COLORADO
DEPARTMENT OF AGRICULTURE

Plant Pest and Disease Emergency Response Plan

September 2010

Photo credit: co.nrcs.usda.gov

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1.0 Introduction

The incursion of a highly destructive plant pest or disease could have devastating consequences to Colorado's agricultural crops, landscape plants, native ecosystems, trees, fruits, and pastures. Early detection and a rapid response to a pest or disease infestation are critical to limiting the economic, social, and environmental impacts of such an incident. The Colorado Department of Agriculture (CDA) *Plant Pest and Disease Emergency Response Plan* provides the response actions that will be implemented by the CDA in collaboration with the United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS), Plant Protection Quarantine (PPQ), other state and federal agencies, and industry partners to swiftly detect, assess, and eradicate a critical plant pest and disease infestation in Colorado.

For the purpose of this document the term "rapid response" is defined as a series of coordinated activities involving one or more organizations that are initiated by the discovery of a plant pest or disease of concern. Rapid response actions may include, delimiting survey activities, specific control activities, quarantine, eradication, public outreach and education and inter-agency communication and coordination.

1.1 Purpose & Scope

The purpose of this document is to outline an effective rapid response to the detection, identification, and mitigation of a plant pest or disease incursion in Colorado. The goal of this plan is three-fold: to prevent the establishment and spread of plant pest or disease before the population becomes established; to provide effective and timely communication between local, regional, state and federal government agencies, academia, and plant industry professionals when response actions are needed; and, to protect and maintain business continuity on unaffected property during a plant health emergency.

1.2 Situation

The USDA APHIS estimates that introduced plant pests result in an annual $143 billion loss to American agriculture and cost taxpayers millions more dollars in control expenditures.[1] For Colorado, a conservative loss estimate of 5-10% due to plant pests could cost Colorado producers $50 to $100 million annually.[2]

Colorado's natural and cultivated plant resources are an important component of the state's economy. The 2007 market value of Colorado crops, including nursery and greenhouse crops, totaled over $1.9 billion.[3] Colorado's top crops are wheat, corn, hay and potatoes. With over 2.3 million acres dedicated to growing wheat, Colorado ranks sixth nationally in producing winter wheat and eighth for overall wheat production. There are approximately 1.9 million acres dedicated to corn production in the State generating $518 million in cash receipts.[3]

[1] USDA The Cooperative Agricultural Pest Survey, Detecting Plant Pest and Weed Nationwide. 2005

[2] Colorado Extension Service, Plant Production Service. www.ext.colostate.edu/staffres/program/csrees/08pow_**plant**.pdf 2008.

[3] USDA National Agricultural Statistics Service. 2007 Census of Agriculture, Colorado State Profile.

Colorado's largest vegetable crop is potatoes; the State produces over 2 billion pounds of potatoes annually. Ranked fifth nationally in production of potatoes and third nationally in seed potato production, Colorado's 2007 potato crop was valued at over $180 million.[1]

The State's top three fruit crops in 2007 were peaches, apples and pears respectively with a combined value of $22.2 million; greenhouse / nursery commodities cash receipts total $322 million during the same calendar year.[1]

In addition to agricultural crops, nursery stock and fruit crops, a number of forest types exist throughout the state. According to the Colorado State Forest Service, the most extensive forests in Colorado are spruce-fir, ponderosa pine, lodgepole pine, aspen and piñon-juniper. Other forest types in the State include Douglas-fir, southwestern white pine, bristlecone pine, limber pine, with the Colorado blue spruce and the cottonwood-willow combination found in many riparian areas.

1.3 Assumptions

- Plant disease and pest outbreaks may occur through natural pathways, unintentional introduction, or could be introduced as an act of terrorism.
- Introduction of a highly contagious plant pest or disease in Colorado, the United States or surrounding countries may significantly restrict the intrastate, interstate and international movement of plant products.
- Response measures for a plant disease and/or pest emergency may involve the mutual aid support from sister counties and municipalities as well as local private industry support.
- Plant disease and/or pest emergencies may lead to prolonged economic impacts requiring long term federal and state assistance programs for recovery.
- Some plant pests and/or diseases are highly infectious to other plants and may be very difficult to identify, isolate, control, and eradicate.
- The time between the reporting of a disease / insect and its identification as an emergency is critical. A highly contagious disease could spread rapidly through a county and state via markets, crop movement and objects (people, vehicle, equipment).
- CDAs resources would be rapidly depleted if the outbreak involved multiple properties or large areas.
- If the plant pest and/or disease outbreak is or suspected as a terrorist event, the Federal Bureau of Investigation (FBI) will oversee the law enforcement investigative and related process and responses.
- Incident Command System (ICS) will be used in response to a plant health emergency.

[1] USDA National Agricultural Statistics Service. 2007 Census of Agriculture, Colorado State Profile.

1.4 Legal Authority

As stated in Colorado Revised Statutes (CRS) 35-4-101.5, "The Commissioner of Agriculture is directed and authorized to control and prevent by such means as shall be prescribed and provided by law, rule, or order of the commissioner, all contagious, infectious, and plant pests destructive to the state's agricultural, forestry, or horticultural interests or to the state's general environmental quality". As such, during an emergency incident, any actions implemented by the CDA will be in accordance with the authority granted to the Commissioner of Agriculture in the Colorado Revised Statutes (CRS). CRS related to plant pest and diseases are listed below (see Appendix C for additional information on CRS as they relate to a plant pest or disease emergency response):

State Authority

- CRS 35-4, Pest Control Act
- CRS 35-5, Pest Control District
- CRS 35-26, Colorado Nursery Act
- CRS 35-27, Colorado Seed Act

Federal Authority

- Federal Plant Protection Regulations ,Code of Federal Regulations (CRF 300-399)
- Plant Protection Act of 2000, Public Law 106-244
- Agriculture Bioterrorism Protection Act of 2002, Public Law 107-188

Other Agreements

- CDA/USDA-APHIS-PPQ Cooperative Pest Control Memorandum of Understanding

1.5 Plan Maintenance

The CDA Plant Industry Division Director is responsible for the management and maintenance of this plan, under the jurisdiction of the Colorado Agricultural Commission and the Commissioner of Agriculture or his designee. The CDA *Plant Pest and Disease Emergency Response Plan* will be reviewed and updated as required but at least annually in September to incorporate updates to Homeland Security Presidential Directive (HSPD) 9 – *Defense of United States Agriculture and Food*, Emergency Support Function (ESF) 11– *Agriculture and Natural Resources* and legislative updates as well as lessons learned that are identified in the debriefing process and after action reports following an actual event or training exercise.

2.0 Concept of Operations

The concept of operations provides the operational framework for activating this plan and identifies what plant pests and diseases are of regulatory concern. Additionally, this section provides guidance on how the Department will interface with agencies and how the Department will implement the Incident Command System (ICS) during an emergency response event.

2.1 Plant Pests and Diseases of Regulatory Concern

The USDA APHIS' Cooperative Agricultural Pest Survey (CAPS) is a collaborative effort by federal and state agricultural departments to collect and manage data on plant pests and diseases. Located in all 50 states and 3 territories, CAPS program personnel track more than 400 pests nationwide. Additionally, the CAPS program develops and maintains lists of nationally recognized pests of regulatory concern using the Analytic Hierarchy Process (AHP). The AHP model prioritizes pests based on risk factors such as introduction potential and pest impact. The end result is a prioritize pest list that ranks the top fifty pests predicted to cause damage to agricultural and / or natural resources if introduced into the United States (see Appendix D for AHP Pest List 2011). In addition, a state pest of concern list is generated by the CDA Plants Industry Division in collaboration with APHIS PPQ and Colorado State University (CSU). Pests placed on the Colorado Pest List are considered potential threats to Colorado's agricultural crops, nursery stock and / or trees (see Appendix E for Colorado's Pest List of Concern).

2.2 APHIS Select Agent Disease List

The USDA APHIS PPQ Select Agent and Toxins are biological agents or toxins that have the potential to pose a severe threat to the public, animal or plant health or to animal or plant products. Criteria used to develop the select agents are:

- The effect of an agent or toxin on animal or plant health or products
- The virulence of an agent or degree of toxicity of the toxin and the methods by which the agents or toxins are transferred to animals or plants
- The availability and effectiveness of medicines and vaccines to treat and prevent any illness caused by an agent or toxin.

A list of selected agents is located in Appendix F. In the event a select agent is suspected in a plant health emergency, the CDA Plant Industry Division Director or State Plant Regulatory Official (SPRO) will notify the Colorado Information Analysis Center (CIAC) who in turn will coordinate activities with the Joint Terrorism Task Force (JTTF) within the Denver Office of the FBI.

2.3 Criteria for Plant Emergency Response

This plan may be activated when a plant pest or disease is determined to be of high risk and a regulatory response is recommended to control and/or eradicate the pest or disease by the appropriate authority. In the event a pest of regulatory concern is discovered in Colorado, the SPRO in consultation with the SPHD will make the final determination for implementing emergency response actions. When a pest of national regulatory concern is discovered in Colorado, APHIS PPQ will become the lead agency in responding to the plant health emergency.

2.4 Incident Command System

In the event of a highly invasive pest or disease outbreak in plants, the CDA will manage the incident using the National Incident Management System (NIMS). NIMS provides standardized incident management processes, protocols and procedures for all emergency responders. CDA

will also manage each incident using the Incident Command System (ICS), as mandated by NIMS (see Appendix G for an ICS Organization Chart for Plant Pest and Disease Response). Designed to be a flexible all-hazard incident management system, ICS allows decision makers to fill ICS positions to meet the complexities and demands of the incident. For example, a localized disease or pest event may only require the incident commander position to be filled; where as a regional or more wide-spread disease or pest outbreak may require all positions in an ICS incident organization chart to be filled.

