California Department of Food and Agriculture

California Exotic Fruit Fly Projects

USDA U.S. Dept. of Agriculture

Grower's Compliance Checklist (one per grove)

To Grower: please bring this info to quarantine project to sign up:

Please list parcel numbers for the grove/property (from tax records):_____

_____

Grove/property owner's name:_____

Ranch/Establishment name (name of grove, if applicable):_____

County Operator ID*:_____

Please fill in the below table with the commodities, acreages, and County Site ID* located on above specified grove/property that is fruit fly host material:

Commodity	Acres	County Site ID (per commodity)

*Required for application of insecticides, by your county agricultural commissioner.

If you are a grove manager, leaser, or gleener, please also bring proof of managerial role signed by property owner (or signed Exhibit of Grove Management), proof of lease of commodity, and/or written permission from owner to harvest fruit

Other Suggested Information for Growers to bring to Project:

Applicators name:	
Ground or aerial (if applicable):	
Harvesters name:	
Hauler name:	
Packing house:	
Grove management company:	
Type of pesticide:	
How is your grove(s) identified:	
Type of harvest e.g. size picking:	

Also, if available, please bring your grove maps

USDA/CDFA/County would like to thank you for your Compliance with the Fruit Fly Eradication Project!

California Department of Food and Agriculture

USDA U.S. Dept. of Agriculture

California Cooperative Mexican Fruit Fly Project
334 Via Vera Cruz, Suite 150 San Marcos, CA 92078
Phone 619-698-1046 Fax 619-698-8021

Compliance Agreement No:_____

Compliance Agreement

PAGE 1 OF 2

Cooperative Mexican Fruit Fly Project

[Pursuant to California Food and Agricultural Code Sections 5701(a), 6321-6323, and California Code of Regulations Section 3417]

Owner Name _____

Manager Name _____

Mailing Address – Street _____ City _____ Zip _____

Phone (___) _____-_____ Fax (___) _____-_____ Email _____@_____

PARTIES:
California Department of Food and Agriculture, the United States Department of Agriculture (Animal and Plant Health Inspection Service), and the San Diego County Agricultural Commissioner, cooperating as the Cooperative Mexican Fruit Fly Project (subsequently referred to as Cooperative Mexican Fruit Fly Project).

Project Officer _____

Project Address: California Cooperative Mexican Fruit Fly Project
334 Via Vera Cruz
San Marcos, CA 92078

Business/Establishment
Establishment Name: (subsequently referred to as "Establishment")

Contact Name _____

Physical Address _____ Zone _____

Thos Bros _____ X St _____ City _____

State _____ Zip Code _____ GPS _____

Phone (___)_____-_____Fax (____) _____-_____ Email _____@_____

California Department of Food and Agriculture

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Contact Name _____

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State _____ Zip Code _____ GPS _____

Phone (___)_____-_____Fax (____) _____-_____ Email _____@_____

California Department of Food and Agriculture

USDA U.S. Dept. of Agriculture

California Cooperative Mexican Fruit Fly Project
334 Via Vera Cruz, Suite 150 San Marcos, CA 92078
Phone 619-698-1046 Fax 619-698-8021

Compliance Agreement (PAGE 2 OF 2)

BACKGROUND:

Exotic fruit flies present a real and ongoing threat to the agricultural industry and economy of the State of California. Movement of regulated commodities is a recognized channel for the spread of exotic fruit flies from established locations to new locations. The Cooperative Mexican Fruit Fly Project is a cooperative effort between public entities that are responsible for containing the movement of exotic fruit flies. This establishment is located within an identified Fruit Fly Quarantine Area.

AGREEMENT:

A. The Cooperative Mexican Fruit Fly Project will permit your establishment to self-execute the Fruit Fly quarantine requirements attached as Exhibit(s) _____ inclusive and incorporated into this agreement by reference as if fully set out.

B. In exchange for the Cooperative Mexican Fruit Fly Project promise contained in sub-paragraph "A" above, Establishment agrees to:

1. Handle, process, and/or move regulated articles in accordance with the Fruit Fly Quarantine requirements;
2. Follow the Cooperative Mexican Fruit Fly Project instructions, whether written or in the form of a verbal communication from the Project Officer, for the use of any and all Mexican Fruit Fly fruit fly permits and certificates.
3. Maintain and make such records as the Cooperative Mexican Fruit Fly Project requires accessible for inspection upon reasonable notice by the Cooperative Mexican Fruit Fly Project Officer. These records shall be maintained for a period of the later of two years or the resolution of any outstanding claims.

C. Agreement becomes effective on signing and shall remain in effect until canceled by either party on 30 days notice to the other at the address of either appearing above. However, the Cooperative Mexican Fruit Fly Project may accelerate the notice to immediate for cause, including by not limited to discovery of exotic fruit fly life stages in agricultural commodities or Establishment's abandonment of the procedures outlined in the attached Exhibit(s).

D. Establishment assumes liability, if any, arising from the manner in which Establishment applies treatments.

NOTICE: Any signatory or employee of any signatory who violates the terms of this Compliance Agreement may be subject to Civil Penalties pursuant to California Food and Agricultural Code Section 5705.

Signed in the County of San Diego

In the State of California on __/__/200_

Establishment, by:	Cooperative Mexican Fruit Fly Project, by:
_____	_____
Manager/Owner (print name)	Project Officer (print name)
_____	_____
Manager/Owner (signature)	Project Officer (signature)

California Department of Food and Agriculture

USDA U.S. Dept. of Agriculture

California Cooperative Mexican Fruit Fly Project
334 Via Vera Cruz, Suite 150 San Marcos, CA 92078
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_____	_____
Manager/Owner (print name)	Project Officer (print name)
_____	_____
Manager/Owner (signature)	Project Officer (signature)

Exhibit: G

Growers

Page 1 of 1

1. No Fruit Fly Host Material (FFHM) grown within the Quarantine Area may be moved from the grove site without first undergoing a Project approved treatment.

