

Sample Preparation and Submission to the Plant Pest Diagnostics Branch Seed Science Laboratory – Seed Quality Assessment



PPDB Meadowview Facility

There are five laboratories at the Plant Pest Diagnostics Center (PPDC).

To avoid delays in identification, please be sure to submit samples to the appropriate lab.

Samples submitted to an incorrect lab will be subject to delays to determine the appropriate lab for sample analysis.



Botany



Entomology



Nematology



Plant Pathology



Seed Science

What is Seed Quality Assessment Testing?

- In seed quality assessment testing we are trying to determine the value of a seed lot for planting purposes.
- The types of tests conducted may include: physical purity analysis, noxious weed seed examination, germination and seedling evaluation, pure live seed determination, tetrazolium viability, seed moisture, seed vigor evaluation, and x-ray analysis just to name a few.
- The CDFA PPDC Seed Science Laboratory provides these types of tests and others upon request on a fee for service basis. Our customers include seed growers, seed labelers, and seed buyers. We test a wide variety of seeds including vegetable, field crops, tree seed, and native reclamation species.

What is Phytosanitary Certification Testing?

- In the Seed Science Laboratory we conduct the following tests for phytosanitary certification of seed lots moving in foreign commerce:
 - Foreign Noxious Weed Seed Examination
 - Bulk Examination for Soil Contamination
 - Bulk Examination for Sclerotia Contamination (*Claviceps*, *Sclerotinia*, etc.)
 - Bulk Examinations for *Cuscuta* and *Orobancha* Contamination
- For phytosanitary testing of preharvest seed field inspection samples or postharvest seed health testing please contact the CDFA PPDC Plant Pathology Lab.
- For phytosanitary testing of seed for nematode contamination please contact the CDFA PPDC Nematology Lab.

Sampling Seed Lots for Seed Quality Assessment and Phytosanitary Certification Testing

- For phytosanitary certification service testing, samples must be collected and submitted by county or state inspectors.
- For seed quality assessment testing service samples, it is strongly recommended seed lot sampling be done by county or state inspectors or accredited seed samplers following the Association of American Seed Control Officials (AASCO) or the International Seed Testing Association (ISTA) seed sampling protocols.
- Individuals or seed company representatives may choose to sample their own seed lots for submission to the laboratory for seed quality assessment testing, but there is a great risk in doing so. Improper sampling of the seed lot can affect the testing results; therefore, great care must be taken when obtaining the sample for submission to the laboratory.

Sample Collection Basics

The CDFA PPDC Seed Science Laboratory is not responsible for sampling seed lots.

However, the following sampling information will be included on the Laboratory Report of Analysis:

- County or State Inspector Identification or Accredited Seed Sampler Identification
- Sampling Date
- And whether or not the sample was officially sealed.

For samples received without this information a notation regarding the lack of information provided will appear on the Laboratory Report of Analysis.



Sample Collection Basics

For information on seed lot sampling, please contact:

Carl Pfeiffer

CDFA Seed Services Program

1220 N Street

Sacramento, CA 95814

(916) 403-6715 office

(530) 949-6934 cell phone

Carl.pfeiffer@cdfa.ca.gov

What Form to Use for Sample Submission

For Seed Quality Assessment Testing:

- Use the Seed Laboratory Service Sample Request Form (68-010) to clearly state the types of tests requested.
- This form is available from the CDFA website.

In addition to Seed Quality Assessment Testing, this form should be used of all types of service sample tests listed on the form.

For Phytosanitary Certification Testing:

- Use the CDFA Pest and Damage Record (PDR) Form (65-020). This form must be submitted with sample if the results are to be sent to the county that will issue the phyto certificate.

AND

- Use the Seed Laboratory Service Sample Request Form (68-010) to clearly state the types of tests requested.

The following slides will describe how to fill out these forms for each type of sample.

What Form to Use for Sample Submission

Please use this form for all types of service samples submitted.

Use the Seed Laboratory Service Sample Request Form (68-010) to:

- Indicate the tests requested.
- Testing methods to be used.
- State the sample identification and sampler's information (this information will appear on the Laboratory Report of Analysis).
- Provide the applicant's billing address.

