

Department of Food and Agriculture
Proposed Changes in the Regulations
Title 3, California Code of Regulations
Section 3439 subsection (b)
Huanglongbing (HLB) Disease Interior Quarantine
Initial Statement of Reasons/
Policy Statement Overview

Description of Public Problem, Administration Requirement, or Other Condition or Circumstance the Regulation is Intended to Address

This regulation is intended to address the obligation of the Department of Food and Agriculture (the Department) to protect the agricultural industry from the movement and spread of injurious plant pests within California.

Specific Purpose and Factual Basis

The specific purpose of Section 3439 is to provide authority to the State to regulate the movement of hosts and possible carriers of Huanglongbing (HLB) disease (HLB-associated bacteria *Candidatus Liberibacter asiaticus*) from the regulated area.

The factual basis for the determination by the Department that the amendment of this regulation is necessary is as follows:

The Department uses Geographic Information Systems (GIS) mapping programs to plot locations of all HLB detections. As a result, based upon the criteria contained in the existing United States Department of Agriculture (USDA) regulatory protocol, the Department determined that there are new infestations of HLB that require the expansion of the existing State HLB quarantine area.

Samples collected on November 28, 29, and 30, 2017 (PDR # AM0P06558479, AM0P06558482, AM0P06827593) from the Westminster and Santa Ana areas of Orange County were confirmed to be HLB on January 3rd, 2018. These detections

meet the state and federal regulatory protocols for expanding the quarantine boundary in the Westminster and Santa Ana areas of Orange County. The Department uses a minimum of a five-mile radius surrounding each find site as the quarantine buffer.

On January 5, 2017 the Agricultural Commissioner of Orange County requested that the quarantine be expanded in the Westminster and Santa Ana areas.

On February 16, 2018, the emergency action to expand the quarantine area in the in the Westminster and Santa Ana areas of Orange County based on the HLB identifications became effective. The quarantine expansion added 54 square miles.

The purpose of the proposed amendment is to extend the effective date of the expanded quarantine beyond the statutory 180-day limit for emergency regulations.

The Department determined there are zero growers of citrus, zero citrus packing houses, zero citrus production nurseries, and zero retail nurseries that will be impacted.

HLB was first identified in China in 1919 and is considered to be the most devastating of all citrus diseases. Once infected, there is no cure for HLB-infected citrus trees, which decline and die within a few years. Additionally, the fruit produced by infected trees is not suitable for either the fresh market or juice processing due to the significant increase in acidity and bitter taste.

Both ACP and HLB are federal action quarantine pests subject to interstate and international quarantine restrictions by the USDA.

On March 30, 2012, the USDA confirmed the presence of HLB in the Hacienda Heights area of Los Angeles County and the only known infected tree was removed. Additionally, on July 9, 2015, the USDA confirmed the presence of HLB in the San Gabriel area of Los Angeles County. On December 29, 2016, the USDA confirmed the presence of additional HLB in the Cerritos area of Los Angeles and Orange counties.

The first known citrus tree infected with the devastating HLB disease was located in an area of the State which has large populations of Asian citrus psyllid (ACP). ACP adults are the only mobile vector of this disease in California. It was essential to remove this source of source of HLB as soon as possible to prevent any ACP in the area from feeding on it and transmitting the disease elsewhere, which may have occurred during each day that the HLB-infected tree remained intact.

Food and Agricultural Code Section 5762 establishes that any pest with respect to which an eradication area has been proclaimed, and any stages of the pest, its hosts and carriers, and any premises, plants, and things infested or infected or exposed to infestation or infection with such pest or its hosts or carriers, within such area, are public nuisances, which are subject to all laws and remedies which relate to the prevention and abatement of public nuisances. Food and Agricultural Code Section 5763 establishes that the Department can take summary abatement actions against a “public nuisance” when it is part of an eradication regulation. Food and Agricultural Code Section 3639 establishes that nursery stock regulated under the quarantine that does not meet the quarantine requirements is considered a public nuisance and subject to summary abatement. It is essential to remove HLB-infected citrus trees in an appropriate biological time frame to prevent further spread. The Department can only do this by being able to exercise its summary abatement authority, which is why this regulation was initially adopted as an emergency action.

