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Mediterranean Fruit Fly Cooperative Eradication Program

**Rancho Cucamonga, San
Bernardino County, California**

**Environmental Assessment
August 2012**

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County, California**

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I. Need for the Proposal

The Mediterranean fruit fly or Medfly, *Ceratitis capitata* (Wiedemann), is a major pest of agriculture throughout many parts of the world. Because of its wide host range (over 300 species of fruits and vegetables) and its potential for damage, the Medfly represents a serious threat to U.S. agriculture. Although it has been introduced intermittently to the U.S. mainland since its first introduction in 1929, successful eradication programs have prevented it from becoming a permanent pest in the conterminous United States.

An establishment of Medfly would be disastrous to agricultural production in California and the United States. Although established on the Hawaiian Islands, the unchecked presence of Medfly on the U.S. mainland would result in widespread destruction of crops, such as apricot, avocado, grapefruit, nectarine, orange, peach, and cherry. Commercial crops, as well as home production of host fruits, would suffer if Medfly were allowed to become established. Fruit that has been attacked by Medfly is unfit to eat because the Medfly larvae tunnel through the fleshy part of the fruit, damaging the fruit and subjecting it to decay from bacteria and fungi.

On August 16, 2012 three males and one unmated female were detected in the Rancho Cucamonga area of San Bernardino County, California. The present infestation occurs now only in residential areas within San Bernardino County, but the threat of spread to nearby commercial groves and crops in the State requires the program to consider regulatory quarantines and treatments. These detections have triggered the involvement of U.S. Department of Agriculture's (USDA), Animal and Plant Health Inspection Service (APHIS) in the quarantine and control program for this outbreak.

Although Medfly is not known to be established in California, many host plant species are grown in San Bernardino County, which increases the potential environmental impact of the Rancho Cucamonga detections. This Medfly infestation is the first detected in California since 2009, and represents a major threat to the agriculture and environment of California and other U.S. mainland States. APHIS and the California Department of Food and Agriculture (CDFA) are proposing a cooperative program for the purpose of eradicating the Medfly infestation to prevent the spread of Medfly to noninfested areas of the United States.

APHIS' authority for cooperation in the program is based upon the Plant Protection Act (Title 4 of the Agricultural Risk Protection Act of 2000),

which authorizes the Secretary of Agriculture to carry out operations to eradicate insect pests, and to use emergency measures to prevent the dissemination of plant pests new to, or not widely distributed throughout, the United States.

APHIS has cooperated with CDFA on a number of successful Medfly eradication programs in the past. Examples of such programs include the Mediterranean Fruit Fly Cooperative Eradication Programs, in Escondido (USDA–APHIS, 2009a) and Imperial Beach (USDA–APHIS, 2009b), both in San Diego County, California, the Mediterranean Fruit Fly Cooperative Eradication Program, Los Angeles County, California (USDA–APHIS, 2007a), the Mediterranean Fruit Fly Cooperative Eradication Program, Santa Clara County, California (USDA–APHIS, 2007b), and the Mediterranean Fruit Fly Cooperative Eradication Program, Solano County, California (USDA–APHIS, 2007c).

This site-specific environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for Medfly eradication, and considers, from a site-specific perspective, environmental issues relevant to this particular program. Alternatives for Medfly eradication have been discussed and analyzed comprehensively within the Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001 (FF EIS) (USDA–APHIS, 2001) which is incorporated by reference and summarized within this EA. The eradication measures being considered for this program have been discussed and analyzed comprehensively within the fruit fly chemical risk assessments (USDA–APHIS, 1998a and 1998b) and risk assessments for spinosad (USDA–APHIS, 1999a, 1999b, and 2003). Those documents are also incorporated by reference and summarized within this EA.

II. Alternatives

Alternatives considered for this proposed program include (1) no action, (2) quarantine and commodity certification, and (3) eradication using an integrated pest management (IPM) approach. Component techniques of eradication include the use of chemical pesticides to facilitate the timely elimination of the current Medfly infestation.