SEED LABORATORY SERVICE SAMPLE REQUEST		
68-010 (Rev. 10-2016)		
APPLICANT: (please print)		
Company:	MAIL RESULTS TO: (if different than applicant)	
Mailing/Billing Address:	Mailing Address:	
Contact Person:	Contact Person:	
Phone Number:	Phone Number:	
Email Address:	Email Address:	
SAMPLE IDENTIFICATION: This information will appear on the report of analysis (please print)		
Kind of Seed:	Variety Name:	
Lot Number:	Seed Count:	
Lot Size:	Treatment Name(s):	
Miscellaneous:	Miscellaneous:	
SAMPLER: This information will appear on the report of analysis (please print)		
County/State:	Inspector's ID:	Date Sampled:
CHECK TESTS DESIRED: (check as many as needed)		
<input type="checkbox"/> Purity Analysis	<input type="checkbox"/> Germination Test	
<input type="checkbox"/> California Noxious Weed Seed Exam	<input type="checkbox"/> Tetrazolium Viability Test	
<input type="checkbox"/> All States & Federal Noxious Weed Seed Exam	<input type="checkbox"/> Seed Moisture Test	
<input type="checkbox"/> Federal Noxious Weed Seed Exam	<input type="checkbox"/> Ryegrass Fluorescence Test	
<input type="checkbox"/> Foreign Noxious Weed Seed Exam – list country:	<input type="checkbox"/> X-ray Analysis	
<input type="checkbox"/> Undesirable Grass Seed (UGS)	<input type="checkbox"/> Seed Vigor Test – list test type:	
<input type="checkbox"/> Canadian Noxious Weed Seed Exam	<input type="checkbox"/> Seed Identification – morphological	
<input type="checkbox"/> Bulk Exam for Seeds of Other Plant Species (AOSA)	<input type="checkbox"/> Seed Identification – molecular	
<input type="checkbox"/> Other Seeds by Number Determination (ISTA)	<input type="checkbox"/> Digital Image Rhatomicroscopy	
<input type="checkbox"/> Sclerotia check	<input type="checkbox"/> Livestock Feed Exam	
<input type="checkbox"/> Soil Check	<input type="checkbox"/> Bird Seed Exam	
<input type="checkbox"/> Dodder (<i>Cuscuta</i>) Check (500 gram)	<input type="checkbox"/> Thermo Gradient Germ – list type below	
<input type="checkbox"/> <i>Orthocaulis/Scirpa</i> Check		
<input type="checkbox"/> Clean-out Test	<input type="checkbox"/> Other – please list	
TESTING METHODS REQUESTED: (check one)		
<input type="checkbox"/> AOSA (Association of Official Seed Analysts – Rules for Testing Seeds)		
<input type="checkbox"/> FSA (Federal Seed Act Regulations)		
<input type="checkbox"/> ISTA (International Seed Testing Association – Rules for Seed Testing)		
<input type="checkbox"/> CFIA M&P (Canadian Methods and Procedures for Testing Seed)		
SUBMIT SAMPLE TO:		
California Department of Food & Agriculture		
Plant Pest Diagnostics Center – Seed Laboratory		
3284 Meadowview Road		
Sacramento, California 95832-1448		
Phone: (916) 262-1100 FAX (916) 262-1190		

This form is available from the CDFA website

Important Information

Applicant/Billing Address

Contact Person

Email and/or Phone Number

Sample information:

Please include the unique identifying information for the seed lot.

Sampler information:

Check the box for the tests requested:

If you are unsure of the tests that need to be performed, please contact the Seed Science Lab prior to submitting the sample.

Check the preferred testing methods

Please submit one sample per form to this address.

SEED LABORATORY SERVICE SAMPLE REQUEST

SS-010 (Rev. 10-2016)

APPLICANT: (please print)

Company:	Company:
Mailing/Billing Address:	Mailing Address:
Contact Person:	Contact Person:
Phone Number:	Phone Number:
Email Address:	Email Address:

MAIL RESULTS TO: (if different than applicant)

SAMPLE IDENTIFICATION: This information will appear on the report of analysis (please print)

Kind of Seed:	Variety Name:
Lot Number:	Seed Count:
Lot Size:	Treatment Name(s):
Miscellaneous:	Miscellaneous:

SAMPLER: This information will appear on the report of analysis (please print)

County/State:	Inspector's ID:	Date Sampled:
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CHECK TESTS DESIRED: (check as many as needed)

