Critical Control Point Assessment
[Nursery]
[Location]
[Dates]

[Regulatory agency]

[Address]

[NOTE: This document is a template for completing a Critical Control Point (CCP) assessment of a regulated establishment. All text that should be deleted or replaced with the described information is in red and surrounded by brackets like these [ ].

Purpose: The need for information on all aspects of a nursery operations in a complete CCP depends on the circumstances that initiated the CCP.

- If this is a first-time positive nursery, a complete CCP should be done. This will provide a basis for reassessment if the nursery is positive again and for onboarding new personnel assigned to CCP assessments in the future.
    - Areduced-scope CCP focusing on the positive subsites and any other areas of concern can be conducted for first-time positive nurseries if the positive find clearly links to newly introduced infected material in an area that contains the risk of further spread in the nursery. The impacted State and the PPQ CFWG decide jointly on the scope of the CCP.
- If this is a repeat nursery with new positives detections and there is no previous record of a complete CCP, a complete CCP is required for the nursery.
- If this is a repeat nursery with new positives detections and there is a complete CCP on record, another complete CCP is encouraged.
    - Areduced-scope CCP focusing on only the positive subsites and any other areas of concern is acceptable if the impacted State and the PPQ CFWG decided jointly if portions of the previous CCP is still valid. The CCP still should assess the nursery in total and make a record of all changes made to the nursery practices since the completion of the previous CCP and any areas that might contribute to the new infestations.]

1. Introduction

1.1. Background

This document was prepared by [Regulatory Agency], to document the information collected from the Critical Control Point (CCP) assessment at [Nursery] in [location, town, and state].

[This is standard language for all CCPs primarily provided for the benefit of the Nursey management. The author may shorten or omit text as needed.] *Phytophthora ramorum* is a regulated pest for the Unites States. APHIS regulates the domestic movement of host plants from areas with known *P. ramorum* infestations to prevent the spread of the pathogen to non-infested areas of the United States. A detection of *P. ramorum* in a commercial nursery that moves plant material interstate, or in a state considered free from *P. ramorum*, necessitates the applications of the Interstate Confirmed Nursery Protocol. As part of this protocol, the nursery site and operations are assessed to identify remediation and mitigation options, business/cultural practices, and best management practices (BMP) to address and eliminate *P. ramorum* at the nursery. These assessments are called Critical Control Point (CCP) assessments. A critical control point is a point, step, or procedure at which control can be applied and a hazard can be prevented, eliminated, or reduced to acceptable levels. In a nursery setting, CCPs include the processes and procedures of a nursery operation, from when the plants first arrive to when they leave production. By determining CCPs, applicable best management practices (BMPs) and/or mitigations the nursery can then institute a systems approach. A systems approach consists of a defined set of phytosanitary procedures, at least two of which have an independent effect in mitigating pest risk associated with the movement of commodities. By addressing CCPs, nurseries can reduce the risk of a potential hazard and take corrective steps towards *P. ramorum* mitigation and/or avoidance. Required mitigation measures are recorded in Exhibit D of the PPQ Form 519, Compliance Agreement (CA)

General Information of *Phytophthora ramorum*

[This is standard language for all CCPs primarily provided for the benefit of the Nursey management, it can be shortened or omitted as needed.] The oomycete pathogen *Phytophthora ramorum* is the causal agent of ramorum leaf blight and sudden oak death. *P. ramorum* is known to cause leaf blight and stem dieback on over 150 different plant species in over 80 genera, including several ornamentals commonly grown in commercial nurseries (Parke and Peterson, 2019). The disease typically results in dark, brownish lesions on leaves or stems which can cause wilting and death of the plant. Visual diagnosis of *P. ramorum* can be complicated by many factors including its large host range and the fact that other pathogens and environmental conditions can elicit the same foliar and dieback symptoms. Further confounding detection, fungicides commonly used to control other *Phytophthora* species on rhododendron and other hosts may mask symptoms (COMTF, 2020). Latent infections are a challenging obstacle for detection efforts because no visual symptoms exist to indicate presence of the pathogen. Infected plants may be asymptomatic, especially when

grown in dry, cool climates. The onset of *P. ramorum* disease outbreak coincides with wet and warm weather in an outdoor nursery setting.