A. No Action

The no action alternative would involve no Federal effort to eradicate Medfly or restrict its expansion from the infested area. In the absence of a Federal effort, quarantine and control would be left to State government, grower groups, and individuals. Expansion of the infestation would be influenced by any controls exerted over it, by the

proximity of host plants, and by climatic conditions. No action could be the only choice with respect to some sensitive sites; in such cases, lack of action could result in a continuing and expanding infestation. An expansion of the infestation would likely result in substantial economic losses to growers in the United States and losses of U.S. export markets.

B. Quarantine and Commodity Certification

This alternative combines a Federal quarantine with commodity treatment and certification. Regulated commodities harvested within the quarantine area would be restricted to movement within that area unless treated with prescribed applications and certified for movement to outside the area. For a large infestation, intensive quarantine enforcement activities could be necessary including safeguarding of local fruit stands, mandatory baggage inspection at airports, and judicious use of road patrols and roadblocks. The quarantine actions of this alternative would result in a reduction of human-mediated movement of Medfly in host plant materials to areas outside the quarantined area; however, the infestation could remain established within the quarantine boundaries. Any Medfly eradication efforts would be managed by, and wholly under the control of, CDFA.

Interstate movement of regulated commodities would require issuance of a certificate, or limited permit, contingent upon commodity treatment or the grower or shipper complying with specific conditions designed to minimize pest risk and prevent the spread of the Medfly. Control methods that may be used in this alternative include (1) regulatory chemicals, (2) cold treatment, (3) vapor heat treatment, and (4) irradiation treatment. Regulatory chemical treatments may include fumigation with methyl bromide, and topical bait spray with a mixture of protein hydrolysate bait and either spinosad or malathion. (Refer to the FF EIS (USDA–APHIS, 2001) for more detailed information about the chemicals and their uses.) Cold treatment, vapor heat treatment, or irradiation treatment of certain produce, as a requirement for certification and shipping, must be made in facilities that are inspected and approved by APHIS.

C. Eradication (Preferred Alternative)

APHIS' preferred alternative for the Medfly program is eradication using an integrated pest management (IPM) approach. This alternative combines quarantine and commodity certification with eradication treatments. Eradication efforts for Medfly considered in the FF EIS (USDA–APHIS, 2001) include any or all of the following: chemical control, sterile insect technique, physical control, cultural control, and regulatory control.

The current eradication zone involves part of the city of Rancho Cucamonga in San Bernardino County, California. This eradication zone covers approximately 9-square miles, as defined by a radius of approximately 1.5 miles around each property on which an adult fly has been trapped, or on which another life stage of Medfly is present. Several types of traps—Jackson, McPhails, yellow panel, and multilure—will be placed over an 81-square mile area around each detection site in order to delimit the infestation and to determine the efficacy of treatments. All monitoring traps will be serviced for a period equal to three Medfly life cycles beyond the date of the last fly detection (CDFA, 2012).

The treatment plan for Medfly will include ground applications of an organic formulation of spinosad bait to the foliage of all host trees and plants within a 200-meter radius of the detection site. This treatment will occur at 7-10 days for one life cycle beyond the last Medfly detected. The sterile insect technique will be used on the Medfly population—the eradication area will be flooded with a continued release of sterile male Medflies in order to disrupt the reproduction cycle and so control the wild population. Releases will be repeated twice a week in order to achieve a weekly release rate of 250,000 flies per square mile and will continue for two life cycles beyond the last Medfly detected. Larval surveys will be conducted up to 200 meters around any property where a Medfly is trapped. If Medfly larvae are discovered, fruit from the infested property and up to 100 meters around the find site will be removed and taken for disposal under regulatory compliance (CDFA, 2012).

The public will be notified 24-48 hours prior to insecticidal treatment and provided with guidelines for posttreatment precautions and harvest protocols. Generally, treatments will be repeated every 7 to 14 days for one Medfly life cycle. The eradication project will continue for three life cycles past the date of the last Medfly trapped (CDFA, 2012).

