



**United States
Department of
Agriculture**

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Medfly Cooperative Eradication Program, Southern Florida

Environmental Assessment, April 1998

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I. Purpose and Need

A. Introduction

The Mediterranean fruit fly or Medfly, *Ceratitis capitata* (Wiedemann), is a major pest of agriculture throughout many parts of the world. Because of its wide host range (over 250 species of fruits and vegetables) and its potential for damage, the Medfly represents a serious threat to U.S. agriculture. Although it has been introduced intermittently to the U.S. mainland several times since its first introduction in 1929, eradication programs have been implemented to prevent it from becoming a permanent pest on the U.S. mainland.

A permanent infestation of Medfly would be disastrous to agricultural production in Florida and the United States. Although established on the Hawaiian islands, Medfly's unchecked presence on the U.S. mainland would result in widespread destruction of crops such as apricot, avocado, grapefruit, nectarine, orange, peach, and cherry. Commercial crops as well as home production of host fruits would suffer if Medfly were allowed to remain. Fruit that has been attacked by Medfly is unfit to eat because the Medfly larvae tunnel through the fleshy part of the fruit, damaging the fruit and subjecting it to decay from bacteria and fungi.

On May 28, 1997, an adult Medfly was found in a fruit fly trap in a kumquat tree in Tampa, Florida (Hillsborough County). An eradication program was implemented and an environmental assessment (EA) was prepared for that program. Subsequently, Medflies were found in additional counties of Central Florida, the program was expanded to those other counties, and an EA was prepared for the expanded program in June, 1997. In December, 1997, the emergency registration for Malathion, a principle means of control for the Medfly, expired. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS), in conjunction with the Florida Department of Agriculture and Consumer Services (FDACS), began working with the U.S. Environmental Protection Agency to renew the emergency registration.

In conjunction with the effort to renew the emergency registration of Malathion, APHIS drafted an unconventional EA that focused on strategies for risk reduction in Florida Medfly programs. Before the process could be completed and APHIS could finalize its risk reduction strategy, on April 1, 1998, a Medfly was found in the area of Miami Springs (Dade County), Florida. On the following day, another Medfly was found alive in a trap on the same property, confirming the presence of an infestation. At this time, APHIS and the State's Division of Plant Industry are doing delimitation trapping to determine the full extent of the Medfly population, and has begun the environmental and public information process leading to a program to counter the emergency.

B. Purpose and Need

The Medfly infestation detected in southern Florida represents a major threat to the agriculture and environment of Florida and other U.S. mainland States. APHIS and FDACS are proposing a cooperative program to eradicate the Medfly infestation and eliminate that threat.

APHIS' authority for cooperation in the program is based upon the Organic Act (7 United States Code (U.S.C.) 147a), which authorizes the Secretary of Agriculture to carry out operations to eradicate insect pests, and the Federal Plant Pest Act (7 U.S.C. 150dd), which authorizes the Secretary of Agriculture to use emergency measures to prevent the dissemination of plant pests new to or not widely distributed throughout the United States.

This EA analyzes the environmental consequences of alternatives which were considered for Medfly control and considers, from a site-specific perspective, environmental issues that are relevant to this particular program. Alternatives for Medfly control were discussed and analyzed comprehensively within the "Medfly Cooperative Eradication Program Final Environmental Impact Statement—1993" (EIS), which is incorporated by reference and summarized within this EA. In addition, this EA considers the potential use of SureDye, a new pesticide that APHIS is considering for Medfly eradication. The potential environmental impacts from the use of SureDye in control of fruit flies has been analyzed comprehensively by APHIS in two separate risk assessments; those assessments are also incorporated by reference and summarized within this EA.

In view of the incompleteness of APHIS' development of its risk reduction strategy for Medfly Cooperative Eradication programs, this EA includes (appendix A) the risk reduction strategies that were recommended in the draft risk reduction EA. Those strategies will be refined somewhat and additional strategies may be added before the risk reduction EA is made final. At this time, however, the preparers of this EA wished to ensure that at least the draft recommendations were made available to the decision maker for this emergency program.

II. Alternatives

Alternatives considered for this proposed program include: (1) no action, (2) Medfly suppression (including chemicals), (3) Medfly suppression (without chemicals), (4) Medfly eradication (including chemicals), and (5) Medfly eradication (without chemicals). APHIS' preferred alternative for the program is Medfly eradication (including chemicals), using an integrated pest management (IPM) approach. For more detailed information on the alternatives for Medfly control and their component methods, refer to the EIS and SureDye risk assessments.

