ORGANISATON NORD AMERICAINE POUR LA PROTECTION DES PLANTES
NORTH AMERICAN PLANT PROTECTION ORGANIZATION
ORGANIZACION NORTEAMERICANA DE PROTECCION A LAS PLANTAS
CANADA UNITED STATES MEXICO

NAPPO Regional Standards for Phytosanitary Measures (RSPM)

RSPM No.25
Guidelines for International Movement of Pome and Stone Fruit Trees into a NAPPO Member Country

Part 1: Viruses and Virus-like Pests, Viroids, Phytoplasmas and *Xylella fastidiosa*

The Secretariat of the North American Plant Protection Organization
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Contents

Review

NAPPO Regional Standards for Phytosanitary Measures are subject to periodic review and amendment. The next review date for this NAPPO standard is 2009. A review of any NAPPO Standard may be initiated at any time upon the request of a NAPPO member country.

Approval

This standard was approved by the North American Plant Protection Organization (NAPPO) Executive Committee on October 17, 2004, and is effective immediately.

Approved by:

_____	_____
Gary Koivisto Executive Committee Member Canada	Richard Dunkle Executive Committee Member United States

_____

Jorge Hernandez Baeza
Executive Committee Member
Mexico

Implementation

See the attached Implementation Plans for implementation dates in each NAPPO country.

Amendment Record

Amendments to this Standard will be dated and filed with the NAPPO Secretariat. The most recent version will be posted on the NAPPO website at: www.nappo.org/stds_e.htm.

Distribution

This standard is distributed by the Secretariat of the NAPPO within NAPPO, including Sustaining Associate Members and Industry Advisory Groups, to the FAO IPPC Secretariat and to the Administrative Heads of the Regional Plant Protection Organizations (RPPOs).

Introduction

Scope

This Standard describes the essential elements to establish requirements for the importation of stone and pome fruit trees by the member countries, and the movement of fruit trees among the member countries of NAPPO. Fruit tree pests specifically dealt with in this standard are viruses and virus-like agents, viroids, phytoplasmas, *Xylella fastidiosa* and their vectors. *X. fastidiosa*, a bacterial pathogen, has been included in this standard because it behaves like a virus in terms of its transmission and control. This Standard does not address other pests, abiotic disorders, varietal trueness-to-type, and quality grades and standards.

References

Determination of pest status in an area, 1998. ISPM No. 8, FAO, Rome.
Export certification system, 1997. ISPM No. 7, FAO, Rome.
Glossary of phytosanitary terms, 2004. ISPM No. 5, FAO, Rome.
Glossary of phytosanitary terms, 2004. NAPPO
Guidelines for Bilateral Workplans, 2003, RSPM No. 19, NAPPO
Guidelines for pest risk analysis, 1996. ISPM No. 2, FAO, Rome.
Guidelines for phytosanitary certificates, 2001. ISPM 12, FAO, Rome.
Guidelines for surveillance, 1997. ISPM No. 6, FAO, Rome.
Pest risk analysis for quarantine pests, 2001. ISPM No. 11, FAO, Rome.
Requirements for the establishment of pest free areas, 1996. ISPM No. 4, FAO, Rome.
Requirements for the establishment of pest free places of production and pest free production sites, 1999. ISPM No. 10, FAO, Rome.
The accreditation of laboratories for phytosanitary testing, 1998, 2004. NAPPO.
Jelkmann, W. 2001. *International Working Group on Fruit Tree Viruses: Detection of virus and virus-like diseases of fruit trees.* Acta Horticulturae 550:473-493

Definitions, Abbreviations and Acronyms

audit inspection	An examination to determine the reliability of prescribed quarantine procedures (NAPPO)
containment	Application of phytosanitary measures in and around an infested area to prevent spread of a pest (FAO)
fruit tree(s)	Plants and plants parts for propagation and plants for planting of pome and stone fruit (NAPPO)
import permit	Official document authorizing importation of a commodity in accordance with specified phytosanitary requirements (FAO, 2003)
infestation (of a commodity)	Presence in a commodity of a living pest of the plant or plant product concerned. Infestation includes infection (FAO)