Water, soil, and even symptomless plants have all been broadly indicated as potential reservoirs of *P. ramorum* inoculum both in Europe and in North America. Experiments have shown water-mediated spread of infection in natural systems and production facilities while circumstantial but convincing evidence has indicated that intense rain events leading to partial flooding of nursery beds can cause severe outbreaks of the disease in production nurseries. Inert potting mix has been shown to harbor viable chlamydospores of *P. ramorum* for years and splash dispersal and plant-to-plant contact appear to be important for spread within nurseries with extended periods of leaf wetness likely required for infection.

P. ramorum, has been introduced to the United States on at least three separate occasions, almost certainly via the movement of nursery stock. This pathogen, responsible for widespread mortality of oak and tanoak in coastal California and southwestern Oregon, poses a threat to red oak–dominated ecosystems east of the Mississippi. APHIS has established quarantines and regulations to prevent further *P. ramorum* spread to non-infested areas of the United States.

References cited:

- Parke, J. L., and E. K. Peterson. 2019. Sudden oak death, sudden larch death, and ramorum blight. The Plant Health Instructor. DOI: 10.1094/PHI-I-2019-0701-02
- COMTF. 2020. Hosts and Symptoms. California Oak Mortality Task Force (COMTF). Accessed 5/2020. http://www.suddenoakdeath.org/diagnosis-and-management/hosts-and-symptoms/

1.2. Initiating Event

[Describe the initial positive detection(s). What type of inspection lead to the detection (general nursery survey or compliance inspection)? What type of sample lead to the positive detection(s) (e.g. plant, water, or soil positive)? List the State and Federal regulatory bodies represented in the CCP assessment. Describe any other circumstances or conditions relevant to the assessment.]

1.3. Documentation

Description of the nursery

[Describe the layout of the nursery, and size of the nursery. Define, as known, the general type and number of plants within the nursery and the source of those plants. Describe the propagation activities occurring on site. Finally include any information on the surrounding area relevant to the assessment, i.e., are there other nurseries, forested areas, or bodies of water nearby that may factor into the assessment.]

[Describe the business practices of the nursery. Record the businesses they ship to, their peak shipping seasons, and any related businesses or other locations associated with this nursery.]

Roads and beds. [Describe the overall condition of the roads in and around the nursery and the beds used for holding host plants.]

Greenhouses and hoop houses.
[Describe the overall layout and size of the greenhouses and hoop houses. Describe how plants are irrigated and treated within the structures.]

Water for irrigation.
[Describe the overall water sources for the nursery including wells, municipal, nearby waterways, and holding ponds used to water plants, as well as any treatments or processes the water undergoes for irrigation.]

Nursery operations.
[Describe the overall practices in the nurseries regarding deliveries, customer access, shipments, horticultural and propagation processes. Describe how the nursery treats tools and pots, especially if reused.]

Confirmed-positive sample subsites

The blocks or locations of confirmed *P. ramorum* positive plants are listed in Table 1.

Table 1. List of subsites in the [Nursery name] Nursery identifying block number, general description of the block, plant names, and number of *P. ramorum* positive plants recorded during [Year].

Block ID	Descriptor of the block	Plant species and name
[Location – prefer unique ID]	[Brief description]	[*Latin binomial*], [varietal name] • No. of positives: [X] Pot size: [Xgallon, etc.]
[Location – prefer unique ID]	[Brief description]	[*Latin binomial*], [varietal name] • No. of positives: [X] Pot size: [Xgallon, etc.]
[Location – prefer unique ID]	[Brief description]	[*Latin binomial*], [varietal name] • No. of positives: [X] Pot size: [Xgallon, etc.]
[Location – prefer unique ID]	[Brief description]	[*Latin binomial*], [varietal name] • No. of positives: [X] Pot size: [Xgallon, etc.]

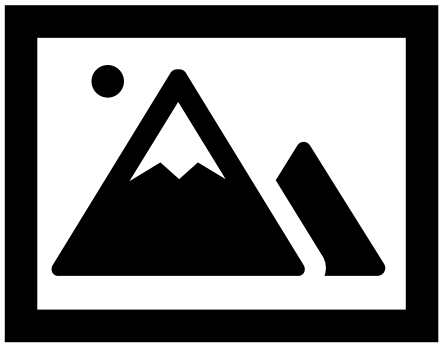
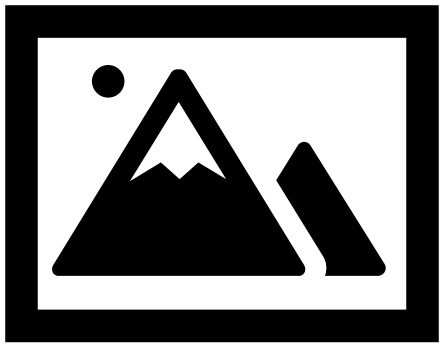
[NOTE: Please add or delete as many rows as needed for the complete inventory.]