2. All treatments will be Project approved and monitored by Project Staff.

3. FFHM being transported may be exposed only for the length of time needed to load and/or unload and when applicable must be accompanied by Project approved documentation.

4. Periodic inspections will be conducted by Project Staff in order to verify compliance with these stipulations.

5. All aspects of this Compliance Agreement must be followed. Failure to comply with these stipulations may result in violations being issued to you and/ or revocation of this Agreement.

SPECIAL INSTRUCTIONS:_____

_____

GROWER:

PRINT NAME _____

SIGNATURE _____

DATE _____

PROJECT OFFICER:

PRINT NAME _____

SIGNATURE _____

DATE _____

Exhibit: G

Growers

Page 1 of 1

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_____

GROWER:

PRINT NAME _____

SIGNATURE _____

DATE _____

PROJECT OFFICER:

PRINT NAME _____

SIGNATURE _____

DATE _____

California Department of Food and Agriculture

California Exotic Fruit Fly Projects

USDA U.S. Dept. of Agriculture

Establishment Name: _____ Owner: _____

Crops/Commodities

Commodity name (one only) _____ Variety: _____

Total Acres of commodity: _____ Total Plants of commodity: _____

Acres of commodity to be treated: _____ Plants to be treated: _____ Site ID Number _____

Projected Harvest Date - Begin: _____ End: _____

Harvester: _____ Packer: _____

Hauler: _____

Commodity name (one only) _____ Variety: _____

Total Acres of commodity: _____ Total Plants of commodity: _____

Acres of commodity to be treated: _____ Plants to be treated: _____ Site ID Number _____

Projected Harvest Date - Begin: _____ End: _____

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California Department of Food and Agriculture

Cooperative Mexican Fruit Fly Project
334 Via Vera Cruz, Suite 150
San Marcos, CA 92078
Phone: 619-698-1046 Fax: 619-698-8021

USDA U.S. Dept. of Agriculture

Notice To Hold Commodities On Premises

(Authority: California Food and Agricultural Code, Section 5701-5704)

PAGE 1 OF 1

Pest Find Site ☐

Mark Establishment Type:

Grower ☐ Nursery ☐ Fruit Seller ☐ Homeowner ☐ Distributor ☐ YM ☐

Other (Describe)_____

Name:_____ Phone ( )_____ - _____

Street Address:_____ City:_____

Zip:_____

County: _____

Zone:_____XST:_____ Thos. Bros.:_____ GPS:_____

Location (if different from):_____

Description and Number of Items on hold:_____

_____

_____

Reason for Issuance: Mexican Fruit Fly quarantine area - Federal Domestic Quarantine 301.64 and California State Interior Quarantine 3417

You are located in a Mexican Fruit Fly fruit fly quarantine area. You are hereby notified that it is unlawful under Sections 5701-5704 of the California Food and Agricultural Code to move any raw or unprocessed fruits or vegetables, any fruit or vegetable plants (including immature plants), or soil, compost, or other growing media associated with such plants, from your premises, except under written permission of an officer of the Cooperative Mexican Fruit Fly Project, or until this order is revoked in writing. No liability shall be attached to the Cooperative Mexican Fruit Fly Project, its employees or cooperators, in the event of injury to regulated articles or property due to commodity treatments or quarantine regulations.

Name of Person Contacted (Print):_____

Signature:_____ Date: ____/____/200__

Name of Project Officer (Print):_____

Signature:_____ Date:____/____/200__

Signing will validate this agreement which shall remain in effect until canceled, revoked, or until released by Project Officers.

California Department of Food and Agriculture

Cooperative Mexican Fruit Fly Project
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PAGE 1 OF 1

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Grower ☐ Nursery ☐ Fruit Seller ☐ Homeowner ☐ Distributor ☐ YM ☐

Other (Describe)_____

Name:_____ Phone ( )_____ - _____

Street Address:_____ City:_____

Zip:_____

County: _____

Zone:_____XST:_____ Thos. Bros.:_____ GPS:_____

Location (if different from):_____

Description and Number of Items on hold:_____

_____

_____

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California Department of Food and Agriculture

California Exotic Fruit Fly Project

USDA U.S. Dept. of Agriculture

Growers Regulatory Treatment Agreement

Compliance Agreement #_____

Zone:_____ XSt:_____
County:_____ Thom. Bros._____
GPS:_____

Name of Establishment:_____ Phone: (____) _____-_____

Establishment Address:_____ City:_____ Zip_____

Location of Crop:_____

All Mexican Fruit Fly host fruits and vegetables grown inside the quarantine area must be treated if intended for sale or for movement out of the quarantine area (see attachments). The crop owner or grower will provide all necessary chemicals, personnel, application and safety equipment. All treatments will be conducted in accordance with the pesticide label, the attached Registration for Special Local Need, and all county, state, and federal laws. An officer from the Cooperative Mexican Fruit Fly Project must monitor all treatments. The Cooperative Mexican Fruit Fly Project must receive advance notification of each intended application.

To be eligible for sale the crop treatment must begin at least 30 days before harvest and a minimum of four complete applications must have been made. The applications of pesticide must continue on schedule until the last harvest is completed.