inspection	Official visual examination of plants, plant products or other regulated articles to determine if pests are present and/or to determine compliance with phytosanitary regulations (FAO)
International Standard for Phytosanitary Measures	An international standard adopted by the Conference of FAO, the Interim Commission on phytosanitary measures or the Commission on phytosanitary measures, established under the IPPC (FAO)
International Plant Protection Convention	International Plant Protection Convention, as deposited with FAO in Rome in 1951 and as subsequently amended (FAO)
IPPC	International Plant Protection Convention, as deposited in 1951 with FAO in Rome and as subsequently amended (FAO)
ISPM	International Standard for Phytosanitary Measures (FAO)
NAPPO	North American Plant Protection Organization (NAPPO)
National Plant Protection Organization	Official service established by a government to discharge the functions specified by the IPPC (FAO)
NPPO	National Plant Protection Organization (FAO)
official	Established, authorized, or performed by a National Plant Protection Organization (FAO)
pest	Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products (FAO)
pest risk analysis	The process of evaluating biological or other scientific and economic evidence to determine whether a pest should be regulated and the strength of any phytosanitary measures to be taken against it (FAO)
plants	Living plants and parts thereof including seeds and germplasm (FAO)
plants for planting	Plants intended to remain planted, to be planted or replanted (FAO)
pome fruit	Plants of the genera *Malus, Pyrus, Cydonia* and *Chaenomeles* (NAPPO)
post-entry quarantine	Quarantine applied to a consignment after entry (FAO)
PRA	Pest Risk Analysis (FAO)
prohibition	A phytosanitary regulation forbidding the importation or movement of specified pests or commodities (FAO)
quarantine station	Official station for holding plants or plant products in quarantine (FAO)

quarantine	Official confinement of regulated articles for observation and research or for further inspection, testing and/or treatment (FAO)
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)
regulated pest	A quarantine pest or a regulated non-quarantine pest (NAPPO)
regulated non-quarantine pest	A non-quarantine pest whose presence in plants for planting affects the intended use of those plants with an economically unacceptable impact and which is therefore regulated within the territory of the importing contracting party (FAO)
restriction	A phytosanitary regulation allowing the importation or movement of specified commodities subject to specific requirements (FAO)
stone fruit	Plants of the genus *Prunus* (NAPPO)
test	Official examination, other than visual, to determine if pests are present or to identify pests (FAO)

Background

Economic impacts of fruit tree pests include delayed maturity, increased agricultural inputs, reduced growth, yield and fruit quality, graft incompatibility, and plant mortality. The pests addressed in this standard may also cause diseases in other crops with varying economic impacts.

Outline of Requirements

This standard outlines the essential elements of a certification program for managing viruses and virus-like agents, viroids, phytoplasmas, *Xylella fastidiosa* and their vectors, achieved through a combination of prohibitions and restrictions. It outlines a systems approach for minimizing the risk of pest introductions associated with the international movement of fruit trees, without undue restriction of trade. General Requirements of the Standard address the pest risk assessment and pest risk management measures. Specific Requirements identify the components of a pome and stone fruit tree certification program pertinent to the management of the pests identified in Appendix I, Tables 1 and 2.

1. General Requirements

The objectives of this Standard are to:

- Prevent the introduction of quarantine pests into NAPPO member countries.
- Manage regulated non-quarantine pests within NAPPO member countries.
- Facilitate equitable and orderly trade into and within the NAPPO region.

1.1 Fruit Tree Pests

The status of viruses and virus-like agents, viroids, phytoplasmas, and *Xylella fastidiosa* within NAPPO member countries has been identified in Appendix I, Tables 1 and 2. A list of translations and synonyms of fruit tree pest names is available at: www.nappo.org

1.2 Pest Risk Analysis

All Pest Risk Analyses (PRAs) for fruit tree pests should be performed in accordance with ISPM Pub. No. 2 *Guidelines for pest risk analysis* and ISPM Pub. No. 11 *Pest risk analysis for quarantine pests*. Application of phytosanitary measures should be based on the results of pest risk assessment. The pests listed in Appendix I, Tables 1 and 2 may be classified as regulated pests, depending on their presence in a country and the official control measures applied. Pest risk management measures should be used to prevent the introduction or spread of regulated pests.

1.3 Pest Risk Management Measures

1.3.1 Restrictions

Following a pest risk assessment, there are a number of risk mitigation options for fruit trees that are imported directly into a NAPPO member country. Section 3, "Post-entry Quarantine of Approved Fruit Trees" contains post-entry quarantine criteria where appropriate.