3. 0 Response Framework

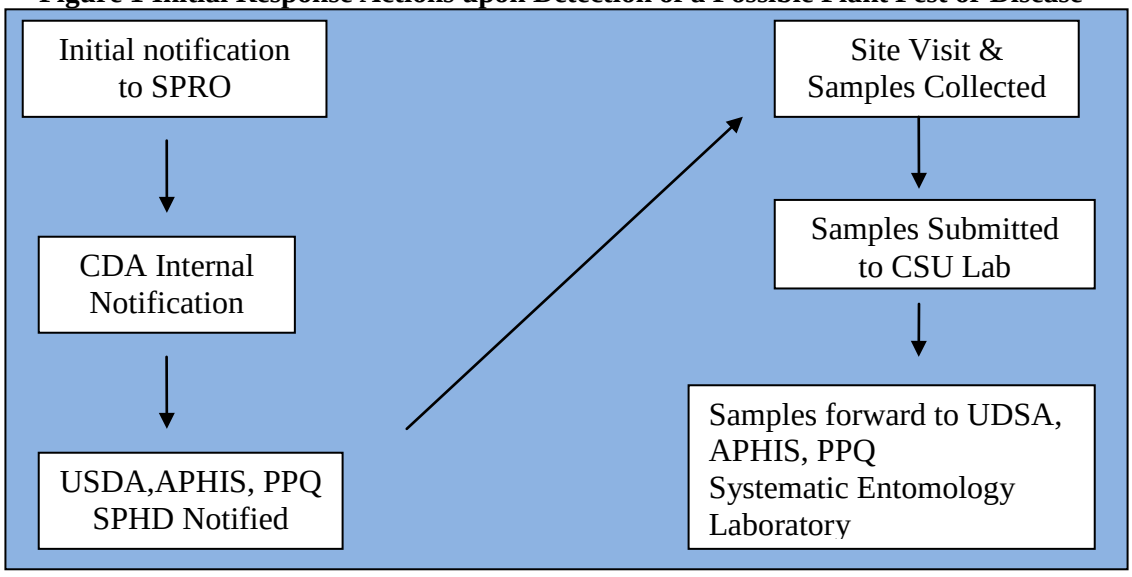
Responding to a plant health emergency will include detection, identification, confirmation, assessment, containment, and control and management of the plant pest or disease. Each of these response actions are presented in the following sections and are designed to ensure the timely implementation of an effective response to protect Colorado's plants, agricultural crops and forest lands.

4.0 Detection, Identification & Confirmation

When an initial account of a suspected invasive plant pest or disease is reported, obtaining accurate and comprehensive information is critical to expedite an effective response. The initial report of a suspected pest emergency may come from a variety of sources, including county pest inspectors, surveys, monitoring activities, producers, foresters, master gardeners or the general public. Typically, an initial report of a suspected invasive plant pest and disease will be reported to a local county extension office. See Appendix H for list of County Extension Offices in Colorado.

The following diagram illustrates the initial communication scheme and response actions when a possible plant pest or disease of regulatory concern is discovered in Colorado.

Figure 1 Initial Response Actions upon Detection of a Possible Plant Pest or Disease



5.0 Plant Pests and Diseases Impacting Colorado

Upon detecting a plant pest or disease of regulatory concern in Colorado, a series of response actions will be triggered based on the particular type of pest or disease that is discovered. Possible scenarios are:

- Unknown or new plant pest and disease
- Known Plant Pest or Disease of National Concern
- Colorado Plant Pest or Disease of Concern

Response actions for each of the above scenarios are described below (see Appendix I for response framework diagram).

5.1 Unknown or New Plant Pest or Disease

Plant pests and disease that are unknown or imminent threats to agriculture or the environment are assessed by USDA APHIS PPQ New Pest Advisory Group (NPAG). When a new pest is detected, the NPAG assembles a panel of federal, state, and university experts that have knowledge of the pest or pest situation. The NPAG works with stakeholders to survey literature and gather expert opinion on the pest. Recommendation will then be developed by the NPAG on how to manage the pest or disease. NPAG's recommendations are submitted to the PPA Deputy Administrator. Only the PPQ Deputy Administrator can accept and implement NPAG recommendations. Possible recommendations are:

- Recommend the collection or development of additional information.
  - Conduct a survey to assess geographic range, host range, or damage.
  - Develop methods to detect, identify, control, or eradicate the pest.
- Recommend no action.
- Recommend an action.
  - Eradicate the pest.
  - Quarantine the infected or infested area.
  - Evaluate biological or chemical control for pest management.
  - Prepare and distribute educational information to the public.
- Recommend that PPQ refer options and actions to other institutions, such as affected States or industries.

5.2 Known Plant Pest or Disease of National Concern

Pests or diseases requiring action by PPQ must be identified by a designated APHIS Identifier and confirmed by an APHIS PPQ Confirming Diagnosis Designate (see Appendix B for Glossary of Terms). The process for identifying a pest of national concern is illustrated in Appendix J. PPQ Form 391 located in Appendix K should be completed and accompany the sample sent to the APHIS Identifier.

5.3 Pest or Diseases of Importance to Colorado

When a pest/disease is detected that is not of federal concern or new or exotic but has the potential to impact Colorado's agricultural crops, trees, fruits and pastures, the CDA will initiate an assessment process (see Appendix L). Depending on the type of plant pest or disease that is detected, an appropriate scientific review panel will be activated to review the information and circumstances surrounding the discovery, to estimate potential impacts of an infestation, and to determine the appropriate response actions.

5.4 Scientific Review Panels

Two scientific review panels will be organized prior to any detection so they can be activated as soon after discovery as possible. Review panels include: Entomology Review Panel (ERP) and the Plant Pathology Review Panel (PPRP). Review panels will consist of the following positions or designee:

Entomology Review Panel	CDA Plant Industry Division Director or SPRO CDA State Survey Coordinator PPQ Pest Survey Specialist CSU Bioagricultural Sciences and Pest Management (BSPM) Department Head Industry Representative BSPM
Plant Pathology Review Panel	CDA Plant Industry Division Director or SPRO CDA State Survey Coordinator PPQ Pest Survey Specialist CSU BSPM Department Head Industry Representative

The appropriate scientific panel will convene and prepare a preliminary status evaluation report containing potential response actions. Generally, response actions include no response, non-regulatory response, regulatory response and law enforcement response. Table 1 Plant Pest and Disease Response Classifications, summarizes the response levels, government entities involvement, and possible response actions that may be implemented.

Table 1 Plant Pest and Disease Response Classifications

Type of Response	Risk Level	Level of Government	Possible Actions
No Response	Low Risk	N/A	N/A
Non-Regulatory Response	Low to Moderate Risk	Local Response	• Dissemination of educational information • Pest District Established • Local Ordinance
Regulatory Response	High Risk	State Response Federal response if pest /disease is of national concern	• Quarantine • Pest Risk Assessment • Eradication
Law Enforcement Response	High Risk	Federal Response	• Quarantine • Criminal Investigation

Based on the findings of the preliminary report, the SPRO may recommend activating an Incident Command System to manage the plant pest or disease outbreak response (see section 2.3). If the preliminary investigation indicates that an intentional act to cause harm may have occurred, the Federal Bureau of Investigation will be notified. At that point it is likely the Joint Terrorism Task Force (JTTF) will lead law enforcement investigative efforts in collaboration with others in the Command and General staff.

6.0 Containment

If a pest is considered a high risk or threat, and in some cases a moderate risk, to Colorado plants, containment actions may be implemented. Such measures include identifying infected properties, implementing quarantines, and conducting trace back and trace forward procedures for regulated pests and diseases.

6.1 Delimiting Survey

Once identified, if the plant pest or disease is considered a potential significant threat, a delimiting survey may be conducted to determine the extent and distribution of the pest or disease incursion and to determine if it is eradicable.

6.2 Quarantine

The CDA will collaborate with APHIS PPQ to coordinate initial inspections and surveys of the detection area to determine the need and extent of the quarantine zone. Such zones may be comprised of properties where the organism has been confirmed and/or may include properties which have come into direct or indirect contact with infected plants and properties. The size of the quarantine zone will be determined by a number of factors, including the location of the incursion, the climatic conditions at the time, the biology of the plant pest or disease and the proximity of the infected property to other infected properties. It is important to note that if the

plant pest or disease is not of national concern, the cost of quarantine enforcement is the responsibility of producers of any crop protected by the quarantine. Quarantine enforcement cost may be recovered from the disaster emergency fund when the Governor declares an emergency.

Figure 2 Pest Quarantine Zones for Plant Pest Invasion below provides a schematic representation of the relationship between the various quarantine zones during a plant and pest invasion. A buffer zone or control area is established around restricted area to control the movement of susceptible hosts and other regulated materials until the extent of the incursion is determined.

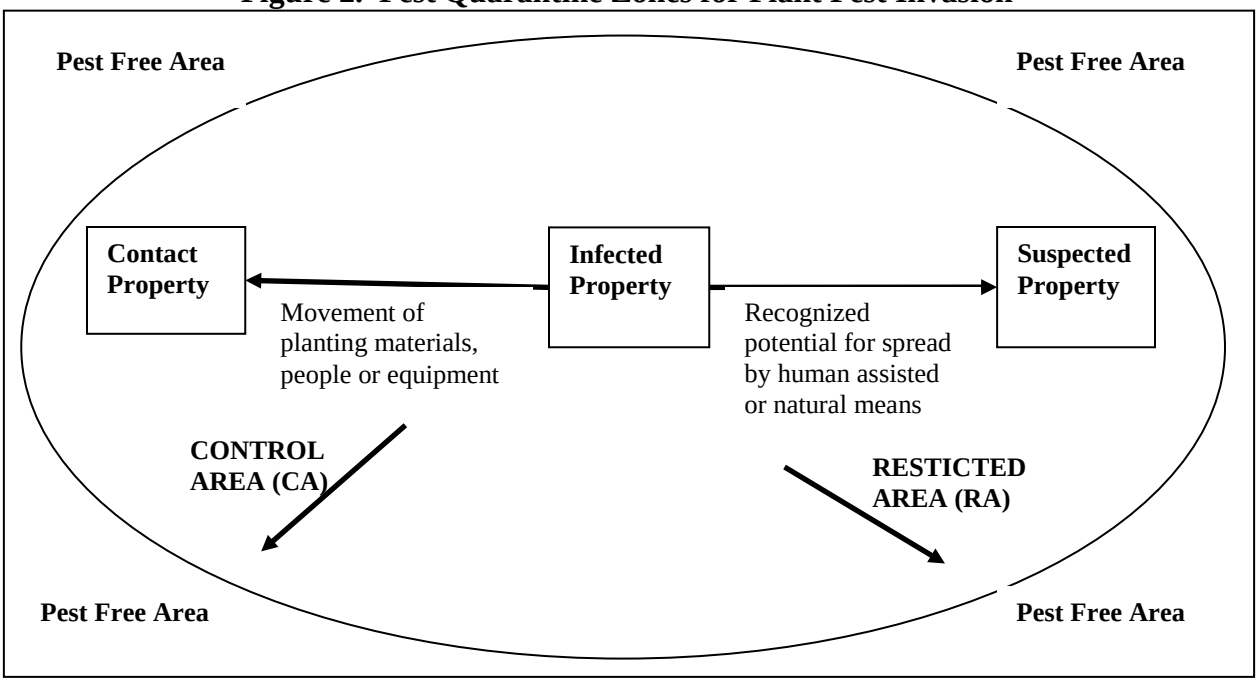
6.3 Trace Back and Trace Forward

Trace back and trace forward information may also be used to define a quarantine or restricted area. The CDA will collaborate with APHIS PPQ to coordinate survey teams to conduct trace backs to determine where the pest might have come from and trace forward exercises to identify where the pest might have spread. Consultation with owners and/or managers of affected properties will be conducted to identify:

- movement of plant materials/products or other materials that may facilitate spread of the pest
- items of equipment shared between properties
- personnel or contractors that may have moved from affected to unaffected properties.