2. Assessment

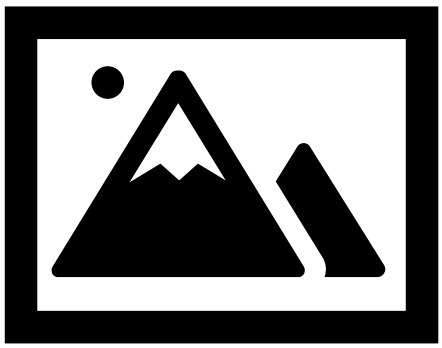
2.1. Positive Subsites

[In this section describe each positive subsite separately and document with pictures.]

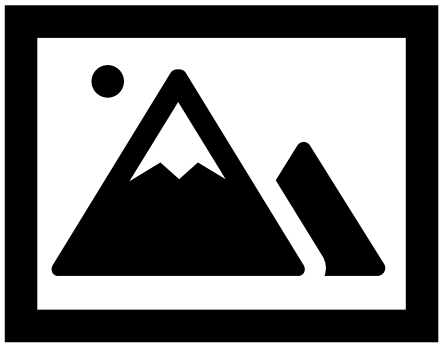
SUBSITE 1. [Provide a brief description of the subsite to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 1A, 1B, etc. Add arrows or circles to indicate any important features or identified problem areas captured in the picture.]

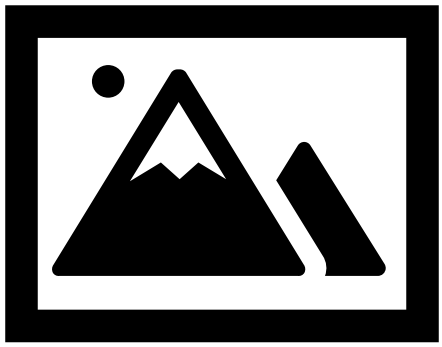



SUBSITE 2. [If assessing more than one positive subsite, provide a separate description for each positive subsite. Provide a brief description of the scene to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture and label 2A, 2B, etc. Add arrows or circles to indicate any important features or identified problem areas captured in the picture.]




SUBSITE 3. [If assessing more than one positive subsite, provide a separate description for each positive subsite. Provide a brief description of the scene to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture and label 3A, 3B, etc. Add arrows or circles to indicate any important features or identified problem areas captured in the picture.]

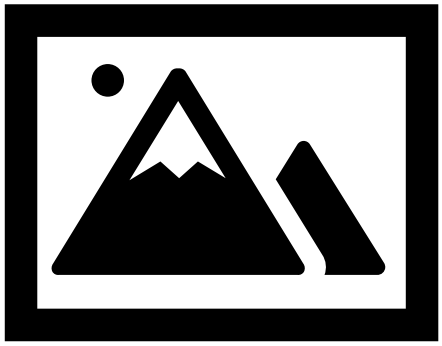


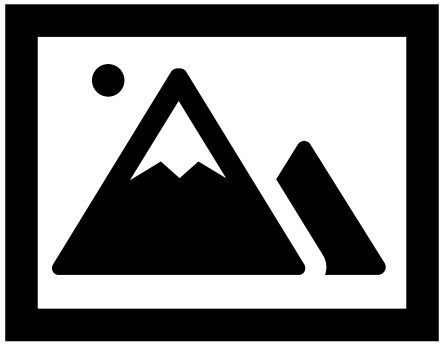


2.2. Subsites Adjacent to Positive Subsites

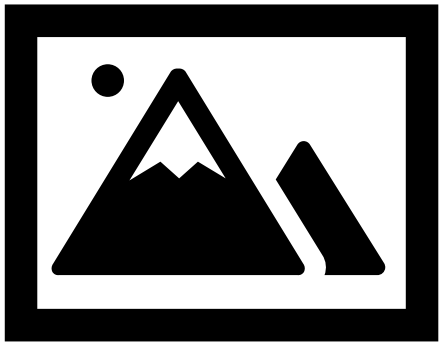
[In this section describe subsites that are adjacent to a positive subsite included in section 2.1 and subsites common to nurseries. Describe each subsite separately and document with pictures. A nursery may not have all of the following subsites. Delete the sections that do not apply to the nursery.]