1.3.1.1 Fruit trees for research purposes and subsequent destruction

Fruit trees are maintained under pre-approved conditions to prevent the introduction of regulated pests. Plant material may be tested for naturally transmissible pests before transfer to a quarantine station. Alternatively, the quarantine station should be structured and/or sufficiently isolated to prevent the spread of pests to neighbouring areas. Plant material should be destroyed at the completion of the research unless otherwise instructed by the NPPO. This option is only suitable for small quantities.

1.3.1.2 Fruit trees for quarantine and testing at NPPO-approved facilities and subsequent distribution

This option could be applied to fruit trees that do not come from an official certification program. Fruit trees are imported for quarantine and testing in a NPPO-approved quarantine station within the importing NAPPO member country. Detected regulated pests should be eliminated before release. This option is only suitable for small quantities.

1.3.1.3 Fruit trees from an approved certification program

Fruit trees may be imported into a NAPPO member country if produced under an official fruit tree certification program that has been evaluated using this Standard and approved by the importing NPPO. The importing NPPO should perform an audit inspection, including testing samples for the presence of pests listed under the certification program. The NPPO may require post-entry quarantine conditions.

1.3.1.4 Fruit trees from a pest-free area, pest free place of production, or pest free production site

This option is not appropriate for pests covered in this document due to the fact that inspection is inadequate and comprehensive surveys are impractical for determining

pest free status. However, this restriction may be suitable for other types of pests, such as insects.

1.3.2 Prohibition

If no satisfactory measure to reduce risk to an acceptable level can be found, the final option may be to prohibit importation of the fruit tree material. This should be viewed as a measure of last resort and should be considered in light of the anticipated compliance, especially in instances where the incentives for illegal import may be significant.

1.4 Documentation Requirements

A phytosanitary certificate or an equivalent official document should be issued by the exporting country according to the requirements of the NPPO of the importing country. An import permit should be obtained by the importer, if required by the importing NPPO.

2. Specific Requirements

2.1 Fruit Tree Certification Program

This Standard deals specifically with essential elements of a certification program to mitigate the risk of pests of fruit trees as listed in Appendix I, Tables 1 and 2.

The fruit tree certification program should be carried out by or under the authority of the NPPO. A certifying agency may be charged with the administration of program requirements such as terminology, testing, eligibility, the nomenclature of certification levels, horticultural management, isolation and sanitation requirements, inspection and re-testing, documentation, identification and labeling, quality assurance, non-compliance and remedial measures, and criteria for post entry quarantine.

Certifying agencies approved by the NPPO should notify the NPPO of changes to the fruit tree certification program or deviations from program requirements.

2.1.1 Program Administration

The fruit tree certification program should be administered by the NPPO or an approved certifying agency that employs administration, inspection and laboratory diagnostic personnel that have the education, training, and experience required to implement the fruit tree certification program.

This program should specify the roles and responsibilities of the participants in the program, the certifying agency, its personnel, laboratories involved in testing, and non-agency organizations approved to perform certification and testing activities.

The certifying agency should ensure that diagnostic, certification and inspection staff employed by the agency or recognized non-agency organizations meet appropriate training, experience, educational and proficiency requirements. The agency should be prepared to supply, upon request, this information to its country's NPPO.

The exporting country's NPPO should notify the importing country's NPPO of any changes to its certification program or testing procedures.

2.1.2 Terminology

The fruit tree certification program should define all terminology specific to the fruit tree certification program using sufficient detail to ensure clear understanding of the certification requirements. The terminology used by the NAPPO countries for similar purposes should be harmonized to the greatest extent possible, for example the terms used for certification levels (refer to Section 2.1.5).

2.1.3 Testing

Testing should be done by the certifying agency or laboratories approved by the NPPO. If private laboratories are used, they should be officially recognized by the NPPO. The approved diagnostic methods are listed in the proceedings of the International Symposium on Virus and Virus-like Diseases of Temperate Fruit Crops which meets every three years. The latest reference is Jelkmann, W. 2001.

Upon request, the exporting NPPO should provide to the importing NPPO the diagnostic tests results, test methodology and a list of pests in the fruit tree certification program in the exporting country.

Tests or modifications to the approved tests should be approved by the NPPO of the importing country. The importing country may refuse the import of fruit trees if a new test or modifications to an approved test have not been approved.

2.1.4 Eligibility

Potential program participants should file an application to the certifying agency. Eligibility is conferred by the certifying agency if the conditions of the fruit tree certification program have been met.

