solanacearum, Race 3 (Biovar 2)

Synonyms for *Ralstonia solanacearum* include *Pseudomonas solanacearum* and *Burkholderia solanacearum*.

1.4 Regulated Commodities

All *Pelargonium* spp. (common name: geranium) and non-tuber-bearing *Solanum* spp. (e.g. eggplant, nightshade) for propagation, including plants and plant parts for planting.

The general import requirements for plants and plant parts for planting from all countries are described in policy directive D-02-02: *Plant Protection Import Requirements for Rooted, or Unrooted Plants, Plant Parts, and Plants in Vitro for Planting*.

Solanum tuberosum, and other tuber bearing *Solanum* spp. plants for planting are regulated under D-98-01: *Import Requirements for Seed Potatoes and Other Potato Propagative Material*.

1.5 Commodities Exempt

Seeds and fruit of all hosts of *R. solanacearum*, Race 3 (Biovar 2) are exempt.

1.6 Regulated Areas

All countries.

2.0 Specific Requirements

2.1 Import Requirements

A Permit to Import is required from all countries other than the Continental United States.

A Phytosanitary Certificate is required for all regulated commodities imported into Canada.

In lieu of a Phytosanitary Certificate, regulated plant material originating from designated facilities in the continental United States may enter Canada if they are produced in compliance with the Greenhouse Certification Program (Policy Directive D-96-11: *Plant Protection Import Requirements for U.S. Greenhouse-Grown Plants Imported by a Designated Facility*).

Regulated commodities must be produced and certified for export under one of the following options (Sections 2.1.1 and 2.1.2).

2.1.1 Country Freedom

Material must originate in a country free of *R. solanacearum*, Race 3 (Biovar 2) determined in accordance with ISPM No. 4, *Requirements for the Establishment of Pest Free Areas*, 1996, FAO, Rome. Appendix 1 lists countries in which *R. solanacearum*, Race 3 (Biovar 2) is believed to be present. The bacterium could also occur in other countries, but may not have been reported due to a lack of specific surveys. Therefore, distribution and survey information may be requested from the National Plant Protection Organization (NPPO) in any country from which regulated imports originate.

The Phytosanitary Certificate must have an additional declaration stating:

The plant material in this consignment originates in a country in which Ralstonia solanacearum, Race 3 (Biovar 2) is absent.

OR

2.1.2 Pest Free Place of Production

Material can originate in a country in which *R. solanacearum*, Race 3 (Biovar 2) occurs if the following requirements are met:

Material must be produced in a facility that has been sampled and tested by the NPPO and found free of *R. solanacearum*, Race 3 (Biovar 2). Appendix 2 provides sampling, testing and notification requirements.

Material produced under this option must be accompanied by a Phytosanitary Certificate that includes the name of the production facility and contains the following additional declaration:

The plant material in this consignment has been produced in a facility that has been sampled, tested and found free of Ralstonia solanacearum, Race 3 (Biovar 2) in accordance with Canada's import requirements.

2.2 Inspection Requirements

CFIA inspectors must verify that all documentation accompanying shipments of regulated commodities meets the import requirements specified in Section 2.1. Inspection staff will inspect shipments of all regulated plant material entering Canada at a frequency established in National Level of Inspection (Delivery) work plans. Shipments from any source containing regulated plant material with wilt symptoms will be held under quarantine while they are tested for *R. solanacearum*, Race 3 (Biovar 2).

2.3 Non-Compliance

Shipments which do not meet the requirements of this directive, or are found to be infested with quarantine pests may be refused entry, returned to origin, or disposed of at the importer's expense. The person in care or control of the material is responsible for any and all costs relating to treatment, disposal or removal, including costs incurred by CFIA to monitor the action taken.

Non-compliance with Canada's phytosanitary regulations will be reported to trading partners as described in D-01-06, *Canadian Phytosanitary Policy for notification of non-compliance and emergency action*.

