United States Department of Agriculture

Marketing and Regulatory Programs

Animal and Plant Health Inspection Service

Oriental Fruit Fly Cooperative Eradication Program

Lakewood, Los Angeles County, California

Environmental Assessment August 2008

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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 has a long history of being a serious pest of tropical and subtropical fruits in Southwest Asia and most of the Pacific Islands. Following introduction into the Hawaiian Islands in the 1940's, this fly multiplied rapidly, and currently is known to infest more than 125 different host fruits in the state of Hawaii. Worldwide, over 250 different of fruits and vegetables are attacked. The oriental fruit fly (OFF) has been recorded infesting more than 250 kinds of fruits and vegetables including citrus, guava, mango, papaya, avocado, banana, loquat, tomato, surinam cherry, rose-apple, passion fruit, persimmon, pineapple, peach, pear, apricot, fig, and coffee berries.

OFF has been identified and eradicated numerous times in California since it was first found in 1960. Reintroduction has occurred due to infected fruits and vegetables that are brought across the border without inspection. Because of the species' rapid population growth and potential for damage, a prompt response is desired to contain and eradicate any infestation found in the conterminous United States.

On August 13, 2008, three male OFF were trapped in the city of Lakewood, Los Angeles County. Five more OFFs were found within the area from August 15th to August 18th triggering federal involvement in the eradication of OFF in Lakewood, California. APHIS is proposing to cooperate with CDFA and the Los Angles 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 (7 United States Code (U.S.C.) 7701 et seq.) 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. The program proposes to eradicate and prevent the spread of OFF through quarantine and male annihilation using bait stations.

This site specific environmental assessment (EA) analyzes alternatives for the eradication efforts of OFF and is tiered to the "Fruit Fly Cooperative Control Program, Final Environmental Impact Statement" (USDA, 2001). This EA has been prepared consistent with the National Environmental Policy Act of 1969 (NEPA) and APHIS' NEPA implementing procedures (7 Code of Federal Regulations (CFR) part 372) for the purpose of

evaluating how the proposed action, if implemented, may affect the quality of the human environment.

II. Alternatives

APHIS considered two alternatives in response to the need to eradicate and contain infestations of GR: (1) no action; and (2) the combination of quarantine and eradication (preferred alternative). Both alternatives are described briefly in this section.

A. No Action

The no action alternative would involve no Federal regulatory effort to restrict the spread of 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..

B. Eradication and Quarantine

Eradication and Quarantine is the preferred alternative. Several options were considered for eradication of OFF infestation including: (1) male annihilation using bait stations; (2) supplemental ground spray; (3) soil drenches; (4) aerial bait spray; (5) mass trapping; (6) biological control; and (7) host removal. After evaluation of these alternatives given the circumstances in Lakewood, California, male annihilation bait stations are the preferred eradication treatment.

The eradication area includes portions of Los Angeles County which fall within a nine-mile area around each property on which an adult fly has been trapped. Delimitation traps will be placed throughout the area to delimit the infestation and to monitor post-treatment fly populations. Jackson traps and McPhail traps will be placed at a density of 25 per square mile in the core areas and Jackson traps will be placed at five per square mile in the remaining delimitation area. These traps will be serviced on a regular schedule for a period equal to three fly generations beyond the date of the last fly find.

The male annihilation stations consist of methyl eugenol, naled, and a thickener. Spinosad may also be used in place of naled in

the male annihilation stations. A minimum of 600 evenly spaced bait stations will be applied to utility poles, street trees, etc., in each square mile within the eradication project boundaries. Treatments will be repeated at two-week intervals for up to two life cycles beyond the last fly find.

If larvae or mated females are found on the property the foliage of host plants on the infested and adjacent properties will be treated with protein bait sprays. Foliar sprays may be extended up to a 200-meter radius if trap catches warrant it. Fruit stripping will also occur 100 meters around all known larval infested and adjacent properties.

Quarantine measures may also be applied to ensure that any host material that leaves the quarantine area is free of OFF. Host material may be treated with cold treatment, irradiation, vapor heat, or fumigation with methyl bromide as discussed in the Fruit Fly Cooperative Control Program EIS (USDA, 2001).

II. Environmental Effects

The potential environmental consequences of each of the alternatives (1) no action and (2) eradication and quarantine (the preferred alternative) will be examined below.

A. No Action Alternative

Under the No Action alternative, APHIS would not provide any financial or other assistance to CDFA or the Los Angeles County Department of Agriculture. If CDFA and Los Angeles County Department of Agriculture are not able to eradicate oriental fruit fly from Lakewood, California, it is likely that the fruit fly would become established and spread into the agricultural production areas of California. Important California crops that could be infested include pome and stone fruits, citrus, dates, avocados, and certain vegetables, particularly tomatoes and peppers. Damage occurs when the female lays eggs in the fruit. These eggs hatch into larvae or maggots, which tunnel through the flesh of the fruit, making it unfit for consumption.

In addition to damage to fruits and vegetables, there may also be additional measures imposed on California OFF host material that is exported to other countries requiring additional treatments and/or limiting the amount of host material that could be exported.

