



# Pathology Submittal Instructions

If you are a vegetable grower, involved in nursery or plug production, own an orchard or if you find yourself responsible for landscape installations and maintenance, chances are that sooner or later you will run into a disease problem. When a disease outbreak occurs you may wish to seek the expertise of Waypoint Analytical's Anaheim, CA location which offers plant disease diagnosis. Accurate identification of the problem is paramount for developing the right management strategies to prevent further loss of plant material. The accuracy of a given diagnosis is highly dependent upon the quality of the sample submitted and the amount of background information given, i.e. poor samples equal poor diagnosis. The following are a few tips on submitting samples for pathology work that will help you obtain the best possible diagnostic service for you money.

Collect fresh material and try to submit several specimens that display different stages of the observed symptoms. Keep in mind that the pathogen is not always in symptomatic tissue. For example, symptoms observed in the foliage such as chlorosis, marginal necrosis, leaf drop, and wilt may be associated with a vascular wilt or a root rot therefore include as much of the plant as possible.

Plants in advanced stages of disease development (dead) are poor samples since many secondary organisms will have moved in making isolation and identification of the pathogen difficult.

Place samples in a polyethylene bag and label the bag accurately. Place a dry paper towel in the bag to act as a blotter to prevent plant material from decomposing during transit. When submitting roots, handle these with care. Avoid leaving feeder or rotted roots behind. Include a liter of soil to prevent roots from drying out. This soil can also be used for pH, salinity, fertility and nematode testing if needed.

If submitting an entire plant, wrap a twist-tie around the stem at ground level to keep soil off the foliage.

Include the questionnaire to provide information on growing practices, e.g. fertilizer, growth regulator, herbicide and pesticide applications. Information regarding recent environmental conditions e.g. humidity, temperature, wind, etc. is also very helpful. As obvious as it may seem do not forget to include your name, phone number and email address.

If you are shipping samples to us outside of California, please include USDA APHIS Permit 526 inside and outside the shipping package.

It is very important to keep the samples cool and moist. If samples are taken early and will not be shipped to the lab for several hours, place them either in the refrigerator, or in a cooler with an ice pack. The sooner the samples arrive at the lab the better chance the diagnostician will have to isolate the pathogen(s); Priority or Next Day delivery is best.

You should realize that some plant problems will unfortunately defy complete diagnosis, and it may be necessary to submit additional samples.

Although the diagnostician should come closer to a definitive answer with each subsequent sample submitted, there will be time when certain plant problems will go unsolved. Diseases involving more than one casual agents often fall in this category. Finally, if you have any doubts as to what to send or any questions regarding sampling, do not hesitate to give the laboratory a call. The diagnostician will be more than happy to walk you through the process to insure a proper sample is submitted.

[www.waypointanalytical.com](http://www.waypointanalytical.com)

4741 E. Hunter Ave., Suite A, Anaheim, Ca 92807  
714.282.8777



# Pathology Questionnaire/Submittal Form

<p>1. Company name: _____          Contact Name: _____          Mailing Address: _____          City/State/Zip: _____          Job Name/Number: _____          Phone: _____          Fax: _____          Email: _____</p> <p>2. I would like my sample results: ( ) Faxed; ( ) Emailed          Plant/Crop affected: _____          Variety: _____</p> <p>3. Age: _____          Type of planting: ( ) commercial; ( ) greenhouse;          ( ) nursery; ( ) residential; ( ) field;          other: _____</p> <p>4. Plant site (for landscape only): ( ) street side; ( ) lawn;          ( ) ground bed; ( ) terrace; ( ) patio; ( ) indoor          Distribution of disease: ( ) scattered; ( ) localized;          ( ) uniform; ( ) on slopes; ( ) high spots; ( ) low spots          Percentage of plants affected: _____</p> <p>5. Part of the plant affected: ( ) roots; ( ) stem/trunk; ( ) seed;          ( ) branch/twigs; ( ) leaves; ( ) bulb/corm; ( ) flower;          ( ) fruit; ( ) entire plant; other: _____</p> <p>6. General symptoms: ( ) malformation; ( ) canker;          ( ) dieback; ( ) galls; ( ) spots; ( ) marginal burn;          ( ) gumming; ( ) stunting; ( ) wilting; ( ) mosaic/mottling;          ( ) yellowing; ( ) shot hole; ( ) defoliation; ( ) tip burn          When and where were symptoms first observed? _____</p> <p>7. Disease situation: ( ) progressive; ( ) relatively stable          Other: _____</p>	<p>11. Effect on plant: ( ) slight; ( ) moderate; ( ) severe;          Other: _____</p> <p>12. Soil type: ( ) heavy clay; ( ) clay-loam; ( ) loam;          ( ) sandy; ( ) rocky; ( ) container media</p> <p>13. Drainage: ( ) good; ( ) medium; ( ) poor</p> <p>14. Weather (past two weeks):          ( ) Rain: _____          amount: _____          frequency: _____          relative humidity: _____          ( ) Cloudy; ( ) Partly cloudy; ( ) Sunny;          ( ) Unseasonably hot; ( ) Unseasonably cold          ( ) Wind - ( ) low; ( ) moderate; ( ) high</p> <p>15. Chemicals applied: (rates, dates &amp; methods of application):          Fertilizers: _____          Fungicides: _____          Herbicides: _____          Insecticides: _____          Other: _____</p> <p>16. Evidence of insect activity? ( ) yes ( ) no</p> <p>17. General disturbances: ( ) gas leak; ( ) construction near by;          ( ) soil added or removed from around plants;          ( ) excavation nearby? _____ feet away          ( ) other: _____</p>
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**SEND SAMPLES TO:**  
 Waypoint Analytical  
 4741 E. Hunter Ave.  
 Suite A  
 Anaheim, CA 92807  
 714.282.8777