Survey teams will be comprised of CDA, PPQ and CSU staff and will be coordinated by experienced plant pathologists, entomologists or other trained personnel.

Figure 2. Pest Quarantine Zones for Plant Pest Invasion



6.4 Public Notification

A threat template may be broadcast to notify CDA inspectors, county extension officers, APHIS, PPQ staff, and industry representatives on the confirmed plant pest or disease. An emergency plant pest alert template is located in Appendix M.

7.0 Control and Management

Once the containment process is established, a multitude of strategies to control, manage and eradicate the pest may be implemented. An effective and swift control of invasive species is necessary to prevent their numbers from rapidly increasing and spreading quickly to affect larger geographic areas. Pest disease management and controls that will be most effective are dependent on the plant pest or disease. Factors to be considered when determining the most appropriate pest management method include:

- Size or the affected geographic area
- Estimated number of pests
- Pest life cycle stage
- Whether the affected area is urban, rural, flat or mountainous
- Time of year
- Cost Relative to the effectiveness of the strategy.

Successful disease management and control of an invasive species may require a combination of different approaches. Invasive pest management approaches include physical and chemical methods. A brief description of each method follows.

7.1 Physical Methods

The CDA may chose to manage an invasive pest using manual methods to remove, kill, injure, or alter growing conditions for infested or diseased plants. Such methods have a minimal environmental impact and are ideal for socially sensitive sites and sites with high ecological value. Physical methods are relatively expensive and labor intensive, and may need to be used repeatedly or in combination with other management methods.

7.2 Chemical Methods

Using pesticides to manage invasive plant pests and diseases can be used alone or in a combination with biological and physical methods. Pesticides, both man-made and natural, must be approved by the US Environmental Protection Agency.

7.3 Pest Control District

When a pest is assessed as being a low or moderate risk, landowners affected by the pest infestation can organize a pest district to manage the pest. A pest control district is an organized contiguous area formed under the supervision of boards of county commissioners for the control and eradication of noxious weeds, insect pests or plant diseases causing injury to agricultural crops trees, fruits or pasture. The purpose of the pest control district is to enact regulatory control of specific pests considered to be injurious to plants, animals or people in a specific area. Protocols for establishing a pest district and a list of current pest districts are located in Appendix N.

8.0 Monitoring and Evaluation

It is important to implement some form of review following the implementation of any rapid response processes to ensure that outcomes are being met and the effectiveness of decision making, information sources and communication processes that have been introduced.

9.0 Roles and Responsibilities

Sections 9.1 and 9.2 outline the roles and responsibilities of agencies and producers when responding to a plant health emergency.

9.1 Agencies Roles and Responsibilities

Responding to an outbreak of a highly infectious plant pest or disease outbreak will require the coordination of multiple agencies. A list of local, state, and federal agencies and their possible role in an outbreak response are listed in Appendix O.

9.2 Industry's Role in a Disease Outbreak

Industry will play an important role both in preventing a disease outbreak and in response to such an event. Appendix P offers biosecurity recommendations to improve Continuity of Operations plans for Colorado agricultural crops and nurseries.

Appendices

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B Glossary of Terms
C Regulatory Authority and Limitations for Plant Pest and Disease Response in CO
D AHP Prioritized Pest List for FY10
E Colorado Pest List of Concern
F USDA APHIS PPQ Select Agent and Toxins
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H Colorado Extension Offices
I Colorado Plant Pest / Disease Response Framework
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K PPQ 391 Form
L Pest Risk Assessment Information
M Pest Alert Template
N Colorado Pest Control District
O Local, State and Federal Agencies Roles and Responsibilities
P Response Information for Industry

A Acronyms

APHIS	Animal and Plant Health Inspection Service
ARS	Agricultural Research Service
BSPM	Bioagricultural Sciences and Pest Management
CAPS	Cooperative Agricultural Pest Survey
CDA	Colorado Department of Agriculture
CIAC	Colorado Information Analysis Center
CPHST	Center for Plant Health, Science and Technology
CSU	Colorado State University
CSU-PDL	Colorado State University Plant Diagnostic Laboratory
ERP	Entomology Review Panel
ESF	Essential Support Function
ExFor	Exotic Forest Pest Information System for North America
FBI	Federal Bureau of Investigation
ICS	Incident Command System
JTTF	Joint Terrorist Task Force
HSPD	Homeland Security Presidential Directive
NPAG	New Pest Advisory Group
NIMS	National Incident Management System
NIS	National Identification Service
NPDN	National Plant Diagnostic Network
PPRP	Plant Pathology Review Panel
PPQ	Plant Protection and Quarantine
PRA	Pest Risk Assessment
SEOC	State Emergency Operation Center
SEL	Systemic Entomology Laboratory
SPHD	State Plant Health Director
SPRO	State Plant Regulatory Official
USDA	United States Department of Agriculture

B Glossary of Terms

Contact Property is a property with susceptible plants, crops or trees that have been determined to have been exposed directly or indirectly to a plant pest or disease but which has no confirmed infected plants, crops or trees.

APHIS PPQ Confirming Diagnosis Designate is a person authorized to make a confirming diagnosis for a high risk pest. This diagnosis must withstand legal scrutiny if challenged in court. This laboratory may be one of the APHIS PPQ laboratories- APHIS PPQ NIS, APHIS PPQ CPHST, USDA-ARS SEL or an approved or provisionally approved laboratory by APHIS PPQ.

Center for Plant Health, Science and Technology is a USDA APHIS PPQ laboratory authorized for conducting DNA diagnosis (PCR) and bacterial diagnosis of plant diseases.

Infected Property is property with the presumed or confirmed plant pest or disease based on surveys and laboratory results.

National Identification Service is a USDA APHIS PPQ laboratory authorized for diagnosing plants diseases (fungal and viral).

National Plant Diagnostic Network is a collection of land grant universities plant disease and pest diagnostic facilities from across the US.

Plant Pests as defined by CRS 35-4-102 are insect pests, plant diseases and animal pests, except rodents, jackrabbits, and predatory animals.

Plant diseases as defined by CRS 35-4-102 is the pathological condition in plants caused by fungi, bacteria, viruses, nematodes, mycoplasmas, or parasitic seed plants.

State Emergency Operation Center serves as a coordination point and response acquisition center for the state responses to emergencies and disasters.

State Plant Health Director, a position of the APHIS PPQ, is the highest ranking federal plant regulatory official in a state.

State Plant Regulatory Official is the highest ranking state plant regulatory official. The SPRO is employed by the state department of agriculture.

Suspect Premises is a property on which it is reasonable by virtue of observation to believe that some risk of highly invasive pest may exist.

USDA-ARS Systematic Entomology Laboratory is an authorized laboratory for identification of high risk and regulatory insects.

C Regulatory Authority and Limitations Related to Plant Pest and Disease Response in Colorado

Colorado Revised Statute	Agency	Authority	Limitations
35-4-101-116 Pest Control Act	Commissioner of Agriculture, County Commissioners	• Inspect any private or public property where there is evidence of a pest infestation • Issue a cease and desist order and specify to the landowner how an infestation should be controlled or eradicated, or manage the infestation if the landowner is unable or unwilling to him/herself • Secure payment of cost of control or eradication from the landowner, up to $5000, if the control is carried out by the county • Place in isolation or quarantine any plant material from out-of-state found infested with a quarantine pest or new exotic pest, and destroy, and dictate how the material should be treated, removed from the state or destroyed. • Issue penalties for any violations of the article. • Issue a quarantine of an area of the state within an infestation to prevent movement of the pest out of the area.	• Inspection of a property with a pest infestation/infection requires; 1) a neighbor to report the infection and requests an inspection, 2) an authorized county agent sees the infestation/infection from a public right-of-way, or 3) the landowner requests it. • When enforcing the Pest Control Act, host material must be proved to have an infestation/infection before any action can be taken. This may require destructive sampling, which in the case of wood-boring pest, may not be possible, or waiting for emergency, at which point control may not be possible. In the interim, the material may be moved or sold and would subsequently place other plant material at risk. • In the case of issuing quarantine under the Pest Control Act, the quarantine may not be enforceable unless there is an affected industry that is willing and able to pay for it. For instance, this is especially problematic in the case of landscape pests (e.g. forest trees and rangeland vegetation.)
35-26-101-116 Nursery Control Act	Commissioner of Agriculture	• Inspect nurseries for pests and disease. All registered nurseries are inspected annually. • Issue a stop-sale if pests or diseases are found. Stop sales are issued, to prevent the sale of the host plant without treatment specified by the state. • Ban any products found as substandard plant material sold by nurseries outside of Colorado to nurseries in the state. • Issue alerts to all registered nurseries stating the Commissioner's finding and informing nursery registrants' the purchase of plant material from the offending nursery is violation of this article.	• Infestation / infection must also be proved under the Nursery Act before a stop-sale can be issued on a suspect plant, with the same potential problems as above. • Upon state inspections under the Nursery Act, the state does not order control measures to be taken unless the owner wishes to sell the host material. If the owner decided to simply dispose of it, the state does not have the authority to dictate how the material is destroyed.

D AHP Prioritized Pest List for FY10

Analytic Hierarchy Process Prioritized Pest List for FY 2011			
Rank	**Scientific Name**	**Common Name**	**Taxonomic Group**
1	Agrilus biguttatus	Oak splendor beetle	Arthropod
1	Platypus quercivorus	Oak ambrosia beetle	Arthropod
2	Cronartium flaccidum	Scot pine blister rust	Fungus
3	Helicoverpa armigera	Old World bollworm	Arthropod
4	Thaumetopoea processionea	Oak processionary moth	Arthropod
5	Tomicus destruens	Pine shoot beetle	Arthropod
6	Dendrolimus superans	Siberian moth	Arthropod
7	Spodoptera litura	Cotton cutworm	Arthropod
8	Otiorhynchus dieckmanni	Wingless weevil	Arthropod
9	Ceroplastes japonicas	Japanese wax scale	Arthropod
10	Unaspis yanonensis	Arrowhead scale	Arthropod
11	Phytophthora alni	Alder root rot	Fungus
12	Ralstonia solanacearum race 3 biovar 2	Bacterial wilt	Bacterium
13	Achatina fulica	Giant African snail	Mollusk
14	Lymantria mathura	Rosy moth	Arthropod
15	Leucoptera malifoliella	Pear leaf blister moth	Arthropod
16	Ditylenchus angustus	Rice stem nematode	Nematode
17	Ceroplastes destructor	Soft wax scale	Arthropod
18	Chilo suppressalis	Asiatic rice borer	Arthropod
19	Veronicellidea spp.		Mollusk
20	Dendrolimus pini	Pine-tree lappet	Arthropod