However, given the high populations of ACP in the area and that symptoms of the disease may take up to two years to detect, it is necessary to continue the maintenance of this regulation. In the proposed expansion area, sixty (60) percent of the residential properties have host material. HLB-infected ACP may already have transmitted the disease to nearby hosts, which are being surveyed for the next two years. Additionally, HLB is a graft transmittable disease, which means it can be transmitted by the common practice of grafting material between citrus trees.

Because there are several diseases and nutritional deficiencies that produce symptoms similar to HLB in its early stages, samples are being taken from any host material in the State that shows HLB-like symptoms. These samples are then submitted for laboratory analysis.

The entire State is an eradication area for ACP, one of the vectors of HLB. California Code of Regulations, Title 3, Section 3591.21. Now that the disease has been introduced into California, this vector disease complex may occur anywhere in California where host material is grown. Therefore, the entire State is an HLB-eradication area. California Code of Regulations, Title 3, Section 3639.

Both ACP and HLB are federal-action-quarantine pests subject to interstate and international quarantine restrictions by the USDA. Both ACP and HLB now occur in Mexico, and HLB has spread north and now occurs south of the State of Sonora. In mid-January 2012, HLB was confirmed in the Rio Grande Valley of Texas. Additionally, in July 2009, ACP nymphs were intercepted in a plant shipment from India to the Fresno area, and the nymphs tested positive for HLB. It is imperative that the Department eradicate any known infestations of HLB-host material and HLB-infested ACP wherever possible to ensure the devastating damage caused by HLB is limited to the smallest area possible. A recent study by the University of Florida IFAS Extension calculated the impact of HLB. The economic analysis concluded HLB had a total impact of \$3.64 billion and eliminated 0.08 percent of the total Florida workforce. In 2008, the estimated increased production cost for citrus in Florida ranges from \$266 to \$332 million. With approximately 600,000 acres of citrus in production in Florida, the increased production cost translates to an increase of \$443 to \$553 per acre. This estimate is based upon an eight (8) dollar per tree replacement cost.

On November 22, 2017, the University of California (UC) and the USDA provided the Department a briefing paper that provided new scientific evidence and analysis indicating that a sudden and unexpected statewide emergency exists. The following information from the briefing paper supports the conclusion that there is a clear, imminent, and

statewide danger to California's natural environmental, agriculture, and economy due to HLB.

Since 2012, a background risk level for HLB in residential citrus in each square mile of interest has been calculated 2-3 times per year using a risk model developed in Florida and adapted for use in California by Dr. Tim Gottwald. The model uses a range of risk variables including census data, topography, land use, and known incidence of both HLB and ACP to produce a risk value ranging from 0 (extremely low risk) to 1 (very high risk), with intervals based on decimal values between 0 and 1, that applies to each square mile. The risk model is proven to correctly anticipate the presence of HLB, as demonstrated when it indicated high risk in Hacienda Heights and San Gabriel before HLB was discovered there. The model predicted the emergence of HLB in Riverside County between 2013 and 2014, and an HLB outbreak occurred there in 2017. The model is now indicating a spreading area of high risk in Los Angeles County, but with new foci of high risk that are distant from the original focus in Los Angeles County.

Though the risk model is helpful in showing high risk areas, it did not and could not have predicted the immense increase of HLB detections in the four months leading up to the release of the November 22, 2017 briefing paper.

The level of HLB among ACP is measured via DNA analysis with Ct values. The Ct values obtained from ACP samples inside the quarantine areas are showing an increase in the infection levels, indicating an intensification of the pathogen population in the local vector population. The appearance of ambiguous infection results outside the existing quarantine areas highlights the risk of ACP spreading the disease and the need for quarantine regulations that apply at a larger scale than the current radius around confirmed HLB-positive trees.

The rate of accumulation of new positive ACP and tree detections was thought to be relatively stable before the release of the November 22, 2017 briefing paper. But between June 2017 and the present time, the risk model demonstrates that there has been a

dramatic increase in the rate of new detections of HLB infections in both ACP and citrus trees.

In addition, there has been a recent increase in the number of cities where positive finds have been reported and a sharp increase in the number of ACP nymph detections (indicating a burgeoning population).

