

Citrus Health Response Plan (CHRP)



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*Developed by the USDA/APHIS and FDACS/DPI in consultation
with the Florida citrus industry and other stakeholders.*

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CITRUS HEALTH RESPONSE PROGRAM (CHRP)
Minimum Standards for Citrus Health in Florida

INTRODUCTION

Citrus production in the United States has been an important part of our rich and abundant agricultural heritage dating back to the introduction of citrus into St. Augustine, Florida in the 1500s and the planting of the first commercial grove in 1823 by French Count Odel Philippe. Citrus production spread across the southern tier states of the United States in the 1800s with Louisiana, Texas, Arizona and California joining Florida as citrus-producing states.

Citrus production in the United States has a colorful history with many challenges over the years. Catastrophic weather events in the form of freezes, hurricanes and drought have occurred periodically and temporarily reduced citrus production. Exotic citrus pest and disease incursions have and continue to affect citrus production in the United States with citrus canker, citrus tristeza virus and fruit flies of economic importance having significant impacts over the last 100 years.

It is noteworthy that citrus production in the United States coincides with geographic regions that are considered high-risk areas for the introduction and establishment for invasive pests and diseases. Key factors that are common to the high risk states of Florida, California, Texas, and Arizona, are climate, crop diversity, geography, urban encroachment and international air and maritime ports which bring in international cargo and passengers. Other challenges in the form of foreign competition for foreign and domestic market share and escalating agricultural land values are more recent problems, but have also contributed to instabilities in citrus production.

Despite the past and current challenges placed on United States citrus production, it has survived and is recognized as a very important part of our agricultural well being. In Florida alone, commercial citrus is a nine billion dollar a year industry with some 750,000 acres in production.

In recent years, commercial citrus production in Florida has been at the forefront of many of the issues that face United States citrus production. Weather events that occurred within the 2004 and 2005 hurricane seasons, coupled with the introduction and spread of citrus canker and huanglongbing (citrus greening), have resulted in a unique combination of impacts.

Despite a ten-year monumental effort to eliminate citrus canker, a combination of program delays from legal challenges to the CCEP and unprecedented hurricane activities in 2004 and 2005, the disease spread to the point that eradication was considered no longer feasible. Huanglongbing, a serious citrus disease, was detected in late 2005 in South Florida. The biology of huanglongbing, coupled with its primary insect vector, the citrus psyllid, does not lend itself well to early detection nor eradication. Survey activities subsequent to huanglongbing detection in Florida revealed that the disease is well established in South

Florida and is present at lower levels in an apparent gradient from south to north in the southern half of the Florida peninsula.

The establishment of citrus canker and huanglongbing in Florida and other exotic citrus insect and diseases on the doorstep dictated the need to look at approaches other than eradication to help protect citrus production and mitigate the impact of these unwanted invaders. Scoping sessions in late 2005 and early 2006 by key stakeholders in citrus protection and production discussed various options from which came the concept of a Citrus Health Response Program. This approach concentrates on the development and implementation of minimum standards for citrus inspection, regulatory oversight, disease management and education and training. It is in essence a holistic approach to the protection of citrus production. While Florida may have been the impetus for the development of a Citrus Health Response Program, the concept applies to United States citrus production in general. The United States Department of Agriculture's Animal and Plant Health Inspection Services assumed a leadership role in the development of a Citrus Health Response Program (CHRP) draft document. Key participants in the development of the draft included the Florida Department of Agriculture and Consumer Services' Division of Plant Industry, Florida Citrus Mutual, University of Florida's Institute of Food and Agricultural Sciences, United States Department of Agriculture's Agricultural Research Services, and the California Citrus Research Board.

The aforementioned parties formed an ad-hoc study group to develop a draft CHRP. The effort to develop minimum standards within the CHRP was divided between five sub-working groups:

Nursery and Budwood Working Group
Production Practices Working Group
Packing and Processing Working Group
Harvesting Working Group
Residential Citrus Working Group

The findings of these working groups was documented then incorporated into sections of the CHRP that corresponded to the titles of the groups. It is important to point out that the individual reports of the working groups were reviewed and revised by the CHRP Study Group.