D AHP Prioritized Pest List for FY10

Analytic Hierarchy Process Prioritized Pest List for FY 2011 Cont.			
Rank	**Scientific Name**	**Common Name**	**Taxonomic Group**
21	Spodoptera littoralis	Egyptian cottonworm	Arthropod
22	Chalara fraxinea	Ash dieback	Fungus
23	Monochamus sutor	Small White- marmorated longhorned beetle	Arthropod
24	Planococcus minor	Passionvine mealybug	Arthropod
25	Tuta absoluta	Tomato leaf miner	Arthropod
26	Nysius huttoni	Wheat bug	Arthropod
27	Candidatus Phytoplasma australiense	Phtoplasma yellows	Phytoplasma
28	Meloidogyne indica	Citrus root-knot nematode	Nematode
29	Raffaelea quercivora	Japanese oak wilt	Fungus
30	Monacha spp.		Mollusk
31	Oxycarenus hyalinipennis	Cotton seed bug	Arthropod
32	Eudocima fullonia	Fruit piercing moth	Arthropod
33	Thaumatotibia leucotreta	False codling moth	Arthropod
34	Phytoplasma AP-MLO	Apple proliferation	Phytoplasma
35	Monochamus saltuarius	Sakhalin pine sawyer	Arthropod
36	Mycosphaerella gibsonii	Needle blight of pine	Fungus
37	Onopordum acaulon	Horse thistle	Plant
38	Diabrotica speciosa	Cucurbit beetle	Arthropod
38	Harpophora maydis	Late wilt of corn	Fungus

D AHP Prioritized Pest List for FY10

Analytic Hierarchy Process Prioritized Pest List for FY 2011 Cont.			
Rank	**Scientific Name**	**Common Name**	**Taxonomic Group**
38	Xanthomonas oryzae	Bacterial leaf streak, bacterial blight	Bacterium
39	Adoxophyes orana	Summer fruit tortrix moth	Arthropod
40	Archips xylosteanus	Variegated golden tortrix	Arthropod
41	Meloidogyne fujianensis	Citrus root-knot nematode	Nematode
41	Meloidogyne jianyangensis	Citrus root-knot nematode	Nematode
41	Meloidogyne mingnanica	Citrus root-knot nematode	Nematode
42	Meloidogyne paranaensis	Parana coffee root-knot nematode	Nematode
43	Meloidogyne citri	Citrus root-knot nematode	Nematode
44	Candidatus Phyoplasma prunorum	European stone fruit yellows	Phytoplasma
45	Cernuella spp.	Exotic species	Mollusk
46	Cochicella spp.	Exotic species	Mollusk
47	Meloidogyne artiellia	British root-knot nematode	Nematode
48	Heterodera latipons	Mediterranean cereal cyst nematode	Nematode
49	Meloidogyne donghaiensis	Citrus root-knot nematode	Nematode
50	Heterodera cajani	Pigeonpea cyst nematode	Nematode
50	Heterodera sacchari	Sugar cane cyst nematode	Nematode
51	Meloidogyne fallax	False Columbia root-knot nematode	Nematode
52	Rhynchophorus ferrugineus	Red palm weevil	Arthropod

E Colorado Pest List of Concern

Colorado Pest List of Concern			
List	**Scientific Name**	**Common name**	**Pest Type**
1	*Globodera pallida*	Potato cyst nematode	nematode
2	*Epiphyas postvittana*	Light brown apple moth	insect
3	*Agrilus planipennis*	Emerald ash borer	insect
4	*Sirex noctilio*	European wood wasp	insect
5	*Popillia japonica*	Japanese beetle	insect
6	*Ralstonia solanacearum* R 3 B 2	bacterial wilt of potato	disease
7	*Heterodera latipons*	Mediterranean cereal cyst nematode	nematode
8	*Meloidogyne artiellia*	British Root-knot Nematode	nematode
9	*Heterodera avenae*	Cereal cyst nematode	nematode
10	*Heterodera glycines*	Soybean cyst nematode	nematode
11	*Meloidogyne chitwoodi*	Columbia root knot nematode	nematode
12	*Globodera rostochiensis*	Golden nematode	nematode
13	*Lymantria dispar asiatica*	Asian gypsy moth	insect
14	*Lymantria dispar dispar*	European gypsy moth	insect
15	*Anoplophora chinensis*	Citrus longhorned beetle	insect
16	*Anoplophora glabripennis*	Asian longhorned beetle	insect
17	*Oulema melanopus*	Cereal leaf beetle	insect
18	*Thaumatotibia leucotreta*	False codling moth	insect
19	*Spodoptera littoralis*	Egyptian cottonworm	insect
20	*Autographa gamma*	Silver Y moth	insect
21	*Helicoverpa armigera*	Old world bollworm	insect
22	*Orthotomicus erosus*	Mediterranean Pine Engraver Beetle	insect
23	*Ips typographus*	European Spruce Bark Beetle	insect
24	*Hylurgus ligniperda*	Red-haired bark beetle	insect
25	*Tomicus piniperda*	pine shoot beetle	insect
26	*Tilletia indica*	Karnal bunt	disease

E Colorado Pest List of Concern

List	Scientific Name	Common name	Pest Type
27	*Trogoderma granarium*	Khapra beetle	insect
28	*Puccinia horiana*	Chrysanthemum white rust	disease
29	*Pratylenchus* spp.	cereal nematodes	nematode
30	*Cactoblastis cactorum*	Cactus moth	insect
31	*Yponomeuta malinellus*	Apple ermine moth	insect
32	*Yponomeuta padellus*	Cherry ermine moth	insect
33	*Eudocima fullonia*	Fruit piercing moth	insect
34	*Leucoptera malifoliella*	Pear leaf blister moth	insect
35	*Cydia funebrana*	Plum fruit moth	insect
36	*Adoxophyes orana*	Summer fruit tortrix moth	insect
37	*Planococcus minor*	passionvine mealybug	insect
38	*Phytophthora ramorum*	sudden oak death	disease
39	*Curtobacterium flaccumfaciens pv. flaccumfaciens*	Dry bean bacterial wilt	disease
40	*Cronartium ribicola*	white pine blister rust	disease
41	*Puccinia hemerocallidis*	Daylily rust	disease
42	*Urocerus gigas*	giant woodwasp	insect
43	*Agrilus biguttatus*	Metallic beetle	insect
44	*Dendrolimus pini*	Pine-tree Lappett	insect
45	*Dendrolimus superans sibiricus*	Siberian silk moth	insect
46	*Aphis glycines*	Soybean aphid	insect
47	*Etiella zirokenilla*	Soybean pod borer	insect
48	*Phakospora pachyrhizi*	Soybean rust	insect
49	*Lobesia botrana*	European grape vine moth	insect
50	*Synanthedon myopaeformis*	red belted clear-winged moth	insect
51	*Monochamus sutor*	Small white marmorated longhorned beetle	insect
52	*Rhagoletis pomonella*	Apple maggot	insect
53	*Enarmonia formosana*	Cherry bark tortrix	Insect

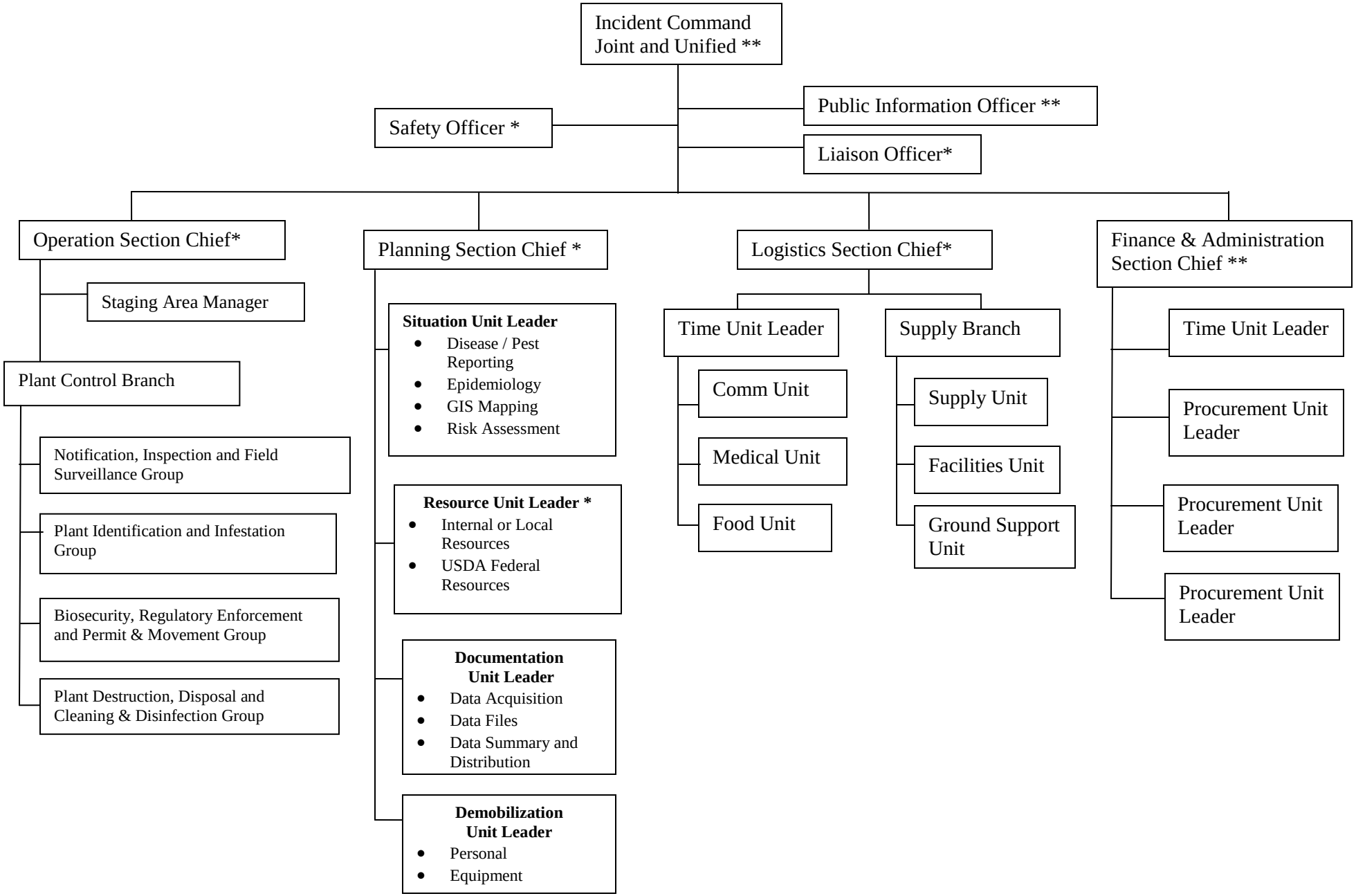
E Colorado Pest List of Concern

List	Scientific Name	Common name	Pest Type
54	*Onopordum acaulon*	horse thistle	weed
55	*Striga euphrasioides*	witchweed	weed
56	*Orthotomicus erosus*	Mediterranean pine engraver	insect
57	*Anomala orientalis*	Oriental beetle	insect
58	*Lymantria mathura*	pink gypsy moth	insect
59	*Rhagoletis indifferens*	Western cherry fruit fly	insect
60	*Archips xylosteanus*	variegated golden tortrix	insect
61	*Ditylenchus dipsaci*	bulb eelworm	nematode
62	*Scirtothrips dorsalis*	Chili thrips	insect
63	*Tospovirus IYSV*	Iris yellow spot virus (tospovirus)	disease
64	*Ceroplastes japonicus*	Japanese wax scale	insect
65	*Phthorimaea opeculella*	potato tuborworm	insect
66	*Solenopsis invicta*	Red imported fire ant	insect
67	*Sclerotium cepivorum*	onion white rot	disease
68	*Rhizotrogus majalis*	European chaffer	insect
69	*Ostrinia nubilalis*	European corn borer	insect
70	*Bemisia argentifolii*	silverleaf whitefly	insect
71	*Pantoea stewartii*	Stewart's wilt	disease
72	*Contarinia nasturtii*	Swede midge	insect
73	*Bemisia tabaci*	sweet potato whitefly	insect