The certification program should specify eligibility for plant material used in the program.

2.1.5 Certification Levels

Certification levels represent successive generations of propagation from the original tested material, and may have additional phytosanitary measures applied depending on the generation. As such, they can represent a categorical measure of the health status of certified plants. A fruit tree certification program should clearly state the number of certification levels. Eligibility criteria for fruit trees should be established at each level, including nomenclature, propagation and pest management measures, and the number of generations removed from the original tested material. It is strongly recommended that the certification levels be identified as Generation 1, 2, 3, 4, etc.

2.1.6 Horticultural Management

The fruit tree certification program should require that all fruit trees in a field be kept in good horticultural condition.

2.1.7 Isolation, Pest Management and Sanitation

The isolation requirements of the certification program will vary according to the certification level and should be based on the biology of the listed pests and vectors present in the certification area.

The fruit tree certification program should specify—pest management measures including vector suppression and control of pollen-borne viruses required to adequately protect plants produced under the program from exposure to listed pests. In addition it should specify the measures by which the risks associated with any movement of soil or water which may be infested with nematode vectors are mitigated to acceptable levels.

The fruit tree certification program should also specify the minimum distance from non-certified hosts, and acceptable crops and weed control measures required to reduce alternate pest hosts to acceptable levels. The elapsed time since previous host crops and the crop rotation or chemical control requirements for a block to become eligible for use as a certified production site should be specified.

2.1.8 Inspection and testing

The fruit tree certification program should specify the inspection and testing requirements.

Fruit trees in the certified program should be inspected at least once per growing season at a time appropriate for the detection of disease symptoms according to acceptable survey patterns.

The fruit tree certification program should specify:

- the process to be undertaken upon suspicion of infestation by listed pests.
- the process to be undertaken upon confirmation of infestation by listed pests.
- notification and inspection requirements when selling or purchasing certified material.
- frequency of testing, test requirements, and the tests used for listed pests for each certification level.
- inspection requirements including reviews of production site maps, variety labelling practices, new production sites and any deviations between inventory, sales and purchases.

2.1.9 Documentation and Identification

The certifying agency responsible for the fruit tree certification program should document inspection, certification and testing activities to ensure the eligibility and status of the plant material and production sites, participants and all certification levels of the fruit trees. These documents should be available, upon request, to the NPPO for audit, traceback and other regulatory purposes.

The fruit tree certification program should include a system, approved by the certifying agency, to document and identify plants during growth, post harvest, and at sale to ensure tracebility. The system should at least record the certification level, the year of propagation, the participant, geographic location of the field of production, location of certified trees within the field of production, the variety and rootstock, and the

purchaser's identity.

Certified fruit tree purchases and sales, previous cropping history for production sites, and production site maps should be retained by the participants for a period of time specified by the certifying agency.

2.1.10 Review and Audit Component

The importing and exporting NPPOs should ensure the validity and reliability of the certification program through periodic audit and reviews of the program.

2.1.11 Non-compliance and Remedial Measures

The fruit tree certification program should specify the consequences of non-compliance. In addition, the remedial measures should be specified to enable a suspended or de-certified participant, production area or variety to become eligible for re-certification or reinstatement.

3. Post-entry Quarantine of Approved Pome and Stone Fruit

The importing NPPO may require post-entry quarantine conditions for fruit trees from an approved certification program. The post-entry quarantine may occur at an NPPO approved private or public facility. The post-entry criteria should be based on the biology of the pests of concern, including their host range, their means of natural spread, and the likelihood of transmission by local vectors.

Post-entry quarantine criteria should specify:

- Roles and responsibilities of the NPPO of the importing country, duly authorized officials, and the importer.
- Horticultural management requirements to promote plant growth and the detection of regulated pests.
- Isolation and suppression measures to control pest vectors and prevent the movement of regulated pests within and outside the post-entry quarantine area.
- Plant and weed control measures within the post-entry quarantine area to reduce alternate pest and vector hosts to acceptable levels.
- Soil and plant treatment, vector survey and suppression, facility design and other criteria to be met before an area or facility becomes suitable for post-entry quarantine.
- Requirements for movement of horticultural equipment and personnel into and from the post-entry quarantine area.
- Inspection and testing to determine the presence of regulated pests in the fruit trees.
- Containment, security and access restrictions to the fruit trees.
- Disposition of pruning waste and all other articles capable of transmitting or harbouring regulated pests.
- Final disposition of plants not meeting the release conditions from the post-entry quarantine area.
- De-contamination and subsequent use restrictions of a post-entry quarantine area.
- Conditions under which the fruit trees would be released from post-entry quarantine.

