

Suggested Format for Field Release Petitions

Introduction

This appendix provides a guide for petitioners and researchers to follow when preparing petitions. **It is recognized that for some situations petitioners will provide more information, while for others not all points will be addressed.**

TAG members use evaluation guidelines that parallel this format when reviewing and evaluating petitions. The information requested in this suggested format is felt to best demonstrate the safety of the agent being considered, the potential risks that might be involved in its release, and the long-term ecological consequences of a successful release.

The suggested format contains the following main sections:

- N Cover Page
- N Petition Introduction
- N Target Weed Information
- N Biological Control Agent Information
- N Experimental Methodology and Analysis
- N Results and Discussion
- N Potential Environmental Impacts
- N Petitioner's Conclusion

Cover Page

Prepare a cover page for the petition with the following information. This information provides TAG with a contact point for questions and with references for tracking.

1. Date of petition and mailing.
2. Name of petitioner with affiliation and a contact point within North America including an address, telephone number, FAX, and E-mail address.
3. Nature of the petition: Proposed field release of a [biological control agent] of a [target weeds]--include species, genus, family, order, author, and geographical origin.

Note whether this petition represents additional information requested by TAG for a previously submitted petition. If it does, record the number of the previous petition assigned by TAG. Then, only address those sections of this suggested format that were of concern.

4. Where have the studies been conducted?

5. If at least part of the study has been conducted in a U. S. quarantine facility, then list the location of the quarantine facility. Also list the quarantine facilities the candidate agents intend to pass through for initial releases. Note that different quarantines are required for insects and pathogens.

6. Identify the States or Provinces for the initial release in: Canada, Mexico, United States.

7. Who will conduct the release and monitoring in the United States?

Petition Introduction

Nature of the Problem:

Give a brief summary (one to two paragraphs) of the problem caused by the weed. Topics to consider including in the summary are as follows:

1. History of introduction and/or spread of the target weed.
2. The weed's present distribution in North America.
3. Sectors affected and magnitude of program (e.g., agricultural, natural, rangeland).
4. Pending issues about the taxonomy of the candidate agents or the target weeds, about the agents, about the location of the release.

Proposed Action:

Provide a statement of proposed action. For example, to introduce a [biological control agent] from [a foreign area] for field release in [a specific area] to control [target weed] in [Canada, Mexico, the United States].

Target Weed Information

Often detailed information will have been provided in previously submitted test plant lists or release petitions. This information can be repeated, with any additional information, in subsequent release petitions.

Taxonomy:

1. Full classification, synonymy, and common name including species, genus, family, and order.
2. Who identified the target weed including names, organizations, and locations.

3. Problems in identification or taxonomy of the group.
4. Origin and location of herbariums containing voucher specimens, and the date of depository. (The voucher specimens referred to here are the ones used as representative of the population that occurs in the area where the researcher has conducted the studies.)

Description:

Provide a general description of the target weed, complete enough that a person encountering it in the field could identify it.

Distribution of the Target Weed:

Describe the distribution of the target weed using maps, as appropriate. Include the following information:

1. Native range (map).
2. Areas of introduction throughout the world (map), pattern of movement, and apparent limits.
3. North American distribution (map).
4. Range areas of the present distribution and the potential spread in North America (a map is useful).
5. Genetic variability.
6. Habitats or ecosystems where this weed is found in North America.

Taxonomically Related Plants:

Identify economically and environmentally important plants that are closely related to the target weed. These are crops, ornamentals, and native plants including threatened and endangered species and those with cultural or aesthetic value. If possible, identify how closely these plants relate to the target weed.

Distribution of Taxonomically Related Plants:

Describe the distribution and habitats in North America of the closely related plants—those identified under the previous heading, Taxonomically Related Plants.

Life History:

Explain the life history and general biology of the target weed. Discuss the factors that are believed to contribute to the plant's weediness.

Impacts:

Indicate any and all impacts. Use the following list as a guide; not all areas listed below are applicable to all petitions.

1. Beneficial uses—honey bees, forage, ground cover, fruit, etc.
2. Social and recreational uses—value as ornamentals.
3. Impact on threatened and endangered species.
4. Economic losses, including direct control costs.
5. Health—poisonous, allergenic.
6. Regulatory—noxious weed, restricts trade.
7. Effects on native plant and animal populations.
8. Impact of weed control on nontarget plants.
9. Effects on ecosystem functions and ecological relationships.
10. Other, e.g., aesthetic.

Alternative Management Options:

Describe alternative options for managing the target weed.

1. Historical options—what has been done before and effectiveness.
2. Current options—biological, chemical, cultural, etc., and effectiveness.
3. Potential options—new herbicides or biological control agents used or released in other countries.

Biological Control Agent Information

Taxonomy:

1. Full classification (species, genus, family, and order), synonymy, and common name. [For pathogens, include strain, race, type.]
2. Reason for choosing the agent and a general description of the agent including helpful morphology and general characteristics that could be used to identify it in the field.
3. The taxonomist who identified the agent, including names and organizations with locations.
4. For pathogens, description of the methods used to identify life stages.
5. Problems in identification or taxonomy of the genus.
6. Origin and locations of voucher specimens for insects [or type cultures for pathogens] including date of depository, and how they are preserved.

Geographical Range:

1. Origin—maps and literature citations describing the native range of the agent.
2. If the agent is being used in other countries, give countries of introduction and present range and effects.
3. Expected, attainable range in North America—based on climatic, environmental, and vegetative parameters.