**Waypoint**  
 ANALYTICAL

United States Department of Agriculture  
 Animal and Plant Health Inspection Service  
 4700 River Road  
 Riverdale, MD 20737

**Permit to Move Live Plant Pests, Noxious Weeds, and Soil**  
 Interstate Movement  
**Regulated by 7 CFR 330**

This permit was generated electronically via the ePermits system

<b>PERMITTEE NAME:</b>	Mr. Paul Santos	<b>PERMIT NUMBER:</b>	P526P-16-04187
<b>ORGANIZATION:</b>	Waypoint Analytical, Incorporated	<b>APPLICATION NUMBER:</b>	P526-160926-014
<b>ADDRESS:</b>	4741 E. Hunter Avenue Suite A Anaheim, CA 92807	<b>FACILITY NUMBER:</b>	2016
<b>MAILING ADDRESS:</b>	4741 E. Hunter Avenue Suite A Anaheim, CA 92807	<b>HAND CARRY:</b>	No
<b>PHONE:</b>	714-282-8777	<b>DATE ISSUED:</b>	11/14/2016
<b>FAX:</b>	714-282-8575	<b>EXPIRES:</b>	<b>11/14/2019</b>
<b>DESTINATION:</b>	Waypoint Analytical, Incorporated, 4741 E. Hunter Avenue, Suite A, Anaheim, CA 92807		
<b>RELEASE:</b>	No		

Under the conditions specified, this permit authorizes the following:

**Article Category:** Diagnostic

<u>Regulated Article</u>	<u>Life Stage(s)</u>	<u>Intended Use</u>	<u>Shipment Origins</u>	<u>Originally Collected</u>	<u>Culture Designation</u>
Plant Pathogenic Bacteria	Fruiting Bodies, Mycelia, Plant Parts, Seeds, Whole Plants	Diagnostic Labs	AS, GU, HI, MP, PR, VI, Continental U.S.	Originally Collected from USA including territories	
Plant Pathogenic Fungi	Fruiting Bodies, Mycelia, Plant Parts, Seeds, Whole Plants	Diagnostic Labs	AS, GU, HI, MP, PR, VI, Continental U.S.	Originally Collected from USA including territories	
Plant Pathogenic Viruses	Fruiting Bodies, Mycelia, Plant Parts, Seeds, Whole Plants	Diagnostic Labs	AS, GU, HI, MP, PR, VI, Continental U.S.	Originally Collected from USA including territories	

**PERMIT GUIDANCE**

Receipt or use of foreign isolates or samples from countries under sanctions requires specific permission from the U.S. Department of Treasury (see <http://www.treasury.gov/resource-center/sanctions/Programs/Pages/Programs.aspx> for current country/regional listings) for current country listings.  
 This permit does not authorize importation, interstate movement, possession, and/or use of strains of genetically engineered regulated organisms (created by the use of recombinant DNA technology).  
 If an animal pathogen is identified in your shipment, to ensure appropriate safeguarding, please refer to [http://www.aphis.usda.gov/import\\_export/animals/animal\\_import/animal\\_imports\\_anproducts.shtml](http://www.aphis.usda.gov/import_export/animals/animal_import/animal_imports_anproducts.shtml).