4. Evaluation, Approval and Audit/Review

Prior to allowing importation of fruit trees, the importing NPPO should evaluate the certification program of the exporting NPPO including a documentation review, a site visit, and testing of plants by the importing NPPO to ensure they meet the standard of the certification program.

Following approval of the certification program additional temporary restrictions such as preclearance testing and post-entry quarantine may be used.

The importing NPPO should periodically audit/review the exporting NPPO fruit tree certification program to ensure it continues to meet the certification standards and their import requirements. It should include testing of imported plant material, site visits and review of the exporting NPPO certification program and internal audit process. Detection of pests or vectors controlled under the certification program or deficiencies of documentation, etc. may indicate that the integrity of the exporting NPPO certification system is compromised.

The importing NPPO should specify the consequences of non-compliance. These may vary depending on the nature and severity of the infraction. In addition, the remedial measures should be specified to enable a suspended or de-certified exporting NPPO, participant, production area or variety to become eligible for reinstatement or re-certification.

5. Bilateral Workplans

Exporting and importing country NPPOs may decide that a bilateral agreement is necessary to elaborate on these guidelines. Guidelines for the development of bilateral workplans are provided in RSPM No. 19, *Guidelines for Bilateral Workplans*. Modifications to these guidelines should be technically justified.

APPENDIX 1

Table 1: Prunus Pests Status in NAPPO Region

LEGEND FOR SYMBOLS USED IN TABLE

Presence or absence, unless otherwise noted, conform to the categories listed in the International Standard for Phytosanitary Measures # 8, entitled "*Determination of Pest Status in an Area*". For ease of reference alphanumeric designations have been added here.

Ab1: Absent: no pest records
Ab2: Absent: pest eradicated
Ab3: Absent: pest no longer present
Ab4: Absent: pest records invalid
Ab5: Absent: pest records unreliable
Ab6: Absent: intercepted only
Ab7: Absence: confirmed by survey
Ab8: Absence: pest free area declared
P1: Present: in all parts of the area
P2: Present: only in some areas
P3: Present: except in specified pest free areas
P4: Present: in all parts of the area where host crop(s) are grown
P5: Present: only in some areas where host crop(s) are grown
P6: Present: only in protected cultivation
P7: Present: seasonally
P8 Present: but managed
P9 Present: subject to official control
P10: Present: under eradication
P11: Present: at low prevalence.
P12:Present: not associated with host crop (NAPPO category)