Key issues that were identified by the CHRP development teams were:

- 1) Registration of producers, production units, citrus nurseries, budwood facilities, harvesters and packing or processing facilities
- 2) Inspections and survey to verify compliance of incidence levels of disease as required for fruit harvest in production units and disease freedom in nurseries and budwood facilities.

- 3) Fresh fruit certification, maintaining fruit identity and providing proper phytosanitary documentation, packing house post-harvest inspection and treatment monitoring
- 4) Disease management strategies (BMPs) for various fruit production systems

Common themes or overarching issues within the CHRP are (1) the need for education and training, research, a balance of regulatory oversight with industry due diligence, (2) flexibility in adjusting to new information, and (3) requirements that are based on sound science and the principles of plant quarantine.

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NURSERY AND BUDWOOD

A citrus nursery or budwood facility is defined as a geographically distinct location where citrus nursery stock is produced for wholesale or retail sale, movement to another location, or use within a citrus grove or where citrus trees are maintained as sources of budwood or seed in order to propagate citrus nursery stock. Each facility must have appropriate biosecurity measures to prevent the movement of citrus pests and diseases between locations.

The following are minimum standards of the CHRP system for citrus nurseries or budwood facilities:

1. Registration of all citrus nurseries and budwood facilities
2. Approval of citrus nursery and budwood facility sites
3. Geographic separation from concentrations of citrus trees
4. Production of citrus nursery stock and budwood sources in approved structures
5. Security and sanitation measures to prevent pest or disease introductions
6. Training and education
7. Inspections to verify pest- and disease-freedom in citrus nurseries and budwood facilities
8. Citrus nursery stock, budwood and seed certification

Registration of Citrus Nurseries and Budwood Facilities

Any person who produces citrus nursery stock, citrus budwood or citrus seed for movement or sale must register as a citrus nursery or budwood facility and be in compliance with all state rules governing nursery stock production and budwood certification. A *CHRP Citrus Nursery/Budwood Facility Compliance Agreement* that will detail the requirements for producing and moving citrus nursery stock, budwood and seed must also be signed.

Approval of Citrus Nursery and Budwood Sites

Each citrus nursery or budwood facility must be located on an approved site that is a minimum distance from commercial citrus groves, other citrus trees or Rutaceous plants as specified by state rules. The site must meet existing requirements for freedom from certain nematode and soilborne pathogens.

Geographic Separation from Concentrations of Citrus Trees

Citrus nurseries and budwood facilities must be separated from concentrations of citrus trees to minimize pressure from diseases, disease vectors and other pests. Budwood facilities must be located outside of commercial citrus production areas and away from concentrations of dooryard citrus preferably in the northern area of the state. Citrus nurseries should also be located away from concentrations of citrus trees at distances that will be established through state rule-making.

Production of Citrus Nursery Stock and Budwood Sources in Approved Structures

Citrus nursery stock and budwood sources must be grown in insect-resistant structures constructed at a minimum with poly/polycarbonate covering or screened with a maximum screen size of 266 X 818 μm designed to exclude psyllids, aphids, leaf miners or other pests. The structure should be sub-divided with additional walls and doors to further preclude or minimize internal insect movement should insects be detected in one part of the structure.

Any structure must include double entryways with positive pressure air displacement. If cooling pads and fans are used they must be enclosed with insect resistant screen with a maximum screen size of 266 X 818 μm that allows adequate ventilation.

Adequate construction materials should be kept available on site in the event that the structure is damaged so that timely repairs can be made. Any damages that are detected must be immediately reported to the appropriate regulatory official.

Security and Sanitation Measures to Prevent Pest or Disease Introductions

The citrus nursery or budwood facility site must be fenced with a single entry gate that must remain secure at all times. Employee and visitor parking must be provided outside of the gated areas.

All visitors must be accompanied by a citrus nursery or budwood facility representative. Visitors must log-in and sign a statement that they have not visited citrus groves or other nurseries that day.