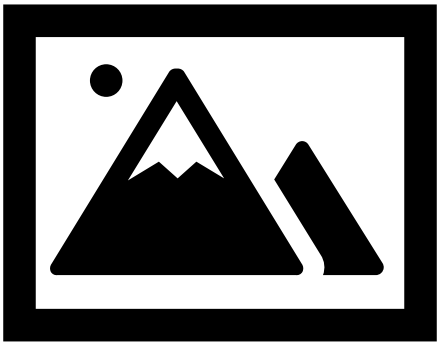
SUBSITE 1. [Provide a brief description of the subsite to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture and label 1A, 1B, etc. Add arrows or circles to indicate any important features or identified problem areas captured in the picture.]



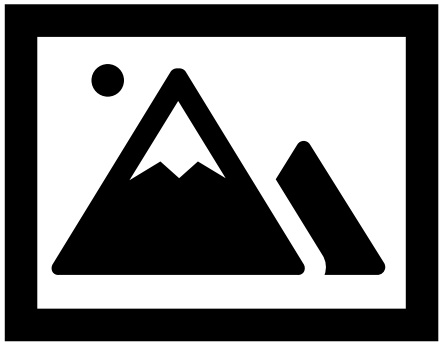
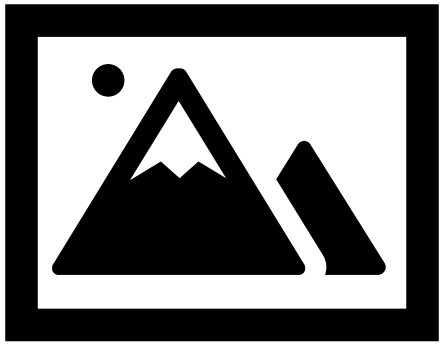


SUBSITE 2. [Add other subsites adjacent to positive subsites and elsewhere in the nursery to compare or contrast conditions relevant to the assessment. Provide a brief description of the subsite to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 2A, 2B, etc. Add arrows or circles to indicate the important features or identified problem areas in the picture.]

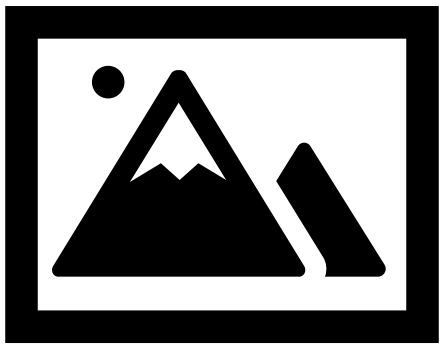




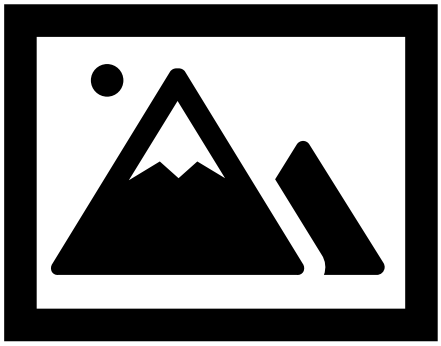
SUBSITE 3. Storage Area. [Describe areas used to store pots, tools or other equipment and describe the general condition of the area to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 3A, 3B, etc. Add arrows or circles to indicate the important features or identified problem areas captured in the picture.]

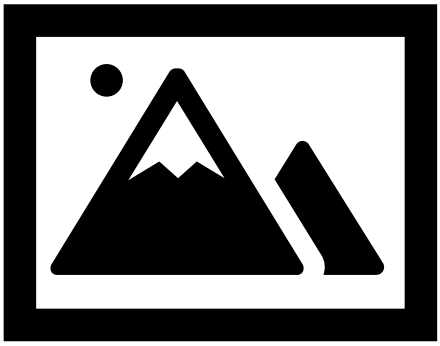



SUBSITE 4. Engineered Water Management System. [Describe water sources and drainage areas and describe the general condition of those areas. to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 4A, 4B, etc. Add arrows or circles to indicate the important features or identified problem areas captured in the picture.]

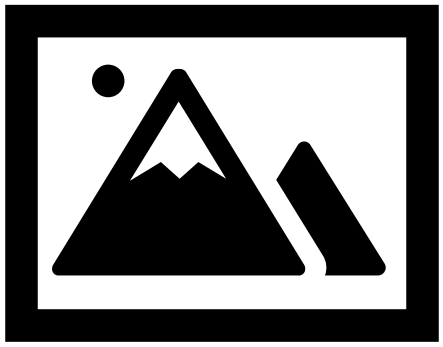



SUBSITE 5. Potting Building. [Describe any canning, potting and/or propagation facilities and the pots, tools or other equipment used to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 5A, 5B, etc. Add arrows or circles to indicate the important features or identified problem areas captured in the picture.]