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Almond bud failure virus (=Prunus necrotic ringspot ilarvirus)	Ab1	P4	Ab1
Almond Witches'-broom phytoplasma	Ab1	Ab1	Ab1
Apple chlorotic leafspot trichovirus (ACLSV)	P12	P12	P12
Apple mosaic ilarvirus (APMV)	P12	P12	P12
Apricot bare twig and unfruitfulness Caused by mixed infection of Cucumber green mottle mosaic tobamovirus and Strawberry latent ringspot nepovirus	Ab1	Ab1	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Apricot chlorotic leaf mottle agent	Ab1	Ab1	Ab1
Apricot deformation mosaic agent	Ab1	Ab1	Ab1
Apricot latent foveavirus	Ab1	P5	P5
Apricot latent ringspot nepovirus	Ab1	Ab1	Ab1
Apricot Moorpark mottle agent	Ab1	Ab1	Ab1
Apricot ring pox agent	P5	P5	Ab1
Apricot pucker leaf agent	Ab1	Ab3	Ab1
Apricot stone pitting agent	Ab1	Ab1	Ab1
Apricot witches' broom agent	Ab1	Ab1	Ab1
Arabis mosaic nepovirus (ARMV)	P12	P12	P12
Asian Prunus virus	P5	P5	P5
Cherry albino phytoplasma	Ab1	Ab3	Ab1
Cherry Amasya disease agent	Ab1	Ab1	Ab1
Cherry black canker agent	P5	P5	Ab1
Cherry blossom anomaly phytoplasma	Ab1	P5	Ab1
Cherry chlorotic rusty spot (viroid?)	Ab1	Ab1	Ab1
Cherry freckle fruit agent	Ab1	Ab3	Ab1
Cherry green ring mottle foveavirus? (CGRMV)	P4	P4	Ab1
Cherry Hungarian raspleaf virus	Ab1	Ab1	Ab1
Cherry leafroll nepovirus (CLRV)	P12	P5	Ab1
Cherry lethal yellows phytoplasma	Ab1	Ab1	Ab1
Cherry line pattern and leaf curl agent	Ab1	Ab1	Ab1
Cherry little cherry closterovirus 1and 2 (LCHV-1, LCHV-2)	P4	P4	Ab1
Cherry mottle leaf trichovirus (CMLV)	P5	P5	Ab1
Cherry necrotic line pattern A complex of Prunus necrotic ringspot ilarvirus and Apple chlorotic leafspot trichovirus	Ab3	Ab3	Ab1
Cherry necrotic mottle leaf foveavirus?	Ab1	Ab1	Ab1
Cherry necrotic rusty mottle foveavirus? (CNRMV)	P4	P4	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Cherry raspleaf (American) nepovirus (CRLV)	P5	P5	Ab1
Cherry raspleaf virus (European) caused by viruses and virus complexes: -Raspberry ringspot nepovirus (RRSV) -Raspberry ringspot nepovirus and Cherry leaf roll nepovirus (CLRV) -Raspberry ringspot nepovirus plus Prune dwarf ilarvirus (PDV) -Arabis mosaic nepovirus (ARMV) -Arabis mosaic nepovirus plus Prune dwarf ilarvirus -Prune dwarf ilarvirus plus Strawberry latent ringspot nepovirus (SLRSV)	Ab1	Ab1	Ab1
Cherry rosette disease - caused by Raspberry ringspot nepovirus plus Cherry leaf roll nepovirus	Ab1	Ab1	Ab1
Cherry rough bark agent	Ab1	P5	Ab1
Cherry rough fruit agent	Ab1	Ab3	Ab1
Cherry rusty mottle (American) agent Two closely related strains - mild and severe	P4	P4	Ab1
Cherry rusty mottle (European) agent	Ab1	Ab1	Ab1
Cherry rusty spot agent	Ab1	Ab1	Ab1
Cherry short stem agent	P5	P5	Ab1
Cherry spur cherry agent	Ab1	P5	Ab1
Cherry stem pitting agent	Ab1	P5	Ab1
Cherry twisted leaf agent	P5	P5	Ab1
Cherry A capillovirus (CVA)	P4	Ab1	Ab1
Cucumber mosaic cucumovirus (CMV)	P5	P12	P12
Epirus cherry virus (EPCV)	Ab1	Ab1	Ab1
European stone fruit yellows phytoplasma	Ab1	Ab1	Ab1
Hop stunt hostuviroid	Ab1	Ab1	Ab1