All employees and visitors must decontaminate upon entering and exiting the citrus nursery or budwood facility with an approved material. This shall include foot baths and full body sprays, paying particular attention to hands. All entrants should be dressed in clean clothing. No employee shall be permitted to work in the nursery or facility if they previously worked in a commercial citrus planting that day.

No one will be permitted to bring citrus and citrus relatives onto property with the exception of certified propagative material. All liners from outside sources should be segregated until disease-freedom status of the liners can be determined.

All tools must be sterilized upon entry to a nursery or budwood site, between designated areas within the facility, between individual budwood sources trees, nursery blocks and between increase block rows, using a solution of household bleach (sodium hypochlorite) 20% by volume or other approved sanitation product.

All vehicles and other equipment shall be free of all plant material and soil before delivery to the site. All equipment shall be disinfected with an approved material upon entering and leaving site. Spray will cover entire vehicle including undercarriage and tires to the point of runoff. This does not include vehicles parked outside of the gated site. Vehicle traffic into the citrus nursery/budwood facility should be minimized. All personnel and visitors must park outside the facility or in an isolated designated secure parking area on the nursery site.

Deliveries should be handled at the gated entrance to the site whenever feasible. All equipment, if possible, should remain within budwood facility site at all times.

New pots or containers and those in use must be kept off the floor. Used pots and seedling trays must be cleaned of all soil matter and thoroughly disinfected using a bleach solution before entering growing area. Media must be stored on a concrete pad or in a soil bin designed for water to run off. Employees and equipment must not enter media storage area without receiving a treatment in an appropriate disinfectant treatment.

Nursery floor should remain weed free. Ground cover cloth, rock, shell rock or other suitable material should be used as flooring for structure, as well as the perimeter surrounding the structures.

All citrus nursery stock and propagative plant parts shall remain within the approved structure at all times or moved within enclosed conveyances.

Training and education

Employees and inspectors will be trained to recognize exotic citrus diseases and arthropod vectors that may affect citrus production, especially citrus canker and huanglongbing (citrus greening) at first, expanding to citrus variegated chlorosis, citrus black spot, citrus leprosis, citrus tristeza and other diseases that are imminent threats to US citrus production. The arthropods of concern associated with disease movement include sharpshooters, psyllids, aphids, mites and whiteflies. The training materials should be provided by the state extension service. They must also be trained on the proper decontamination and sanitation requirements.

Employers will be required to maintain a log of all training that is provided to employees. Each employee will be required to complete training as part of new-worker orientation and yearly refresher courses, to include training in identification of any new emerging citrus disease threats.

Inspections to Verify Pest and Disease-Freedom in Citrus Nurseries and Budwood Facilities

Citrus plants must be inspected for pests and diseases every 30 days by state regulatory inspectors and certified disease-free prior to transport. Any citrus nursery stock or budwood source tree found infected or exposed to citrus canker, citrus greening, citrus nematodes, diaprepes, psyllids, aphids or other common plant pests shall be subject to immediate quarantine action and will not be eligible for certification until treated as prescribe by the department and released from quarantine.

Nursery environs shall be inspected in accordance with the Residential component of the CHRP. The presence of citrus canker or citrus greening in the environs that is determined to present a risk to the citrus nursery or budwood facility will result in an immediate quarantine of the nursery or facility until the risk can be mitigated.

The approved structure containing citrus nursery stock and budwood material shall be inspected by trained nursery personnel on a weekly basis for the presence of exotic diseases and for the presence of any insects. Findings must be reported to appropriate regulatory officials.

The structure's integrity will also be inspected every 30 days by the regulatory inspector to ensure that there are no holes or other damages that would compromise insect or disease exclusion. The inspector will also conduct a complete audit of the nursery or facility every quarter to verify compliance with production requirements.

Citrus Nursery Stock, Budwood and Seed Certification

Propagative material including budwood, air-layers, cuttings and all topworking material shall be from state-registered budwood source trees. Budwood shall be taken under the direct supervision of a witness authorized by the department. Budwood from each source tree shall be wrapped separately. Each bundle shall be labeled showing variety, the tree identification number, and number of buds counted or estimated. Propagations from each source tree shall be maintained in nursery rows or on greenhouse benches so that each group can be traced back to an individual source tree. Nurserymen shall use permanent tags to label each separate group of propagations with the source tree registration number. Seed from HLB-diseased trees should not be used.