Failure to comply with the treatment schedule will result in the fruit or vegetables becoming ineligible for sale or movement.

No liability shall be attached to the Cooperative Mexican Fruit Fly Project or its employees or cooperators in the event of injury to regulated articles or property from commodity treatments or quarantine regulations.

Name of Owner/Grower: _____ Phone: (____)_____-_____

Signature of Owner/Grower: _____ Date: _____

Signature of Project Officer: _____

Date:_____

Signing Will Validate Agreement, Which Shall Remain In Effect Until Canceled, Revoked, or Suspended For Noncompliance.

Number of treatments to be determined by current Harvest Schedule.

Projected Harvest Date: ____/____/200__

Project Officer's Initials_____

California Department of Food and Agriculture

California Exotic Fruit Fly Project

USDA U.S. Dept. of Agriculture

Growers Regulatory Treatment Agreement

Compliance Agreement #_____

Zone:_____ XSt:_____
County:_____ Thom. Bros._____
GPS:_____

Name of Establishment:_____ Phone: (____) _____-_____

Establishment Address:_____ City:_____ Zip_____

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Signature of Owner/Grower: _____ Date: _____

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Project Officer's Initials_____

California Department of Food and Agriculture

California Exotic Fruit Fly Project

USDA U.S. Dept. of Agriculture

Grower Field Map

PAGE 1 OF 1

Cooperative _____ **Fruit Fly Project**

_____ Rd./Ave./Blvd.

_____ California, _____

(_____) _____ - _____

GROWER FIELD MAP

N

LEGEND

Symbol	No. of Trees	Type

Name of Grower (on CA form):		Owner:	
Location:			
Thos. Bros.:	Zone:	CA#:	GPS#:
Date:		Officer:	
Notes:			

Field Map Document 7/01

Pesticide Treatment Information

The accepted pre-harvest treatment materials are:

Malathion: - SLN (Special Local Need) # CA-830012

Gowan Malation 8 (Gowan Co.)	EPA Reg. No. 10163-21-ZA
Gowan Malthion 8 Flowable (Gowan Co.)	EPA Reg. No. 10163-21-ZB
Clean Crop Malathion 8-E Insecticide (Loveland Products Co.)	EPA Reg. No. 34704-452-AA
Clean Crop Malathion 55 Insecticide Premium Grade (Platte Chem. Co.)	EPA Reg. No. 34704-3-AA
Clean Crop Malathion ULV Concentrate Insecticide (Platte Chem. Co.)	EPA Reg. No. 34704-18-AA

All Malathion must be mixed with a bait:

Nu-Lure Insect Bait (Miller Chemical)	EPA Reg. No. 72-50012-AA

Spinosad: (Bait already in Spinosad formulations)

NAF-550 Fruit Fly Bait (Dow AgroSciences LLC)	EPA Reg. No. 62719-99038-EE
GF-120 Naturalyte Fruit Fly Bait (Dow AgroSciences Co.)	EPA Reg. No. 62719-359-EE
**GF-120 NF Naturalye Fruit Fly Bait (Dow AgroSciences Co.)	EPA Reg. No. 62719-498 -AA

**This formula is the <u>only</u> Spinosad listed by the Organic Materials Review Institute (OMRI) for use in organic production.

In order to purchase and use one of the above pesticides used for fruit fly quarantine treatments, you must do the following:

1. Go to the Agricultural Commissioner's office to obtain:
   A. For <u>Malathion</u> applications a SLN (Special Local Need), other permit(s) that may be required by the county, and the appropriate pesticide use label.
      For <u>Spinosad</u> applications a supplemental label is needed.
      a. You will need to present the appropriate permits to the pesticide dealer in order to purchase the pesticide.
   B. Operator Identification Number (Agricultural Use only). Operator ID# must be renewed annually.
   C. Site Identification number for each crop.
   D. Monthly use Report Forms (Production Agricultural Use only). These are required when pesticides are used on agricultural commodities.

2. Contact the Quarantine Project to schedule application. (A copy of the SLN, Label, and/or appropriate permits must be present at the application site.

3. Pesticide Safety:
   A. Owner/employer making application – must follow all label requirements.
   B. Employee making application – must have pesticide worker safety training.

      For all applications, employees must wear:
      1. Eye Protection (front, brow and temple protection required)
      2. Gloves (chemical resistant)
      3. Different application conditions may require additional protective equipment – **ALWAYS READ THE LABEL.**

For any questions, call the Department of Agriculture, Weights and Measures Department in San Diego at 760-752-4700.