<input type="checkbox"/> Purity Analysis	<input type="checkbox"/> Germination Test
<input type="checkbox"/> California Noxious Weed Seed Exam	<input type="checkbox"/> Tetrazolium Viability Test
<input type="checkbox"/> All States & Federal Noxious Weed Seed Exam	<input type="checkbox"/> Seed Moisture Test
<input type="checkbox"/> Federal Noxious Weed Seed Exam	<input type="checkbox"/> Ryegrass Fluorescence Test
<input type="checkbox"/> Foreign Noxious Weed Seed Exam – list country:	<input type="checkbox"/> X-ray Analysis
<input type="checkbox"/> Undesirable Grass Seed (UGS)	<input type="checkbox"/> Seed Vigor Test – list test type:
<input type="checkbox"/> Canadian Noxious Weed Seed Exam	<input type="checkbox"/> Seed Identification – morphological
<input type="checkbox"/> Bulk Exam for Seeds of Other Plant Species (AOSA)	<input type="checkbox"/> Seed Identification – molecular
<input type="checkbox"/> Other Seeds by Number Determination (ISTA)	<input type="checkbox"/> Digital Image <u>Rh</u> tomicroscopy
<input type="checkbox"/> <u>Scitostia</u> check	<input type="checkbox"/> Livestock Feed Exam
<input type="checkbox"/> Soil Check	<input type="checkbox"/> Bird Seed Exam
<input type="checkbox"/> Dodder (<u>Cuscuta</u>) Check (500 gram)	<input type="checkbox"/> <u>Tobacco</u> Gradient Germ – list type below
<input type="checkbox"/> <u>Onion</u> Check	
<input type="checkbox"/> Clean-out Test	<input type="checkbox"/> Other – please list

TESTING METHODS REQUESTED: (check one)

<input type="checkbox"/> AOSA (Association of Official Seed Analysts – Rules for Testing Seeds)
<input type="checkbox"/> FSA (Federal Seed Act Regulations)
<input type="checkbox"/> ISTA (International Seed Testing Association – Rules for Seed Testing)
<input type="checkbox"/> CFIA M&P (Canadian Methods and Procedures for Testing Seed)

SUBMIT SAMPLE TO:

California Department of Food & Agriculture
 Plant Pest Diagnostics Center – Seed Laboratory
 3294 Meadowview Road
 Sacramento, California 95832-1448
 Phone: (916) 262-1100 FAX (916) 262-1190

What Form to Use for Sample Submission

Phytosanitary Certification Testing – also use a PDR Form

- The following PDR example form will walk you through the relevant fields that should be included when completing a PDR form for a sample submission to the Seed Science Laboratory.
- Properly completed PDR forms are essential to providing you with the accurate and timely service you need.
- For foreign noxious weed examination requests, please provide a copy of the import permit requirements, if available. Otherwise we will base our testing on the information provided on the USDA-APHIS PCIT database.
- Please be sure to provide us with the appropriate contact information for where to send the Laboratory Report of Analysis and the invoice for services rendered. This information should also appear on the Seed Laboratory Service Sample Request Form (68-010).

Sample Submission to PPDC – PDR Basics

- Enter PDR information electronically into all relevant fields as indicated on the next slide. In particular, please fill out all fields marked in red and green.
- Attach a PDR bar code sticker to the sample container and submit a PDR hard copy with the seed sample.
- Provide any additional information in the submitter's remarks section . This should include the country of destination.
- If you are unsure of the tests that need to be performed, please contact the lab prior to submitting the sample.
- For Service Samples, **ALWAYS** indicate “Service Sample (99)” for the Activity Code.
- For Service Samples, **ALWAYS** fill in the Billing Address in the fields for “Quarantine shipper/broker”



Seed Science Laboratory

STATE OF CALIFORNIA
DEPARTMENT OF FOOD AND AGRICULTURE
PLANT HEALTH AND
PEST PREVENTION SERVICES

PEST AND DAMAGE RECORD
65-020 (11/2005)

PDR NUMBER

Lab ENTO PLANT PATH NEMA
 SEED BOTANY VERT

Date collected: _____ Time: _____

NOR Number: _____

Number of samples: _____

Collector: _____
Affiliation: F S C E U O Describe other: _____

Quarantine shipper/broker: _____
Name: _____
Address: _____
City: _____ Zip code: _____
State/Country: _____
Phone: _____ Fax: _____ Latitude: _____ Longitude: _____
E-mail: _____

