United States Department of Agriculture

Marketing and Regulatory Programs

Animal and Plant Health Inspection Service

Oriental Fruit Fly Cooperative Eradication Program

Santa Ana, California

Environmental Assessment, July 2004

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I. Need for the Proposal

The oriental fruit fly, *Bactrocera dorsalis* (Hendel) (synonym = *Dacus dorsalis* Hendel), is a destructive agricultural pest in many parts of the world. It attacks a wide variety of fruits, nuts, vegetables, and berries. The oriental fruit fly has been established in Hawaii since 1948, and damages every commercial fruit crop grown there. Eradication programs have prevented the establishment of the oriental fruit fly in the conterminous United States, where it has been introduced a number of times since 1960. Because of the species' rapid population growth and potential for damage, a prompt response is usually desired to contain and eradicate any infestation found in the conterminous United States.

On June 28, 2004, and thereafter, the Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) detected oriental fruit flies in the Santa Ana area in Orange County, California. The present infestation occurs now only in residential areas within Orange County, but the threat of spread to nearby counties, commercial groves, and crops in the State requires the program to consider regulatory quarantines and treatments. The infestation represents a major threat to the agriculture and environment of California and other U.S. mainland States. APHIS is proposing to cooperate with CDFA in a regulatory and eradication program to prevent the spread of oriental fruit fly to noninfested areas of the conterminous 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 dissemination of plant pests new to or not widely distributed throughout the United States.

This site-specific environmental assessment analyzes alternatives for regulatory control of the oriental fruit fly and incorporates by reference the analyses, discussions, and conclusions of four earlier documents: (1) APHIS' programmatic environmental assessment (programmatic EA), the "Oriental Fruit Fly Regulatory Program, Environmental Assessment, November 1991"; (2) the "Human Health Risk Assessment, APHIS Fruit Fly Programs" (human health risk assessment); (3) the "Fruit Fly Cooperative Control Program, Final Environmental Impact Statement—2001" (EIS), and the "Oriental Fruit Fly Cooperative Eradication Program, San Diego County, California, Environmental Assessment, October 2001." This environmental assessment considers previously identified alternatives of no action, quarantine only, quarantine and commodity certification, and eradication (preferred alternative). Control

methods proposed as components of the preferred alternative include: (1) no action, (2) quarantine, (3) regulatory chemicals applications (fumigation, soil treatment, and bait spray application), (4) eradication chemical applications (fruit fly male annihilation spot treatment and soil treatment), (5) cold treatment, (6) vapor heat treatment, and (7) irradiation treatment.

II. Alternatives

APHIS, in its programmatic EA, originally identified three alternatives. They are: (1) no action, (2) quarantine only, and (3) quarantine and commodity certification. Each of these alternatives is described concisely below (and in greater detail in the programmatic EA). Our review of this proposed program and of the technologies currently available to APHIS for an emergency program of this nature has identified the need for eradication chemical treatments within the infested area. The new fourth alternative – the preferred alternative – eradication, incorporates eradication chemical treatments with the methods used in the other alternatives.

A. No Action

The no action alternative would involve no Federal regulatory effort to restrict the spread of the oriental fruit fly or facilitate (certify) the commercial movement of oriental fruit fly host materials and other regulated articles. 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 limited by any controls exerted over it, by the proximity of host plants, and by climatic conditions. No action could be applied on a limited basis for sensitive sites, but there would be limited control of the damage from oriental fruit fly in these areas and continuing infestation would be expected. Expansion of the infestation would result in substantial economic losses to growers in the United States and losses of U.S. export markets.

B. Quarantine Only

Under the quarantine only alternative, commodities harvested within the quarantine area would be restricted to movement within that area. The absence of regulatory treatments would result in a reduction of the movement of oriental fruit flies to outside of the quarantined area, but the infestation would remain established within the quarantine boundaries. Oriental fruit fly eradication efforts would be managed by and be wholly under the control of CDFA. A Federal

quarantine excluding regulatory treatments requires that commodities harvested within the quarantine boundaries be destroyed or sold within the local retail market within the quarantined area. In large infestations, intensive quarantine enforcement activities may be necessary, including safeguarding of local fruit stands, mandatory baggage inspection at airports, and judicious use of road patrols and roadblocks.

C. Quarantine and Commodity Certification

This alternative couples the Federal quarantine previously described with commodity treatment and certification. The same quarantine, described above, would be imposed, but commodity certification (with prescribed treatments) would allow the movement of certain commodities outside the quarantine area. This would complement the State's efforts to eradicate the infestation. APHIS' Plant Protection and Quarantine commodity certification regulations set requirements for the movement of regulated produce harvested within the quarantined boundaries to outside locations. Interstate movement of that produce requires the issuance of a certificate or limited permit, contingent upon the grower or shipper complying with specific conditions designed to minimize pest risk and prevent the spread of the oriental fruit fly.