III. Potential Environmental Consequences

This EA analyzes the potential environmental consequences of alternatives that have been considered for Medfly control, and considers, from a site-specific perspective, environmental issues relevant to this particular program. The preferred alternative, eradication, would involve an IPM approach that may use any or a combination of the following: (1) no action, (2) quarantine, (3) regulatory chemical application (fumigation, soil treatment, and bait spray application), (4) eradication chemical applications (protein bait spray and/or soil treatment), (5) cold treatment, (6) vapor heat treatment, and (7) irradiation treatment. The capability of an adult Medfly to fly long distances makes it possible for commercial host-plant growing areas

outside the eradication zone to become infested. Therefore, the regulatory treatment methods used for movement of commercial produce are covered in the event that the eradication zone should expand to include groves or orchards. However, the quarantine and commodity certification treatments do not apply to the present eradication zone.

Alternatives for Medfly control have been discussed and analyzed comprehensively within the FF Cooperative Control Program EIS (USDA, 2001). The control measures being considered for this site-specific program—surveillance trapping, spinosad bait application, removal of fruit from potentially infested properties, and sterile insect release—have been analyzed comprehensively within the fruit fly chemical risk assessments (USDA–APHIS, 1998a, and 1998b) and risk assessments for spinosad (USDA–APHIS, 1999a, 1999b, and 2003). These documents are incorporated by reference and summarized within this EA.

This area’s site-specific characteristics were considered with respect to the program’s potential to affect (a) human health, (b) nontarget species, and (c) environmental quality. In addition, potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigation measures. Further analysis will be required regarding any expansion of the current program area.

The City of Rancho Cucamonga is located in Southern California and occupies 40.2-square miles. There is a 2011 population estimate of 167,721, consisting of 62 percent white, 9.2 percent black, 0.7 percent American Indian or Alaskan native, 10.4 percent Asian, and 34.9 percent of Hispanic or Latino origin (USCB, 2010). Average household income in 2011 was \$99,641 (RCRDA, 2012).

The City of Rancho Cucamonga is bordered on the north by the San Gabriel Mountains and San Bernardino and Angeles National Forests and is approximately 40 miles east of Los Angeles. It receives an average of 15 inches of rain per year. The July high temperature is around 95° F and the January low is 42° F. Flood hazard zones occur within the eradication zone. Cucamonga Creek runs through the center of the eradication zone.

Rancho Cucamonga has numerous walking trails and parks throughout the city. The Heritage Community Park and Beryl Park occur within the eradication zone as does part of the Pacific Electric Inland Empire Trail. This trail in Rancho Cucamonga includes a 10-foot-wide, concrete trail for bikes and the same width side path of decomposed granite for running, walking and horseback riding. The Upland Hills Country Club also occurs at the southern end of the eradication zone.

The Cucamonga Valley Water District (CVWD) provides water service to the City of Rancho Cucamonga, portions of the cities of Upland, Ontario, Fontana, and an unincorporated area of San Bernardino County (CVWD, 2011). Water provided to CVWD's customers comes from imported water from Northern California via the State Water project (42 percent), groundwater (48 percent), and from local surface and tunnel water sources (10 percent) (CVWD, 2011). These local sources include Cucamonga Canyon, Deer Canyon, Day Canyon, East Etiwanda Canyon, and several local tunnels in the San Gabriel Mountains (CVWD, 2011). CVWD's water sources are considered vulnerable to contamination from activities associated with former citrus agriculture, sewer collection systems, petroleum products, and recreation activities near water supplies (CVWD, 2011).

A. Human Health

The principal concerns for human health identified in the FF EIS are related to the potential program uses of certain chemical pesticides and methyl bromide (a fumigant that is not part of this program) (USDA-APHIS, 2001). Three major factors influence the human health risk associated with pesticide use—fate of the pesticides in the environment, their toxicity to humans, and their exposure to humans. Each of the program pesticides is known to be toxic to humans. Exposure to program pesticides can vary, depending upon the pesticide and the use pattern. Three major factors influence the human health risk associated with pesticide use—fate of the pesticides in the environment, their toxicity to humans, and their exposure to humans.