Location: _____
Owner/receiver: _____
Name: _____
Address/physical description: _____
City: _____ State: _____ Zip code: _____
County: _____
Phone: _____ Fax: _____ Latitude: _____ Longitude: _____
E-mail: _____
Cross street: _____
Quarantine destination: _____

Quarantine origin (where host grown): _____
City: _____ County: _____ State/Country: _____ Zip code: _____

Carrier (ground/air/maritime): _____
Business name: _____ Flight number: _____
License plate: _____ License state: _____ Tail/ship number: _____

Shipment size (include units): _____ Program: _____

Submitter remarks: _____

General or Plant Pathology

Number of plants acres involved:
 Number Percent of plants affected:

Plant distribution: Limited Scattered Widespread Eradicated

Plant parts affected

Bark Bulbs or corms Leaves, upper surface
 Blossoms Fruit or nuts Petiole Stem
 Branches, large Growing tips Rootlets Trunk
 Branches, terminal Large roots Seeds Tubers
 Buds Leaves, lower surface

Plant symptoms

Limited General

Canker Gumming Malformation Slow decline
 Die back Internal discoloration Marginal burn Stunting
 Fruit rot Leaf fall Root rot Sudden collapse
 Fruit spot Leaf mottling Rough bark Wilting
 Galls Leaf spot Shot hole Yellowing

Determination: _____ Rating: _____

Determined by: _____ Date: _____

Host/crop name
Common name: _____ Type (plants, fruit, seeds): _____

Scientific name: _____ Quantity: _____ Units: _____

Variety: _____ Container size and units: _____
Nema field block: commercial foundation increase

PDR NUMBER

PDR number (auto-generated)

Date, time, and check SEED lab

"RUSH" if a true Rush

1 sample per PDR for seed phytosanitary certification samples is preferred.

Collector and affiliation

This is a critical field! SERVICE SAMPLES MUST indicate the BILLING ADDRESS in these fields

INDICATE PROPER PROGRAM CODE - For example, if a QPHYT sample is not properly indicated, it would be treated as a non-phyto sample

Leave this BLANK

County code (for sample)

Activity code (for sample). SERVICE SAMPLES MUST USE CODE 99

Situation code (for sample)

All relevant information for sample origin

Destination country

Where seed was grown

This is a critical field! Please indicate any additional information here

If you want the identification results, this must be filled out, including email address

Very important! List the kind of seed and size and number of containers sampled. This information must appear on the Laboratory Report of Analysis for international shipments.

Sending Your Samples to the Seed Science Lab



- Seeds are fragile living organisms, so please take care to ensure their safe delivery to the Seed Science Laboratory. Exposure to temperature extremes and rough handling will affect test results.
- Ensure the sample containers are properly sealed to avoid leakage of seeds from the sample container during shipment.
- Use plenty of shipping peanuts or bubble wrap around the samples to adequately buffer the samples. We recommend using at least 1 to 2 inches of packing material around all sides of a sample container.
- Seal shipping box securely with packing tape to ensure the parcel remains completely closed in transit.
- Send samples early in the week. Samples sent later in the week may sit at post office over a weekend. We suggest you hold late samples and send them on Monday.

Where to Send Seed Samples

Since there are five laboratories at the PPDC, please include the laboratory name in the address so that your package is directed to the correct laboratory.

 **CDFA Plant Pest Diagnostics Center
c/o Seed Science Laboratory
3294 Meadowview Rd.
Sacramento, CA 95832-1448**

Other Types of Service Tests

- Please refer to our fee schedule for a complete list of testing services provided by the Seed Science Laboratory.
- For tests not listed or requests for custom designed tests, please contact the laboratory.

See next page for contact information.



Example – evaluation of weed seed viability in feed materials.

PPDB Designated Lab Contact List

Seed Science Laboratory

Dr. Robert Price (916-738-6700)

Dr. Riad Baalbaki (916-738-6690)

Connie Wiener (916-738-6702)

Environmental Program Manager II (Branch Chief)

Dr. Umesh Kodira (916-738-6664)

Environmental Program Manager I (Botany & Entomology)

Dr. Stephen Gaimari (916-738-6671)

Environmental Program Manager I (Nematology, Plant Pathology & Seed Science)

Dr. Cheryl Blomquist (916-738-6707)

