



**NAPPO**

North American Plant Protection Organization

Organización Norteamericana de Protección a las Plantas

**MEXICO - USA - CANADA**

## **NAPPO Regional Standards for Phytosanitary Measures (RSPM)**

### **RSPM 29**

### **Guidelines for the Petition for First Release of Non-*Apis* Pollinating Insects into NAPPO Countries**

DATE

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Country consultation

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## **Review**

NAPPO Standards for Phytosanitary Measures are subject to periodic review and amendment. The next review for this Standard is 2019. 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 on October 20, 2008. It was revised and approved by the North American Plant Protection Organization (NAPPO) Executive Committee on xx, 2015.

Approved by:

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## **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.

## **Distribution**

This standard is distributed by the NAPPO Secretariat, to the Industry Advisory Group (IAG) and Sustaining Associate Members (SAM), the International Plant Protection Convention (IPPC) Secretariat, and to other Regional Plant Protection Organizations (RPPOs).

## Introduction

### Scope

These guidelines are intended to assist in preparing a petition for the first importation and release of non-*Apis* pollinating insects. A standardized petition for these organisms will assist reviewers and regulators in assessing the risk associated with the importation, movement and release of non-*Apis* pollinating insects into the environment. A petition may not be necessary to import non-*Apis* pollinating insects into a containment facility for the purposes of research. *Apis mellifera* (Linnaeus) and other *Apis* species are excluded from the scope of this guideline.

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## **Definitions, Abbreviations and Acronyms**

Definitions of phytosanitary terms used in the present standard can be found in NAPPO RSPM 5 and in ISPM 5.

## **Outline of Requirements**

This standard provides guidance on the information that should be provided in a petition for the first release of non-*Apis* pollinating insects. This standard does not include species indigenous to all three NAPPO countries. Specific guidance is provided on the reasons for the petition, pollinator information, region of production of the pollinator, and impacts (positive and negative) of the release. It also contains information on the requirement for

post-release monitoring to track performance and impacts (positive and negative).

## Background

About three-quarters of the world's flowering plants rely on pollinators to transfer pollen from the male to the female parts of flowers for reproduction. Pollinators are vital to agriculture because most fruit, vegetable, forage, hay and seed crops and other crops are pollinated by animals. Estimating the ecological value of pollinators and pollination and predicting the consequences of their losses are considerably more challenging than estimating their economic value in agriculture. Nevertheless, pollination by animals is essential for maintaining the structure and function of a wide range of natural communities in North America.

In the late 1990s, bee taxonomists started to notice a decline in the abundance and distribution of several bumble bee species in North America. The dramatic decline in wild populations of these species occurred about the time that a disease outbreak was reported in populations of commercially raised *Bombus occidentalis* (Greene), which were distributed for greenhouse pollination in western North America.

The movement of bumble bee colonies has been linked to parasite spread in Japan. Researchers have documented the introduction of novel mites with the reintroduction of previously exported bees, indicating that export of natives for rearing and re-importation may lead to non-indigenous pest introductions. Furthermore, pathogens such as *Nosema bombi* (Fantham & Porter) (Dissociodihaplophasida: Nosematidae) and *Crithidia bombi* (Lipa and Triggiani) (Kinetoplastida: Trypanosomatidae) have been shown to occur at higher levels in native populations around greenhouses where commercially produced bumble bees are used for pollination.

Introduction and range expansion of non-native *Bombus terrestris* L. into new habitats has been shown to increase competition among native bee species. In Israel, the introduction of *B. terrestris* was linked to changes in floral plant communities and native bee abundance patterns. More than a century after introduction into New Zealand, *B. terrestris* is now well established and has been definitively shown to compete directly with native megachilid bees in Tasmania. In Japan, *B. terrestris* competes directly with native bumble bee species and declines in *B. hypocrita* (Perez) populations are documented to coincide with increased abundance of *B. terrestris*.

There are a number of threats facing native pollinating insects, any of which may lead to the decline of these species with consequent indirect impacts on plant communities. The major threats include: competition with non-indigenous pollinators, spread of pests and diseases, new pests and diseases, habitat destruction or alteration, pesticides, invasive species, natural pest or predator population cycles, and climate change. Non-indigenous pollinators may interact with naturalized, but non-invasive exotic plants, increasing seed set, which may lead to increased invasiveness.

## **General Requirements**

Each NAPPO member country may have different processes for approving the importation, movement and release of pollinating insects. Pollinating insects should only be approved for release after passing through a review process based on NAPPO guidelines and risk analysis, and/or based on a history of release, as appropriate. Petitions should include sufficient information to allow regulators to evaluate the risks associated with the proposed release. Petitions should be prepared for pollinator species or populations non-indigenous to the NAPPO country of proposed release.