All citrus budwood source trees shall be tested and indexed on a regular basis to ensure the disease-free status of citrus material. All facility personnel shall be trained to recognize disease vectors and symptoms of all pertinent exotic citrus diseases. A log of personnel training shall be maintained for inspection.

All seed upon extraction must be hot-water treated at 125 F for 10 minutes to eradicate *Phytophthora* spp. and then treated with a prescribed seed fungicide before storage.

An appropriate disease vector control prophylaxis program must be in place to facilitate control of potential exotic disease vectors in the structures. Also disease vector spray programs must be implemented in all outdoor nurseries during the transition period.

All citrus plants must remain free from arthropods and diseases of concern to maintain certification. The integrity of the structure must also be intact and the nursery or facility must be in compliance with production requirements in order to maintain certification.

All citrus nursery stock and budwood moved from the facility must be accompanied by a state certificate documenting that the plant material meets state phytosanitary standards or the phytosanitary standards of the receiving state or country. This documentation must identify the citrus nursery or budwood facility site.

PRODUCTION PRACTICES

This section is designed to provide minimum standards for commercial citrus production with emphasis on pest survey, sanitation, disease management strategies, and on-going training/ education on the latest tools and techniques to employ. It is essential that citrus production start with the planting of clean nursery stock followed by a transition to best management of the production unit to maximum productivity with the least amount of input/ cost. Key elements that will determine the production practices will be variety of fruit, fresh vs. processing goals, location of the production unit, and history of disease in the unit and surround area. The University of Florida will be providing management options for production managers to use that can be adjusted to meet the desired production goals.

The following are minimum standards of the CHRP system for Production Practices:

1. Registration of citrus production sites
2. Decontamination
3. Grove survey
4. Disease management
5. Training and education
6. Resetting commercial groves with certified citrus nursery stock
7. Abatement of abandoned or unmanaged citrus groves or feral citrus

Registration of Citrus Production Sites

All commercial citrus producers and/or caretakers must have a signed *CHRP Commercial Citrus Grove and Caretaker Compliance Agreement* that will specify in detail the requirements for grove survey, disease management, decontamination and other issues.

Decontamination

Decontamination is essential to retard the spread of citrus canker as well as other citrus pests and diseases. Decontamination requirements should remain a key part of the production practices business plan that is required to be completed annually by grove owners and caretakers. Continued emphasis on training of personnel in the proper methods of decontamination, designating a manager who is responsible for decontamination oversight, and setting minimum standards for decontamination of equipment are all considered important parts of this standard.

Grove Survey

The mandatory reporting of exotic citrus diseases in new areas is an important component of the self-survey program to help determine the status of various regions of the state relative to disease establishment and inoculum pressure and is a mandatory requirement. This standard will be of particular importance if growers in a given geographic area are working cooperatively to manage citrus canker and HLB incidence. As this is primarily an industry requirement, it should be written into the grove owner and caretaker compliance agreement or business plan requirement.

A key component of any plant pest and disease eradication or control program is surveillance. At least in the short term (next two years), it will be important to know the distribution of citrus canker and huanglongbing (HLB, citrus greening) in Florida's citrus production areas. At a minimum, annual survey data is essential on the location of citrus canker and greening to assist in managing citrus canker and HLB.

General survey is required to be performed by regulatory authorities on a yearly basis with well timed self survey of groves by appropriately trained production personnel. In addition to general survey, it may be necessary to inspect commercial groves that contain fruit destined for the fresh fruit market on a more robust schedule. All survey results shall be made available to CHRP officials and industry within a week of production unit survey completion.