These increases among various indicators demonstrate an exponential increase in the intensity of the HLB epidemic at multiple scales. The pathogen is becoming more prevalent in the vector population and in the tree population. At the same time, the upswing in nymphal detections indicates that the transmission rate is increasing, and the increase in the number of cities with positive detections indicates that the geographic extent of the epidemic is rapidly increasing. The November 22, 2017 briefing paper concluded that, given the very sharp increase in the intensity of the epidemic, a rapid response is needed to implement additional measures to slow the rate of spread of HLB beyond its current range before the opportunity is lost.

In California, the estimated cost to replace a tree is from \$10 to \$20. Using a cost of \$15 per tree would push the projected production costs up to \$450 to \$550 per acre. The estimated citrus acreage in 2015-2016 in California is approximately 270,500 acres. The projected increased citrus production costs in California would be at least \$130.5 to \$159.5 million.

California is the number one economic citrus state in the nation. According to the USDA-NASS, the total value of citrus in California in 2017 was \$2.26 billion annually. To protect this source of economic activity, California must do everything possible to exclude both HLB-associated pathogens and ACP from the state.

The USDA cannot regulate less than an entire state unless the state has a quarantine regulation which is substantially the same as what the existing federal rule requires for interstate movement. The Department needs to have continued authority to prevent host

material from being shipped intrastate outside the proposed quarantine area. Once the Department amends its regulation, this will enable the USDA to amend its federal regulation or order. If the Department fails to implement a quarantine, the USDA may consider quarantining all of California in order to immediately prevent the affected nursery from shipping interstate. The proposed amendment of California Code of Regulations Section 3439 would limit the artificial spread of HLB while keeping more onerous federal requirements at the minimum level necessary.

Therefore, it is necessary to expand the quarantine in Orange County.

Project Description

These proposed regulations will expand the quarantine area for HLB by approximately fifty-four (54) square miles. The proposed boundary lines were drawn jointly by the USDA, the Department, and the Orange County Agricultural Commissioner. The criteria for determining quarantine boundaries around an epicenter was based upon information obtained from the USDA. The total proposed quarantine area is now approximately 672 square miles.

The effect of this amendment is to implement the State's authority to perform quarantine activities against HLB in Orange County. Any quarantine actions undertaken by the Department will be in cooperation and coordination with the USDA and the Orange County Agricultural Commissioner.

Background

The California citrus industry has taken a great deal of responsibility in preparing for the introduction and establishment of HLB-associated bacteria and psyllid vectors. Funding has been allocated towards research on easy, early (i.e., pre-clinical) detection methods (i.e., one primer set to detect all strains rather than primer sets specific for each known strain or host chemical responses), the identification of HLB-associated bacterial strains, and vector relationships. In addition, a public relations firm has been hired to determine the most effective and efficient methods to educate the general public and facilitate a

public contribution to the solution. Industry leaders (research and marketing boards) are involved in procuring federal funds for national research programs in the areas of host plant resistance, etiological agents and variants of HLB, specific native and exotic natural enemies of the insect vectors, and pesticide efficacy and new chemistries.

California citrus industry leaders recognized that Florida lacked supplies of HLB-free citrus stock when the pathogen was detected in 2005. As a result, plans are underway to expand the screen house facility at the UC Lindcove Research and Extension Center that houses the industry's pathogen-free budwood source to allow for the protection of additional varieties. Other alternatives are being considered to protect valuable citrus propagation sources, germplasm, and breeding material, such as isolated and/or protected locations and tissue culture. For long-term survey and management, the industry may pursue the formation of pest control districts.

Senate Bill 140 (SB 140), chaptered November 2, 2009, required the Department to establish a Citrus Nursery Stock Pest Cleanliness Program (CNSPCP) to protect citrus nursery source propagative trees from harmful diseases, pests, and other risks and threats. One of the diseases of primary concern was HLB. The bill also required that anyone propagating citrus by any means must comply with all of the eligibility requirements and testing protocols issued by the secretary. Furthermore, the bill authorized the Department to adopt and enforce regulations to carry out the program and to issue orders establishing rates or prices to cover the department's costs for administration, testing, inspection and other services under the program. The bill declared that it would take effect immediately as an urgency statute.