This standard provides guidelines for presenting information that may be required to approve the release of the organism, issue a permit to import, determine the import and release conditions and verify compliance with the import and release conditions.

## **Specific Requirements**

Each petition should be preceded by a title page, a table of contents, and a summary or abstract (see Appendix 1 for template). A petition to request the release of pollinating insects in NAPPO member countries should include the following information, as known or available using reasonable efforts or means:

### **1. Proposed Action**

- 1.1 Purpose of the release (reflects the title of the petition and provides more detail of what is expected).
- 1.2 Need for the release (explains why the pollinator is being proposed for release).
- 1.3 Reasons for choice of this pollinator species from the selected country of origin.
- 1.4 Specific location of rearing/containment facility and name(s) of qualified personnel operating the facility.
- 1.5 Description of the proposed release(s), including timing and frequency as well as factors that may affect timing of release (e.g. season, target plant, agricultural practices, weather).
- 1.6 Location of proposed release area (including geographic coordinates and a description of the release site).
- 1.7 Methods to be used after pollinator importation (e.g., rearing, multiplication, transportation, release).
- 1.8 Methods to be used for disposing of any rearing and packing material accompanying a shipment of pollinators.
- 1.9 Agencies or individuals that will be involved in the release and monitoring.

### **2. Target Crop(s)**

- 2.1 Taxonomy: scientific names, taxonomic authority, full classification, synonymy, common names.
- 2.2 Economic impact of the target crop(s).
- 2.3 Distribution of the target crop(s).
- 2.4 Timing of flowering in the target crop(s).
- 2.5 Availability of other pollinators, particularly indigenous pollinators, associated with the

target crop(s).

### **3. Pollinator Information**

- 3.1 Taxonomy: scientific name including author, synonymy, and common names.
- 3.2 Methods used to identify the pollinator and name of expert who identified it; use of both morphological and molecular methods is recommended where possible.
- 3.3 Location of reference specimens.
- 3.4 Natural geographic range, other areas where introduced, and expected attainable range in North America (also habitat preference and climatic requirements).
- 3.5 Diet of pollinator (e.g., pollen, nectar and oil hosts) based on published scientific literature, host data from museum specimens, and unpublished records.
- 3.6 Biology, reproductive potential and behaviour of the pollinator (including dispersal capability and pollination and nesting behaviour).
- 3.7 Environmental factors that could impact the distribution, reproduction or any other aspect (e.g. diapause) of the life cycle of the pollinator.
- 3.8 Source of the pollinator (original collection locality, name of collector).
- 3.9 History of past use of the pollinator.
- 3.10 Pathogens, parasites, and parasitoids of the pollinator and measures taken to detect and eliminate them prior to release.
- 3.11 Standard operating procedures stating how the pollinator will be handled prior to release.
- 3.12 Other closely related genera, sibling species, or similar species of the pollinator in North America.

### **4. Region of Production Information**

- 4.1 Pathogens, parasites and parasitoids of the pollinator in the country of production, their distribution in their native range, and their occurrence in the country of release based on published information.
- 4.2 List of and current distribution of pollinators of the same genus or of closely-related genera in the country of production.
- 4.3 The standard operating procedures for containment and disease management of the rearing facility in the country of production, and number of generations that the pollinator has been in production.
- 4.4. Description of the rearing facility.

The NPPO may require that the rearing facility meets the requirements of RSPM 22: 2011, or other requirements specified by the NPPO.

### **5. Environmental and Economic Impacts of the Proposed Release**

- 5.1 Known impact on humans and other vertebrates.
- 5.2 Benefits of releasing the pollinator (e.g. benefit vs. cost – see RSPM 40: 2014 for guidelines on cost-benefit analysis of management measures).
- 5.3 Direct impact of the pollinator on the target plants, wild relatives and other non-target plants.
- 5.4 Pathogens, parasites and parasitoids known to have cross-infectivity between both

the pollinator and pollinators native to the release area.

- 5.5 Indirect impact on habitat related species (e.g., including potential competition with pollinator species that are already present in the target and non-target crop systems and on organisms that depend on the target crop and non-target species).
- 5.6 Possible direct or indirect impact on threatened and endangered species in North America.
- 5.7 Proposed action plan to mitigate undesirable environmental impact.

## **6. Post-Release Monitoring**

A post-release monitoring plan should be included in the submission. Comparing predicted and observed behaviour and performance of pollinators is necessary to validate and improve regulatory systems.

Monitoring can also provide useful information for assessing future petitions.

In designing monitoring plans, note that pre-release baseline measurements of target crops and non-target species provide for better monitoring data and documentation of impact. Also, some impacts may take years or decades to manifest while others may not be long-lasting. The key elements to monitor are:

- 6.1 If establishment is not intended, a method to verify that the mitigation action has been implemented consistently and effectively should be included in the submission.
- 6.2 If establishment is intended, verification of establishment and spread of the pollinator.
- 6.3 Impacts on selected non-target species for which potential impacts are identified (e.g., threatened or endangered species, taxonomically related species and other pollinator species).
- 6.4 Changes in pollination levels (fruit or seed production) in the target crop and in other selected non-target plant species.