SUBSITE 6. Retention Pond. [Describe any holding ponds used by the nursery and their condition to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 6A, 6B, etc. Add arrows or circles to indicate the important features or identified problem areas captured in the picture.]

SUBSITE 7. Plant Destruction Subsite. [If *P. ramorum* positive plants were destroyed by the nursery, describe where plants were burned and buried and record the date of destruction if known to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the pictures and label 7A, 7B, etc. Add arrows or circles to indicate the important features or identified problem areas in the picture.]


SUBSITE 8. Loading Docks. [Describe any shipping and receiving areas to provide context for the pictures below. Take as many pictures as needed to see all angles or components of the subsite. Place these photos into the report in place of the icon placeholders. Add captions to each picture describing the picture and label 9A, 9B, etc. Add arrows or circles to indicate the important features or identified problem areas captured in the picture.]

3. General mitigation best practices

[Record pesticide records relevant to the positive subsites, training records of the facility, and distribution of crews throughout the nursery.

The following sections (3.1-3.10) provide general practices Best Management Practices common for combating *P. ramorum* incursion in a nursery setting. They are primarily included for the benefit of the Nursey management. This information can be changed or omitted depending on circumstances relevant to the assessment.]

3.1. Site Selection and Maintenance

- Maintain and correct nursery roadways to promote drainage and prevent puddling or creation of muddy areas. This will also help to prevent splash onto plants from vehicles moving within the nursery.
- Design and manage the nursery layout and work flow to avoid cross contamination, e.g. used pots are not carried through a clean production area of the nursery.
- Adequately control weeds on the nursery grounds.

3.2. Water Management

- Water should drain away from the plant beds resulting in no standing water following irrigation in the beds or from surrounding beds. The drainage should be sufficient to allow water to flow to outside edge of nursery with no water remaining in the bed drainage areas for significant amounts of time. This will prevent splash dispersal from the drainage areas during either overhead irrigation or rain events to plants in close proximity.
- Repair irrigation lines and fixtures.
- Monitor and annually test untreated irrigation water from any source, other than a well or municipal water supply, to confirm it is free from pathogens.
- Improve drainage patterns and maintain designed drainage channels to minimize standing water and mud accumulation.

3.3. Plant Procurement

- New plants from outside of the nursery should be placed or held in a location that minimizes the potential contamination of existing stock on site. Water movement or splash from new plants to existing plants should be eliminated.
- Avoid commingling of *P. ramorum* host plants from different producers/sources in plant beds.
- All incoming nursery buy-ins should initially be placed in an area where leafy debris can be easily cleaned up and safely disposed.
- Trained and authorized personnel should visually inspect all incoming cuttings and nursery stock buy-ins, regardless of origin, for symptoms of disease prior to introduction into the nursery facility.

3.4. Plant Propagation (if applicable)

- After every crop rotation, disinfect propagation mist beds, sorting areas, cutting benches, and equipment
- Collections of cuttings and seeds from the wild or nursery stock should be taken from healthy plants during non-rainy weather and, where possible, should be collected at approximately two feet or more above the soil surface.
- When taking cuttings from existing nursery stock, collect only from healthy plants and, if necessary, dip cuttings in an approved disinfectant solution before sticking. For plants that are prone to diseases, chemically treat crop in the field prior to taking cuttings.
- Restrict access to propagation areas so that only necessary personnel are permitted.

3.5. Greenhouses and/or Hoop Houses

- Discard unhealthy plants and plants that are unsuitable for selling.
- Install concrete floors for greenhouses so they are easily disinfected and leafy debris is easier to remove.

- Thoroughly clean and disinfest greenhouses between production runs.
- Provide footbaths with fresh disinfectant solution for greenhouse entryways.

3.6. Potting Media and Containers

- Ensure that potting media is not located in areas that receive drainage from beds. All water should drain away from piles of potting media.
- Ensure that growing media is purchased from a reliable source and the components are low risk for containing pathogens.
- Use new or clean and properly disinfested pots.
- Do not store used containers in or near clean areas of the nursery.
- Store pots off the ground and in an area not exposed to contamination through water or by the surrounding environment.