F USDA APHIS PPQ Select Agent and Toxins

USDA PLANT PROTECTION AND QUARANTINE (PPQ) SELECT AGENTS AND TOXINS		
Scientific Name	**Common Name**	**Potential Colorado Hosts**
Peronosclerospora philippinensis (*Peronosclerospora sacchari*)	Philippine Downy Mildew	Corn, Oats, Sorghum
Phoma glycinicola (formerly *Pyrenochaeta glycines*)	Red Leaf Blotch of Soybean	Soybean, other Glycine spp.
Ralstonia solanacearum race 3, biovar 2	Southern Wilt, Bacterial Wilt, Brown Rot of Potato	Many, including amaranth, beets, canola, mustard, pepper, chile, safflower, pumpkin, tomato, potato, hydrangea, geranium, beans
Rathayibacter toxicus	Annual Ryegrass Toxicity	Ryegrass, bentgrass
Sclerophthora rayssiae var zeae ☐	Brown Stripe Downy Mildew	Corn, sorghum, crabgrass
Synchytrium endobioticum	Potato Wart, Potato Canker	Tomato, potato and other Nightshade family plants
Xanthomonas oryzae	Bacterial leaf streak	Primarily Rice but other *Poaceae spp.*as well.
Xylella fastidiosa (citrus variegated chlorosis strain)	Citrus Variegated Chlorosis	Primarily Citrus but can be carried in Alfalfa and nightshade plants.

G ICS Organization Chart for Plant Pest and Disease



H Colorado County Extension Offices

Colorado County Extension Offices Current as of October 2009 Colorado County	Phone Number	Address
Adams	(303) 637-8100	9755 Henderson Road, Brighton, CO 80601
Alamosa	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Arapahoe	(303) 730-1920	5804 South Datura, St. Littleton, CO 80120
Archuleta	(970) 264-5931	344 Highway 84, Pagosa Springs, CO 81147
Baca	(719) 523-6971	772 Colorado St., Springfield, CO 81073
Bent	(719) 456-0764	1499 Ambassador Thompson BLVD, Las Animas, Co 81054
Boulder	(303) 678-6238	9595 Nelson Road, Longmont, CO 80501
Broomfield	(720) 887-2286	6650 W. 120th Ave., Broomfield, CO 80020
Chaffee	(719) 539-6447	10165 County Road 120, Salida, CO 81201
Cheyenne	(719) 767-5716	425 South 7th W., Cheyenne Wells, CO 80810
Conejos	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Costilla	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Crowley	(719) 267-5243	601 North Main Street, Ordway, CO 81063
Custer	(719) 783-2514	205 South 6th, Westcliffe, CO 81252
Delta	(970) 874-2195	525 Dodge Street, Delta, CO 81416
Denver	(720) 913-5270	888 E. Iliff Avenue, Denver, CO 80210
Dolores	(970) 677-2283	409 North Main Street, c/o Courthouse, Dove Creek, CO 81324
Douglas	(720) 733-6930	410 Fairgrounds Road, Castle Rock, CO 80104
Eagle	(970) 328-8630	441 Broadway, Eagle CO 81631
El Paso	(719) 520-7675	305 South Union Blvd., Colorado Springs, CO 80910
Elbert	(719) 541-2361	325 Pueblo, Simla, CO 80835
Elbert Branch Office	(303) 621-3162	P.O. Box 189, Kiowa, CO 80117
Fremont	(719) 276-7390	615 Macon Avenue, Canon City, CO 81212
Garfield	(970) 625-3969	Fairgrounds, 1001 Railroad Avenue, Rifle, CO 81650
Colorado State University Extension, http://www.ext.colostate.edu/cedirectory/countylist.cfm Oct. 2009		

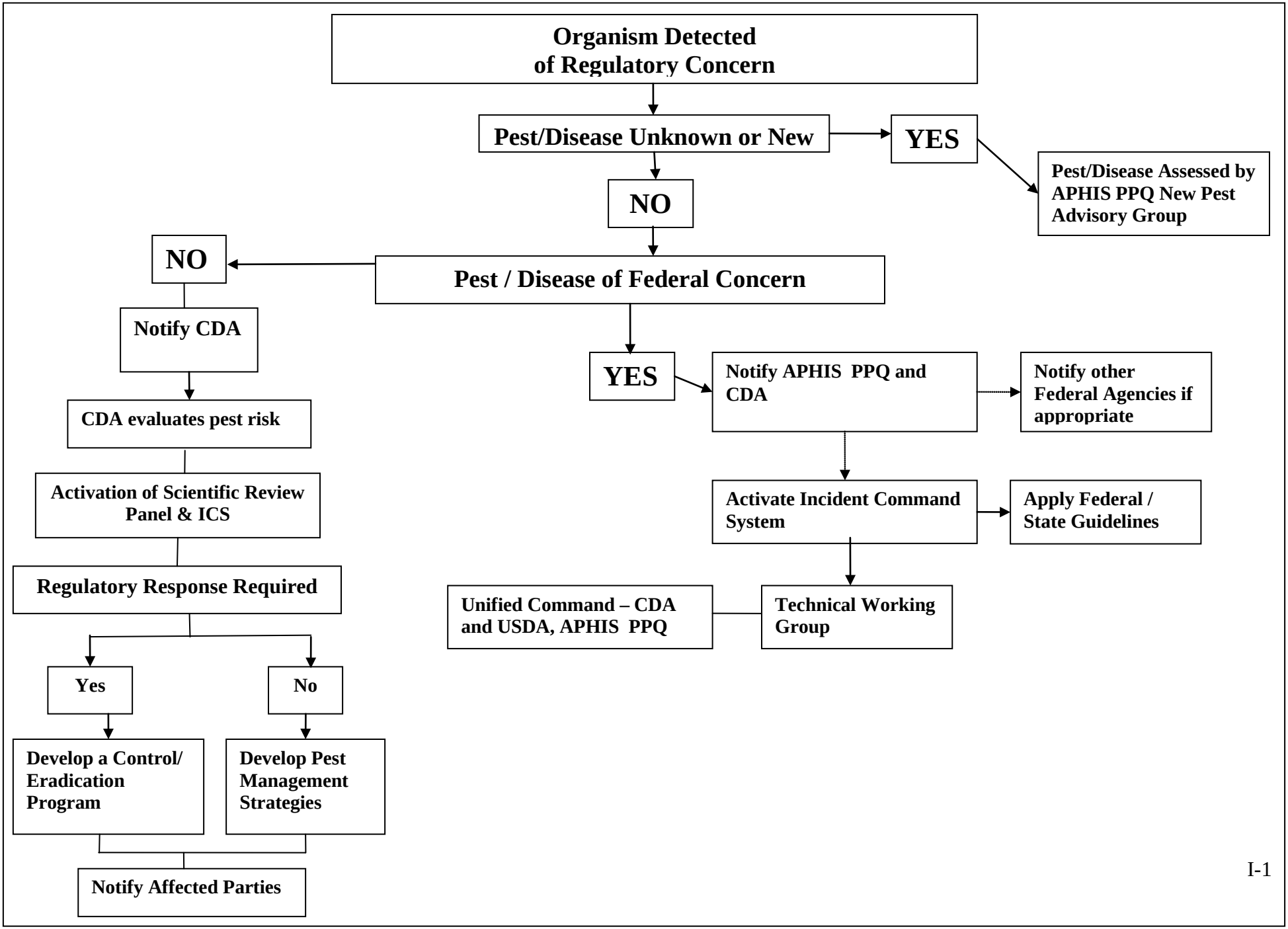
H Colorado County Extension Offices

Colorado County Extension Offices Current as of October 2009		
Colorado County	**Phone Number**	**Address**
Gilpin	(303) 582-9106	230 Norton Drive, Blackhawk, CO 80422
Grand	(970) 724-3436	210 11th Street, Extension Hall, Fairgrounds, Kremmling, CO 80459
Gunnison	(970) 641-1260	275 South Spruce, Gunnison, CO 81230
Huerfano	(719) 738-2170	928 Russell Ave, Walsenburg, CO 81089
Jackson	(970) 723-4298	312 5th Street, Walden, CO 80480
Jefferson	(303) 271-6620	15200 West Sixth Avenue, Golden, CO 80401
Kiowa	(719) 438-5321	County Courthouse - 1305 Goff, Eads, CO 81036
Kit Carson	(719) 346-5571	251 16th Street, Burlington, CO 80807
La Plata	(970) 247-4355	2500 Main Ave., Durango CO 81301
Larimer	(970) 498-6000	1525 Blue Spruce Drive, Fort Collins, CO 80524
Las Animas	(719) 846-6881	2200 North Linden Ave, Trinidad, CO 81082
Lincoln	(719) 743-2542	326 8th St., Hugo, CO 80821
Logan	(970) 522-3200	508 South 10th Ave, Sterling, CO 80751
Mesa	(970) 244-1834	2775 Highway 50, Grand Junction, CO 81502
Mineral	(719) 852-7381	1899 E. Hwy 160, Monte Vista, CO 81144
Moffat	(970) 824-9180	539 Barclay Street, Craig CO 81625
Montezuma	(970) 565-3123	109 West Main Street, Cortez, CO 81324
Montrose	(970) 249-3935	1001 North 2nd, St. Montrose, CO 81401
Morgan	(970) 542-35	914 E. Railroad, Ave, Fort Morgan, CO 80701
Otero	(719) 836-42	411 North 10th St. Rocky Ford, CO 81067
Park	(719) 836-4293	880 Bogue St. Fairplay, CO 80440
Phillips	(970) 854-3616	127 East Denver, Holyoke, CO 80734
Prowers	(719) 336-7734	1001 S. Main St., Pueblo, CO 81003
Pueblo	(719) 583-6566	212 W. 12th St. Pueblo, CO 81003
Colorado State University Extension, http://www.ext.colostate.edu/cedirectory/countylist.cfm Oct. 2009		