III. Environmental Impacts

The potential environmental impacts of the program's alternatives and component treatment methods have been discussed and analyzed in detail within the EIS and associated analyses (including the "Biological Assessment, Medfly Cooperative Eradication Program—August 1993") and the SureDye risk assessments. In addition, potential cumulative impacts were analyzed within the EIS. Refer to the EIS and the analyses it cites for greater detail. This environmental analysis focuses on site-specific issues and conditions, especially with respect to any effects they might have on potential environmental effects. Issues of concern associated with this proposed action include (1) potential effect on human health from chemical pesticide applications, (2) potential effect on wildlife (including endangered and threatened species) from program activities and treatments, and (3) potential effect on environmental quality.

The area of the proposed program has urban, suburban, and rural characteristics. The fly finds are in residential areas. There are sensitive sites within the eradication zone. The presence of many bodies of water makes it necessary to employ buffers to avoid drift and minimize contamination of local water bodies. Part of the Everglades is within Dade County close to where the Medflies have been detected. The program has adjusted treatments in the area to minimize human exposures through the use of ground applications rather than aerial applications. The ability to contain the current infestation will determine if ground treatments will be sufficient. If the treatment zone should expand in the future, appropriate protection measures will be employed to avoid adverse impacts to these areas.

A. Human Health

The principal concerns for human health in Medfly programs are related to the program use of chemical pesticides: Malathion bait (especially when applied from the air), diazinon (soil drenches), and methyl bromide (a fumigant). The intent to apply bait spray by ground application should minimize the exposure and potential risks. SureDye bait spray is being evaluated for future use in projects, but the potential human health risks are considerably less than the other treatments.

The following three major factors influence the 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 human beings. Exposure to program pesticides can vary, depending upon the pesticide and the use pattern, but data from the human health risk assessment prepared for the EIS and the SureDye Risk Assessments indicates that exposures to pesticides from normal program operations are not likely to result in substantial adverse human health effects. Refer to the EIS, its supporting documents, and SureDye risk assessments 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 no action alternative, both suppression alternatives, and the Medfly eradication (no chemicals) alternative, all 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 this area is diverse and lacks any special characteristics that differ from those described in the EIS. There are, however, some areas that have minority communities. In particular, there is a large Cuban-American population in nearby parts of Miami. Continuing expansion of the treatment area could have the potential to affect these communities, but there is no evidence that any one population is likely to have disproportionate effects from these program activities. Pertinent documents (environmental documents, precautions, and/or warnings) will be translated into Spanish for dissemination in these areas, and application schedules will be provided to radio stations and other media in Spanish. APHIS also recognizes that a proportion of the population 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 EIS's recommended mitigations, are required and serve to minimize the risk for this group.

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 fate of the pesticides 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 and route of exposure. For example, SureDye bait spray must be ingested by the invertebrate species to cause any toxic effects and most species are neither attracted to the bait mixture nor stimulated to feed upon the ingredients. This ensures that SureDye will not adversely affect most invertebrates. Refer to the EIS, its supporting nontarget risk assessment, and the SureDye risk assessments for more information on risks to all classes of nontarget species.

APHIS 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. APHIS has prepared a biological assessment for the Medfly Cooperative Eradication Program and FWS has concurred with APHIS' no effect determination, predicated on APHIS' adherence to specific protective measures. APHIS is currently conducting an emergency consultation with the FWS, with regard to the protection of endangered and threatened species or their habitats within the program area. Based upon FWS' original concurrence of no effect and the continuing consultation, no adverse impacts to endangered or threatened species, or their habitats, are foreseen.

The alternatives were compared with respect to their potential to affect nontarget species. Paralleling the findings for human health, we have determined that 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, both suppression alternatives, and the Medfly eradication (no chemicals) alternative, all 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 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 EIS.

C. Environmental Quality

The concerns over environmental quality include concerns for the preservation of clean air, pure water, and a pollution-free environment. Program pesticides remain the major concern of 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 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, and in water from 6 to 18 days. The half-life of phloxine B/uranine (SureDye) in soil is 4 days, on foliage is 2 days, and in water ranges from 1 to 3 days. The half-life of diazinon in soil ranges from 1.5 to 10 weeks, and 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 readily when fumigation chambers are vented. Refer to the EIS and SureDye risk assessments for more detailed considerations of the pesticides' environmental fates.

The alternatives were compared with respect to their potential to affect environmental quality. 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, both suppression alternatives, and the Medfly eradication (no chemicals) alternative, all 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.

In conclusion, the majority of the risk in the program is associated with pesticide use. Pesticide exposure and subsequent risk to humans and nontarget species is not expected to be substantial in this program because of the localized nature of the infestation, the limited use of pesticides, the precise targeting of pesticides, and the safety procedures employed. Although minimal exposure could pose higher risk to some sensitive individuals and some nontarget organisms, pesticide exposure is generally expected to be minimal and program standard operating procedures and mitigations (especially notifications) serve to minimize that risk. Risk to environmental quality is considered minimal. No significant cumulative impacts are expected as a consequence of the proposed program or its component treatment methods.

