


The survey methodology presented in this Appendix lists the most up-to-date, CAPS-approved methods for survey and identification/diagnostics of CAPS target pests from the Priority Pest List, consisting of pests from the 1) commodity- and taxonomic-based surveys and 2) pests of economic and environmental importance (AHP Prioritized pests). The information in this table supersedes any survey and identification/ diagnostic information found in any other CAPS document (i.e., Commodity-based Survey References and Guidelines, EWB/BB National Survey Manual, etc.). All other CAPS documents eventually will be revised to include the information contained in this table; however, this table should always be the authoritative source for the most up-to-date, CAPS-approved methods.

Appendix M-1 has been developed in HTML format for ease of navigation and updating content. Click on this link to access Appendix M-1.  [CAPS Approved Methods](#)

### **Insects – Survey Considerations**

For 2011 and beyond, negative data may be reported for these target pests **only** when surveyed for by the CAPS-approved survey method. For species with attractants and/ or lures available, the CAPS-approved trap type and lure **must** be used in order to report negative data.

If “visual” is listed as the only approved survey method for a target pest, then traps and lures have not yet been proven effective for attracting that target. Negative data may only be reported for these species by conducting a visual survey and not from any trap/ lure combination. Work is currently underway to develop database code and corresponding datasheets/worksheets which will provide detailed survey information for each target with only a visual survey method. Please see detailed survey information by clicking on the target species datasheet on the main table.

### **Trap recommendations**

For 2012, the CAPS regional and national program managers, with support from CPHST, have made a concerted effort to review information from the literature and subject matter experts on what the most effective trap would be for an early detection survey for CAPS targets. In cases where there was more than one effective trap, the CAPS coordinators narrowed the options to one trap in order to establish homogeneity in the dataset. Decisions were made based on the scientific data available, cost, and ease of use (both for surveyors and identifiers.) If you have evidence to support the use of other traps, please submit relevant literature references or communications and these traps will be taken into consideration. Please contact Lisa Jackson ([lisa.d.jackson@aphis.usda.gov](mailto:lisa.d.jackson@aphis.usda.gov)) for more information.

### **Ordering traps and lures**

All traps and lures should be purchased through the PPQ Survey Supplies Ordering Database. "Trap Abbreviation" and "Lure Abbreviation" refer to abbreviations used in the PPQ Survey Supply Database. Traps without an abbreviation are listed by their common name (i.e., "wing trap", "plastic bucket trap", etc.).

**IMPORTANT:** Unless noted otherwise, when more than one lure/compound is listed, all of the lures are required to report negative data for that species. For example, negative data can only be reported for *Pityogenes chalcographus* if 1) Chalcogran (Ethyl-1,6-dioxaspiro[4.4] nonane), 2) Methyl-2,4-decadienoate, and 3) 2-methyl-3-buten-2-ol are all present.

**IMPORTANT:** “Piggybacking” of lures, placing lures for two or more target species in a trap, should never be done unless otherwise noted in this table. Effects of lures on non-target species cannot be predicted based solely on pheromone chemistry, taxonomic relationship, etc. Because of that, lures should never be combined in individual traps unless PPQ has specific data indicating that the trap will remain a functional detection tool for both species

### **Trap spacing**

When trapping for more than one species of moth, separate traps for different moth species by at least 20 meters. When trapping for EWB/BB, separate traps with different lure combinations by at least 30 meters.

### **Insects – Identification Information**

For the majority of insects, morphology is the basis for identification. In a few instances, molecular techniques are used for confirmation. Please refer to the individual datasheets for specific information.

The “Mistaken Identities” section lists families, genera, and species that may be confused with the target species. This information is not to be interpreted as an exhaustive list of all species that could be confused for the target.

### **Mollusks – Survey Considerations**

All mollusk surveys will be by visual inspection. Use the cited references for additional information on identifying high risk sites, seasonality and time of day to survey, and signs of mollusk presence.

*Appendix N, Data Entry Guide for Selected Taxonomic Groups, should be used to determine the appropriate requirements for reporting negative data.*

### **Mollusks – Identification Information**

See specific information on the pest datasheets.

### **Nematodes – Survey Considerations**

Negative data may be reported for these target pests only when surveyed for by the CAPS-approved survey method. For most nematodes, surveys will be conducted via soil sampling. If plant hosts are present, sampling host roots or visual sampling can be useful in conjunction with soil sampling. When more than one survey method is listed, all methods can be used depending

on the type of survey. The methods, however, are listed in order from most preferred to least preferred. Please see detailed survey information by clicking on the target species' datasheet on the main table.

*Appendix N, Data Entry Guide for Selected Taxonomic Groups, should be used to determine the appropriate requirements for reporting negative data.*

### **Nematodes – Identification Information**

The PPQ-recommended diagnostic method(s) for each nematode is provided. These methods correspond to those commonly used to confirm a nematode identity. Any molecular methods that have been validated by the CPHST lab in Beltsville, MD also are included under PPQ-recommended diagnostic method. Work instructions are available for each method validated by CPHST-Beltsville. If more than one diagnostic method is listed, a combination of methods may be required to confirm a nematode identity.

For the majority of nematodes, morphology is the basis for identification. In a few instances, biochemical or molecular techniques are used for confirmation. Please refer to the individual datasheets for specific information.

The "Mistaken Identities" section lists nematodes and conditions that may be confused with the target species. This information is not to be interpreted as an exhaustive list of all species that could be confused for the target.

Information is provided on diagnostic methods from the scientific literature. Although these methods have not been validated by PPQ, many labs and state institutions may find the information useful to confirm identification.

### **Pathogens – Survey Considerations**

Negative data may be reported in for these target pests only when surveyed for by the CAPS-approved Survey Method. For most pathogens, surveys will be conducted visually by looking for characteristic symptoms (an indication of disease by reaction of the host, e.g. canker, leaf spot, wilt, etc.) and/or signs (indication of disease from direct observation of a pathogen or its parts). When more than one survey method is listed, all methods can be used depending on the type of survey. The methods, however, are listed in order from most preferred to least preferred. Please see detailed survey information by clicking on the target species' datasheet on the main table.

### **Pathogens – Diagnostic Information**

The PPQ-recommended diagnostic method(s) for each pathogen is provided. These methods correspond to those commonly used to confirm a pathogen identity. Any molecular methods that have been validated by the CPHST lab in Beltsville, MD also are included under PPQ-

recommended diagnostic method. Work instructions are available for each method validated by CPHST-Beltsville. If more than one diagnostic method is listed, a combination of methods may be required to confirm a pathogen identity.

For the majority of pathogens, morphology is the basis for identification. In a few instances, serology or molecular techniques are used for confirmation. Please refer to the individual datasheets for specific information.

The "Mistaken Identities" section lists pathogens and conditions that may be confused with the target species. This information is not to be interpreted as an exhaustive list of all species that could be confused for the target.

Information is provided on diagnostic methods from the scientific literature. Although these methods have not been validated by PPQ, many labs and state institutions may find the information useful to confirm identification.

### **Weeds – Survey Considerations**

All weed surveys will be by visual inspection. Please see detailed survey information by clicking on the target species' datasheet on the main table.

### **Weeds – Identification Information**

At this time, all weed identification will involve a morphological confirmation by a botanist. See specific information on the pest datasheets.

For further information on Nematodes, Pathogens, or Weeds, contact:

Melinda Sullivan, USDA-APHIS-PPQ-CPHST

970-490-4469

[melinda.j.sullivan@aphis.usda.gov](mailto:melinda.j.sullivan@aphis.usda.gov)

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