California Department of Food and Agriculture

California Exotic Fruit Fly Project

USDA U.S. Dept. of Agriculture

Pesticide Rates, Re-entry and Harvest Interval Table

Pesticide	Commodity	Re-entry Interval (REI)	Pre-harvest Interval (PHI)	Remarks
Gowan Malathion 8 (10163-21, CA-830012)	Avocado, Apricot	12 hours	7 days	As Per Label
	Papaya	12 hours	12 hours*	Per SLN/Label
	Guava, Mango, Passion Fruit	12 hours	2 days	Per Label
	SLN Citrus**	12 hours	24 hours	Per SLN
	Cucumbers, Tomatoes	12 hours	24 hours	Per Label
	Peppers	12 hours	3 days	Per Label
Clean Crop Malathion 8E (34704-452, CA-830012)	Avocado, Apricot, Mango, Guava, Passion Fruit, Papaya	12 hours	12 hours*	Per SLN/Label
	SLN Citrus** Grape, Nectarine, Peach	24 hours	24 hours	Per SLN
	Cucumbers, Tomatoes	12 hours	24 hours	Per Label
	Peppers	12 hours	3 days	Per Label
Clean Crop Malathion 55 (34704-3, CA-830012)	Avocado, Apricot	12 hours	12 hours*	Per SLN/Label
	Mango, Guava	12 hours	12 hours*	Per SLN/Label
	Apple, Plum	12 hours	3 days	Per Label
	Pear	12 hours	1 day	Per Label
	SLN Citrus**	24 hours	24 hours	Per SLN
	Cucumbers, Tomatoes	12 hours	24 hours	Per Label
	Peppers	12 hours	3 days	Per Label
Clean Crop Malathion ULV - (34704-18-AA) for Aerial Application				
Spinosad NAF-550 (62719-99038-EE) **GF 120** (EPA #62719-359) **GF 120 NF, Naturalyte** (EPA #62719-498) - Organic	All Commerical Fruit * per Section 24c – Check product label for other commodites	4 hours	24 hours	Per Section 24c/Label

* Although PHI is when "spray is dry", REI is 12 hours. ** SLN Citrus =(Oranges, Lemons, Limes and Tangerines)

Pesticide Rates:

Malathion 8 formulations: Use 1.4 ounces per acre
Malathion 55 formulation: Use 2.2. ounces per acre

Note: The malathion formulations are the minimum effective dosages, which are half the label rate – determined by a research committee during previous exotic fruit fly quarantines in California.

Spinosad formultion: Use 20 ozs. of product mixed with 30 ozs. of water per acre. (1:1.5 ratio)
Nu-Lure Insect Bait (Miller Co.) CA Reg. No. 72-50012-AA) Use 9.6 ounces per acre.

MIX RATES FOR MALATHION 8 FORMULATIONS

ACRES	WATER /gallons	MALATHION 8	NuLure BAIT	TOTAL PER ACRE (estimated volume)
1	0.5	1.4 oz	9.6 oz	75 oz
2	1	2.8 oz	19.2 oz	1 1/5 gallons
3	1.5	4.2 oz	28.8 oz	1 ¾ gallon
4	2	5.6 oz	38.4 oz	2 1/3 gallons
5	2.5	7.0 oz	48 oz	3 gallons
6	3	8.4 oz	57.6 oz	3 ½ gallons
7	3.5	9.8 oz	67.2 oz	4 gallons
8	4	11.2 oz	76.8 oz	4 2/3 gallons
9	4.5	12.6 oz	86.4 oz	5 ¼ gallons
10	5	14 oz	96 oz	5 4/5 gallons
11	5.5	15.4 oz	105.6 oz	6 ½ gallons
12	6	16.8 oz	115.2 oz	7 gallons
13	6.5	18.2 oz	124.8 oz	7 ½ gallons
14	7	19.6 oz	1 gallon 6 oz	8 1/5 gallons
15	7.5	21 oz	1 gallon 16 oz	8 ¾ gallons
16	8	22.4 oz	1 1/5 gallon	9 1/3 gallons
17	8.5	23.8 oz	1 gallon 35 oz	10 gallons
18	9	25.2 oz	1 gallon 45oz	10 ½ gallons
19	9.5	26.6 oz	1 gallon 55 oz	11 1/5 gallons
20	10	28 oz	1 ½ gallons	11 ¾ gallons
30	15	42 oz	2 ¼ gallons	17 2/3 gallons
40	20	56 oz	3 gallons	23 ½ gallons
50	25	70 oz	3 ¾ gallons	29 1/3 gallons
60	30	84 oz	4 ½ gallons	35 1/5 gallons
70	35	98 oz	5 ¼ gallons	41 gallons
80	40	112 oz	6 gallons	46 4/5 gallons
90	45	126 oz	6 ¾ gallons	52 ¾ gallons
100	50	1 gallon 12 oz	7 ½ gallons	58 2/3 gallons

1/5 gallon = 26 oz	½ gallon = 64 oz	4/5 gallon = 102 oz
¼ gallon = 32 oz	2/3 gallon = 86 oz	1 gallon = 128 oz
1/3 gallon = 43 oz	¾ gallon = 96 oz	

MIX RATES FOR MALATHION 55 FORMULATIONS

ACRES	WATER /gallons	MALATHION 55	NuLure BAIT	TOTAL PER ACRE (estimated volume)
1	0.5	2.2 oz	9.6 oz	76 oz
2	1	4.4 oz	19.2 oz	1 1/5 gallons
3	1.5	6.6 oz	28.8 oz	1 4/5 gallon
4	2	8.8 oz	38.4 oz	2 1/3 gallons
5	2.5	11 oz	48 oz	3 gallons
6	3	13.2 oz	57.6 oz	3 ½ gallons
7	3.5	15.4 oz	67.2 oz	4 1/5 gallons
8	4	17.6 oz	76.8 oz	4 3/4 gallons
9	4.5	19.8 oz	86.4 oz	5 1/3 gallons
10	5	22 oz	96 oz	6 gallons
11	5.5	24.2 oz	105.6 oz	6 ½ gallons
12	6	26.4 oz	115.2 oz	7 gallons
13	6.5	28.6 oz	124.8 oz	7 2/3 gallons
14	7	30.8 oz	1 gallon 6 oz	8 1/4 gallons
15	7.5	33 oz	1 gallon 16 oz	8 4/5 gallons
16	8	35.2 oz	1 1/5 gallon	9 1/2 gallons
17	8.5	37.4 oz	1 gallon 35 oz	10 gallons
18	9	39.6 oz	1 gallon 45oz	10 2/3 gallons
19	9.5	41.8 oz	1 gallon 55 oz	11 1/4 gallons
20	10	44 oz	1 ½ gallons	11 4/5 gallons
30	15	66 oz	2 ¼ gallons	17 3/4 gallons
40	20	88oz	3 gallons	23 2/3 gallons
50	25	110 oz	3 ¾ gallons	29 2/3 gallons
60	30	1 gallon 4 oz	4 ½ gallons	35 1/2 gallons
70	35	1 gallon 26 oz	5 ¼ gallons	41 ½ gallons
80	40	1 gallon 48 oz	6 gallons	47 1/3 gallons
90	45	1 gallon 70 oz	6 ¾ gallons	53 1/3 gallons
100	50	1 gallon 92 oz	7 ½ gallons	59 1/5 gallons