Permit Number P526P-16-04187

THIS PERMIT HAS BEEN APPROVED ELECTRONICALLY BY THE FOLLOWING PPQ HEADQUARTER OFFICIAL VIA EPERMITS.   Grace Okeefe	DATE   11/14/2016
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WARNING: Any alteration, forgery or unauthorized use of this Federal Form is subject to civil penalties of up to \$250,000 (7 U.S.C.s 7734(b)) or punishable by a fine of not more than \$10,000, or imprisonment of not more than 5 years, or both (18 U.S.C.s 1001)

This permit does not fulfill the requirements of other federal or state regulatory authorities. As appropriate, please contact the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the U.S. Food and Drug Administration, the Centers for Disease Control and Prevention, the APHIS Veterinary Services unit, or your States Department of Agriculture to ensure proper permitting. If you are considering renewal of this permit, an application should be submitted at least 90 days prior to the expiration date of this permit to ensure continued coverage. Permits requiring containment facilities may take a longer period of time to process.

**PERMIT CONDITIONS**


This permit authorizes the interstate movement of infected, infested, or potentially infected plant materials that may contain plant pathogenic bacteria, viruses, and fungi from & the continental US and Hawaii, American Samoa, Guam, the Northern Mariana Islands, the US Virgin Islands, and Puerto Rico. The permit is issued to Paul Santos of Waypoint Analytical, Incorporated in Anaheim, California. This authorization is strictly for plant disease diagnostic determinations in a controlled laboratory environment. Culture collections and any other laboratory/field research are not authorized under this permit, separate permits are required for such activities. Diagnostic tests on the regulated materials must be carried out in the inspected facility #2016 (CF# 2016). Plant inoculations for identification purposes are only authorized in the greenhouse for organisms previously confirmed in the laboratory as a non federally regulated pest and/or a new pest for California.

1. The permit holder must:
  - (a) comply with all requirements and permit conditions,
  - (b) maintain a valid permit so long as the regulated organisms are alive,
  - (c) this permit cannot be assigned or transferred to other persons.
  - (d) permittee must maintain a residence in the United States
  - (e) safeguard and dispose of the regulated organisms during the term of this permit,
  - (f) take all necessary precautions to prevent the unauthorized release of regulated organisms. In the event of an unauthorized release, the permit holder must notify the permit unit,
  - (g) adequately mitigate environmental impacts resulting from unauthorized release of regulated organisms,
  - (h) contain any/all organisms not authorized under this permit,
  - (i) notify the permit unit of the receipt of unauthorized organisms,
  - (j) notify the permit unit if facilities are destroyed or decommissioned for any reason,
  - (k) maintain an official permanent work assignment at the address on this permit,
  - (l) notify the permit unit in advance of any change in the permit holder's work assignment,
  - (m) destroy all regulated organisms prior to departure unless other arrangements are confirmed by the permit unit prior to the permit holder's departure, and
  - (n) notify the permit unit of the destruction of regulated organisms.

Notifications to the permit unit must be made via 866-524-5421 or pest.permits@aphis.usda.gov within one business day of the event triggering a notification.

2. This permit does not authorize movement or use of plant pathogens listed in the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. If any organism listed as a Select Agent is identified from materials associated with this research, the permit holder is required to notify APHIS, Agricultural Select Agent Program (ASAP) immediately by phone at 301-851-3300, and within seven (7) days submit APHIS/CDC Form 4 (Report of Identification of a Select Agent or Toxin in a Clinical or Diagnostic Laboratory) to APHIS, ASAP; 4700 River Rd, Unit 2, Riverdale, MD 20737 (see instructions at: [http://www.aphis.usda.gov/programs/ag\\_selectagent/index.shtml](http://www.aphis.usda.gov/programs/ag_selectagent/index.shtml)). Failure to comply with this requirement is a violation of the Agricultural Bioterrorism Protection Act of 2002.
3. Without prior notice and during reasonable hours, authorized PPQ and/or State regulatory officials shall be allowed to inspect the conditions associated with the regulated organisms authorized under this permit.