The Department adopted Sections 3701, et. seq., as an emergency action effective May 17, 2010, to establish a mandatory CNSPCP. The adoption of Section 3701 et. seq. established that participation in the CNSPCP is mandatory for any person (with the exception of the Citrus Clonal Protection Program) who, by any method of propagation, produces any citrus nursery stock. The CNSPCP describes the diseases for which testing is required and the test methods to be used, a list of laboratories approved for performing

the tests, frequency of such testing, requirements and time frames for growing registered mother trees and increase trees in protective structures, a performance standard for such structures, a fee schedule for participants, record-keeping requirements for the Department and participants, elements of a required application form and compliance agreement between nurseries and the Department, provisions for suspending or cancelling the registration status of citrus trees, and provisions for mandatory destruction of trees and/or propagative materials for which registration has been cancelled.

The implementation of biological control methods (the use of beneficial organisms to attack pest populations) will be an important component of an integrated pest management program to reduce populations of the ACP. As there are no known native psyllids that occur on California citrus, exotic natural enemies from the pest's area of origin may need to be imported, under strict quarantine protocols, into the United States or from Florida. There may be some generalist predators such as the coccinellid beetles that will come into citrus groves from other habitats, but to what extent these would be effective is not known at this time. Natural enemies obtained from commercial sources or mass reared by government or industry personnel can be periodically released into field situations once the psyllid becomes established.

Populations of ACP in Florida are fed upon by many generalist arthropod predators such as spiders, lacewings, hover flies or syrphids, and minute pirate bugs. Also, a number of parasites attack ACP. The coccinellids exert the greatest amount of control. Two lady beetles, *Olla v-nigrum* (which is native to California) and *Harmonia axyridis*, are the most important predators of ACP nymphal stages in Florida. *Harmonia axyridis* was imported from Japan to control the pecan aphid and is established in parts of California. Two tiny parasitic wasps have been imported and released in Florida. *Tamarixia radiata* was imported from Taiwan and Vietnam, and *Diaphorencyrtus aligarhensis* was imported from Taiwan. Releases of *Tamarixia radiata* have occurred.

In Florida and countries where HLB exists, insecticides have been a first line of defense against the psyllid vector, thereby reducing the spread of the HLB-associated

pathogens. Applying insecticide sprays at critical flushing periods in order to kill psyllid nymphs may be an effective method of HLB control. In accordance with integrated pest management principles (IPM), the Department has considered all appropriate control options that may be efficacious to prevent the artificial spread of HLB-infected ACP.

California Environmental Quality Act

The November 2017 detections of HLB described above were sudden and unexpected, and now require immediate action to address the imminent threat to California's natural environment, agriculture and economy. By threatening citrus, these detections jeopardize an industry that is worth approximately \$2.26 billion annually, comprises 46 percent of annual U.S. citrus production, 62 percent of annual U.S. citrus value, and approximately 25,000 jobs. (USDA Citrus Fruits 2017 Summary, pg. 8; California Agricultural Statistics Review 2016 – 2017, pg. 54; Section 5911 of the Food and Agricultural Code)

Economic Impact Analysis

The referenced study by the University of Florida IFAS Extension calculated and compared the impact of having and not having HLB present in Florida. Its economic analysis concluded HLB had a total impact of \$3.64 billion and eliminated 0.08 percent of the total Florida workforce. The Department anticipates that HLB would also have a similar devastating impact in California.

Total Statewide Value of the Host Material in the Environment Affected

Currently, all HLB-infected citrus has been located in residential areas. Throughout much of California, citrus may be planted in parkways, parks, as street trees, etc. The Department is not aware of any way to estimate the value of host material in the environment.

Total Value of the Damage/Loss of Host Material in the Environment within the HLB-Infected Area

The Department does not have a way to assess the potential damage/loss of host material throughout the environment. Most host plants infected with HLB die.

Host Material on Residential Properties

Citrus and its relatives are the most commonly planted trees on residential properties in southern California, with 60 percent of the properties having at least one tree. Citrus is also popular for planting throughout the rest of California where the climate will support it.