1/5 gallon = 26 oz
¼ gallon = 32 oz
1/3 gallon = 43 oz
½ gallon = 64 oz
2/3 gallon = 86 oz
¾ gallon = 96 oz
4/5 gallon = 102 oz
1 gallon = 128 oz

MIX RATES FOR SPINOSAD FORMULATIONS

ACRES	WATER	SPINOSAD	NuLure	TOTAL PER ACRE (volume)
1	30 oz	20 oz	Already	50 oz
2	60 oz	40 oz	Added	100 oz
3	90 oz	60 oz		1 gallon, 22 ozs.
4	120 oz	80 oz		1 gallon, 72 ozs.
5	1 gallon 22 oz	100 oz		1 gallon, 122 ozs.
6	1 gallon 52 oz	120 oz		2 gallons, 42 ozs.
7	1 gallon 82 oz	1 gallon 12 oz		2 gallons, 94 ozs.
8	1 gallon 112 oz	1 gallon 32 oz		3 gallons, 16 ozs.
9	2 gallons 14 oz	1 gallon 52 oz		3 gallons, 66 ozs.
10	2 gallons 44 oz	1 gallon 72 oz		3 gallons, 116 ozs.
11	2 gallons 74 oz	1 gallon 92 oz		4 gallons, 38 ozs.
12	2 gallons 104 oz	1 gallon 112 oz		4 gallons, 88 ozs.
13	3 gallons 6 oz	2 gallons 4 oz		5 gallons, 10 ozs.
14	3 gallons 36 oz	2 gallons 24 oz		5 gallons, 60 ozs.
15	3 gallons 66 oz	2 gallons 44 oz		5 gallons, 110 ozs.
16	3 gallons 96 oz	2 gallons 64 oz		6 gallons, 32 ozs.
17	3 gallons 126 oz	2 gallons 84 oz		6 gallons, 82 ozs.
18	4 gallons 28 oz	2 gallons 104 oz		7 gallons, 4 ozs.
19	4 gallons 58 oz	2 gallons 124 oz		7 gallons, 54 ozs.
20	4 gallons 88 oz	3 gallons 16 oz		7 gallons, 104 ozs.
30	7 gallons 4 oz	4 gallons 88 oz		11 gallons, 92 ozs.
40	9 gallons 48 oz	6 gallons 32 oz		15 gallons, 80 ozs.
50	11 gallons 92 oz	7 gallons 104 oz		19 gallons, 68 ozs.
60	14 gallons 8 oz	9 gallons 48 oz		23 gallons, 56 ozs.
70	16 gallons 52 oz	10 gallons 120 oz		27 gallons, 44 ozs.
80	18 gallons 96 oz	12 gallons 64 oz		31 gallons, 32 ozs.
90	21 gallons 12 oz	14 gallon 8 oz		35 gallons, 20 ozs.
100	23 gallons 56 oz	15 gallon 80 oz		39 gallons, 8 ozs.

1/5 gallon = 26 oz
¼ gallon = 32 oz
1/3 gallon = 43 oz
½ gallon = 64 oz
2/3 gallon = 86 oz
¾ gallon = 96 oz
4/5 gallon = 102 oz
1 gallon = 128 oz

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Frequently Asked Questions Regarding Spinosad

Q: What exactly is Spinosad?
A: Spinosad is an insecticide used to control a variety of insect pests, including fruit flies, caterpillars, leafminers, thrips, drywood termites, and certain beetles. Spinosad is the common name of a mixture of spinoyn A and sinosyn D, two molecules derived naturally from a bacteria through fermentation. Spinosad is the active ingredient in several pesticides that are registered with the U.S. Environmental Protection Agency (EPA): DowAgro's Conserve, SpinTor, Success, and Tracer.

Q: How does the U.S. Department of Agriculture (USDA) use Spinosad in efforts to eradicate the exotic fruit flies?
A: USDA's Animal and Plant Health Inspection Service (APHIS) and the California Department of Food and Agriculture (CDFA) use a Spinosad-based bait spray to fight exotic fruit flies. A small amount of Spinosad is mixed with bait that includes sugar and a protein byproduct of corn.

Q: How does Spinosad work?
A: Spinosad kills susceptible species by causing rapid excitation of the insect nervous system. Exotic fruit flies must feed on the bait mixture and ingest the insecticide.

Q: How is Spinosad applied?
A: Both aerial and ground applications of Spinosad bait spray may be used in fruit fly programs, depending upon the size and location of the outbreak. Aerial applications are performed with helicopters or fixed-wing aircraft. Ground applications involve the use of backpack or hand sprayers or those mounted on all-terrain vehicles for eradication, and hydraulic sprayers for crop certification in commercial, host-plant nurseries or orchards.

