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Mediterranean Fruit Fly Cooperative Eradication Program

San Diego County, California

Environmental Assessment, May 2009

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I. Need for the Proposal

The Mediterranean fruit fly or Medfly, *Ceratitidis capitata* (Wiedemann), is a major pest of agriculture throughout many parts of the world. Because of its wide host range (over 250 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 several times since its first introduction in 1929, successful eradication programs have prevented it from becoming a permanent pest on the U.S. mainland.

A permanent infestation of Medfly would be disastrous to agricultural production in California and the United States. Although established on the Hawaiian Islands, the Medfly's unchecked presence 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 remain. 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 May 20, 2009, a single mated female Medfly was trapped in the community of Mira Mesa in San Diego County, California, indicating the presence of an infestation. A second mated female Medfly was trapped about a mile and one-half from the first detection on May 23, 2009. This Medfly infestation represents a major threat to the agriculture and environment of California and other U.S. mainland States. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), and the California Department of Food and Agriculture (CDFA), are proposing a cooperative program to eradicate the Medfly infestation and eliminate that threat.

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 state departments of agriculture on a number of Medfly eradication programs in the past. Examples of such programs include the "Mediterranean Fruit Fly Cooperative Eradication Program, Los Angeles County, California" (USDA 2007a), the "Mediterranean Fruit Fly Cooperative Eradication Program, Santa Clara County, California" (USDA 2007b), and the "Mediterranean Fruit Fly Cooperative Eradication Program, Solano County, California" (USDA 2007c).

This site-specific environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for Medfly control and considers, from a site-specific perspective, environmental issues that are relevant to this particular program. Alternatives for Medfly control have been discussed and analyzed comprehensively within the "Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001" (EIS) which is incorporated by reference and summarized within this EA. The control 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 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 the 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. The infestation's expansion 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 treatments 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 include fumigation with methyl bromide, soil treatment with diazinon, and topical bait spray with a mixture of spinosad and a protein hydrolysate bait. (Refer to the 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 done 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 may include any or all of the following: chemical control, sterile insect technique, physical control, cultural control, and regulatory control.

The eradication program would include ground applications of spinosad bait. Where Medfly larvae are found, eradication treatments may also employ foliar sprays and soil drenches. Foliar applications, which are applied up to a 200-meter radius around an infested property, may consist of spinosad protein bait formulations which are applied with hydraulic spray or hand-spray equipment. The applications will be repeated at 6- to 14-day intervals. Soil drenches with a diazinon formulation may be applied to the drip line of hosts with fruit known or suspected to be infested with Medfly eggs or larvae. (For more detailed information on the alternatives for Medfly control and their component methods, refer to the earlier fruit fly risk assessments (USDA, APHIS, 2003, 1999a, 1999b, 1998a, and 1998b)).

III. Potential Environmental Consequences

This environmental assessment (EA) analyzes the potential environmental consequences of alternatives which have been considered for Medfly control, and considers, from a site-specific perspective, environmental issues that are relevant to this particular program. The preferred alternative, eradication, would involve an IPM approach that uses 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 soil treatment), (5) cold treatment, (6) vapor heat treatment, and (7) irradiation treatment.

Alternatives for Medfly control have been discussed and analyzed comprehensively within the "Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001" (EIS), which is incorporated by reference and summarized within this EA. The control measures being considered for this program 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). Those documents are also incorporated by reference and summarized within this EA.

This area's site-specific characteristics were considered with respect to the program's potential to effect (1) human health, (2) nontarget species (including endangered and threatened species), and (3) 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.

The first mated female Medfly was found in a trap on a loquat tree at a residence on Flanders Drive, near its intersection with San Ramon Drive, Mira Mesa, California. The second fly was detected on Embry Point approximately one and one-half miles SW of the initial find. The proposed eradication area contains residential, commercial, and government properties. It includes Los Penasquitos Canyon Preserve on the north side, and much of the Miramar Marine Corps Air Station to the south. Torrey Pines State Reserve and La Jolla are just west of the boundary. Lake Miramar is partly within the boundary on the east side.