A great number of crops in California are threatened by the introduction of OFF including pears, plums, cherries, peaches, apricots, figs, citrus,

tomatoes, and avocados. It is estimated that the cost of not eradicating OFF in California would range from $44 million to $176 million in crop losses, additional pesticide use and quarantine requirements.

B. Eradication and Quarantine

The environmental impacts of the quarantine and the use of delimitating traps of the proposed action are expected to be minimal. Impacts associated with the quarantine action have been analyzed in the Fruit Fly Cooperative Control Program Final Environmental Impact Statement (USDA, 2001) and have been incorporated here by reference and summarized below. As described in previous sections of this EA, the quarantine activities include restriction from interstate movement with the potential use of cold treatment, vapor heat treatment, irradiation and fumigation with methyl bromide. 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, and environmental quality. No significant cumulative impacts are expected as a consequence of the proposed program or its component treatment methods.

The eradication portion of the proposed action includes the use of male annihilation stations, which were also discussed in the Fruit Fly Cooperative Control Program Final Environmental Impact Statement (USDA, 2001). The environmental impacts resulting from male annihilation stations has been incorporated by reference here and summarized below. Use of spinosad in the male annihilation stations was not evaluated in the EIS, however, the use spinosad in male annihilation stations is low dose and there will be limited exposure to humans and nontargets because of how it is applied. The use of spinosad was proposed to reduce the use of organophosphate insecticides and is expected to have less environmental impact than malathion or naled as evaluated in the EIS. An efficacy study was conducted and published by Vargas et. al. (2008) which concluded that use of spinosad was as effective as the most popular organophosphate insecticides that are commonly used for male annihilation including naled, malathion, 2,2-dichorovinyl dimethyl phosphate.

The current eradication treatment area consists of 8.5 square miles in Lakewood, Los Angeles County. Lakewood California is located in southern Los Angeles County, 23 miles southeast of Los Angeles. The estimated population in 2006 is 80,055 people with a population density of 8,414 people per square mile.

The eradication area is just south of State Highway 91 and is bisected by State Highway 19. This is mainly a residential area. 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 (e) 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, and environmental quality.

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.

1. 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), spinosad lure (spot treatments), and methyl bromide (a fumigant). Three major factors influence 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; these applications are only applied to commercial groves and residential locations that are close to larval sites. The analyses and data of the EIS 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 (USDA, 1998a; USDA, 1999). (Refer to the EIS, the human health risk assessments, 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.

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.

2. 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 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 mitigation measures. The treatment area contains no special characteristics that would require a departure from the standard operating procedures and mitigation measures that were described in the programmatic EA.

In compliance with section 7(a)(2) of the Endangered Species Act of 1973, as amended, APHIS reviewed the eradication zone boundaries to determine if any federally threatened or endangered species or critical habitat is present in the eradication zone. Based on our review of the lists of federally listed species and/or critical habitat (listed resources) available from the Fish and Wildlife Service and National Marine Fisheries Service we have determined there is no potential for effects to listed resources as a result of this action.

In the event of future fruit fly detections or the need to expand the eradication boundaries considered herein, APHIS will repeat its review of that action to determine if the potential exists to affect federally listed resources and consult with the appropriate consulting agency if necessary.

3. 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 Fruit Fly EIS for a more detailed consideration of the pesticides' environmental fates.)

Risk to environmental quality is considered minimal. 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.

In Summary, there should be limited impact to human health, non target species, and the environment when the preferred alternative is chosen. Currently, the eradication treatment involves the use of male annihilation stations as the primary tool for eradication. Other treatments may be implemented in the future including protein bait spray, foliar sprays, and quarantine treatments as discussed previously. Use of these alternatives may result in minimal adverse impacts to non-target species as evaluated under the Fruit Fly EIS (USDA, 2001) and nontarget species risk assessments (USDA, 1998b; USDA, 2003). Risk to environmental quality is considered minimal.

IV. References Cited

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.

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

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

Vargas, Roger I., John D. Stark, Mark Hertlein, Agenor Mafra Neot, Reginald Coler, and Jaime C. Pinero, 2008. Evaluation of SPLAT with spinosad and methyl eugenol or cue-lure for “attract and kill” of oriental and melon fruit flies (Diptera: Tephridtidae) in Hawaii. J. Econ Entomol. 101 (3): 759-768.

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
Fruit Fly Exclusion and Detection Program
4700 River Road, Unit 137
Riverdale, MD 20737–1234

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

Finding of No Significant Impact
for
Oriental Fruit Fly Cooperative Eradication Program
Lakewood, Los Angeles County, California
Environmental Assessment
August 2008

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) has prepared an environmental assessment (EA) that analyzes alternatives for eradication of the Oriental fruit fly, an exotic agricultural pest that has been found in areas of Los Angeles 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, and (2) eradication and quarantine only (preferred alternative) 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 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 listed species within the eradication area. It was determined that no listed endangered or threatened species would co-exist within the treatment area.

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.

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Animal and Plant Health Inspection Service
Sacramento, California

Date