Q: What effect does Spinosad have on nontarget species?
A: The use of a bait mixture that targets fruit flies limits the impact on nontarget species not attracted to the bait. Because Spinosad is highly toxic to bees, eradication program officials provide special assistance to registered beekeepers.

Q: How long do treatments last?
A: Spinosad applications usually are administered 7-10 days apart until eradication is achieved, as determined by the absence of detections in baited traps. Applications continue for one life cycles of the pest beyond the date of the last detection in the treatment area to ensure that immature life stages, such as eggs and larvae, develop and are exposed to the treatment. Under tropical weather conditions, an exotic fruit fly can complete its life cycle in 21 to 30 days. Minimum application is 4 treatments covering 30 days.

Q: Are there any health risks associated with the Spinosad treatments?
A: Health risks from exposure to Spinosad bait spray treatments depend upon the amount of exposure and individual susceptibility. Spinosad poses low hazards and negligible risks when handled properly. Extremely large doses of Spinosad (at least 2,000 times the application rate for the program) are necessary for acute intoxication of humans and other mammals. The small amount of exposure that members of the public have with Spinosad bait spray is well below what is known to cause toxicity for humans.

Frequently Asked Questions Regarding Spinosad

Q: How long will Spinosad residue remain in yards?
A: Residues from applications of Spinosad bait spray are short-lived. The half-life of Spinosad on cotton is only a few hours on a sunny day. The average length of persistence depends on the amount of sunlight and precipitation. Increased exposure to sunlight and increased rainfall accelerate the breakdown of Spinosad.

Q: What effect will treatment have on wildlife?
A: Spinosad as applied in exotic fruit fly eradication programs does not pose any hazard to mammals, birds, reptiles, amphibians, fish, or aquatic insects. Under normal circumstances, Spinosad poses no hazard to most pets. It can be toxic to those invertebrate species that ingest the bait, and temporary reductions in the populations of some terrestrial insects could occur.

Q: Does Spinosad cause cancer or birth defects?
A: There is no evidence of carcinogenicity of Spinosad based on chronic rodent feeding studies. Reproductive and developmental toxicity occur only at exposures much greater than any exposures that could occur from applications of Spinosad bait spray.

Q: Can Spinosad damage the eyes?
A: Spinosad showed slight conjunctival irritation, or agitation of the membranes lining the eyelids, in primary eye irritation tests. The low levels of exposure from Spinosad bait spray applications are insufficient to cause visual problems.

Q: How does Spinosad affect people with allergies, chemical sensitivity, and other special health problems?
A: Immunological responses to chemical exposure within a population vary. Spinosad is not a skin sensitizer, but some individuals may have allergic or hypersensitive reactions to Spinosad or the bait.

Q: What precautions should people take in the treatment area?
A: People should do their best to minimize exposure. Avoid unnecessary contact with pesticides. Remain indoors during Spinosad bait spray applications. Do yard work before treatment begins rather than after. Rinse off outdoor play areas. Wash skin and clothing if contact occurs. There is no need for people to relocate during aerial applications of Spinosad bait spray if they take proper precautions to avoid potential exposure.

Q: Is it okay to eat fruits and vegetables exposed to treatments?
A: Before cooking or eating homegrown vegetables, rinse them with water, just as you would those purchased from the grocery store. Washing further minimizes any potential exposure.

Q: What is the swimming pool re-entry interval after an area has been treated with Spinosad?
A: There is no re-entry interval, and the low rate of applications ensures that exposure from swimming is not of concern.

Frequently Asked Questions Regarding Spinosad
PAGE 3 OF 3

Q: Why is it that these applications of Spinosad are toxic to insects but not to people?
A: The sensitivity of insects to Spinosad is far greater than humans because of difference in physiology, site of toxic action, and types of enzymes present. The bait treatment used in the eradication programs is attractive to flies. As a result, flies eat the pesticide, resulting in greater exposure.

Q: Can exotic fruit fly become resistant to Spinosad?
A: Resistance to Spinosad would require the survival of multiple generations of flies exposed to Spinosad.

Q: Could there be any cumulative effects from other exposures that I could receive?
A: The low application rate ensures that exposures are unlikely to have any effects on humans. The rapid degradation rate of Spinosad ensures that it will not persist long in the natural enviroment. Spinosad is readily eliminated from or broken down by enzymes in the human body. Cumulative exposures would require multiple exposures within a short period of time Spinosad. The eradication program applications of Spinosad bait spray do not allow survival of exotic fruit flies, so the development of resistance is highly unlikely. The rapid degradation of Spinosad also ensures that sublethal exposures to flies are unlikely to result from residues.

Q: Has EPA authorized the use of Spinosad for exotic fruit fly eradication?
A: Yes, tolerances are in place to allow use in exotic fruit fly programs. Spinosad has been granted permanent tolerances for some fruits (including citrus), nuts, vegetables, cotton, and meat.

Q: Will Spinosad contaminate groundwater?
A: Spinosad adheres readily to organic matter and is relatively immobile in soil. Spinosad is not expected to leak in groundwater. Test results indicate that Spinosad typically decomposes before reaching groundwater.

Frequently Asked Questions Regarding Malathion

Q: Can't eradication be done without using toxic pesticides?

A: Unfortunately, no method is currently available that can effectively eradicate fruit fly populations without some use of pesticides. The best we can do at present is to minimize the use of pesticides by using a combination of methods to reduce the amount of pesticide that is needed. While we are confident that the manner in which pesticides are used to eradicate the Mediterranean fruit fly does not pose any significant risk to the public, we are continuing to search for non-chemical approaches to dealing with infestations in urban areas.

Q: How long are treatments necessary?