A. Human Health

The principal concerns for human health are related to the program use of chemical pesticides: spinosad bait, diazinon (a soil drench), and methyl bromide (a fumigant). 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. Potential exposure is low for all applications except spinosad bait. The limited program use of spinosad bait is for regulatory treatments only, and these applications are mainly applied to commercial groves where exposure to the general public is unlikely. The analyses and data of the EIS and human health risk assessments indicate that exposures to pesticides from normal program operations are not likely to result in substantial adverse human health effects. (Refer to the EIS (USDA, APHIS, 2001) and the human health risk assessments (USDA, APHIS, 1999a, and 1998a) for more detailed information relative to human health risk.)

In general, a well-coordinated eradication program using IPM technologies would result in the least usage of chemical pesticides overall, and the least potential to adversely affect human health. The no action alternative or 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 and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

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.

B. Nontarget Species

The principal concerns for nontarget species, including endangered and threatened species, also involve the use of program pesticides. Paralleling human health risk, the risk to nontarget species is related to the pesticides' fate in the environment, their toxicity to the nontarget species, and their exposure to nontarget species. All of the pesticides are highly toxic to invertebrates, although the likelihood of exposure (and thus, impact) varies a great deal from pesticide to pesticide and with the use pattern. In general, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impact to nontarget species. The no action alternative and the quarantine and commodity certification alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial

growers, with correspondingly greater potential for adverse impact. (Refer to the 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.)

The area was considered with respect to special characteristics that could influence the effects of program operations. Section 7 of the Endangered Species Act and its implementing regulations govern consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service to ensure that 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 has researched the existence of endangered and threatened species within and adjacent to the program area to ensure that any such species and/or their critical habitats will not be affected by program operations. The San Diego fairy shrimp, the San Diego button-celery, and the San Diego mesa mint or their habitats occur within or near the spinosad treatment zone. Although program applications are applied by ground applications directly to host plants when conditions (no expected rain and low winds) preclude runoff and drift, the close proximity to critical habitat makes it prudent to recognize the low potential for exposure that exists. U.S. Fish and Wildlife Service concurs with the program required buffer of 100 feet around the areas where the listed species and/or their habitats occur. Therefore, APHIS has determined that the program actions may affect these species or their critical habitats, but are not likely to adversely affect these species.

In addition, potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigation measures. As one of the few open spaces in San Diego County, Miramar Marine Corps Air Station's approximately 23,116 acres encompass ecosystems which are all but gone elsewhere. Its habitats, such as coastal sage scrub and vernal pools, are home to over 55 endangered, threatened, or sensitive species of plants and animals. Species of concern that occur on Miramar are the Golden Eagle, Prairie Falcon, Cactus Wren, coastal California Gnatcatcher, and Rufous-crowned Sparrow. The San Diego fairy shrimp also exists in pools on the Air Station.

The proposed program will rely on release of sterile Medflies within the eradication zone surrounding the mated female Medfly finds, foliar treatments with spinosad bait for a 200 meter radius of the finds, and fruit stripping of any properties where the pest's larvae may be found. Because of the basic design of the program and extremely limited area of program pesticide treatment (200 meter radius), there is no potential to affect natural ecosystems, the undeveloped land of Miramar Marine Corps Air Station, or water bodies within the eradication zone.

C. Environmental Quality

The principal environmental quality concerns are for the preservation of clean air, pure water, and a pollution-free environment. Program pesticides remain the major concern for the public and the program, in relation to preserving environmental quality. 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 15 days; in water, residues persist for only a few hours. The half-life of diazinon in soil ranges from 1.5 to 10 weeks; in water, at neutral pH, from 8 to 9 days. Methyl bromide's half-life is 3 to 7 days, but the small quantities used disperse when fumigation chambers are vented. (Refer to the EIS (USDA, APHIS, 2001) for a more detailed consideration of the pesticides' environmental fates.)

The alternatives were compared with respect to their potential to affect environmental quality. Risk to environmental quality is considered minimal. Again, 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 no action alternative and the quarantine and commodity certification alternative would result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

The proposed program area was examined to identify characteristics that would tend to influence the effects of program operations. Potentially sensitive areas were identified, considered, and accommodated, as necessary through special selection of control methods and use of specific mitigation measures. Allowances were made for the special site-specific characteristics that would require a departure from the standard operating procedures. The approaches used to mitigate for adverse impacts to bodies of water are described in the EIS (USDA, APHIS, 2001).

