NAPPO
North American Plant Protection Organization
Organización Norteamericana de Protección a las Plantas
MEXICO - USA - CANADA

NAPPO Regional Standards for Phytosanitary Measures (RSPM)

RSPM 12
Guidelines for Petition for First Release of Non-indigenous Entomophagous Biological Control Agents

Date

The Secretariat of the North American Plant Protection Organization
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Contents

Page

Review

NAPPO Standards for Phytosanitary Measures are subject to periodic review and amendment. The next review for this Standard is 2019. This standard was last reviewed in 2015. 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 15, 2000, and updated on March 20, 2006 and October 20, 2008. The current revision was approved by the North American Plant Protection Organization (NAPPO) Executive Committee on xx, 2015 and is effective from this date.
Approved by:

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Greg Wolff Executive Committee Member Canada	Osama El-Lissy Executive Committee Member United States

_____
Javier Trujillo Arriaga
Executive Committee Member
Mexico

Implementation

No implementation plans are required for this standard.

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 and Sustaining Associate Members, the International Plant Protection Convention (IPPC) Secretariat, and to other Regional Plant Protection Organizations (RPPOs).

Introduction

Scope

These guidelines are intended to assist in drafting a petition for release of non-indigenous entomophagous biological control agents of insect pests. A standardized petition will also assist the reviewers and regulators in assessing the risk of non-indigenous introductions intended for biological control of insect pests. These guidelines could be used for biological control agents for other target pests (e.g. mites, nematodes, ticks and molluscs) at the discretion of the NPPO. The information presented in the petition informs the NPPO in its decision whether to permit release of the agent. For example, a lack of information in the sections on taxonomy of the agent, host range, or other sections may not be sufficient to support a decision to permit release.

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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

Information is requested on the proposed action: aspects of the biology, regulatory status, distribution and impact (positive and negative) of the target pest; biology, source, known host organism, related species in the proposed area of introduction, and quarantine procedures for the biological control agent; expected impacts (positive and negative) after release; and key published and unpublished scientific records of both the intended target and the organism to be released.

General Requirements

Each petition should be preceded by a title page, a table of contents and a summary or abstract. A petition to request the first release of non-indigenous entomophagous biological control agents in NAPPO member countries should include, as known or available using reasonable efforts or means, the following information:

Title page - '**Petition for the Release of XXX for the Biological Control of YYY**'
Name(s) and address of Petitioner(s)

Summary or Abstract

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 agent is being introduced).
1.3 Reasons for choice of the entomophagous biological control agent.
1.4 Specific location of rearing/containment facility and name(s) of qualified personnel operating the facility.
1.5 Timing of the release (approximate date of release), as well as factors that affect the timing of release (e.g. life stage of target pest or of biological agent to be released, season, agricultural practices, weather).
1.6 Location of initial release (including geographic coordinates).
1.7 Methods to be used after agent importation (e.g., rearing, multiplication, release).
1.8 Methods to be used for disposing of any host material, pathogens, parasites, parasitoids, and hyperparasitoids accompanying an import.
1.9 Agencies or individuals that will be involved in the release and monitoring.

2. Target Pest Information

2.1 Taxonomy: scientific name, full classification, synonymy, common names (if any), and sufficient characterization to allow unambiguous recognition.
2.2 Economic impact and benefits (if any) of the target pest.
2.3 Biology and reproductive potential of the target pest.
2.4 Global distribution of the target pest.
2.5 Economically and ecologically important species in North America (introduced and native) phylogenetically related or habitat associated to the target pest.
2.6 Regulatory or pest status of the target pest in state, provincial or federal law.
2.7 Knowledge of status of other biological control agents (indigenous and introduced) that attack the target pest.
2.8 Life stage(s) of target pest that are vulnerable to the biological control agent.

3. Biological Control Agent Information

3.1 Taxonomy: scientific name, synonymy, common names and name of the taxonomic authority making the identification of the biological control agent.
3.2 Methods used to identify the biological control agent (e.g., morphological, molecular).
3.3 Location of reference specimens (national collection).
3.4 Natural geographic range, other areas where introduced, and expected attainable range in North America (also habitat preference and climatic requirements of the biological control agent).
3.5 Source of the biological control agent (laboratory/rearing facility/containment facility, original collection locality, name of collector, and name of identifier).
3.6 Host/biological control agent interactions (e.g., predator, parasitoid, pathogen, parasite, competitor, and antagonist).
3.7 Biology and reproductive potential (including dispersal capability and damage inflicted on target pest).
3.8 Known host range based on published scientific literature, host data from museum specimens, and unpublished records.
3.9 History of past use of the biological control agent.
3.10 Pathogens, parasites, parasitoids, and hyperparasitoids of the biological control agent and methods to eliminate them from a culture of the biological control agent.
3.11 Standard operating procedures stating how the biological control agent will be handled in containment.
3.12 Closely related genera, sibling species, or similar species of the biological control agent in North America.