Researchers and practitioners should notify the National Plant Protection Organization (NPPO) and publish details on the economic and environmental impacts of programs, as soon as practical after release of the biological control agent.

## **7. Pre-Release Compliance**

- 7.1 Reference specimens (10 or more) must be deposited in the National Collection of the permitting country in advance of approval for release. The specimens should be of good condition for DNA extraction and with clear labels, indicating collection locality, latitude and longitude, date of collection, name of collector and any other pertinent information.

A letter explaining that the specimens are pollinators and are being donated to the National Collection as part of the conditions under which approval to release will be granted should accompany the specimens when they are submitted. A copy of the letter should be included in the submission to the permitting NPPO.

- 7.2 Information on the planned location and timing of the first release(s) should be

included in the submission. Note: a letter confirming the release date and location should be provided to the NPPO within 3 months after release.

## **8. References and Acknowledgements**

Any key published and unpublished scientific records that support the information contained in the petition should be included.

Country consultation

This appendix was adopted by the NAPPO Executive Committee on [Month day 201-].

The appendix is for reference purposes only and is not a prescriptive part of the standard.

## **Appendix 1: Recommended Template for Petitions**

### **TITLE PAGE**

- Title (e.g., ‘Petition for the Release of XXX originating from YYY for the Pollination of ZZZ’)
- Name and address of Petitioner(s)
- Date
- Applicant: Name(s)
- Applicant’s Organization
- Address

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- 1.2 Need for the release
- 1.3 Reasons for choice of this pollinator species
- 1.4 Location of rearing facility and name(s) of qualified personnel
- 1.5 Description of the proposed release(s), including timing and frequency, as well as factors that may affect timing of release
- 1.6 Location of proposed release
- 1.7 Methods to be used after pollinator importation
- 1.8 Methods to be used for disposing of any rearing and packing material
- 1.9 Agencies or individuals that will be involved in the release and monitoring

#### **2. Target Crop(s)**

- 2.1 Taxonomy
- 2.2 Economic impact
- 2.3 Distribution
- 2.4 Timing of flowering
- 2.5 Availability of other pollinators, particularly indigenous pollinators, associated with the target crop(s)

#### **3. Pollinator Information**

- 3.1 Taxonomy

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- 3.2 Methods used to identify the pollinator and name of expert who identified it
- 3.3 Location of reference specimens
- 3.4 Natural geographic range, other areas where introduced, and expected attainable range in North America
- 3.5 Diet
- 3.6 Biology, reproductive potential and behaviour
- 3.7 Environmental factors that could impact the distribution, reproduction, or any other aspect of pollinator
- 3.8 Source of the pollinator
- 3.9 History of past use
- 3.10 Pathogens, parasites, and parasitoids and measures taken to detect and eliminate them prior to release
- 3.11 Standard operating procedures stating how the pollinator will be handled prior to release
- 3.12 Closely related genera, sibling species, or similar species in North America

#### **4. Region of Production Information**

- 4.1 Pathogens, parasites and parasitoids of the pollinator in the country of production, their distribution in their native range, and their occurrence in the country of release
- 4.2 List of and current distribution of pollinators of the same genus or of closely-related genera
- 4.3 Standard operation procedures (SOPs) for containment and disease management of the rearing facility in the country of production, and number of generations that the pollinator has been in production
- 4.4 Description of the rearing facility

#### **5. Environmental and Economic Impacts of the Proposed Release**

- 5.1 Known impact on humans and other vertebrates
- 5.2 Benefits of releasing the pollinator
- 5.3 Direct impact of the pollinator on the target plants, wild relatives and other non-target plants
- 5.4 Pathogens, parasites and parasitoids known to have cross-infectivity between both the pollinator and pollinators native to the release area
- 5.5 Indirect impact on habitat related species and organisms that depend on the target crop and non-target species
- 5.6 Possible direct or indirect impact on threatened and endangered species
- 5.7 Proposed action plan to mitigate undesirable environmental impact

#### **6. Post-Release Monitoring**

- 6.1 If establishment is not intended, a method to verify that the mitigation action has been implemented consistently and effectively
- 6.2 If establishment is intended, verification of establishment and spread of the pollinator
- 6.3 Impacts on selected non-target species for which potential impacts are identified
- 6.4 Changes in pollination levels in the target crop and in other selected non-target plant species

## **7. Pre-release Compliance**

7.1 Reference specimens

7.2 Information on the planned location and timing of the first release(s)

## **8. References and Acknowledgements**

Country consultation