Permit Number P526P-16-04187

<p>THIS PERMIT HAS BEEN APPROVED ELECTRONICALLY BY THE FOLLOWING PPQ HEADQUARTER OFFICIAL VIA EPERMITS.</p> <div style="text-align: center; margin-top: 20px;">  <p><b>Grace Okeefe</b></p> </div>	<p>DATE</p> <p style="text-align: center; margin-top: 20px;"><b>11/14/2016</b></p>
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- All persons working with these organisms must be informed of these permit conditions. Anyone working with these organisms must agree to and sign/ initial these conditions before beginning work. These signed conditions do not need to be submitted to USDA/ APHIS but must be readily accessible in the event of an inspection and presented upon request.

Note: these conditions may be copied and stored electronically for electronic signature and initialing provided that the permit number, authorized organisms and life stages, release locations if applicable, and authorization statement all appear on the document with the permit number. Signing these conditions only indicates that the person working under this permit has read them; the permit holder is the sole responsible party under this permit.

- All organisms must be shipped in packages of such materials and/or construction so as to prevent the unauthorized dissemination or release of regulated articles.

All infected plant material shipped interstate must be packed in double plastic bags or if viable plant material is required in cloth or paper bags (or equivalent material). These bags must be transported in a sturdy, sealed, leak-proof cardboard, metal box, wood, or other material of equivalent strength.

Field-collected samples of infected plant material must be "bare-root" or washed free of soil. Plants deliberately inoculated with these pathogens in a controlled environment such as a laboratory, growth chamber, or greenhouse may be shipped with a small amount of growing media.

Cultures shall be shipped in a securely closed, watertight container (primary container, test tube, vial, etc.) which shall be enclosed in a second, durable watertight container (secondary container). Several primary containers may be enclosed in a single secondary container. The space at the top, bottom, and sides between the primary and secondary containers shall contain sufficient nonparticulate absorbent material (e.g., paper towel) to absorb the entire contents of the primary container(s) in case of breakage or leakage. Each set of primary and secondary containers shall then be enclosed in an outer shipping container constructed of corrugated fiberboard, corrugated cardboard, wood, or other material of equivalent strength.

All infected samples must be apparently free of insect/arthropod contaminants prior to shipping.

- Samples must comply with all APHIS domestic soil quarantine requirements (CFR Title 7, Part 301, Subparts 32, 80, 81, 85, 86 and 92).
- Inoculated plants must be handled appropriately (e.g. wear adequate protective clothing, practice adequate hand and shoe sanitation, disinfect all work surfaces after use) so that movement of plant pests out of the facility does not occur. Used disposable items must be collected when leaving the work area. Used disposable items must be sufficiently treated to kill all plant pest life stages prior to disposal. Runoff water from inoculated plants must be collected and sufficiently treated to kill or destroy all plant pest life stages prior to disposal.
- All operations must be consistent with information submitted in association with containment facility # 2016.
- This authorization is strictly for diagnostic activities in a controlled environment only. Plant inoculations are authorized in the laboratory or growth chamber only as necessary to confirm a diagnosis. Plant inoculations for the purpose of identification are only authorized in the greenhouse for organisms previously confirmed in the laboratory as a non federally regulated pest and/or not a new pest for California.
- Upon receipt, all samples must remain within the approved diagnostic laboratory identified on this permit. Laboratory access is restricted to individuals authorized by the permit holder.
- Upon receipt, whenever possible, packages must be opened within a laminar flow biosafety cabinet (Class II, Type A) in the permit holder's assigned laboratory containment facilities listed above. Otherwise packages must be opened within an area dedicated for this purpose within the containment facilities listed above.

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<p style="text-align: center;"><i>Grace O'Keefe</i> <b>Grace Okeefe</b></p>	<p style="text-align: center;"><b>11/14/2016</b></p>

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12. All samples potentially containing mobile arthropod life stages must be placed in a refrigerator for at least 4 hours upon receipt and prior to opening in the Class II, Type A biological safety cabinet. Following this initial processing, living samples in sealed containers may be removed from the biosafety cabinet for subsequent diagnostic determinations.

Arthropod specimens that are either preserved in 70 percent alcohol or in another medium (e.g. fixed in glutaraldehyde) may be moved intra- and interstate without further permitting.