While survey for fresh fruit phytosanitary certification must be accomplished by state or federal officials, there will also be a role for self-survey activities carried out by grove owners or management companies. Grower surveys will enhance or augment state and federal surveys that are designed to determine disease presence, absence, or the level of infection in a given area. These additional surveys will help determine what management strategies to implement over time. If it is necessary to keep fresh fruit blocks disease-free or below some established disease threshold level (0.5% diseased tree incidence), self-survey in advance of an official state or federal survey would be of value if measures need to be taken to meet certification standards. Self survey will be encouraged to facilitate the implementation of effective disease management options.

Survey information is important for grove owners and caretakers to know the status of citrus canker and other diseases in the groves. Also, management decisions will be made within well-grounded minimum standards. In summary, CHRP surveys to determine disease distribution will help ensure only asymptomatic fruit are shipped and management is based on disease incidence and State Extension recommendations.

Any and all citrus plants reset or groves replanted must be certified disease-free and obtained from a citrus nursery registered with the state and under a Citrus Nursery/ Budwood Facility Compliance Agreement.

Production units with fruit destined for the fresh fruit market must be inspected and certified free from citrus canker and other exotic diseases by regulatory inspectors within 90 days of harvesting fresh fruit.

Disease Management

Management strategies will be based upon the status of the section (square mile unit within a township and range) in which the grove is located and upon the recommendations of the University of Florida's Institute of Food and Agricultural Sciences (UF IFAS). Management strategies shall be outlined in the CHRP compliance agreement. Citrus canker and HLB management will be the responsibility of the grower/caretaker based on best management practice guidelines put forth by the appropriate State Extension personnel.

Training and Education

Employees and inspectors will be trained to recognize exotic citrus diseases and arthropod vectors that may affect citrus production, especially citrus canker and Huanglongbing (citrus greening) at first, expanding to citrus variegated chlorosis, citrus black spot, citrus leprosis, citrus tristeza and other diseases that are eminent threats to US citrus production. The arthropods of concern associated with disease movement include sharpshooters, psyllids, aphids, mites and whiteflies. The training materials should be provided by the State extension service. They must also be trained on the proper decontamination and sanitation requirements.

Employers will be required to maintain a log of all training that is provided to employees. Each employee will be required to complete training as part of new worker orientation and yearly refresher courses, to include any training in identification of any new emerging citrus disease threats.

Resetting Commercial Citrus Groves with Certified Citrus Nursery Stock

Under CHRP management guidelines, it is important to have the ability to remove and replace diseased and/or unproductive trees with certified disease-free nursery stock by date of CHRP adoption. The Citrus Budwood/Nursery Working Group is responsible for the development of clean nursery stock standards. It is well justified to allow the resetting of commercial citrus groves as long as resetting with clean nursery stock is accomplished as part of a comprehensive CHRP management strategy for each grove involved. Resetting will need to be done using only certified nursery stock and management strategies as defined in the compliance agreement.

Abatement of Abandoned or Unmanaged Citrus Groves or Feral Citrus

As comprehensive CHRP management strategies are developed and applied, it will be necessary to have the ability to address properties where citrus is being unmanaged to the point that it is considered a pest or agricultural nuisance. A definition will be needed for properties considered to be abandoned/unmanaged along with a set of criteria that will be applied to determine appropriate regulatory action. Legislation, as well as rule making, will be required to provide the necessary authority to address abandoned/unmanaged or feral citrus that are determined to be an agricultural nuisance. There may also need to be a period of time that a property may be allowed to keep its agricultural exemption if abatement action is taken to remove any agricultural crop considered to be a threat.

HARVESTING

This is considered of key importance to continue to have minimum standards in place for harvesting with emphasis on decontamination to help retard the artificial spread of citrus pests and diseases. In addition it will be important to make sure there is a mechanism in place throughout the harvesting process to assure the production unit is eligible for harvest and the fruit identity is maintained from the grove to the packing/ processing facility.

The following are minimum standards of the CHRP system for harvester minimum standards:

1. Registration of harvesters
2. Production unit certification
3. Decontamination
4. Training & Education
5. Production unit identification

Registration of Harvesters

All commercial citrus harvesters must have a signed *CHRP Commercial Citrus Harvester Compliance Agreement* that will specify the requirements for harvesting citrus.