Known Host Range (Specificity):

1. Literature records indicating what other plants have been attacked.
2. Field collections and observations, including maps and data.
3. Literature on the host range (specificity) of organisms closely related to the agent, no matter where the organism occurs.

Life History:

1. Biology, i.e., diapause, life cycle, dispersal capability, etc. from literature, field observations, and laboratory studies.
2. Known mortality factors.
3. Extent of damage or control of the target weed.

4. Extent of damage or control of nontarget plants.

Population of the Agent Studied:

1. Geographical source, including maps and site description, if available. Be as accurate as possible so that the same population could be located, if needed.

2. How pest-free populations of the agents were obtained and maintained in quarantine, if applicable.

3. Site of field and lab studies (the location if in a foreign country, if available), or the location of U.S. quarantine facility used.

Experimental Methodology and Analysis

Test Plant List:

A test plant list shows the species of host plants on which the agent was tested to determine its potential feeding range.

If a test plant list has not already been prepared and reviewed by TAG, list the test plants and provide the rationale for selecting them. Often a new biological control agent will require alteration of a previously approved test plant list. If this is the case, note here and explain the rationale and changes.

Include considerations given to threatened and endangered plant species and economic important plants. See Appendix E for a strategy for developing test plant lists beginning on page 10.4. Following this strategy can ensure a thorough investigation of the biological control agent. See Appendix F for guidelines to comply and to expedite any review necessary because of protected species.

Design:

1. Part or stage of plants tested.

2. Source of population of plant (and weed) used in test.

3. Number of replicates.

4. Number of individual agents, target weeds, and test plants in each replicate. May be synonymous with number of replicates depending on test design, i.e., in no choice tests the number of individual plants of a species is the number of replicates.

5. How were results measured, recorded, and evaluated.

6. If the weed has been targeted previously, compare this design with previous test designs including plant species tested. Positive Controls:

Were adequate positive controls used in all tests? For example, the target weed should be challenged with the agent during each testing procedure (except in no choice testing for insects).

Reason for Decisions: Explain why you selected the test procedures and how they are appropriate for the biology of the agent being tested.

Results and Discussion

Summary of Results:

Provide a summary about the safety of this organism as a biological control agent and any risk associated with its release. Include literature, results of host specificity testing, and field observations. Present results in a manner that supports your conclusion (tables, graphs, narratives).

Protocol for Releasing the Agent:

1. Method to ensure pure cultures and correct identification of the agent to be released.

Including:

- a. For insects: species, genus, family, and order [for pathogens: strain, race, type.];
- b. Names and organizations with locations of identifier;
- c. Description of identification methods;
- d. Problems in identification; and
- e. Date and place of depository containing voucher specimens.

2. General release protocol to ensure the absence of natural enemies and cryptic or sibling species.

3. Specific location of rearing or culturing facility.

4. Intended sites for initial release. Timing of release. Release methods to be used. For insects, number to be released, if known. For pathogens, method of preparing inoculum and inoculum concentration.

Post-Release Monitoring:

Provide an explanation of the post-release monitoring plan. Include the following information.

1. When the anticipated initial release of the agents will occur.
2. Groups to best perform monitoring.

3. Monitoring techniques to determine if the agents become established.

4. Monitoring techniques to determine the spread and impact on target and nontarget plants.

Benefit/Risk:

Offer your perspective about weighing the probable benefits of releasing the agent against the unknowns and possible negative impacts.

Potential Environmental Impacts

Discuss the potential ecological, economic, social, biological, health regulatory, and environmental impact. Present as clear a picture as possible of the long-term ecological consequences that could possibly result from the successful establishment of this agent in the North American environment.

This information should go beyond the risk associated with attack on a few closely related species of plants, as indicated in the host testing results. This discussion should look at the overall potential impact of populations of this insect building up on the weed in a large variety of different habitats. This information will be critical in preparing an environmental assessment, which will be the next step in the approval process if the TAG recommends that this agent should be released in North America.

Human Impacts:

Include positive and negative impacts to humans. For example—health, recreational, aesthetics, nuisance, poisonous, allergens. Discuss ways to overcome negative effects.

Potential Economic Impacts:

Provide the potential gains and losses regarding the ecological, social, aesthetic, and biological impacts.

Plant Impacts:

Describe the direct and indirect impacts (positive and negative) of the organism on the local plant populations. Cover the intended effects on the target weed and on nontargets, including potential impacts on agricultural, horticultural, and threatened and endangered plants.

Nonplant Impacts:

Describe the indirect effects (positive and negative) on organisms (other than plants) that depend directly or indirectly on the target weed or affected nontarget plants based on test results.

Proposed Methods for Mitigation:

Identify proposed methods (management and other alternatives) to mitigate potentially undesired effects.

Abiotic and Edaphic Effects:

Identify the potential abiotic and edaphic effect, i.e., water, soil, air.

Outcome of No Action:

Provide a statement of the outcome if no release was made.

Petitioner's Conclusion

Offer your conclusions on the potential risks and benefits regarding the consequences of the release of this agent and its successful establishment in the North American environment throughout the range of its target weed and susceptible nontarget hosts. Summarize all the results of your study of this agent, its host testing, and your evaluation of the potential environmental impact. Include a quantitative risk assessment, if available.