H Colorado County Extension Offices

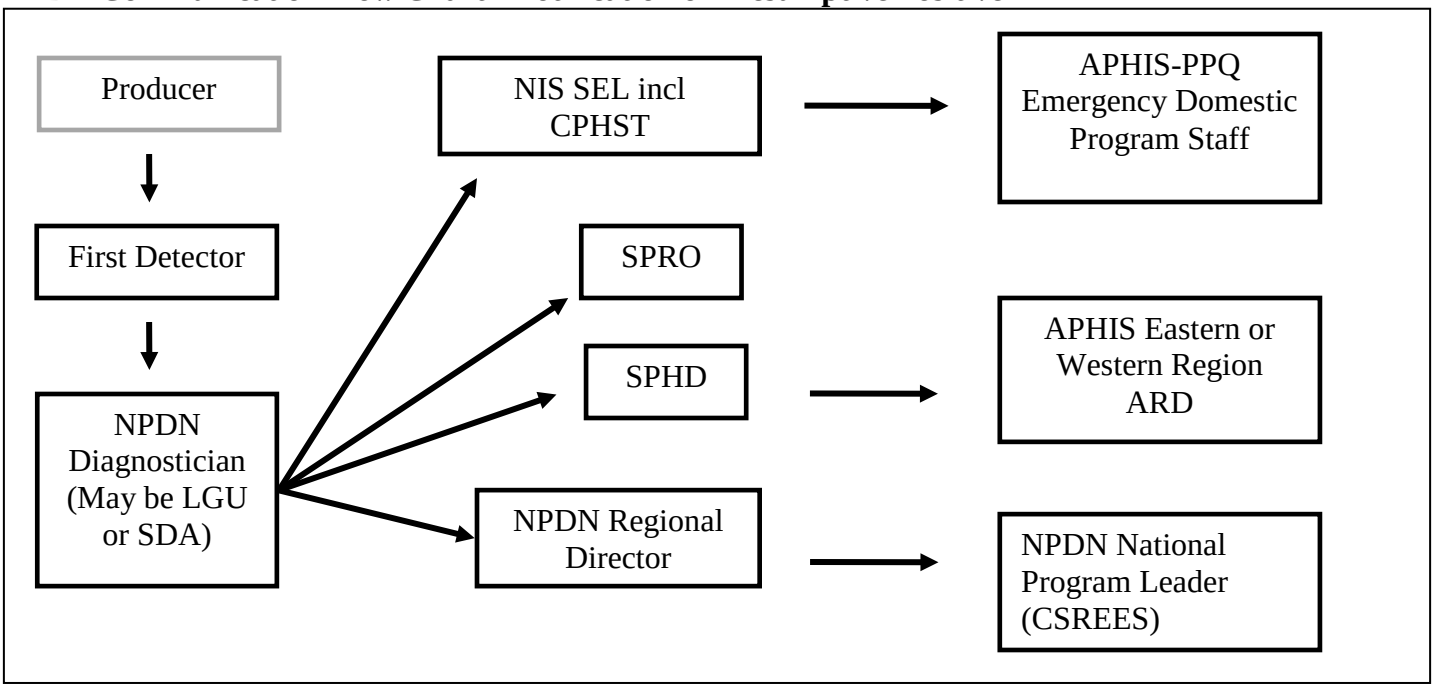
Colorado County Extension Offices Current as of October 2009		
Colorado County	**Phone Number**	**Address**
Rio Blanco	(970) 878-9490	779 Sulphur Creek Road, Meeker, CO 81641
Rio Blanco Branch Office	(970) 675-2417	Western, Annex 17497 Highway 64, Rangely, CO 81648
Rio Grande-Saguache	(719) 852-7381	1899 E. Hwy 160, Monte Vista CO 81144
Routt	(970) 879-0825	136 6th St. Steamboat Springs, CO 80477
San Miguel	(970) 327-4393	1120 Summit, Norwood CO 81423
Sedgwick	(970) 474-3479	315 Cedar, Julesburg, CO 80737
SLV Area Office	(719) 852-7381	1899 E. Hwy 160 Monte Vista, CO 81144
Summit	(970) 668-3595	37 Peak One Dr., CR1005, Frisco, CO 80443
Teller	(719) 689-2552	112 North A St. Cripple Creek, CO 80813
Washington	(970) 345-2287	181 Birch Avenue Akron, CO 80720
Weld	(970) 304-6535	525 North 15th Ave., Greeley CO 80631
Yuma	(970) 332-4151	310 Ash Street, Wray, CO 80758
Colorado State University Extension, http://www.ext.colostate.edu/cedirectory/countylist.cfm Oct. 2009		

I Colorado Plant Pest / Disease Response Framework

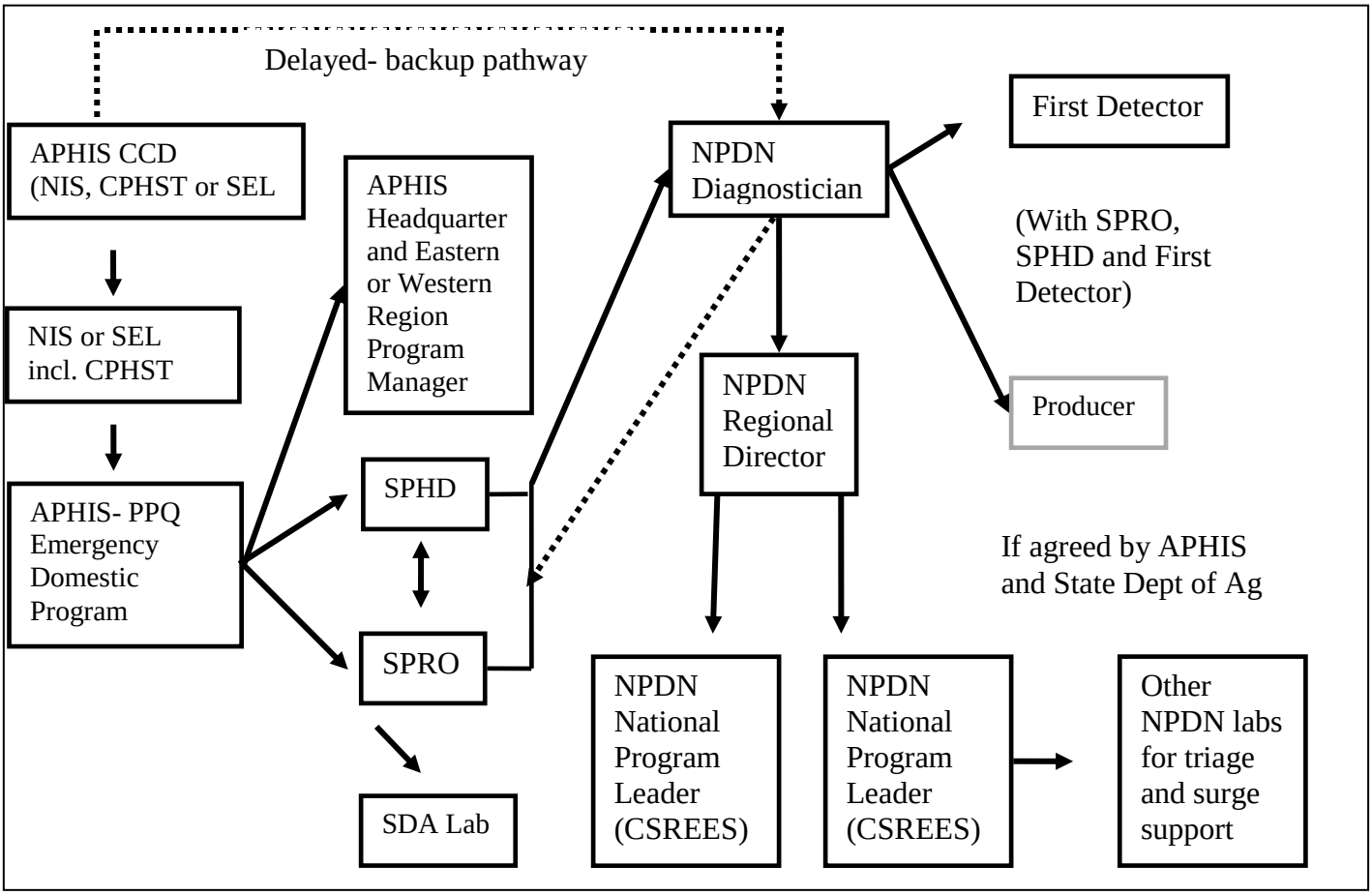


J Pest of National Concern Identification / Communication Process

NPDN Communication Flow Chart - Notification of Presumptive Positive



NPDN Communication Flow Chart - Confirmation Results



K PPQ 391 Form

This report is authorized by law (7 U. S. C 147a). While you are not required to respond your cooperation is needed to make an accurate record of plant pest conditions. *See reversed for additional OMB information.*

Form Approved OMB No. 0579-0010

U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALH INSPECTION SERVICE

SPECIMENS FOR DETERMINATION

Instruction: Type or print information requested. Press hard and print legibly when handwritten. Item 1- assign number for each collection beginning with year, followed by collector's initials and collector's number. Example (collector, John. J. Dingle): 83-JJD-001.
Pest Data Section- Complete items 14, 15 and 16 or 19 or 20 and 21 as applicable. Complete items 17 and 18 if a trap was used.