The Rancho Cucamonga eradication program will employ surveillance trapping, ground-based applications of organic spinosad bait, and sterile insect release. Potential exposure is low for all applications to be used in this eradication program except for spinosad bait. The limited program use of spinosad bait is by ground applications targeted to host plants. Most commercial applications are applied to groves where exposure to the general public is unlikely, and the current foliar applications are limited to residential areas. The analyses and data of the EIS and human health risk assessments indicate that exposures to pesticides from normal program operations are not expected to result in substantial adverse human health effects. (Refer to the FF EIS (USDA-APHIS, 2001) and the human health risk assessments (USDA-APHIS, 1999a, and 1998a) for more detailed information relative to human health risk.) No adverse impacts to human health are expected to occur from these actions, if executed properly and in accordance with label instructions.

In general, a well-coordinated eradication program using IPM technologies results in the least usage of chemical pesticides overall, and the least potential to adversely affect human health. The no action alternative or the quarantine and commodity certification alternative would not eliminate the Medfly as readily or as effectively as the eradication alternative. Over a protracted time period, there would likely be broader, more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impacts to human health.

B. Nontarget Species

The principal concerns for nontarget species, including threatened and endangered species, also relate to the program use of pesticides. Paralleling human health risk, the risk to nontarget species is related to the pesticides' fate in the environment, toxicity to the nontarget species, and exposure to nontarget species. All of the program pesticides are highly toxic to invertebrates; however, the likelihood of exposure (and thus, impact) varies a great deal with the use pattern. Current pesticide applications are limited to ground-based, foliar applications of an organic formulation of spinosad to host plants. These treatments target host plants in a manner that minimizes potential exposure and associated risks to nontarget species. The bait applications attract only a small number of invertebrate species other than Medfly. (Refer to the FF EIS (USDA–APHIS, 2001) and its nontarget risk assessments (USDA–APHIS, 2003, 1999b, and 1998b) for more information on risks to all classes of nontarget species.) In general, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impacts to nontarget species. The no action alternative and the quarantine and commodity certification alternative are less effective at eliminating Medfly, and are likely to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

To protect non-target species from program applications of spinosad, there will be no chemical treatments in riparian habitat, wetlands lacking host plants, or areas not adjacent to paved roads. In addition, per standard protocol, precautions will be taken to avoid runoff (no applications when rain is anticipated or when winds exceed 10 mph). All pesticide treatments will be applied to residential properties, common areas within residential development, and other non-commercial properties (CDFA, 2012).

1. Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 United States Code 703–712)

established a Federal prohibition, unless permitted by regulations, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird or any part, nest, or egg of any such bird. There are approximately 160 species of migratory birds occurring in the San Bernardino National Forest (Sierra Club, 2012). APHIS has evaluated the Rancho Cucamonga program in terms of potential impact on migratory avian species. Implementation of the preferred alternative is not expected to have any adverse effect on migratory birds or their flight corridors.

2. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires Federal agencies to consult with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat. APHIS, in cooperation with CDFA, has consulted with FWS regarding the potential for listed resources to be exposed to any of the program treatments.

Areas over which sterile male fruit flies will be broadcast overlaps with occurrences of the mountain yellow-legged frog, southern California Distinct Population Segment (*Rana mucosa*) and the arroyo toad (*Bufo californicus*). FWS indicated that neither species is likely to be adversely affected by the introduction of sterile male fruit flies. Concerns about spinosad toxicity to amphibians, or their prey base, are minimal, because the likelihood of exposure is small. The spinosad treatment zones do not overlap with, and appear to be more than 0.25 miles from Cucamonga Creek where the amphibians occur. In addition, program mitigations such as avoidance of water bodies, undeveloped areas of native vegetation, and weather conditions that lead to drift or runoff will be used in the eradication zone. Consequently, FWS has indicated that no impacts on mountain yellow-legged frogs or arroyo toads are anticipated for the project as described. In the event that the eradication zone has to be expanded, APHIS, in cooperation with CDFA, will reinitiate consultation with FWS as necessary.