4. Host-Specificity Testing

4.1 Selection of non-target test arthropods: typically, species, genera and other taxonomically closely-related arthropods and arthropods recorded as hosts in the literature, on museum labels or in other unpublished collection records, agriculture pest reports, etc.; hosts of close relatives (i.e. in the same genus) of the candidate agent; unrelated arthropods having physical and ecological similarities to the pest, rare and endangered species (or their surrogates), beneficial species that may be encountered, species of cultural or indigenous significance, and economically important arthropods.
4.2 Laboratory tests (replicated no-choice and choice feeding tests, oviposition tests,

development tests), including information on offspring survival, sex ratio, and fecundity. Include positive controls where feasible.

4.3 Information on the biological control agent from the area of origin based on field surveys or experimental field manipulation as feasible.

5. Environmental and Economic Impacts of the Proposed Release

5.1 Known impact of the biological control agent on humans and other vertebrates.

5.2 Benefits of releasing this biological control agent (e.g., pesticide use, physical controls, no control, benefit-cost (see RSPM 40: 2014 for guidelines on cost-benefit analysis of management measures).

5.3 Direct impact of the biological control agent on target pest and non-target species.

5.4 Indirect impact (e.g., potential effects on organisms that depend on the target pest and non-target species, including potential competition with resident biological control agents and other natural enemies)

5.5 Possible direct or indirect impact on threatened and endangered species in North America.

5.6 Proposed contingency plan to mitigate undesired environmental impacts.

6. Post-Release Monitoring

A post-release monitoring plan should be included in the submission. Comparing predicted and observed behaviour and performance of biological control agents is necessary to validate and improve regulatory systems. Post-release monitoring of released agents can inform the development and screening of additional biological control agents that are being considered for release. For example, additional screening or releases of new agents may be suspended or modified if a released agent proves to be ineffective, when control/suppression is achieved, or if unintended impacts are observed. In the same way, well documented lack of impacts on non-target species provides important validation of pre-release screening and selection methodologies. Therefore, to assist in assessing program impacts, information is requested on plans for post-release monitoring.

In designing monitoring plans please note that pre-release baseline measurements of target pests and non-target species provide for better monitoring data and documentation of effects. Also, some effects may take years or decades to manifest while others may not be long lasting.

The key elements to monitor are:

6.1 Biological control agent establishment and spread.

6.2 Biological control agent and target pest densities and distribution over time.

6.3 Impact on selected non-target species for which potential impacts are identified (e.g., threatened or endangered species and taxonomically related or beneficial species). Data collected should include biological control agent host preference and development, and changes in growth, survival and reproduction of target pest and selected non-target 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 biological control agents and are being donated to the National Collection as part of the conditions under which 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.

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

Title (e.g., 'Petition to introduce as a Biological Control Agent for/ in….' or 'Host Arthropod Test List for….')

Date:

Applicant: Name(s)
Applicant's Organization
Address

TABLE OF CONTENTS

2.8 Life stages of the pest that are vulnerable to the agent

3. Biological Control Agent Information

3.1 Taxonomy
3.2 Methods used to identify the agent
3.3 Location of reference specimens
3.4 Natural geographic range, other areas where introduced and expected attainable range in North America
3.5 Source of agent
3.6 Host/biological control agent interactions
3.7 Biology and reproductive potential
3.8 Known host range
3.9 History of past use of the agent
3.10 Pathogens, parasites, parasitoids and hyperparasitoids of the agent and methods to eliminate them from a culture of the agent
3.11 Standard operating procedures (SOP) stating how the agent will be handled in containment
3.12 Closely related genera, sibling species or closely similar North American species

4. Host-Specificity Testing

4.1 Selection of non-target test arthropods
4.2 Laboratory tests
4.3 Information from the area of origin based on field surveys or experimental field manipulation

5. Environmental and Economic Impacts of the Proposed Release

5.1 Known impact of the agent on humans and other vertebrates
5.2 Benefits of releasing the agent
5.3 Direct impact of agent on target and non-target species
5.4 Indirect impact of the agent
5.5 Possible direct or indirect impact on threatened and endangered species
5.6 Proposed contingency plan to mitigate undesired environmental impacts

6. Post-Release Monitoring

6.1 Agent establishment and spread
6.2 Agent and target densities and distribution over time
6.3 Impact on selected non-target species for which potential impacts are identified

7. Pre-Release Compliance

7.1 Reference specimens
7.2 Release information

8. **Acknowledgements**