Krikon stem necrosis agent	Ab1	Ab1	Ab1
Peach bark and wood grooving agent	Ab1	Ab3	Ab1
Peach blotch agent (peach latent mosaic pelamoviroid?)	P5	P5	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Peach calico agent (peach latent mosaic pelamoviroid?)	P5	P5	Ab1
Peach chlorosis agent	Ab1	Ab1	Ab1
Peach chlorotic spot agent	Ab1	Ab1	Ab1
Peach deline - A combination of Strawberry latent ringspot nepovirus and Prune dwarf ilarvirus	Ab1	Ab1	Ab1
Peach enation virus	Ab1	Ab1	Ab1
Peach latent mosaic pelamoviroid	P4	P4	P4
Peach leaf necrosis agent in plum	Ab1	Ab1	Ab1
Peach line pattern and leaf curl virus	Ab1	Ab1	Ab1
Peach mosaic trichovirus (PMV)	Ab1	P5	P5
Peach mottle agent	Ab1	Ab3	Ab1
Peach oil blotch agent	Ab1	Ab1	Ab1
Peach pseudostunt agent in plum	Ab1	Ab1	Ab1
Peach purple mosaic agent	Ab1	Ab1	Ab1
Peach red marbling agent	Ab1	Ab1	Ab1
Peach rosette mosaic nepovirus (PRMV)	P5	P5	Ab1
Peach seedling chlorosis agent	Ab1	Ab1	Ab1
Peach star mosaic agent	Ab1	Ab1	Ab1
Peach stubby twig agent	Ab1	Ab3	Ab1
Peach stunt - caused by Prune dwarf ilarvirus plus Prunus necrotic ringspot ilarvirus	P4	P4	P4
Peach vein clearing phytoplasma (=ESFY?)	Ab1	Ab1	Ab1
Peach wart agent	Ab1	P5	Ab1
Peach weak peach agent	Ab1	P5	Ab1
Peach yellow leafroll phytoplasma (Pear decline phytoplasma)	Ab1	P5	Ab1
Peach yellows phytoplasma (= X-disease phytoplasma?)	P5	P5	Ab1
Peach yellow mosaic agent (peach latent mosaic pelamoviroid?)	Ab1	Ab1	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Peach yellow mottle agent	Ab1	Ab1	Ab1
Plum bark necrosis stem pitting closterovirus?	Ab1	P5	Ab1
Plum fruit crinkle agent	Ab1	Ab1	Ab1
Plum line pattern (American) ilarvirus (APLPV)	P5	P5	Ab1
Plum line pattern (European) caused by: Apple mosaic ilarvirus or Danish line pattern ilarvirus	P5	P5	Ab1
Plum mottle leaf agent	Ab1	Ab1	Ab1
Plum ochre mosaic agent	Ab1	Ab1	Ab1
Plum pox potyvirus (PPV)	P10	P10	Ab1
Plum ringspot and shot hole agent	Ab1	Ab1	Ab1
Plum white spot agent	Ab1	P5	Ab1
Prune diamond canker agent	Ab1	P5	Ab1
Prune dwarf ilarvirus (PDV)	P4	P4	P4
Prunus necrotic ringspot ilarvirus (PNRSV)	P4	P4	P4
Raspberry ring spot nepovirus (RRSV)	Ab1	Ab1	Ab1
Sour cherry bark splitting agent	Ab1	P5	Ab1
Sour cherry fruit necrosis Caused by a mixed infection of Apple chlorotic leafspot trichovirus and Prunus necrotic ringspot ilarvirus	Ab1	P5	Ab1
Sour cherry gummosis agent	Ab1	P5	Ab1
Sour cherry line pattern agent	Ab1	Ab1	Ab1
Sour cherry pink fruit agent	Ab1	P5	Ab1
Sour cherry vein yellow spot agent	Ab1	Ab1	Ab1
Sowbane mosaic sobemovirus (SOMV)	P12	P12	P12
Stocky prune nepovirus	Ab1	Ab1	Ab1
Strawberry latent ring spot nepovirus (SLRSV)	P12	P12	Ab1
Tobacco mosaic tobamovirus (TMV)	P12	P12	P12
Tobacco necrosis necrovirus (TNV)	P12	P5	Ab1
Tobacco ring spot nepovirus (TRSV)	P5	P5	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Tomato black ring nepovirus (TBRV)	Ab1	Ab1	Ab1
Tomato bushy stunt tombusvirus (TBSV)	P5	P5	P5
Tomato ringspot nepovirus (TORSV)	P4	P4	P4
X-disease phytoplasma	P4	P4	P4
Xylella fastidiosa	P12	P5	Ab1