Approximate Total Value of Commercial Host Material in the State

Estimated per year: \$3.3 billion for citrus fruit and \$28.5 million for citrus nursery stock. (Reference: John Gilstrap of California Citrus Nursery Board for citrus nursery stock value (2010) and USDA-NASS 2015 data for citrus fruit)

Per USDA-NASS for 2017, total value of citrus fruit in California: \$2,264,903,000

The actual value is known to be higher than the above figures as they do not take into consideration all hosts, just citrus hosts. The Department is not aware of any way to obtain the data for all hosts.

The cost impact of the changes in the regulations on private persons and businesses are estimated to be a pesticide cost of \$0.23 per plant. Estimated applicator cost is \$1.00-\$4.37 per plant depending upon whether the nursery conducts the application or hires a pesticide applicator.

The Department has determined that the proposed actions will not have a significant adverse economic impact on housing costs or California business, including the ability of California businesses to compete with businesses in other states. The Department's determination that the action will not have a significant statewide adverse economic impact on business was based on the following:

The amendment of Section 3439(b) provides authority for the Department to conduct quarantine activities against HLB in the Westminster and Santa Ana areas of Orange County; there are no known private sector cost impacts.

The Creation or Elimination of Jobs within the State

The amendment is designed to minimize the spread of ACP and HLB to ensure that the devastating damage caused by HLB is limited to the smallest area possible. Compliance activities are currently being performed by existing state staff throughout quarantine areas within the State. The Department has been conducting quarantine actions throughout the State for over 30 years without causing significant creation or elimination of jobs. Therefore, the Department has determined that this regulatory proposal will not have a significant impact on the creation or elimination of jobs in the State of California.

The Creation of New Businesses or the Elimination of Existing Businesses within the State.

The amendment is designed to minimize the spread of ACP and HLB to ensure that the devastating damage caused by HLB is limited to the smallest area possible. Compliance activities are currently being performed by existing state staff throughout quarantine areas within the State. The Department has been conducting quarantine actions throughout the State for over 30 years without causing significant creation of new businesses. Therefore, the Department has determined that this regulatory proposal will not have a significant impact on the creation of new businesses in the State of California.

The Expansion of Businesses Currently Doing Business within the State.

The amendment is designed to minimize the spread of ACP and HLB to ensure that the devastating damage caused by HLB is limited to the smallest area possible. Compliance activities are currently being performed by existing state staff throughout quarantine areas within the State. The Department has been conducting quarantine actions throughout the State for over 30 years without causing significant creation of new businesses. Therefore, the Department has determined that this regulatory proposal will not have a significant impact on the expansion of businesses currently doing business in the State of California.

There are no known specific benefits to worker safety or the health of California residents. The Department is not aware of any specific benefits the amendment of this regulation will have to the protection of public safety of California residents or worker safety. Based upon the economic analysis, the Department believes the amendment of this regulation benefits the general welfare of California residents (GC Section 11346.3(b)).

Anticipated Benefits from This Regulatory Action

Existing law, FAC section 407, provides that the Secretary may adopt such regulations as are reasonably necessary to carry out the provisions of this code which she is directed or authorized to administer or enforce.

Existing law, FAC section 5321, provides that the Secretary is obligated to investigate the existence of any pest that is not generally distributed within this State and determine the probability of its spread, and the feasibility of its control or eradication.

Existing law, FAC section 5322, provides that the Secretary may establish, maintain, and enforce quarantine, eradication, and such other regulations as are in her opinion necessary to circumscribe and exterminate or prevent the spread of any pest which is described in FAC section 5321.

Existing law, FAC Section 5911, declares that HLB is a clear and present danger to California's citrus industry, as well as other commodities and plant life, and that prevention and management of HLB is in the public interest and for the purpose of protecting health, peace, safety, and general welfare of the people of this California.

Existing law, CCR Section 3439, defines the state's interior quarantine area for HLB, articles and commodities covered by the quarantine, restrictions, and exemptions.

The existing law obligates the Secretary to investigate and determine the feasibility of controlling or eradicating pests of limited distribution but establishes discretion with regard to the establishment and maintenance of regulations to achieve this goal. The adoption

of this regulation benefits the citrus industries (nursery and fruit) and the environment by establishing eradication authority enabling the removal of HLB-infested host material from the environment. By removing the sources of HLB inoculums it is more biologically feasible to confine HLB's devastating impacts to the smallest area possible.