A: How long treatments will last depends on a number of factors. A temperature based time model is used to gage the length of time it takes for a generation of flies to complete its reproductive life cycle and pass through all stages of development. Eradication depends on assuring that there is an insufficient population of flies left to continue breeding. Past experience indicates that treatments may go on for anywhere from four months to a year, or longer. Much depends on the time of year when treatment begins. Treatments are usually more frequent during warmer weather, but may not last as long. Treatments during cooler weather are usually less frequent, but need to be continued for a longer period of time.

Q: What exactly is Malathion?

A: Malathion is an organophosphate chemical, developed in early 1950s. It is a popular home-garden insecticide that is used worldwide, and is one of the least hazardous of all insecticides known. Besides being used on home gardens and landscapes, it has widespread use on dairy farms, chicken ranches, and on orchards and commercial food crops. It is used on pets and livestock to protect them from fleas and biting flies. It has been marketed in a shampoo to treat children for head lice. It is used regularly in urban areas for mosquito abatement. Malathion has a record of safe and effective use in past exotic pest eradication programs in California and elsewhere.

Q: I've heard that Malathion is related to WWII nerve gas. Is this true?

A: Malathion is derived from the same class of chemicals as were some nerve gasses, but it is a liquid, and does not have nerve gas characteristics. Methanol and ethanol belong to the same chemical class, yet have a very different toxic potentials. Ethanol is in alcoholic beverages. Methanol is wood alcohol and can cause severe neurological damage if one drinks it.

Q: Is Malathion safe? I've head it is highly toxic and dangerous to use.

A: Toxicity is dose related. No chemical can be said to be absolutely "safe". Safety pertains to how one handles a material. Even highly hazardous materials can be used safely. Malathion is not particularly dangerous or hazardous to use. Relatively large doses are necessary for it to be toxic to humans or other animals. The amount applied for fruit flies, and the manner in which it is applied (in a bait), does not expose members of the public to a significant toxic risk. The small amount of Malathion people might come in contact with as it is applied, either from the ground or by air, is well below what is known to be toxic for humans. Concentrated solutions of Malathion are sold for use by home gardeners in many neighborhood stores that carry gardening supplies.

Frequently Asked Questions Regarding Malathion

Q: How is Malathion used to kill exotic fruit flies?

A: The California Department of Food and Agriculture, in cooperation with the USDA, has developed an eradication program that uses Malathion mixed with a food bait that attracts flies. The Malathion and bait mixture is applied as tiny droplets that stick to surfaces they contact. Adult flies are killed when they are attracted to the bait and eat it. Uniform applications are necessary if all flies are to be killed. In addition to killing mature flies that may have already mated, flies emerging from pupae require nutrients before they begin to mate. If Malathion is present in the bait, immature flies that eat the bait as they emerge are eliminated before having a chance to reproduce.

If an area of infestation is limited in size, it may be possible to use backpack sprayers to apply the Malathion bait mix directly onto the foliage of plants where exotic fruit flies may be found. Two or three applications are generally necessary to effectively rid the environment of existing mature flies prior to beginning the release of sterilized flies. When infested areas are extensive or widely scattered, it may become necessary to apply the bait mixture from aircraft. Aerial applications usually begin late in the evening. Most of the droplets reach the ground within a few minutes after application aircraft pass overhead. Only scattered slower falling droplets may be detected for a short while after this. After 30 minutes, settling is no longer visibly detectable.

In the past, very large areas of infestation have required numerous repeated aerial applications of Malathion in bait in some areas because an insufficient number of sterilized flies were available for release. The prospect for repeated aerial application of Malathion in bait has been greatly reduced by increasing sterile fly production capability. However, one cannot accurately predict the extent future potential infestations may reach, and there is some chance that repeated aerial application may need to be considered, depending on the total area infested in the State at any given time.

Q: I've heard that the Malathion used to eradicate flies is only 95% pure. What's the other five percent?

A: The Malathion used for fruit fly eradication is known as "technical grade". When Malathion is formulated (manufactured) a number of impurities remain in the final concentrate. (formulation) While these impurities contribute to overall toxicity, they are present when the toxicity of Malathion is tested, and are therefore accounted for. All the impurities together, amount to only five percent of the final product. There are approximately 16 identified impurities, most of which are present in an amount less than one percent. Some of the most prominent impurities are: isomalathion, malaoxon, and various phosphorus esters that are byproducts of chemical reactions that produce Malathion.

Q: Why not use pure Malathion

A: Normally, pure Malathion is not produced commercially. It is only necessary to remove minor impurities when they hamper product performance, either by interfering with desired activity or causing undue adverse reactions. The technical grade material used for fruit fly eradication is the same material used in virtually all commercial Malathion products. Toxicity testing has been done using this same material.

Frequently Asked Questions Regarding Malathion

Q: Is it possible to inhale the spray?

A: The droplets are tiny, but do not remain in the air like aerosols do. During the brief time droplets are falling after release from aircraft, there is little likelihood of breathing in any significant amount. The concentration of Malathion in air, due to evaporation after application is very small: in the parts per trillion ranges.

Q: What happens to the Malathion after it's applied?

A: Malathion gradually breaks down after it is applied. Breakdown products are generally much less toxic than Malathion and eventually return to their normal elemental state. Malaoxon, which is formed when oxygen replaces sulfur in the Malathion molecule, is more potent than Malathion. Environmental monitoring during and after Malathion bait applications has detected relatively small amounts of either Malathion or malaoxon. The amount of residue found in the environment does not reasonably suggest a meaningful toxic threat to people or the environment. Malaoxon itself breaks down more rapidly than Malathion once it is formed. Repeat applications of Marathon are necessary because not enough is left to effectively kill flies two to four weeks after it has been applied.