Control methods that may be used in this alternative include: (1) no action, (2) quarantine, (3) regulatory chemicals (fumigation, soil treatment, and bait spray application), (4) cold treatment, (5) vapor heat treatment, and (6) irradiation treatment. No action could be used in a limited sense where regulatory efforts would not be allowed under a State or local law, or could be used temporarily until such a legal constraint could be resolved or where an effective treatment does not exist for a commodity. The quarantine component is essentially the same as the alternative described in "B." above. Regulatory chemical treatments would include fumigation with methyl bromide, soil treatment with diazinon, and topical bait spray with a mixture of malathion or spinosad and a protein hydrolysate bait. (Refer to the EIS or to the programmatic EA for more detailed information about the chemicals and their uses.) Cold treatment of certain produce, as a requirement for certification and shipping, may be done in facilities that are inspected and approved by APHIS. Vapor heat treatment in facilities approved by APHIS would also be used for treatment of certain produce prior to movement.

D. Eradication (Preferred Alternative)

APHIS' preferred alternative for the program is oriental fruit fly eradication using an integrated pest management (IPM) approach. This alternative combines all of the methods described in the other alternatives with eradication chemical treatments.

These chemical treatments include soil treatment with diazinon (same method as regulatory treatment) and fruit fly male annihilation spot treatments. Fruit fly male annihilation treatments using hand-held equipment involve the application of a mixture of naled and methyl eugenol in 2- to 4-milliliter spots. The lure-insecticide spots are made to tree trunks, utility poles, and similar locations above the reach of the general public. Treatments are typically made from a slow-moving vehicle. These treatments are generally applied at a frequency of 600 to 800 evenly distributed spots per square mile within the eradication area around each fly find. The treatments are repeated for two life cycles of the fruit fly.

If oriental fruit fly larvae are found, eradication treatments will also employ foliar sprays and soil drenches. Foliar applications (made up to a 200-meter radius around an infested property) will consist of malathion or spinosad/protein bait formulations, 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 will be applied to the dripline of hosts with fruit known or suspected to be infested with oriental fruit fly eggs or larvae. (For more detailed information on the alternatives for oriental fruit fly control and their component methods, refer to the earlier fruit fly risk assessments.)

III. Environmental Effects

The potential environmental consequences of each of the alternatives (no action, quarantine only, quarantine and commodity certification, and eradication) were considered. The proposed program—eradication—would involve an IPM approach that would use any or a combination of the following control methods: (1) no action, (2) quarantine, (3) regulatory chemicals (fumigation, soil treatment, and bait spray application), (4) eradication chemical applications (fruit fly male annihilation spot treatment and soil treatment), (5) cold treatment, (6) vapor heat treatment, and (7) irradiation treatment. Each of these has been analyzed and discussed in detail within the programmatic EA and the human health risk assessment. (Refer to those documents for more detailed information.)

For this specific program, the following issues were identified and analyzed: (1) potential effects on human health from chemical pesticide applications, (2) potential effects on wildlife (including endangered and threatened species) from program activities and treatments, and (3) potential effects on environmental quality. The site-specific characteristics of the program area were considered with respect to their potential to alter or influence the anticipated effects on human health, wildlife, or environmental quality. No significant cumulative impacts are expected as a consequence of the proposed program or its component treatment methods.

The proposed treatment area is both urban and suburban, with commercial and residential characteristics. It includes parts of Tustin, East Tustin, Santa Ana, Garden Grove, Anaheim, Orange, and Villa Park. The Knotts Berry Farm and Disneyland is located to the north of the proposed treatment area. There are some streams, reservoirs, and small bodies of water in the area. The eradication applications using fruit fly male annihilation spot treatments are unlikely to pose any risks in the present treatment area. The use of site-specific buffers may be needed to avoid drift and minimize contamination of those water bodies, particularly if an expanded program should require bait spray applications as part of the regulatory treatments. Standard program operational procedures and mitigative measures will be employed to avoid adverse impacts to these areas.

A. Human Health

The principal concerns for human health are related to the program use of chemical pesticides: malathion bait, spinosad bait, diazinon (a soil drench), naled lure (spot treatments), 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 malathion and spinosad bait. The limited program use of malathion and spinosad bait is for regulatory treatments only, and these applications are only applied to commercial groves where exposure to the general public is unlikely. The analyses and data of the EIS, the programmatic EA, and human health risk assessment indicate that exposures to pesticides from normal program operations are not likely to result in substantial adverse human health effects. (Refer to the EIS, programmatic EA, the human health risk assessment, and their supporting documents for more detailed information relative to human health risk.)