For IIBIII USE
Lot NO.
PRIORITY

1. COLLECTION NUMBER

2. DATE
MO **DA**
YR

3. SUBMITTING AGENCY
☐ State Cooperator ☐ PPQ ☐ Other_____

SENDER & ORGIGIN

4. NAME OF SENDER

6. ADDRESS OF SENDER

ZIP

INTERCEPTION SITE

6. TYPE OF PROPERTY (Farm, Feedmill, Nursery, etc)

7. NAME AND ADDRESS OF PROPERTY OR OWNER

Country / County

PURPOSE

8. REASON FOR IDENTIFICATION ("x" ALL APPLICABLE ITEMS)

A. ☐ Biological Control (Target Pest Name)	E. ☐ Livestock, Domestic Animal Pest
B. ☐ Damaging Crops / Plants	F. ☐ Possible Immigrant (*Explain* in REMARKS)
C. ☐ Suspected Pest of Regulatory Concern (*Explain* in REMARKS)	G. ☐ Survey (*Explain* in REMARKS)
D. ☐ Stored Product Pest	H. ☐ Other (*Explain* in REMARKS)

9. If PROMPT OR URGENT IDENTIFICATION IS REQUESTED, PLEASE PROVIDE A BRIEF EXPLANATION UNDER "REMARKS"

HOST DATA

10. HOST INFORMATION	11. QUANTITY OF HOST	
NAME OF HOST (Scientific name when possible)	**NUMBER OF ACRES/PLANTS**	PLANTS AFFECTED (Insert figure and indicate ☐ Number ☐ Percent

12. PLANT DISTRIBUTION	**13. PLANT PARTS AFFECTED**
☐ LIMITED ☐ SCATTERED ☐ WIDESPREAD	☐ Leaves, Upper Surface ☐ Leaves, Lower Surface ☐ Petiole ☐ Stem ☐ Trunk/Bark ☐ Branches ☐ Growing Tips ☐ Roots ☐ Bulbs, Tubers Corns ☐ Buds ☐ Flowers ☐ Fruits or Nuts ☐ Seeds

PEST DATA

14. PEST DISTRIBUTION
☐ **FEW**
☐ **COMMON**
☐ **ABUNDANT**
☐ **EXTREME**

15. ☐ INSECTS ☐ NEMATODES ☐ MOLLUSKS

Number Submitted	LARVAE	PUPAE	ADULTS	CAST SKINS	EGGS	NYMPHS	JUVS	CYSTS
ALIVE								
DEAD								

16. SAMPLING METHOD	17. TYPE OF TRAP AND LURE	18. TRAP NUMBER

19. PLANT PATHOLOGY – PLANT SYMPTOMS (x one and describe symptoms)
☐ **ISOLATED** ☐ **GENERAL**

20.WEED DENSITY	21. WEED GROWTH STAGE
☐ **FEW** ☐ **SPOTTY** ☐ **GENERAL**	☐ **SEEDLING** ☐ **VEGETATIVE** ☐ **FLOWERING/FRUTING** ☐ **MATURE**

22. REMARKS

23. TENTATIVE DETERMINATION

24. DETERMINATION AND NOTES (Not for Field Use)

SIGNATURE _____ DATE _____

For IIBII USE
DATE RECEIVED
No.
LABEL
SORTED
PREPARED
DATE ACCEPTED
RR

PPQ FORM 391 *Previous editions are obsolete.* (AUG 02) his is a 6-Part form. Copies must be disseminated as follows: ☐ Part 1 – PPQ ☐ PART 2- RETURN TO SUBMITTER AFTER IDENTIFICATION ☐ PART 3- IIBIII OR FINAL IDENTIFIER
☐ PART 4- INTERMEDIATE IDENTIFIER ☐ PART 5- INTERMEDIATE IDENTIFIER ☐ PART 6 – RETAINED BY SUBMITTER

K PPQ 391 Form (Cont.)

OMB Information

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The Valid OMB control number for this information collection is 0579-0010. The time required to complete this information collection is estimated average .25 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Instructions

Use PPQ Form 391, Specimens for Determination, for domestic collections (warehouse inspections, local and individual collecting, special survey programs, export certification).

BLOCK	INSTRUCTIONS
1	1. Assign a number for each collection beginning the year, followed by the collector's initials and collector's number. **EXAMPLE** In 2001, Brian K. Long collected this first specimen for determination of the year. His first collection number is 01-BLK-001. 2. Enter the collection number
2	Enter date
3	Check block to indicate Agency submitting specimens for identification
4	Enter name of sender
5	Enter type of property specimen obtained from (farm, nursery, feedmill, etc.)
6	Enter address
7	Enter name and address of property owner
8	8A-8L Check all appropriate blocks
9	Leave Blank
10	Enter scientific name of host, if possible
11	Enter quantity of host and plants affected
12	Check block to indicate distribution of plant
13	Check appropriate blocks to indicated plant parts affected
14	Check block to indicate pest distribution
15	• Check appropriate block to indicated type of specimen • Enter number of specimens submitted under appropriate column
16	Enter sampling method
17	Enter type of trap and lure
18	Enter trap number
19	Enter X in block to indicate isolated or general plant symptoms
20	Enter X in appropriate block for weed density
21	Enter X in appropriate block for weed growth stage
22	Provide a brief explanation if Prompt or URGENT identification is requested
23	Enter a tentative determination if you made one
24	Leave blank

Distribution of PPQ FORM Distribution PPQ Form 391 as follows: 1. Send Original along with the sample to your Area Identifier.
2. Retain and file a copy for your records.

L Pest Risk Assessment Information

The scientific review panel may chose to conduct a Pest Risk Assessment (PRA) upon detection of a pest of state concern. Prior to conducting a PRA, the scientific review panel will develop and agree upon the PRA protocol to assess the pest.

The assessment will assist in determining the potential harm of the pest or disease to agriculture or other natural resources and the likelihood of a successful invasion by plant pests. As an important step in the response sequence, the PRA provides a pre-determined process for rapid decision making, and a decision-making process that utilizes sound scientific principles.

One such PRA protocol is the Exotic Forest Pest Information System for North America (ExFor), a joint project of the member organizations of the Insect and Disease Study Group of the North American Forest Commission. The Exfor PRA format estimates a pest's potential in the following four categories:

- Establishment Potential in Colorado
- Spread Potential
- Economic Impact Potential in Colorado
- Environmental Impact Potential of the Pest in Colorado

When estimating the impacts of a plant pest or disease, all available resource information should be used including historical records of the pest or disease affect in its native range or in other locations. When an assessment is conducted, descriptive statements or factors will assist in evaluating criteria. A brief description of criteria and factors considered in the EXFOR PRA are described below.

Establishment Potential in Colorado

Whether or not a pest will successfully colonize a new area once it has entered into Colorado is a consideration that should be assessed when determining response actions. Factors to help determine whether a pest or disease would become successfully established are:

- The number and life stage of the pest likely to be translocated
- Host specificity
- Availability of adequate host material
- Availability of suitable climatic conditions
- Ability to reproduce in Colorado
- Availability of vectors or other dispersal agents in Colorado
- Evidence of successful introductions in other regions

Spread Potential

The likelihood of the plant pest spreading beyond the initial colonized area following its introduction is another criterion to consider when deciding the appropriate response actions. The

rating for spread potential is a reflection of the pest's estimated potential to reach new habitats in Colorado following its establishment in one or more locales. Factors to be considered are:

- The Pest's ability for natural dispersal, e.g. long distance flight, wind-borne transport of spores, etc.
- Availability of suitable vectors and the ability of the vectors to naturally dispersed over a distance or the ability to use human activity for dispersal
- The distribution and abundance of suitable hosts
- The pest's reproductive potential
- The likelihood of early detection of a newly established population based on visual observation
- Availability of effective means to slow or stop spread from occurring.

Economic Impact Potential in Colorado

The economic impact of a pest if it were to become established in Colorado will also be assessed in a pest risk assessment. Considerations should include the economic importance of the host(s) and direct and indirect economic effects of an infestation. Factors to consider when assessing economic impact include:

- The type of damage caused by the organism to the living tree or to any harvest products
- The impacts on all affected industries, including forestry, nursery trades, recreation etc.
- The increased costs of production that may reasonably be anticipated as a result of infestation by the pest, including the cost of replacement, control, eradication, monitoring
- The loss of revenue that is anticipated due to reduced marketability or the loss of international/domestic markets, loss of aesthetic value affecting recreation industries, etc.

Environmental Impact Potential of the Pest in Colorado

Potential environmental impacts if a plant pest or disease became established in Colorado should also be considered when conducting a risk assessment. Factors to be assessed to determine the environmental impact potential are:

- The environmental significance of the host(s), i.e. dominant vs. minor species
- The degree of damage to the host(s)
- Effects on keystone species or species that play a fundamental role in maintaining the plants and animals in an ecosystem.
- Abiotic effects that might result from infestation, e.g. increase erosion, increased fire hazard, change in soil composition
- Biotic effects on other species that might occur, e.g. loss of food source, loss of nesting sites, loss of cover resulting in increased predation.
- The potential for reduction in sustainability
- The potential for reduction in biodiversity
- Potential for ecosystem destabilization to result from the pest's presence

- Reduction or elimination of endangered / threatened species
- Non-target effects of potential control measures

The final step in the PRA is to assign a risk category of **low**, **moderate** or **high** for the pest in question. As stated in the ExFor PRA, for a pest to be of concern it must be able to establish a population and it must be able to spread from the point of entry. If a pest is able to enter Colorado but cannot spread effectively, then the limiting factor is the spread. Alternatively, if the pest can spread rapidly, but the chance of establishment is small, then the establishment would be the limiting criteria. The impact of damage caused by the potential pest may be economic, environmental or both, but for purposes of risk, it is logical to use the higher of the two in determining a pest's overall risk.

M Pest Alert Template

The emergency plant pest / disease alert can be used to brief government, industry, and media on the details of an incursion. The information included in the pest alert will vary depending on the incursion and its intended audience. It is particularly important that the Pest Alert provided the media with general information on the outbreak which cannot easily be misinterpreted and does not disclose the identity of property owners. Images of publication quality of the disease/pest/damage should be obtained and included with the Pest Alert.

Pest Alert Template
What is it? ➢ General Description of the outbreak site, the extent of the restricted area, and the time since first detection. Note: the location of the affected area should not be revealed. ➢ Description of the biology of the organism (e.g. life cycle / method of reproduction).
Where did it come from? ➢ List of countries where the pest/disease has been recorded.
Symptoms ➢ Description of characteristic symptoms / damage with illustrations. ➢ Description of the type of causal organism and vectors, its size, how it was identified, confirmation of its absence in Colorado.
Spread ➢ Description of methods of spread /dispersal by natural (wind or water born spores, flight, vectors or movement in soil) and /or mechanical methods (contaminated plant material, in containers, equipment, trucks and tractors and by personnel).
Management ➢ Chemical and mechanical treatments, and resistant germplasm used overseas. ➢ Identify any effective treatments
Contact ➢ Contact details
Other useful information ➢ A list of the plants which are known hosts of the pest ➢ Environmental factors which are known to significantly affect the development and reproduction of the pest ➢ Economic loss caused by the pest / pathogen (with and without controls) ➢ Environmental damage caused by the pest / pathogen ➢ Known variation in the reaction of germplasm to the pest ➢ Likely areas of establishment

Pest Control Districts

Establishment

Per Colorado Revised Statute (CRS) 35 5-104, pest control districts may be established in unincorporated portions of the county and to landowners with 5 acres or more when the following criteria have been met:

- Residents in your area must petition the board of county commissioners. The petition must include the following information.
    - Description of the boundaries of the proposed district.
    - Description of the land of each person signing the petition
    - Statement of specific pests or diseases to be controlled
    - Statement of termination data of the proposed district
    - Signatures by 25% of resident landowners / lessee
- Landowners may include in their petition a request to the county commissioners to take charge of and supervise the control and eradication of the pests of concern.
- The county commissioners will mail ballots to all landowners and lessees in the proposed district
- Landowners and lessees owning or leasing 50% of the land in the proposed district must vote
- A vote of 66.6 % in favor of the district is required for the board to declare the district established.

Advisory Committee

As stated in CRS 35-50-103, subsequent to the formation of a pest control district and before any weed or pest control program has been initiated by the county pest inspector, the board of county commissioners shall appoint an advisory committee of five or more members, who shall serve at the pleasure of the board of county commissioners. The committee members may be landowners or lessees within the newly formed district.