Production Unit Certification

When harvesting fruit for the fresh market, only those production units certified as meeting the phytosanitary standards under the CHRP Commercial Citrus Grove compliance agreement for the intrastate, interstate or international shipment of fresh fruit shall be harvested. A harvesting permit is required verifying that the production unit was inspected within 90 days of harvest and met applicable requirements.

Decontamination

Harvesters must be responsible for decontamination of personnel prior to entering and exiting a commercial citrus grove. If a different grove is to be entered on the same day, the harvester shall contact the manager of the next grove to verify the post-harvest decontamination procedure. If the grove manager or his designee verifies that the decontamination procedures of all equipment are carried out to his/her satisfaction, the pre-entry decontamination procedure at the next grove is not required, as long as no contact with other citrus plants is made prior to entering the grove.

All vehicles and other equipment shall be free of all plant material and soil before entering premises to harvest citrus fruit and prior to leaving harvesting area. All equipment shall be disinfected with an approved material upon entering and leaving site, except as noted in paragraph above. Spray will cover entire vehicle including undercarriage and tires to the point of runoff. Trailers are required to be free of any plant debris prior to entering and before leaving a grove. Vehicle traffic into the harvesting area should be minimized.

Training and Education

Employees will be trained on the proper decontamination and sanitation requirements. The training materials should be provided by the State extension service. Employers will be required to maintain a log of all training that is provided to employees. Each employee will be required to complete training as part of new worker orientation and yearly refresher courses.

Production Unit Identification

Each load of fruit must be accompanied by a trip ticket that contains the name of the grove, the grove owner/agent, the name of the harvester, the license tag number of the conveyance containing the load, the number of field boxes contained in the load, and the destination.

Field boxes must contain production unit identification if required by the receiving state or country.

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PACKING OF FRESH FRUIT

Packing houses pack citrus fruit for the fresh market. It is important that fresh fruit be inspected and certified free of pests and diseases and properly identified to meet export certification requirements. Asymptomatic fruit is proposed to be available for unrestricted movement if packed in accordance with the CHRP.

The following are minimum standards of the CHRP system for packing fresh fruit:

1. Registration of all packing houses
2. Receipt and identification of certified fruit
3. Inspection of fruit for pests or disease symptoms
4. Training and education
5. Security and sanitation
6. Fruit certification

Registration of All Packing Houses

All citrus packing houses must have a signed *CHRP Packing House Compliance Agreement* that will specify the requirements for packing fresh citrus.

Receipt and Identification of Certified Fruit

All packing houses must verify that a harvesting permit was issued and that fruit is properly certified and identified prior to packing. Fruit identity must be maintained throughout the shipping process as needed to meet the phytosanitary requirements of receiving states or countries. The identification of the fruit must be sufficient to trace the origin of the fruit from the terminal market to the production unit.

Inspection of fruit for pests or disease symptoms

All citrus fruit must be inspected for any symptoms of citrus canker, huanglongbing or other pests as required to meet phytosanitary requirements. The detection of disease symptoms or pests must be brought to the attention of the state inspector.

Periodic inspections will be conducted in the packinghouse facility by appropriate regulatory officials.

Training and Education

Employees and inspectors will be trained to recognize symptoms of citrus canker, huanglongbing and other pests and diseases that would affect phytosanitary certification. They must also be trained on the proper decontamination and sanitation requirements.

Employers will be required to maintain a log of all training that is provided to employees. Each employee will be required to complete training as part of new-worker orientation and

yearly refresher courses, to include training in identification of any new emerging citrus disease threats.

Security and Sanitation

Packing house sites must be secure. All visitors must be accompanied by a packing house representative.

Debris on or in equipment shall be removed from and disposed of appropriately on a daily basis. All equipment returning to commercial citrus production sites must be free of debris and decontaminated with approved products as described in the compliance agreement.

Fruit Certification

Inspectors will verify that all fruit has been treated by immersion in Sodium Orthophenyl Phenate (SOPP) at 2% for 45 seconds or 200 ppm sodium hypochlorite (NaOCl) at a pH of 7.0 for 2 minutes. They will also verify that the fruit meets the phytosanitary requirements of the receiving state or country and properly document this on the manifest.