IV. Listing of Agencies and Persons Consulted

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1911 SW 34th Street
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Appendix A. - Recommended Risk Reduction Strategies

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The following recommended risk reduction strategies were identified in APHIS' "Draft Risk Reduction Strategy, Florida Medfly Program, Environmental Assessment, February 1998." Although the process associated with that EA has not been completed and APHIS has not issued a determination on its final risk reduction policy, those component strategies recommended in the draft EA are concisely summarized herein for consideration by APHIS' Medfly program decision maker. To the extent these strategies are available (from budgetary, efficacy, and legal perspectives), they are recommended for the South Florida Medfly Eradication Program.

1. Exclusion Strategy

Recommendations:

- ! Purchase and deploy X-ray equipment to check baggage at high-risk Florida ports of entry.
- ! Establish and maintain canine teams at high-risk Florida ports of entry.
- ! Develop and maintain computer technology for tracking illegal importations.
- ! Increase inspection on low-risk flights (e.g., Canadian flights that could include transshipped host material.)
- ! Develop an intensive Caribbean Basin initiative to improve plant protection technologies there, thereby lowering the risk of exotic fruit fly importations from them.
- ! Obtain legislative priority on introduction and passage of Consolidated Statutes to clarify and strengthen APHIS authorities.
- ! Explore cooperative funding with industry for Medfly exclusion efforts.
- ! Complete a pathway study to identify the most likely avenue of introduction for Medfly and commit resources and improve the technology to block those pathways.

2. Detection and Prevention Strategy

a. Strengthened Detection Trapping Program

Recommendations:

- ! Implement a cooperative/co-managed detection program for Medfly and other pests that provides an appropriate level of protection.
- ! Ensure that NEFFTP guidelines are followed, in that the appropriate number of traps are placed and inspected, and that the trapping program is managed properly.

b. Strengthened Delimitation Trapping Program

Recommendations:

- ! Cooperatively establish and maintain resources for a permanent infrastructure to implement a biologically sound delimitation trapping program.
- ! Explore use of male annihilation, mass trapping, “elotes”, or other control technologies that can be implemented along with delimitation trapping.

3. Control Strategy

a. Sterile Release (SIT) Program

Recommendations:

- ! Develop and approve a broad, prophylactic SIT program for Florida.
- ! Increase Medfly production for prophylactic and emergency response activities.
- ! Explore and secure new sources of funding for prophylactic programs.

b. Use of Malathion as a Last Resort

Recommendations:

- ! Use aerially-applied malathion only as a last resort in emergency eradication programs.
- ! Re-evaluate the uses of malathion (aerial and ground), if malathion is designated as a carcinogen.
- ! Accelerate research into replacement emergency eradication tools for Medfly.

c. Use of SureDye as an Alternative to Malathion

Recommendations:

- ! Support and secure pesticide registration for use of SureDye bait against Medfly.
- ! Develop uses of SureDye bait and evaluate its potential as a substitute for malathion bait.
- ! Restrict use of SureDye bait, where possible, to ground applications, so as to minimize property damage.

4. Communication Strategy

Recommendations:

- ! Provide a complete, comprehensive package detailing communications policies to the public.
- ! Describe how members of the public may obtain information pertaining to program risks.

- ! Describe actions that will take place upon the implementation of an eradication program and the implementation of pesticide applications.
- ! Describe notification procedures and explain how chemically sensitive members of the public may avail themselves of direct notification.
- ! Describe established procedures for receiving and resolving complaints.

**Finding of No Significant Impact
for
Medfly Cooperative Eradication Program,
Southern Florida,
Environmental Assessment, April 1998**

The U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS) has prepared a revised environmental assessment (EA) that analyzes alternatives for control of the Mediterranean fruit fly (Medfly), an exotic agricultural pest that has been found in southern Florida. The EA, incorporated by reference in this document, is available from:

USDA, APHIS, PPQ
Miami Work Unit
13500 NW 62nd Avenue, P.O. Box 59-2136
Miami, FL

or

USDA, APHIS, PPQ
Program Support
4700 River Road, Unit 134
Riverdale, MD 20737-1236

The EA for this program analyzed alternatives of (1) no action, (2) Medfly suppression (including chemicals), (3) Medfly suppression (without chemicals), (4) Medfly eradication (including chemicals), and (5) Medfly eradication (without chemicals). Each of those alternatives was determined to have potential environmental consequences. APHIS selected Medfly eradication (including chemicals), 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 prepared a programmatic biological assessment for endangered and threatened species and is currently conducting an emergency consultation with the U.S. Department of the Interior, Fish and Wildlife Service (FWS), with regard to the protection of endangered and threatened species or their habitats. APHIS will adhere to protective measures designed specifically for this program and mutually agreed upon with 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 No. 12898. 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/

Michael J. Shannon
State Plant Health Director

April 3, 1998

Date