Pest Control

Pest control districts are managed in the following manner. The county pest control inspector is required to send out a notice of the pests that must be controlled and the best methods for control. Notification must be sent out by radio, newspaper, or any other method of communications. Once notified, CRS 35-50-108 requires landowners to control pests on their land using methods specified by the county pest inspector.

Current Colorado Pest Districts

Baca County Pest Control District
741 Main Street
Springfield, CO 81073
741 Main Street
(303) 866-2156

Eastern Cheyenne County Pest Control District
PO Box 567
Cheyenne Wells, CO 80810
(303) 866-2156

Fort Morgan Pest Control District
Fort Morgan, CO 80701
PO Box 683
(303) 866-2156

Larimer County Weed District
2649 E. Mulberry St, Suite 6
Fort Collins, CO 80524
http://www.larimer.org/weeds/

Logan County Pest Control District
508 South 10th Avenue
Sterling, CO 80751
970-522-3200
www.logancountyco.gov/?page_id=87 -

Mandatory Dove Creek Pest Control District
PO Box 527
Dove Creek, CO 81324

Piceance Creek Pest Control District
439 County Road 26
Rifle, CO 81650

Rio Grande County Pest Control District
925 Sixth Street, Room 207
Del Norte, CO 81132-3229
(303) 866-2156

Tri-River Pest Control District
Mesa County Pest & Weed Inspector
P.O. Box 20,000-5025
Grand Junction, CO 81502-5025
http://www.mesacounty.us/pest/

Uncompahgre Valley Pest Control District
PO Box 1289, Montrose, CO 81402
(303) 866-2156

Upper Grand Valley Pest Control District
P.O. Box 20,000-5025
Grand Junction, CO 81502-5025

Washington County Pest Control District
152 Ash Street, Akron, CO 80720

Wiggins Community Pest Control District
7197 Road C, Wiggins, CO 80654
(303) 866-2156

Yuma County Pest Control District
206 North Main Street Lot 17
Yuma, CO 80759-1430
(970) 848-2509

O Local, State, and Federal Agencies Roles and Responsibilities

Colorado Department of Agriculture

The CDA, Plant Industry Division is the lead agency in any plant health related emergency occurring in Colorado. CDA will respond by using the NIMS protocol. The specific components will be under the joint command of the SPRO and the APHIS PPQ SPHD. Their overall responsibility will encompass command and management of the disease event, overseeing the management and dissemination of resources, establishing a communication and information management system and securing supporting technologies. The SPHD and SPRO may use any or all of the following action steps to control and/or eradicate the plant pest or disease encountered in the event.

- Assign an emergency response level to the incident.
- In consultation with the APHIS SPHD, determine the scope and level of initial response and initiate a task force.
- In consultation with the APHIS SPHD, determine the location and size of hold / quarantine areas.
- Establish, implement and maintain state quarantines.
- Determine appropriate movement restrictions for equipment, plants and or plant products.
- Prioritize activities and areas of greatest urgency for state response and recovery personnel in the field.
- CDA will coordinate with USDA APHIS PPQ staff and provide liaison between other federal, state and local organizations when required.
- Conduct random detection surveys for exotic plant pests.
- Conduct targeted detection surveys in high risk areas for exotic plant pests.
- Conduct investigations on reported and / or suspect new detections.
- Communicate and coordinate activities with appropriate local, state, and federal agencies, academia, industry, and other appropriate organizations as related to program responsibilities.
- Confirm identification or provide specimen to appropriate taxonomic authority for identification.
- Coordinate communication of new plant pest information with the USDA APHIS' PPQ and other state and federal agencies, state academic institutions, and industries.
- Review and coordinate control activities to ensure compliance with local, state, and federal laws.
- Coordinate activities with USDA APHIS' PPQ on cooperative programs.

SUPPORT AGENCIES

Local Government

Since all emergency response begins at the local level, local emergency management officials will be actively involved in the response and will be a key provider of resources for operational missions. Each county has a comprehensive emergency management plan which provides the framework for the jurisdiction's response to emergencies and disasters. Counties, through their assets of County Commissioners, County Pest Departments, County Extension Offices and their networks, will utilize their resources and provide an additional line of communication with local farmers, industry groups and the community.

O Local, State, and Federal Agencies Roles and Responsibilities

State Agencies

Colorado Division of Emergency Management may:

- Activate the State Emergency Management Plan and SEOC to support CDA.
- Support CDA by providing statewide coordination for logistical support, in acquiring resources and administrative support during plant health emergency and recovery from emergencies. Coordinate with CDA, for the provision of biosecurity training to support agencies and provide biosecurity training to agency personnel designated for operations in the affected area.

Colorado Department of Natural Resource, Division of Forestry

Will work collaboratively with CDA and provide technical expertise in regards to noxious weeds, aquatic pests and forest pests.

Colorado State Patrol (CSP) may:

- Provide law enforcement support and coordination to conduct traffic checkpoints and roadblocks, enforce stop movement orders and secure quarantined areas and related sites during plant health emergencies.
- Coordinate with local law enforcement agencies to support response and recovery with all available resources.

Colorado State University (CSU)

As a land grant institution in Colorado, CSU has a long history of conducting research and extension programs to assist in efficient agricultural commodity production. CSU Department of Bioagricultural Sciences and Pest Management houses the Plant Diagnostic Laboratory (PLD) and Pest Identification Service (PIS). Both laboratories are a part of the National Plant Pest and Disease Diagnostic Network. The PDL and PIS are both working toward accreditation to be level one facilities within the Great Plains Diagnostic Network (GPDN), the regional home of the CSREES national laboratory network. The accreditation will be an integral part of any rapid response effort in Colorado.

The GPDN is developing a web-based plant pest diagnostic and reporting system, which will help land-grant personnel submit plant samples digital images, and detailed crop information for pest diagnosis. Advantages of this system include:

- Rapid evaluation and reporting of potential bioterrorist threats
- Shorter response time for diagnosis
- Established links among diagnostic lab in the GPDN and to other labs in the National Plant Diagnostic Lab.
- Established links to regulatory agencies (including the USDA APHIS and state agricultural departments.
- Better quality and uniformity of information associated with samples.

O Local, State, and Federal Agencies Roles and Responsibilities

Federal Agencies

Untied States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) may:

- In cooperation with the Department of Homeland Security, examine high-risk cargo shipments for exotic plant pest at ports of entry.
- Perform high risk cargo destination point inspections and focused pest surveillance activities.
- Implement federal emergency response measures to prevent dissemination of exotic plant pests when discovered.
- Provide identification services.
- Provide funding for technical resources for plant pest survey and detection, monitoring, and outreach functions.
- Assist other agencies, as needed, in the detection, evaluation, monitoring, and eradication, of new exotic plant pest introductions.
- Create increased awareness of exotic and /or invasive plan pests through information and education.
- Transfer detection and management technology to cooperators.
- Improve management of selected exotic plant pests through development of new technology.
- Provide assistance to states for the control of exotic plant pests that may be established including development of National Environmental Policy Act documentation, project planning and other technical support.
- Assist in disease eradication activities including quarantine, evaluation, disposal, cleaning and disinfecting, trace-back, trace forward, and transportation permitting arrangements and /or in acquiring appropriate contractors to conduct such activities.
- Consult with state and local authorities regarding eradication proceedings.
- Collect, analyze, and disseminate technical and logistical information.
- Define training requirements for temporary employees or support agencies involved in eradication operations.
- Issue a declaration of extraordinary emergency.
- Coordinate with state and local agencies to define quarantine and buffer zones.
- Prepare information for dissemination to the public, producers, processors and other concerned groups through the Joint Information Center.
- Allocate funding for indemnifying to the owner(s) of destroyed crops or related property loss.
- Define restrictions on interstate commerce.

Federal Bureau of Investigation (FBI)

The FBI is the agency responsible for investigating cases of bio-terrorism or agro-terrorism a part of the mission of a Joint Terrorism Task Force (JTTF). When plants are the target of a terrorists attack and evidence suggests plant pest or disease may have been intentionally introduced or threatened, CDA will notify the CIAC who in turn will coordinate activities with the JIFF within the Denver Office of the FBI.

O Local, State, and Federal Agencies Roles and Responsibilities

Important Websites

Colorado Department of Agriculture	www.colorado.gov/ag
USDA APHIS PPQ	www.aphis.usda.gov/ppq/
Center for Plant Health Science And Technology	www.aphis.usda.gov/plant_health/cphst/index.shtml
USDA-ARS Systematic Entomology Laboratory	www.sel.barc.usda.gov
National Plant Diagnostic Network	www.npdn.org/
Great Plains Diagnostic Network	www.gpdn.org/
National Plant Board	www.nationalplantboard.org/
National State Plant Regulatory Officials	www.nationalplnatboard.org/member/index/html
National Association of State Departments of Agriculture	www.nasda.org
Colorado State University Plant Diagnostic Clinic	http://plantclinic.agsci.colostate.edu/
Colorado State University Extension	www.ext.colostate.edu/

P Response Information for Industry

Biosecurity for Farms, Nurseries, and Agricultural Crops

Producers have a responsibility to prevent the spread of unwanted plant pests and disease when working on farming properties. Pests and diseases can be spread via objects such as farm equipment, vehicles, and people. The following is a checklist of biosecurity measures to reduce of spread of disease.

Farm Biosecurity Measures			
Recommended Biosecurity Measures	**Yes**	**No**	**Comments**
People Movement			
Place biosecurity sign with farm contact information at farm entrance.			
Restrict visitor access to farm buildings and crops			
Develop a farm biosecurity plan available for farm personnel, consultants and visitors			
Inform farm contractors of biosecurity plan			
Require all farm visitors to sign a Visitor Log when entering the farm			
Educate farm personnel on how, when and where to report exotic pests and / or diseases.			
Train farm personnel on pest management			
Protecting Crops			
Maintain boundary fences and gates to prevent stray animals on farm			
Capture all stray animals entering the farm and isolate as soon as possible			
Cover plant and seed material in bins, containers and bags during transport			
Equipment and Vehicles			
Designate a parking area for visiting vehicles and contractor equipment			
Provide a cleaning and disinfection area for equipment, vehicles and machinery			
Clean and disinfect all machinery before leaving the farm.			
Pests and Diseases			
Inspect crops and pastures regularly for exotic pests and diseases			

Farm Biosecurity Measures Cont.			
Recommended Biosecurity Measures	**Recommended Biosecurity Measures**	**Recommended Biosecurity Measures**	**Recommended Biosecurity Measures**
Report all suspected pests or diseases to County Extension Office, or other appropriate agencies			
Keep areas around grain silos free of split grain, weeds and garbage.			
Pests and Diseases, Cont.			
Keep grain silos sealed during fumigation for at least 7 days			
Record all crop and grain pest inspections			
Develop insect and disease management plans for the farm.			
Thoroughly clean grain storage and handling equipment prior to harvest.			