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Oriental Fruit Fly Cooperative Eradication Program

**Rialto, San Bernardino County,
California**

**Environmental Assessment,
October 2006**

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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 (OFF) has been established in Hawaii since 1948, and damages every commercial fruit crop grown there. Eradication programs have prevented the establishment of the OFF 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 August 29, 2006, and thereafter, the San Bernardino County Department of Agriculture, in cooperation with the Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA), detected a mated female OFF in the city of Rialto, San Bernardino County, California. The present infestation occurs now only in a residential area of San Bernardino 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 and the San Bernardino County Department of Agriculture in a regulatory and eradication program to prevent the spread of OFF 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 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 OFF and incorporates, by reference, the analyses, discussions, and conclusions of four earlier documents: (1) APHIS' programmatic environmental assessment (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 (4) the "Oriental Fruit Fly Cooperative Eradication Program, San Diego County, California, Environmental Assessment, October 2001." This EA 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 OFF or facilitate (certify) the commercial movement of OFF 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 OFF 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 OFFs to outside of the quarantined area, but the infestation would remain established within the quarantine boundaries. OFF eradication efforts would be managed by and be wholly under the control of

C DFA. 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 OFF.

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 OFF 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 on 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 OFF 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 OFF eggs or larvae. (For more detailed information on the alternatives for OFF 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 an urban setting with commercial and residential characteristics. It includes parts of Rialto, Fontana, San Bernardino, California. California State–San Bernardino University is located to the east of the proposed treatment area, and Glen Helen Regional Park and the Rialto Municipal Airport is located to the north of the proposed treatment area. There are some streams, reservoirs, and small bodies of water just within the treatment zone. 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 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 are specifically for regulatory and eradication treatments, and these applications are only applied to commercial groves and residential locations that are close to larval sites. 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 OFF 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.

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,” and departmental 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, 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 treatment 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 treatment 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.

CDFG 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. CDFG has determined from the California Natural Diversity DataBase that the coast-horned lizard and the San Diego black-tailed jackrabbit occur within the eradication zone boundaries. As has been determined in previous consultations with FWS, 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 no effect on endangered or threatened species. Review of potential endangered and threatened species will be repeated if there is any expansion of the treatment area, particularly to other locations within the county where these species are known to reside.

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
Rialto, San Bernardino, California
Environmental Assessment
October 2006**

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 San Bernardino 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 137
Riverdale, MD 20737-1234

The EA for this program analyzed alternatives of (1) no action, (2) quarantine only, (3) quarantine and commodity certification, and (4) 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 this program will have no effect on 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.

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.

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

Date