3.7. Plant Beds

- Where possible, space pots to reduce plant-to-plant contact and encourage air movement and drying during conducive times of the year for *P. ramorum*.
- Routinely clean plant beds of debris and dispose of debris away from beds and drainage.
- Nursery beds should have sufficient gravel or additional gravel added to sufficiently raise the surface level of the bed to prevent pots from sitting in standing water for any amount of time.
- Discard unthrifty or poorly growing plants
- Maintain separation between lots/ blocks? of *P. ramorum* hosts even if they are the same cultivar.
- *P. ramorum* hosts should not be located in plant beds within 1 meter of drainage areas or nursery roadways. This will prevent splash dispersal of pathogens from the drainage areas.
- Raising *P. ramorum* hosts off the ground on raised benches with drainable bench tops will greatly reduce splash and dispersal of pathogens from the potentially infected ground.
- Avoid working in *P. ramorum* host beds when plants and the bed are wet.

3.8. Training

- Train facility staff on the biology of *P. ramorum* and symptoms on hosts.
- Train employees on *P. ramorum* hosts to raise awareness and take appropriate precautions to reduce associated risk.
- Indicate *P. ramorum* host beds either with color or tags to promote awareness of personnel.
- Educate nursery personnel on your pest reporting program. Ensuring personnel know what to do regarding the discovery and reporting of symptomatic plants.

- Educate the appropriate employees and managers about the nursery's implemented BMPs.

3.9. Scouting

- Routinely monitor incoming plants for symptoms of soil-borne pathogens.
- Routinely inspect landscape plants within the nursery grounds and the surrounding area for symptoms of disease.
- Conduct a regular scouting program of all nursery stock for the signs of pests and diseases.
- Thorough inspection of material prior to mowing or top working. Any symptomatic or suspicious material should be removed prior to mowing/top working.

3.10. Biosecurity

- Designate specific employees to work with *P. ramorum* hosts.
- Have staff work only at one nursery location on a given day or require employees to change shoes and clothes before entering another location.
- Ensure that personnel wear clean clothes and coverings when working with *P. ramorum* hosts on a daily basis.
- Disinfest shoes when returning from known *P. ramorum* infested sites or from other nursery sites.
- Equipment tires should be cleaned and disinfected when working in *P. ramorum* host beds.
- All staff vehicles should be washed in a designated location before returning to the nursery from another facility.
- Clean and disinfect all tools between plant beds and greenhouses, especially when working with *P. ramorum* hosts.
- When *P. ramorum* hosts are potted or sized up, clean all equipment, tables, gloves and aprons or other clothing before moving onto other plants.
- Sanitize footwear before entering and exiting potting areas after visiting high risk areas.
- Trailers, carts, and other conveyances should be cleaned of debris daily.
- Shipping docks and potting area should use dedicated cleaning tools to avoid cross-contamination.

4. Recommended references

Examples of programs based on identifying CCPs and implementing BMPs to address the associated risks of *P. ramorum*:

Nursery Practices:

- National Ornamental Research Site at Dominican University CA (NORS-DUC) and California Department of Food and Agriculture (CDFA)

- Washington State University Extension, Nursery Guidelines for Exclusion and Management of *P. ramorum* in Nurseries

PPQ approved disinfectants

- Table 12-1-1 *Phytophthora ramorum* Domestic Regulatory Program Manual https://www.aphis.usda.gov/import_export/plants/manuals/domestic/downloads/p-ramorum.pdf

5. Findings

[Provide a precise summary of the CCPs identified in this assessment and relevant to the detection and potenital spread of *Phytophthora ramorum* in the nursery: may include plant acquisition, onboarding, propagation, increase, fungicide application and other treatments, irrigation, movement, sale, shipping, personnel activities, training, scouting, and records of these activities.

It is preferred that finding are presented in a bulleted list for easier incorporation into Exhibit D.

NOTE: Exhibit D is not included in the body of the CCP assessment but is used to establish a compliance agreement.]

6. Conclusions

[Provide a concise description of the assessment and circumstances specific to this nursery, and significant findings.]

CCP Assessment Participant list:

- CCP team: [NAMES (Regulatory Agency)]
- Observers: [NAMES (Affiliation, Position)]
- Nursery staff: [NAMES (Owner, Managers and/or Staff)]
- Photos provided by [NAMES (only include if photos were provided by individuals not on the CCP team]

Appendix 1. Site map

Map of Nursery. [Provide enough descriptive information to provide context to the CCP report and describe approximately where positive plants were found and any circles and arrows drawn on the map.]

[PLACE NURSERY MAP HERE]