United States Department of Agriculture

Marketing and Regulatory Programs

Animal and Plant Health Inspection Service

Mexican Fruit Fly Cooperative Eradication Program

Brooks County, Texas

Environmental Assessment, April 2009

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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.

A mated female Mexican fruit fly was found on April 27, 2009, just west of Encino, Brooks County, Texas. Encino is located 10 miles north of the Hidalgo County line and about 19 miles south of the town of Falfurrias, Texas. This Mexican fruit fly infestation represents a major threat to the agriculture and environment of Texas and other U.S. mainland States. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and the Texas Department of Agriculture (TDA) 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.

APHIS has cooperated with state departments of agriculture on a number of Mexican fruit fly programs in the past. Examples of such programs include the "Mexican Fruit Fly Cooperative Eradication Program, Laredo, Texas" (USDA 2007a), the "Mexican Fruit Fly Cooperative Management Program, Lower Rio Grande Valley, Texas" (USDA 2008), and the "Mexican Fruit Fly Cooperative Eradication Program, San Diego County, California" (USDA 2007b).

II. Alternatives

Alternatives considered for this proposed program include (1) no action,
(2) quarantine and commodity certification, and (3) eradication. APHIS' preferred alternative for the program is eradication using an integrated pest management (IPM) approach. Component techniques include the use of chemical pesticides to facilitate the timely elimination of the current Mexican fruit fly infestation.

A. No Action

The no action alternative would involve no Federal effort to eradicate the Mexican fruit fly or restrict its expansion from the infested area. In the absence of a Federal effort, quarantine and control would be left to State government, grower groups, and individuals. The infestation's

expansion would be influenced by any controls exerted over it, by the proximity of host plants, and by climatic conditions. No action could be the only choice with respect to some sensitive sites; in such cases, lack of action could result in a continuing and expanding infestation. An expansion of the infestation would likely result in substantial economic losses to growers in the United States and losses of U.S. export markets.

B. Quarantine and Commodity Certification

This alternative combines a Federal quarantine with commodity treatment and certification. Regulated commodities harvested within the quarantine area would be restricted to movement within that area, unless treated with prescribed treatments and certified for movement to outside the area. For a large infestation, intensive quarantine enforcement activities could be necessary including safeguarding of local fruit stands, mandatory baggage inspection at airports, and judicious use of road patrols and roadblocks. The quarantine actions of this alternative would result in a reduction of human-mediated movement of Mexican fruit fly in host plant materials outside the quarantined area; however, the infestation could remain established within the quarantine boundaries. Any Mexican fruit fly eradication efforts would be managed by, and wholly under the control of, TDA.

Interstate movement of regulated commodities would require issuance of a certificate, or limited permit, contingent upon commodity treatment or the grower or shipper complying with specific conditions designed to minimize pest risk and prevent the spread of the Mexican fruit fly. Control methods that may be used in this alternative include: (1) regulatory chemicals, (2) cold treatment, (3) vapor heat treatment, and (4) irradiation treatment. Regulatory chemical treatments include fumigation with methyl bromide, soil treatment with diazinon, and topical bait spray with a mixture of spinosad 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, vapor heat treatment, or irradiation treatment of certain produce, as a requirement for certification and shipping, must be done in facilities that are inspected and approved by APHIS.

C. Eradication (Preferred Alternative)

APHIS' preferred alternative for the Mexican fruit fly program is eradication using an integrated pest management (IPM) approach. This alternative combines quarantine and commodity certification with eradication treatments. Eradication efforts may include any or all of the following: chemical control, sterile insect technique, physical control, cultural control, and regulatory control.

The eradication program could include ground applications of either malathion or spinosad bait. Spinosad bait has been proposed for this program. Where Mexican fruit fly larvae are found, eradication treatments may also employ foliar sprays and soil drenches. Foliar applications, which are applied up to a 500-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 drip line 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)).

III. Potential Environmental Consequences

This environmental assessment (EA) analyzes the potential 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. The preferred alternative, eradication, would involve an IPM approach that uses any or a combination of the following: (1) no action, (2) quarantine, (3) regulatory chemical application (fumigation, soil treatment, and bait spray application), (4) eradication chemical applications (protein bait spray and soil treatment), (5) cold treatment, (6) vapor heat treatment, and (7) irradiation treatment.

