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Mexican Fruit Fly Cooperative Eradication Program

San Diego County, California

**Environmental Assessment,
November 2007**

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I. Need for the Proposal

The Mexican fruit fly, *Anastrepha ludens* (Loew), is native to central Mexico and is a major pest of agriculture throughout many parts of the world. Commercial and home grown produce that is attacked by the pest is unfit to eat because the larvae tunnel through the fleshy part of the fruit, damaging the fruit and subjecting it to decay from bacteria and fungi. Because of its wide host range (over 40 species of fruits) and its potential for damage, a permanent infestation of Mexican fruit fly would be disastrous to agricultural production in the United States. In the past, eradication programs have been implemented successfully to prevent the pest from becoming permanently established on the U.S. mainland.

On November 6, 2007, it was confirmed that four Mexican fruit flies were trapped in the city of Escondido, in San Diego County, California. Subsequently, on that same day, an additional Mexican fruit fly was found in close proximity to the original find site. The infestation is presently found in urban and suburban areas of Escondido, California, although that situation may change in the future. This Mexican fruit fly infestation detected in southern California 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 Mexican fruit fly 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.

This site-specific environmental assessment (EA) analyzes the environmental consequences of alternatives which have been considered for Mexican fruit fly control and considers, from a site-specific perspective, environmental issues that are relevant to this particular program.

Alternatives for Mexican fruit fly 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) nonchemical control, and (3) integrated control. APHIS' preferred alternative for the program is integrated control (using chemicals) to facilitate timely eradication of the current Mexican fruit fly infestation.

A. No Action

The no action alternative would involve no Federal regulatory effort to restrict the spread of the Mexican fruit fly or facilitate (certify) the commercial movement of Mexican 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. The no action alternative could be applied on a limited basis for sensitive sites; however, there would be limited control of the damage from Mexican 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 quarantine restrictions of this alternative would result in a reduction of human-mediated movement of Mexican fruit fly in host plant materials outside the quarantined area; however, the infestation would remain established within the quarantine boundaries. Mexican fruit fly eradication efforts would be managed by, and are 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; however, 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 Mexican 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 above in II.B. Regulatory chemical treatments would include fumigation with methyl bromide, soil treatment with diazinon, and topical bait spray with a mixture of spinosad or malathion and a protein hydrolysate bait. (Refer to the EIS (USDA, APHIS, 2001) 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 is also used for treatment of certain produce prior to movement, and in facilities that are approved by APHIS.

D. Eradication (Preferred Alternative)

APHIS' preferred alternative for the Mexican fruit fly program is eradication using an integrated pest management (IPM) approach. This alternative combines all of the methods described in the other alternatives with eradication by chemical treatments. Specifically, this integrated program could use any or a combination of the following methods: chemical control, sterile insect technique, physical control, cultural control, and regulatory control.

The eradication program may include ground applications of either malathion or spinosad bait. If Mexican fruit fly 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 or malathion 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 dripline of hosts with fruit known or suspected to be infested with Mexican fruit fly eggs or

larvae. (For more detailed information on the alternatives for Mexican fruit fly control and their component methods, refer to the earlier fruit fly risk assessments (USDA, APHIS, 2003, 1999a, 1999b, 1998a, and 1998b)).

For now, program use of chemical control methods will only involve ground use of spinosad and fumigation with methyl bromide; however, pesticide use by the program may expand to include malathion or diazinon in their eradication efforts.

III. Potential Environmental Consequences

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 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. Each of these has been analyzed and discussed in detail within the EIS (USDA, APHIS, 2001) and the human health risk assessment (USDA, APHIS, 1999a).

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, and environmental quality. No significant cumulative impacts are expected as a consequence of the proposed program or its component treatment methods.

The area of the proposed program has rural and suburban characteristics. The current eradication zone (where eradication treatments will occur) is the area including and immediately surrounding the Mexican fruit fly detections. The eradication zone is predominantly suburban, but includes some plant nurseries and fruit sellers. Parts of Bonsall, Oceanside, San Marcos, and Valley Center are within the eradication area. Other than at those locations where there are threatened and endangered species habitats, there are no sensitive sites within the treatment zone; however, expansion of the program area could place some sensitive sites within the quarantine zone. The Cleveland National Forest and the Anza-Borrego Desert State Park are to the east; there are some beaches, streams, reservoirs, and small bodies of water in the area. The Gulf of Santa Catalina is to the west of the eradication zone. The Palomar Observatory is to the north, and the San

Diego Wild Animal Park is to the south of the treatment zone. The program has adjusted treatments in the spray areas to minimize human exposures through the use of ground applications rather than aerial applications. If the treatment zone should expand in the future to include the national forest, appropriate protection 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), 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 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.)

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 Mexican 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.

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, 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 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 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.

Section 7 of the Endangered Species Act and its implementing regulations require Federal agencies to consult with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of critical habitat. APHIS has considered the potential effects on endangered and threatened species and their habitats.

CDFA has determined, from the California Natural Diversity Data Base, the occurrence of the federally listed threatened coastal California gnatcatcher (*Polioptila californica*). This species is known to occur 1 mile east from any proposed application of spinosad. Since program activities will not take place in the habitats where this species is known to occur, exposure of this species to spinosad treatments will not take place. Fumigation of host material, such as citrus fruits, in an enclosed fumigation chamber would not expose this species to methyl bromide. Sterile insect technique has been found to be compatible with conservation of threatened and endangered species. Therefore, APHIS' review of this proposed program has determined that there will be no effect to endangered or threatened species or their habitat. 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 federally listed species are known to occur.

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 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, 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 EIS (USDA, APHIS, 2001).

IV. Agencies, Organizations, and Individuals Consulted

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, 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

V. References Cited

USDA—See United States Department of Agriculture

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.

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, 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, 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, 1998b. Nontarget species risk assessment for fruit fly cooperative control programs. USDA, APHIS, Riverdale, MD.

**Finding of No Significant Impact
For
Mexican Fruit Fly Cooperative Eradication Program
San Diego County, California
Environmental Assessment
November 2007**

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 Mexican fruit fly, *Anastrepha ludens* (Loew), 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

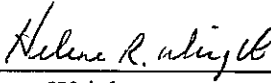
or

USDA, APHIS, PPQ
Fruit Fly Exclusion and Detection Program
4700 River Road, Unit 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 effects 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

11/23/07

Date