FAC Section 401.5 states that "the department shall seek to protect the general welfare and economy of the state and seek to maintain the economic well-being of agriculturally dependent rural communities in this state."

All eradication activities are conducted by the Department. Except for curry plants, any other host material infected with HLB will die as there is no cure. Homeowners and others will benefit by having this host material removed at no additional cost to them.

The amendment of this regulation benefits the vast majority of the California citrus industry and the environment by having a quarantine program to prevent the natural spread of HLB, thus confining HLB's devastating impacts to the smallest area possible. Almost all of the State's commercial citrus fruit and nursery stock production is located outside the area known to be infected with HLB.

The California consumers benefit because the fruit from host trees infected with HLB is inedible. Eradicating the existing HLB infestation, confining HLB to the smallest area possible, ensures citrus fruits and other host fruits are available for consumption and at reasonable prices.

This amendment provides the necessary regulatory authority to prevent the artificial spread of a serious disease, which is a mandated statutory goal. As required by Government Code Section 11346.5(a)(3)(D), the Department has conducted an evaluation of this regulation and has determined that it is not inconsistent or incompatible with existing state regulations.

Assessment

Based upon the Economic Impact Analysis above, the Department has made an assessment that the amendment of the regulation would not 1) create or eliminate jobs within California, 2) create new business or eliminate existing businesses within California, or 3) affect the expansion of businesses currently doing business within California. Additionally, the Department has been conducting quarantine actions throughout the State for over 30 years without creating or eliminating businesses.

The Department is the only agency that can implement plant quarantines. As required by Government Code Section 11346.5(a)(3)(D), the Department has conducted an evaluation of this regulation and has determined that it is not inconsistent or incompatible with existing state regulations.

Estimated Cost of Savings to Public Agencies or Affected Private Individuals or Entities

The Department has determined that the amendment of Section 3439(b) does not impose a mandate on local agencies or school districts and no reimbursement is required under Section 17561 of the Government Code. The Orange County Agricultural Commissioner requested that the State expand the HLB quarantine in his county. All eradication activities are conducted by the Department.

The Department also has determined that no savings or increased costs to any state agency, no reimbursable costs or savings under Part 7 (commencing with Section 17500) of Division 4 of the Government Code to local agencies or school districts, no nondiscretionary costs or savings to local agencies or school districts, and no costs or savings in federal funding to the State will result from the amendment of Section 3439.

Alternatives Considered

The Department must determine that no reasonable alternative it considered or that has otherwise been identified would be more effective in carrying out the purpose for which the action is proposed. In addition, the Department must determine that no reasonable alternative would be as effective as or less burdensome to affected private persons than

the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

One of the Department's statutory mandates is to prevent the spread of harmful pests. The emergency amendment of this regulation was necessary to prevent the further artificial spread of HLB as part of an existing ongoing HLB quarantine project. No other interested party has suggested an alternative to this existing regulation.

Information Relied Upon

"Pest and Damage Record # AM0P06558479," California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record # AM0P06558482," California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

"Pest and Damage Record # AM0P06827593," California Department of Food and Agriculture, Plant Health and Pest Prevention Services.

Letter dated January 5, 2017 from Jeff Croy, Orange County Agricultural Commissioner, to Secretary Karen Ross.

Email dated January 10, 2018 from Jeff Croy, Orange County Agricultural Commissioner, to Keith Okasaki.

"USDA Citrus Fruits 2017 Summary", August 2017, United States Department of Agriculture and National Agricultural Statistics Service

Economic Impacts of Citrus Greening (HLB) in Florida, 2006/07-2010/11, University of Florida IFAS Extension.

Federal Register, Vol. 76, No. 81, dated April 27, 2011, Docket No. APHIS-2010-0048, Citrus Canker, Citrus Greening and Asian Citrus Pysllid; Interstate Movement of Regulated Nursery Stock.

“New Pest Response Guidelines, Citrus Greening Disease,” dated June 2, 2008, United States Department of Agriculture, Animal and Plant Health Inspection Service.

Briefing Paper: “Recent changes in the ACP/HLB invasion in California and implications for regional quarantines.” Neil Mc Roberts, Carla Thomas, Brianna McGuire, Beth Grafton Cardwell, David Bartels, Tim Gottwald. November 22, 2017.