Finally the program was considered with respect to its potential to cause cumulative impacts. No significant cumulative impacts are anticipated as a consequence of the program or its use of component treatment measures.

IV. Listing of Agencies and Persons Consulted

California Department of Food and Agriculture
Department of Plant Industry
Sacramento, California

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine
Invasive Species and Pest Management
4700 River Road, Unit 134
Riverdale, MD 20737-1236

U.S. Department of Agriculture
Animal and Plant Health Inspection Service
Policy and Program Development
Environmental Services
4700 River Road, Unit 149
Riverdale, Maryland 20737-1238

V. References Cited

USDA—See U.S. Department of Agriculture

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2001. Fruit fly cooperative control program, final environmental impact statement—2001. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998a. Human health risk assessment for fruit fly cooperative control programs. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2007a. Mediterranean fruit fly cooperative eradication program, Los Angeles County, California, environmental assessment—November 2007. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2007b. Mediterranean fruit fly cooperative eradication program, Santa Clara County, California, environmental assessment—October 2007. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2007c. Mediterranean fruit fly cooperative eradication program, Solano County, California, environmental assessment—September 2007. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998b. Nontarget species risk assessment for fruit fly cooperative control programs. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1999a. Spinosad bait spray applications. Human health risk assessment, March 1999. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1999b. Spinosad bait spray applications. Nontarget risk assessment, March 1999. USDA, APHIS, Riverdale, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 2003. Spinosad bait spray applications. Nontarget risk assessment, October, 2003. USDA, APHIS, Riverdale, MD.

**Finding of No Significant Impact
for
Mediterranean Fruit Fly Cooperative Eradication Program
San Diego County, California
Environmental Assessment
May 2009**

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) has prepared an environmental assessment (EA) that analyzes alternatives for control of the Mediterranean fruit fly, *Ceratitidis capitata* (Wiedemann), an exotic agricultural pest that has been found in areas of San Diego County, California. The EA, incorporated by reference in this document, is available from:

USDA, APHIS, PPQ
State Plant Health Director
650 Capital Mall, Suite 6-400
Sacramento, CA 95814

or

USDA, APHIS, PPQ
Fruit Fly Exclusion and Detection Program
4700 River Road, Unit 134
Riverdale, MD 20737-1236

The EA for this program analyzed alternatives of (1) no action, (2) quarantine and commodity certification, and (3) eradication. Each of those alternatives was determined to have potential environmental consequences. APHIS selected eradication using an integrated pest management approach for the proposed program because of its capability to achieve eradication in a way that also reduces the magnitude of those potential environmental consequences.

APHIS has determined that San Diego fairy shrimp, San Diego button-celery, and San Diego mesa mint occur within or near the spinosad treatment zone. To protect these species near the program area, APHIS has applied a no-treatment buffer of 100 around the areas where the listed species and/or habitats occur. Based upon its review of proposed program operations, and upon concurrence with the U.S. Department of the Interior, Fish, and Wildlife Service, APHIS has determined that the San Diego fairy shrimp, San Diego button-celery, and San Diego mesa mint or their critical habitats may be affected, but are not likely to be adversely affected due to program mitigation measures for ground pesticide applications.

I find that implementation of the proposed program will not significantly impact the quality of the human environment. I have considered and based my finding of no significant impact on the quantitative and qualitative risk assessments of the proposed pesticides and on my review of the program's operational characteristics. In addition, I find that the environmental process undertaken for this program is entirely consistent with the principles of "environmental justice," as expressed in Executive Order 12898, and the protection of children, as expressed in Executive Order 13045. Lastly, because I have not found evidence of significant environmental impact associated with this proposed program, I further find that an environmental impact statement does not need to be prepared and that the proposed program may proceed.

Helene R. Wright

Helene Wright
State Plant Health Director, California
Animal and Plant Health Inspection Service
Sacramento, California

6/1/09

Date