C. Environmental Quality

The principal environmental quality concerns are for the protection of air quality, water quality, and the minimization of the potential for environmental contamination. In relation to preserving environmental quality, program

pesticides remain the major concern for the public and the program. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the proposed action would result in a controlled release of chemicals into the environment. The fate of those chemicals varies with respect to the environmental component (air, water, or other substrate) and its characteristics (temperature, pH, dilution, etc.). The half-life of spinosad ranges from 8 to 10 days in soil, up to 2 days in water, and residues on plants persist for only a few hours. (Refer to the FF EIS (USDA–APHIS, 2001) and the spinosad risk assessment (USDA–APHIS, 2003) for a more detailed description of the pesticide’s environmental fate.)

The alternatives were compared with respect to their potential to affect environmental quality. A well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impact on environmental quality. The other alternatives involve broader and more widespread use of pesticides by homeowners and commercial growers, likely due to more extensive host fruit damage, with correspondingly greater potential for contamination of the environment, including CVWD water sources.

The proposed program area was examined to identify potentially sensitive sites that would require changes in operations to mitigate effects to environmental quality. Measures that have been adopted by the program to avoid contamination to bodies of water are described in the FF EIS (USDA–APHIS, 2001).

Cumulative Impacts

The program has been considered with respect to its potential to cause cumulative impacts on the human environment. APHIS has considered implementation of the preferred alternative in the context of other pest insect eradication and quarantine projects in San Bernardino County, California. APHIS has considered implementation of the preferred alternative in conjunction with other pest insect eradication and quarantine projects in California.

The treatments for potentially overlapping pest management programs in California target different insects and do not affect the same nontarget organisms. Additional programs in place at the time of preparation of this EA have been designed to target the following—

- Glassy-winged sharpshooter/Pierce’s Disease—Statewide (San Bernardino County identified as one of the infested counties);
- European grapevine moth in 31 California counties (not including

San Bernardino County); and

- Light brown apple moth outbreaks in 17 California counties (not including San Bernardino County).
- Pink bollworm eradication—eastern San Bernardino County

No significant cumulative impacts are anticipated as a consequence of implementing the preferred alternative or its component treatment measures. There have been no residual impacts from previous Federal and non-Federal actions targeting fruit fly infestations in the Rancho Cucamonga region (last program in Rancho Cucamonga occurred in October 2005), and there are no reasonably foreseeable future actions that could result in incremental increases in environmental effects. Based on APHIS' review of the context and intensity of the existing, ongoing, and potential future treatments, there will be no cumulative impacts to the human environment resulting from this Medfly eradication program.

D. Other Considerations

Potential environmental impacts of implementing the preferred alternative have been considered regarding historical and archeological sites in the eradication area in Rancho Cucamonga. Section 106 of the National Historic Preservation Act applies to Federal or federally assisted undertakings on Federal, State, tribal, public, and private lands where an undertaking has the potential to have an effect on historic properties. The John Rains House, located at 7869 Vineyard Ave., is on the National Register of Historic Places (NPS, 2012) and occurs just outside the eradication zone. Other historic sites within the eradication zone include the Monte Vista Resort, Alta Loma School, and the Cucamonga Guard Station. No adverse effects to these historic properties are anticipated as a result of the surveillance trapping, sterile insect technique, or spinosad applications.

Some Executive orders, such as Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks, and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, as well as departmental and/or agency directives call for special environmental reviews, in certain circumstances. No circumstance that would trigger the need for special environmental reviews is involved in implementing the preferred alternative considered in this document. The proposed program does not pose any disproportionate adverse effects to children, minority populations, or low-income populations over those effects to the general population.

Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, was issued to ensure that there would be meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications. There are no federally recognized tribal lands within the program area, and no expected impacts to tribal property from implementation of the preferred alternative. The preferred alternative for the Rancho Cucamonga program currently requires quarantine and treatment of commodities and premises only for those producers who decide to move their regulated commodity outside the quarantine boundary. Should future detections of Medfly warrant expansion of the current program area into Native American lands, program officials will initiate consultation with the governing tribal authorities before undertaking further action.

IV. Agencies, Organizations, and Individuals Consulted

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U.S. Fish and Wildlife Service
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011

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Appendix A. Map of Eradication Zone.