The alternatives were compared with respect to their potential to affect human health. In general, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall and the least potential to adversely affect human health. The other alternatives would not be expected to eliminate oriental fruit fly as readily or as effectively as the eradication alternative. The no action alternative, the quarantine only 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.

Consistent with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," APHIS considered the potential for disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. In general, the population of the program area is diverse. There are, however, some areas in the county with minority communities. In particular, there are a number of Hispanic-American communities. Program activities in such areas will require that any pertinent public documents and notifications be provided in Spanish. There is no evidence that any one population is likely to have disproportionate effects from these program activities. APHIS also recognizes that some of the area's residents may have unusual sensitivity to certain chemicals or environmental pollutants and that program treatments pose higher dangers for these individuals. Special notification procedures and precautions, as stated in the programmatic EA's general mitigative measures, are required and serve to minimize the risk for this group.

Likewise, APHIS considered the potential for any disproportionate adverse effects to children from the regulations being considered for this program in compliance with the policy of Executive Order 13045, "Protection of Children From Environmental Health Risks and Safety Risks." The spot treatments and other eradication applications are placed to preclude exposure to children. The chemicals used in the program have not been shown to pose greater risks to children than to the general population. No disproportionate effects on children are anticipated as a consequence of implementing the preferred alternative.

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, the quarantine only 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 programmatic EA and its nontarget risk assessment for more information on risks to all classes of nontarget species.) The area was considered with respect to any special characteristics that would tend to influence the effects of program operations. Potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigative measures. The area contained no special characteristics that would require a departure from the standard operating procedures and mitigative measures that were described in the programmatic EA.

CDFA has consulted with the U.S. Department of the Interior, Fish and Wildlife Service (FWS), under the provisions of section 7 of the Endangered Species Act of 1973 for this proposed program as well as for several previous programs in California. CDFA has determined from the California Natural Diversity DataBase that no threatened or endangered species occur within the eradication zone boundaries. Use of male annihilation techniques in this program has been determined to be compatible with these species. APHIS prepared a biological assessment for the Medfly Cooperative Eradication Program that uses similar treatment methods and FWS has concurred with APHIS' no effect determination, predicated on APHIS' adherence to specific protective measures. APHIS' review of this proposed program has determined that no adverse impacts to endangered or threatened species or their habitats are foreseen.

C. Environmental Quality

The environmental quality issues include concerns 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 malathion in soil or on foliage ranges from 1 to 6 days; in water, from 6 to 18 days. The half-life of spinosad ranges from 8 to 15 days; in water, residues persist for only a few hours. The half-life of naled on foliage ranges from 2.3 to 2.5 days. 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 programmatic EA and risk assessments 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, the quarantine only 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.

The proposed program area was examined to identify characteristics that would tend to influence the effects of program operations. 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 programmatic EA.

IV. References Cited

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1991. Oriental fruit fly regulatory program. environmental assessment, November 1991. USDA, APHIS, Hyattsville, MD.

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, 1998. 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, 2001a. 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, 2001b. Oriental fruit fly cooperative eradication program, San Diego County, California. Environmental Assessment, October 2001. USDA, APHIS, Riverdale, MD.

V. 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
Program Support
4700 River Road, Unit 134
Riverdale, Maryland 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

Finding of No Significant Impact
for
Oriental Fruit Fly Cooperative Eradication Program
Santa Ana, Orange County, California
Environmental Assessment
July 2004

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 Oriental fruit fly, an exotic agricultural pest that has been found in areas of Orange County, California. The EA, incorporated by reference in this document, is available from:

USDA, APHIS, PPQ
Western Regional Office
2150 Centre Avenue, Bldg B
Fort Collins, CO 80526-8117

or

USDA, APHIS, PPQ
Pest Detection and Management Programs
4700 River Road, Unit 134
Riverdale, MD 20737–1236

The EA for this program analyzed alternatives of (1) no action, (2) quarantine only, (3) quarantine and commodity certification, and (5) eradication. Each of those alternatives was determined to have potential environmental consequences. APHIS selected eradication using an integrated pest management (IPM) 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 this program will have no adverse impacts to endangered and threatened species based upon its review of proposed program operations and upon review of consultations by the California Department of Food and Agriculture with the U.S. Department of the Interior, Fish and Wildlife Service (FWS).

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 program may proceed.

/s/ 7/10/04

Helene Wright
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Animal and Plant Health Inspection Service
Sacramento, California

Date