3.0 Appendices

- Appendix 1: List of Countries Reporting *Ralstonia solanacearum*, Race 3 (Biovar 2)
- Appendix 2: Sampling, Testing and Notification Requirements for *Ralstonia solanacearum*, Race 3 (Biovar 2)

APPENDIX 1

**List of Countries Reporting
Ralstonia solanacearum, Race 3 (Biovar 2)**

An up-to-date list of countries or regions that have reported *R. solanacearum*, Race 3 (Biovar 2) can be obtained from local CFIA Offices or through D-03-09 which can be found on the CFIA website at: <http://www.cfia-acia.agr.ca/english/plant/protect/directe.html>

Appendix 2

**Sampling, Testing and Notification Requirements for
Ralstonia solanacearum, Race 3 (Biovar 2)**

A production facility may export regulated plant material to Canada from a country where *R. solanacearum*, Race 3 (Biovar 2) is present, if the NPPO in the exporting country samples and tests the regulated plant material at the production facility and finds it free of the bacterium. The sampling, testing and notification requirements are as follows:

Sampling of regulated plant material

Sampling must include visual inspection of all regulated plant material in each greenhouse at the production facility and sampling of all plants exhibiting symptoms consistent with *Ralstonia* infection. Symptoms and reference photos can be found in CFIA's *Ralstonia* Fact Sheet.

Regulated plant material shipped to Canada must be produced in a production facility that has been inspected and sampled by the NPPO within two weeks prior to export to Canada. Samples for *Ralstonia* testing must be taken from ALL plants expressing symptoms consistent with *Ralstonia* infection. At least one plant per 25,000 plants in the production facility must be sampled. A minimum of ten plants must be sampled per production facility.

Except in the case of *Pelargonium* stock plants and mother plants, the NPPO must collect a sample from the basal portion of the main stem, or send the entire plant to the laboratory. Since the pathogen is concentrated in the lower parts of the plant, testing must be done on a 1-2 cm segment taken from the base of the main stem just above the soil level.

Non-destructive sampling of *Pelargonium* stock plants and mother plants is acceptable. If there are no visible symptoms on the plant, the lowest side branch or lowest leaf and petiole must be excised immediately adjacent to the main stem. The lower most 1-2 cm segment of this sample should be tested. If *Ralstonia* symptoms are visible, samples must be taken from the symptomatic side of the plant. In addition, the petioles from any symptomatic leaves, regardless of their location on the plant, must also be sampled and tested.

Samples must be handled and transported in a manner that ensures that they arrive at the laboratory in good condition and that the samples are not contaminated by soil. The sampling methods described above may be reviewed when appropriate methodologies and techniques for detecting latent infections are available.

Testing for *R. solanacearum*

These samples must be tested for *R. solanacearum* before host material from the sampled greenhouse can be exported to Canada. Testing must be conducted either at an NPPO laboratory or by a commercial laboratory accredited by the NPPO.

Testing for *Ralstonia* sp. may be done using a variety of lateral flow and strip serological test kits, that are commercially available, or other test methodologies approved by the CFIA. The manufacturer's instructions for the use and storage of the tests are provided with each kit and must be followed carefully.

If a sample tests positive for *R. solanacearum*, the pathogen can be further identified to either race or biovar by means of other testing procedures. Biovar 2 can be identified by either PCR or by the oxidation of specific carbohydrates. Race 3 can be determined based on host range or on the reaction produced on indicator plants. Since Biovar 2 is generally accepted to be the only biovar included in Race 3, a positive test for either Biovar 2 or Race 3 is considered confirmation of Race 3 (Biovar 2).

If *R. solanacearum*, Race 3 (Biovar 2) is confirmed the production facility will be disqualified from export to Canada until appropriate mitigation measures to eradicate the organism have been conducted and approved by CFIA.

The producer may choose not to test for race and biovar. However, if such tests are not conducted, and a serological test indicates the presence of *R. solanacearum*, the NPPO will not issue phytosanitary certificates to that production facility for exports to Canada until mitigation measures adequate to eradicate the organism have been implemented and approved by CFIA.

Test results from samples collected to meet US import requirements may also be used to meet Canadian import requirements provided the samples meet all the conditions described above.

Notification of CFIA

The NPPO must notify CFIA of all positive *Ralstonia* finds in production facilities that export to Canada. CFIA may also require that the NPPO verify that adequate sanitary practices and water treatment measures are in place to minimize the risk of *Ralstonia* establishment and spread. CFIA reserves the right to examine facilities that have tested positive for *R. solanacearum* prior to reestablishment of exports of host material to Canada.