Table 2: Pome Fruit Pests Status in the NAPPO Region

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Ab7: Absence: confirmed by survey
Ab8: Absence: pest free area declared
P1: Present: in all parts of the area
P2: Present: only in some areas
P3: Present: except in specified pest free areas
P4: Present: in all parts of the area where host crop(s) are grown
P5: Present: only in some areas where host crop(s) are grown
P6: Present: only in protected cultivation
P7: Present: seasonally
P8 Present: but managed
P9 Present: subject to official control
P10: Present: under eradication
P11: Present: at low prevalence.
P12: Present: not associated with host crop (NAPPO category)

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Apple blister bark agent	Ab1	P5	Ab1
Apple brown ringspot agent	Ab1	Ab1	Ab1
Apple bumpy fruit of Ben Davis agent	Ab1	Ab1	Ab1
Apple bunchy top agent	Ab1	Ab1	Ab1
Apple chat fruit (phytoplasma?)	Ab1	P5	Ab1
Apple chlorotic leafspot trichovirus (ACLSV)	P4	P4	P4
Apple dead spur agent	Ab1	P5	Ab1
Apple dimple fruit apscaviroid	Ab1	Ab1	Ab1
Apple flat limb agent	P4	P4	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Apple freckle scurf agent	Ab1	P5	Ab1
Apple fruit crinkle viroid	Ab1	Ab1	Ab1
Apple green crinkle agent	P5	P5	P5
Apple green dimple and ring blotch agent	Ab1	P5	Ab1
Apple latent spherical virus	Ab1	Ab1	Ab1
Apple leaf pucker agent and related disorders Related: -McIntosh leaf pucker -Golden Delicious russet ring -Newtown ring russeting -Stark Delicious ring russeting -Common Delicious ring russeting -Jubilee ring-and-line pattern agent -Stayman blotch -Ballarat leaf pucker -Granny Smith leaf flick, bark blister, fruit russet and distortion -Red Delicious red ring	P5	P5	Ab1
Apple little leaf agent	Ab1	Ab1	Ab1
Apple mosaic ilarvirus (APMV)	P4	P4	P4
Apple (McIntosh) depression agent	Ab1	P5	Ab1
Apple necrotic spot and mottle agent	Ab1	Ab1	Ab1
Apple Newton wrinkle agent	P5	Ab1	Ab1
Apple painted face agent	Ab1	Ab1	Ab1
Apple Platycarpa scaly bark agent (=apple stem pitting virus?)	P5	P5	Ab1
Apple proliferation phytoplasma	Ab1	Ab1	Ab1
Apple pustule canker agent	Ab1	P5	Ab1
Apple red ring agent	Ab1	P5	Ab1
Apple ringspot agent	Ab1	Ab1	Ab1
Apple rosette agent	Ab1	Ab1	Ab1
Apple rough skin agent	Ab1	P5	Ab1
Apple rubbery wood agent	P4	P4	P4

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Apple russet ring agent	P5	P5	Ab1
Apple russet wart agent	Ab1	Ab1	Ab1
Apple Sabi-ka agent (=apple scar skin apscaviroid?)	Ab1	Ab1	Ab1
Apple scar skin apscaviroid	P5	P5	Ab1
Apple star crack agent	Ab1	P5	Ab1
Apple stem grooving capillovirus (ASGV)	P4	P4	P4
Apple stem pitting foveavirus (ASPV)	P4	P4	P4
Apple transmissible internal bark necrosis agent	Ab1	P5	Ab1
Apple (Tulare) mosaic ilarvirus	Ab1	Ab3	Ab1
Apple (*Malus robusta* No. 5) decline agent	P5	Ab1	Ab1
Apple decline phytoplasma	Ab1	P5	Ab1
Carnation ringspot dianthovirus (CRSV)	P12	P12	P12
Cherry rasp leaf nepovirus (CRLV)	P5	P5	Ab1
Pear bark necrosis agent	Ab1	P5	Ab1
Pear bark split agent	P5	Ab1	Ab1
Pear blister canker apscaviroid	Ab1	P5	Ab1
Pear bud drop agent	Ab1	Ab1	Ab1
Pear concentric ring pattern agent	Ab1	P5	Ab1
Pear corky pit agent (=Pear stony pit agent?)	P5	Ab1	Ab1
Pear decline phytoplasma	P4	P4	Ab1
Pear freckle pit agent	P5	P5	Ab1
Pear mild mosaic agent	Ab1	Ab1	Ab1
Pear latent tombusvirus	Ab1	Ab1	Ab1
Pear rough bark agent	Ab1	Ab1	Ab1
Pear stony pit agent	P4	P4	Ab1
Quince deformation agent (=Apple stem pitting virus?)	Ab1	Ab1	Ab1
Quince stunt virus complex A mixed infection of Apple stem pitting foveavirus and Apple chlorotic leafspot trichovirus	P4	P4	Ab1

PEST	PRESENCE/ABSENCE		
	CAN	USA	MEX
Quince wood pitting agent	Ab1	P5	Ab1
Quince yellow blotch agent (=Apple rubbery wood?)	Ab1	Ab1	Ab1
Quince yellow mosaic agent	Ab1	Ab1	Ab1
Sowbane mosaic sobemovirus (SOMV)	P12	P12	Ab1
Tobacco mosaic tobamovirus (TMV)	P5	P5	Ab1
Tobacco necrosis necrovirus (TNV)	P12	P5	P12
Tobacco ringspot nepovirus (TRSV)	P5	P12	Ab1
Tomato ringspot nepovirus (TORSV)	P5	P5	Ab1