Alternatives for 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 analyzed comprehensively within the fruit fly chemical risk assessments (USDA, APHIS, 1998a, and 1998b) and risk assessments for spinosad (USDA, APHIS, 1999a, 1999b, and 2003). Those documents are also incorporated by reference and summarized within this EA.
This area's site-specific characteristics were considered with respect to the program's potential to affect (1) human health, (2) nontarget species (including endangered and threatened species), and (3) environmental quality. In addition, potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigation measures.

The infestation is located just west of Encino, a small town of about 177 people. It has been detected on private property off County Road 304 (Las Cuatas Road). The area is used primarily for cattle ranching and is a mixture of native grasses and scrub vegetation. There are no known commercial citrus orchards in the vicinity.

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.)

In general, a well-coordinated eradication program using IPM technologies would result in the least usage of chemical pesticides overall, and the least potential to adversely affect human health. The no action alternative or quarantine and commodity certification alternative would not eliminate Mexican fruit fly as readily or as effectively as the eradication alternative. Over a protracted time period, there would likely be broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

Some executive orders, such as Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks, and Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, as well as departmental and/or agency directives call for special environmental reviews in certain circumstances. No circumstance that would trigger the need for special environmental reviews is involved in implementing the preferred alternative considered in this document.

B. Nontarget Species

The principal concerns for nontarget species, including endangered and threatened species, also involve the use of program pesticides. Paralleling human health risk, the risk to nontarget species is related to the pesticides' fate in the environment, their toxicity to the nontarget species, and their exposure to nontarget species. All of the pesticides are highly toxic to invertebrates, although the likelihood of exposure (and thus, impact) varies a great deal from pesticide to pesticide and with the use pattern. In general, a well-coordinated eradication program using IPM technologies would result in the least use of chemical pesticides overall, with minimal adverse impact to nontarget species. The no action alternative and the quarantine and commodity certification alternative would be expected to result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact. (Refer to the EIS (USDA, APHIS, 2001) and its nontarget risk assessments (USDA, APHIS, 2003, 1999b, and 1998b) for more information on risks to all classes of nontarget species.)

The area was considered with respect to special characteristics that could influence the effects of program operations. Section 7 of the Endangered Species Act and its implementing regulations govern consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service to ensure that actions are not likely to jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of critical habitat. APHIS has researched the existence of endangered and threatened species within the program area, and has ensured that any such species and/or their critical habitats will not be affected by program operations. In addition, potentially sensitive areas have been identified, considered, and accommodated through special selection of control methods and use of specific mitigation measures.

There are three Federally listed species for the Brooks County: the ocelot (*Leopardus pardalis* Linnaeus), the jaguarundi (*Felis yagouaroundi* Geoffroy), and the northern aplomado falcon (*Falco femoralis septentrionalis* Todd). APHIS has prepared a programmatic consultation with USFWS for the protection of such species, and although the proposed program area falls outside the area originally covered in the consultation, APHIS would use the same protection measures from the programmatic consultation in this program area. As previously agreed, APHIS would use the following buffers to ensure that no adverse impacts are associated with the treatment program.

1) Malathion bait spray: No ground applications within ¼-mile of a currently occupied nest. Applicators should watch for falcons in the area of application and not make any pesticide application until after falcons have left.

2) Spinosad bait spray: No aerial or ground applications within ¼-mile of a currently occupied nest. Aerial pesticide applications should be made in swaths parallel to a falcon nest and its aerial buffer zone. Applicators should watch for falcons in the area of application and not make any pesticide application until after falcons have left.

3) Within the buffer zones, only release of sterile Mexflies will be used.

APHIS will consult with the local USFWS office to ensure there are no nesting aplomado falcons within the area. In the event falcons are present in the treatment area the above protection measures will be implemented.

C. Environmental Quality

The principal environmental quality concerns are for the preservation of clean air, pure water, and a pollution-free environment. Program pesticides remain the major concern for the public and the program, in relation to preserving environmental quality. Although program pesticide use is limited, especially in comparison to other agricultural pesticide use, the proposed action would result in a controlled release of chemicals into the environment. The fate of those chemicals varies with respect to the environmental component (air, water, or other substrate) and its characteristics (temperature, pH, dilution, etc.). The half-life of 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 and the quarantine

and commodity certification alternative would result in broader and more widespread use of pesticides by homeowners and commercial growers, with correspondingly greater potential for adverse impact.

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

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

IV. Agencies, Organizations, and Individuals Consulted

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