13. All packing materials, plant parts, soil, shipping boxes, etc. which contained or were associated with quarantine pests, select agents or other pests of concern must be placed in autoclavable bags and autoclaved prior to disposal.
14. All waste water, soil and debris from laboratory procedures must be collected and sufficiently treated by heat or chemical means to kill or destroy life stages prior to disposal.
15. Vector transmission is NOT permitted under this authorization. Only mechanical inoculation of plants is permitted.
16. Measures to control insect vectors (e.g. black lights, yellow sticky boards, insecticides) must be in place in growth chamber(s) and greenhouse(s).
17. All infected plant materials and samples being temporarily stored prior to identification must be kept in a locked area that is accessible only by authorized personnel.

All necessary precautions must be taken to prevent the escape of the regulated material.

If for legal or contractual reasons you must store the cultures for long term, you can keep cultures as long as cultures are never used except for the occasional reculturing to ensure long term viability. Any other use will be a violation of these permit conditions and may result in an APHIS compliance investigation.

18. The permit holder or authorized individual must notify APHIS Plant Protection and Quarantine (PPQ) Pest Permitting Branch (PPB) within 10 working days of the confirmation that an organism is identified as (a) a species new to science, (b) an organism not known to occur in the United States, (c) a pathogen managed by an APHIS program (program pest; [http://www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/index.shtml](http://www.aphis.usda.gov/plant_health/plant_pest_info/index.shtml)), or (d) a pathogen that is not widely prevalent in the State from which the infected material was obtained ([http://www.aphis.usda.gov/plant\\_health/permits/organism/wpp/index.shtml](http://www.aphis.usda.gov/plant_health/permits/organism/wpp/index.shtml)). Include the permit number, the origins and dates of receipt of the samples, and the identified organism. The notification must be sent to USDA/APHIS/PPQ/PPBP, 4700 River Rd., Unit 133, Riverdale, MD 20737, faxed to 301-734-8700 or emailed to [Pest.Permits@aphis.usda.gov](mailto:Pest.Permits@aphis.usda.gov) Attn: Grace OKeefe, as Word, Excel or pdf documents. Notifications must also be sent to the State Plant Health Director (SPHD) and State Plant Regulatory Official (SPRO) of the state of origin of the specific sample within 10 working days (see [http://www.aphis.usda.gov/services/report\\_pest\\_disease/report\\_pest\\_disease.shtml](http://www.aphis.usda.gov/services/report_pest_disease/report_pest_disease.shtml) and <http://www.nationalplantboard.org/member/index.html> for contact information).
19. Placement of organisms into a culture collection or any other research with these organisms is not authorized under this permit. Separate 526 permits are required for these activities. The culturing of pathogens to develop new diagnostic procedures is not authorized by this permit.
20. (a) Adequate protective clothing must be worn when working with infected/infested samples so that movement of plant pests out of the facilities on hands, shirts, pants, and shoes does not occur.  
 (b) Flooring materials must be maintained free of soil and defects that allow growth or survival of soil-borne pests.  
 (c) Work benches must consist of building materials that can be cleaned, and are maintained free of defects that allow growth or survival of soil-borne pests.  
 (d) Disposable blotter materials used on workbench surfaces must autoclaved after diagnostic work is completed. Work surfaces must be appropriately cleaned between samples to reduce the potential for survival of soil-borne pests.  
 (e) All diagnostic materials must be heat or chemically treated, on-site, sufficient to kill or render non-viable all life stages prior to disposal in municipal sewer or waste systems.  
 (f) Any sink / laboratory waste water that may contain plant pathogenic contaminants (e.g. live nematode life stages, infested soil, infested growing media, and infected/infested plant materials) must be sufficiently treated to kill or destroy all life stages on-site prior to disposal in municipal sewer or waste systems.

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 <b>Grace Okeefe</b>	<b>11/14/2016</b>

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21. Upon completion of diagnoses, all contaminated/infested materials exposed to organisms regulated by this permit must be devitalized by autoclaving, incineration, or other equivalent methods with prior APHIS approval. Glassware and other materials used to conduct research must be decontaminated by soaking in a fresh bleach solution of 10 percent (1:10) for at least 30 minutes, in 70 percent ethanol, with quaternary ammonium compounds, flamed with ethanol, or autoclaved.
22. There is to be no further distribution of these organisms without prior approval from State and Federal regulatory officials. A valid permit is required for movement of the regulated materials.
23. Under the Plant Protection Act, individuals or corporations who fail to comply with these conditions and authorizations, or who forge, counterfeit, or deface permits or shipping labels may receive civil or criminal penalties, and may have all current permits cancelled and future permit applications denied.

**END OF PERMIT CONDITIONS**

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