PROCESSING FACILITIES

Processing facilities receive fresh citrus fruit to be processed for juice or other purposes. Fruit that is destined to a processor poses no significant risk of spreading citrus diseases; therefore, it is proposed that fruit from positive groves or production units be allowed to move intrastate to processing facilities.

The following are minimum standards of the CHRP system for packing and processing:

1. Registration of Processors
2. Sanitation

Registration of All Processors

All citrus processing facilities must have a signed *CHRP Processor Compliance Agreement* that will specify the requirements for processing citrus.

Sanitation

Debris on or in equipment shall be removed from and disposed of appropriately on a daily basis. All equipment returning to commercial citrus production sites must be free of debris and decontaminated with approved products as described in the compliance agreement.

RESIDENTIAL CITRUS

Residential areas as part of the Citrus Health Response Program need to be inspected in order to detect new exotic citrus pests and diseases, to prevent citrus pest or disease incursion into citrus nursery or budwood facility environs and to further delineate the distribution of citrus greening. It is also necessary to assist home gardeners in managing citrus pests.

The following are the minimum standards for the CHRP system for residential areas:

1. Inspections to detect new exotic citrus pests and diseases
2. Surveys of citrus nursery/budwood facility environs
3. Surveys to delimit citrus greening
4. Information on citrus pest and disease management

Inspections to Detect New Exotic Citrus Pests and Diseases

Residential surveys should be routinely conducted and documented by CHRP officials or through the Cooperative Agricultural Pest Survey (CAPS). Fruit fly detection trapping sites are located throughout residential and rural areas on over 160,000 properties statewide and almost all contain citrus. These sites should be inspected for other citrus pests or diseases when traps are serviced.

Master Gardeners and other groups should also be kept informed about new citrus pests of concern. Existing community organizations (e.g. neighborhood associations) should be used to assist in voluntary survey activities. Many times new pests are reported by concerned residents.

Surveys of Citrus Nursery/Budwood Facility Environs

Residential inspections will be needed to detect citrus canker or citrus greening that may jeopardize the production of disease-free citrus nursery stock. Nursery environs surveys would be conducted within a minimum one square mile area surrounding certified citrus nursery sites every six months.

Surveys to Delimit Citrus Greening

A survey of residential areas in addition to commercial groves will be needed to determine the current distribution of citrus greening in Florida. Once this is completed, ongoing surveys for citrus greening will be incorporated in the Nursery Environs Survey.

Information on Citrus Pest and Disease Management

The State Cooperative Extension Service and available resources from USDA will work together to enhance current public outreach efforts on pest and disease prevention and management, as well as to educate on the importance of protecting agricultural resources. This outreach is needed to encourage residents to manage citrus canker, HLB and other

citrus pests in their home gardens, and to help promote a better understanding of how their decisions may affect commercial producers, and, ultimately, the Florida economy.

It is critically important that residents understand the need to only purchase citrus trees produced in state certified nurseries as required by law. Residents must be made aware that they should not accept citrus plants from other sources or give citrus plants from their yard or garden to others.

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DISEASES AND ARTHROPODS OF CONCERN FOR CHRP

Citrus Psorosis Virus
Concave gum/blind pocket
Citrus viroids
Severe strains of citrus tristeza virus
Citrus tatter leaf virus (Apple stem grooving virus)
Citrus canker
Citrus greening (HuangLongBing)
Citrus Leaf blotch Virus
Citrus Variegated Chlorosis
Citrus Stubborn
Witches' Broom Disease of Lime
Australian Citrus Dieback
Satsuma Dwarf Virus
Indian Citrus Ringspot Virus
Citrus Yellow Mosaic Virus
Citrus Vein-Enation Virus
Citrus Sudden Death
Citrus Leprosis Virus
Citrus Chlorotic Dwarf
Asian Citrus Psyllid
Asian Citrus Leafminer
Brown Citrus Aphid

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MEMBERSHIP LIST

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