Q: What is the bait?

A: The bait is primarily protein, carbohydrate and fat with some inorganic salts, such as sodium chloride (table salt), and water. It is mad mostly from corn, and is similar to processed food.

Q: What about Malathion getting into swimming pools?

A: Almost all swimming pools and wading ponds are deep enough so that the concentration of Malathion residues, after aerial application of Malathion in bait, will not reach the drinking water action level of 160 parts per billion, established by the California Department of Health Services. Malathion residues degrade very rapidly in swimming pool water, and are virtually gone in about 48 hours. This has been verified through independent monitoring conducted during previous fruit fly eradication projects.

Q: Could Malathion be harmful to pets or wild animals?

A: Except for fish, Malathion, as applied for fruit fly eradication, does not pose a hazard to pets and wildlife. It is used in dairy barns and chicken coops, and is applied directly to pets and livestock to rid them of body pests, such as fleas and biting flies. Shallow pools, such as garden fish ponds should be covered when application take place, and uncovered the next morning. This will prevent direct contamination of the pond and avoid oxygen deprivation, which could occur if the cover is left on too long.

Q: What effect will the Malathion have on other insects, like honeybees and other beneficial insects?

A: There may be temporary reductions in the population of some insects, and temporary increases in others, based on individual species susceptibility. Populations normalize once again, after treatments stop. Honeybees are not attracted to the bait. Some bees may be killed, however, because they may crawl through bait droplets while foraging.

Frequently Asked Questions Regarding Malathion

Q: Are there any precautions people should take when the Malathion mixture is applied?

A: Yes.

- Malathion bait droplets can damage certain automobile paints. This hazard is similar to that of fruit juices, tree saps, raw egg, and the like. AUTOMOBILES should be put in garage or covered when bait applications are made. If left out, they should be washed off the following morning.

- Some plastic SKYLIGHTS AND AWNINGS may be spotted (stained). They should be covered during, or washed off after, spraying.

Additional prudent measures anyone might take to reduce exposure include:

- Remaining indoors when applications are being made.

- Bringing in CHILDREN'S TOYS. If left out, wash them before allowing children to play with them.

- Before cooking or eating homegrown FRUITS AND VEGETABLES, rinse them with water, just as you would those purchased from a store.

- Cover PICNIC TABLES, or hose them off after spraying.

- Wash EXPOSED SKIN SURFACES with soap and water after touching surfaces that have bait residues.

- Don't leave LAUNDRY hanging out during application. Launder soiled clothing before it is worn.

- Do YARD WORK before, rather than immediately after spraying.

MIX RATES FOR SPINOSAD FORMULATIONS

ACRES	WATER	SPINOSAD	NuLure	TOTAL PER ACRE (volume)
1	30 oz	20 oz	Already	50 oz
2	60 oz	40 oz	Added	100 oz
3	90 oz	60 oz		1 gallon, 22 ozs.
4	120 oz	80 oz		1 gallon, 72 ozs.
5	1 gallon 22 oz	100 oz		1 gallon, 122 ozs.
6	1 gallon 52 oz	120 oz		2 gallons, 42 ozs.
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4/5 gallon = 102 oz
1 gallon = 128 oz

Revised 8/13/04

MEXICAN FRUIT FLY HOST LIST

Note: This is an incomplete host list for Mexican Fruit Fly.

COMMON NAME IN ENGLISH/ SPANISH	
APPLE	MANZANA
APRICOT	ALBARICOQUE, CHABICIN, CHAVACAN
AVOCADO	AGUACATE
CALOMONDIN ORANGE	NARANJA
CHERIMOYA / SOURSOP	CHIRIMOYA, ANONA, GUANABANA
CITRUS CITRON	CIDRO CITRON
CUSTARD APPLE	ANONA
GRAPEFRUIT	PORONIA, LOROLA, POMELO
GUAVA	GUAYABA
JAPANESE PLUM	CIRUELA JAPONESA
KUMQUAT	NARANJO JAPONES/KINOTOS
LEMON (EXCEPT COMMERCIALLY GROWN EUREKA, LISBON, AND VILLA FRANCE CULITVARS)	LIMON (EXCEPTO CULTIVOS COMERCIALES DE EUREKA, LISBON, Y VILLA FRANCA)
LIME (EXCEPT SOUR LIMES)	LIMERA / LIMA
MAMEY APPLES	MAMEY
MANDARIN ORANGE	MANDARINA
MANGO	MANGO
NECTARINE	NECTARINO / PELON
PASSIONFRUIT	FRUITA DE LA PASION
PEACH	DURAZNO
PEAR	PERA
PERSIMMON	PERSIMON
PINEAPPLE GUAVE	GUAYABA
PLUM	CIRUELA
POMEGRANATE	GRANADA
PRUNE	CIRUELA PASA
PUMMELO (SHADDOCK)	POMELO
QUNICE	MEMBRILLO / MANNELA
ROSE APPLE	POMAROSA
SAPODILLA	CHICOZAPATE / NISPERO
SAPOTA	ZAPOTE
SARGENTIA	CHAPOTE AMARILLO
STRAWBERRY GUAVA	GUAYABA DE FRESA
SOUR ORANGE	NARANJA AGRIA
SWEET ORANGE	NARANJA
TANGERINE	TANGERINA
WHITE SAPOTE	ZAPOTE BLANCE

Even if not on this list, all other Mexican Fruit Fly hosts are regulated. Revised 10/31/02