

279-3108

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON D C 20460

OFFICE OF
PREVENTION PESTICIDES
AND TOXIC SUBSTANCES

February 23, 2009

Christopher Davis
FMC Corp
1735 Market Street
Philadelphia, PA 19103

Subject Amendment – Response to Agency’s August 28, 2008 letter
 Brigade WSB Insecticide/Miticide
 EPA Reg No 279-3108
 Your submission dated February 13, 2009


Dear Mr Davis

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable subject to the comments listed below. Two (2) copies of the finished labeling must be submitted prior to releasing the product for shipment. A stamped copy of the label is enclosed for your records.

- 1 Update the label as required under the Agency’s February 21, 2008 letter concerning “Spray Drift Language for Pyrethroid Agricultural Use Products”

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec 6(e). Your release for shipment of the product bearing the amended labeling constitutes acceptance of these conditions.

If you have any questions regarding this action, please contact BeWanda Alexander at (703) 305-7460

Sincerely,

 Richard Gebken
 Interim Product Manager 13
 Insecticide Branch
 Registration Division (7505P)

Enclosure

RESTRICTED USE PESTICIDE
Toxic to fish and aquatic organisms For retail sale to and use only by certified applicators or persons under their direct supervision and only for those uses covered by the certified applicator s certification

BRIGADE® WSB

Insecticide/Miticide

EPA Reg No 279 3108

EPA Est No 279 NY 1

Active Ingredient

Bifenthrin (2 methyl[1 1 biphenyl] 3 yl)
methyl 3 (2 chloro 3 3 3 trifluoro 1 propenyl)
2 2 dimethyl cyclopropanecarboxylate

Other Ingredients **

Cis isomers 97% minimum trans isomers 3% maximum
U S Patent No 4 238 505

By Wt

10 0%

90 0%

100 0%

Handwritten marks and symbols, possibly a barcode or tracking information.

**KEEP OUT OF REACH OF CHILDREN
WARNING
AVISO**

ACCEPTED
with COMMENTS
In EPA Letter Dated
FEB 23 2009
Under the Federal Insecticide
Fungicide and Rodenticide Act
as amended for the pesticide
registered under EPA Reg. No
279-3108

This label must be in the possession of the user at the time of application
Si usted no entiende la etiqueta busque a alguien para que se la explique a usted en detalle (If you do not understand the label find someone to explain it to you in detail)

FIRST AID

If Swallowed Call a poison control center or doctor immediately for treatment advice Have person sip a glass of water if able to swallow Do not induce vomiting unless told to do so by the poison control center or doctor Do not give anything by mouth to an unconscious person

If Inhaled Move person to fresh air If person is not breathing call 911 or an ambulance then give artificial respiration preferably by mouth to mouth if possible Call a poison control center or doctor for further treatment advice

If in Eyes Hold eye open and rinse slowly and gently with water for 15 20 minutes Remove contact lenses if present after the first 5 minutes then continue rinsing eye Call a poison control center or doctor for treatment advice

If on Skin or Clothing Take off contaminated clothing Rinse skin immediately with plenty of water for 15 20 minutes Call a poison control center or doctor for treatment advice

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment You may also contact 1 800 331 3148 for emergency medical treatment information

Note to Physician This product is a pyrethroid If large amounts have been ingested the stomach and intestines should be evacuated Treatment is symptomatic and supportive Digestible fats oils or alcohol may increase absorption and so should be avoided

For Emergency Assistance Call (800) 331 3148

**FMC Corporation
Agricultural Products Group
Philadelphia, PA 19103**

Net Contents

PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

May be fatal if swallowed Harmful if inhaled or absorbed through skin Causes moderate eye irritation Avoid breathing vapor or spray mist Avoid contact with skin eyes or clothing

Personal Protective Equipment (PPE) Applicators and other handlers (other than mixers and loaders) must wear

- Long sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and Loaders must wear

- Long sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate Do not reuse them Follow manufacturer's instructions for cleaning/maintaining PPE If no such instructions for washables use detergent and hot water Keep and wash PPE separately from other laundry

User Safety Recommendations

Users should

- Wash hands before eating drinking chewing gum using tobacco or using the toilet
- Remove clothing immediately if pesticide gets inside Then wash thoroughly and put on clean clothing
- Remove PPE immediately after handling this product Wash outside of gloves before removing As soon as possible wash thoroughly and change into clean clothing

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates Use with care when applying in areas adjacent to any body of water Do not apply directly to water to areas where surface water is present or to intertidal areas below the mean high water mark Do not make applications when weather conditions favor drift from treated areas Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas Do not contaminate water when disposing of equipment wash waters

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin Prior to use in a particular county contact the local extension service for procedures and precautions to use to protect endangered species

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling Do not apply this product through any type of irrigation system

Resistance Some insects are known to develop resistance to products used repeatedly for control Because the development of resistance cannot be predicted the use of this product should conform to resistance management strategies established for the use area Consult your local or state agricultural authorities or universities for details

If resistance to this product develops in your area this product or other products with a similar mode of action may not provide adequate control If poor performance cannot be attributed to improper application or extreme weather conditions a resistant strain of insect pest may be present If you experience difficulty with control and resistance is a reasonable cause immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area

Do not apply this product in a way that will contact workers or other persons either directly or through drift Only protected handlers may be in the area during application For any requirements specific to your State or Tribe consult the agency responsible for pesticide regulation

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR part 170 This Standard contains requirements for the protection of agricultural workers on farms forests nurseries and greenhouses and handlers of agricultural pesticides It contains requirements for training decontamination notification and emergency assistance It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted entry intervals The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated such as plants soil or water is Coveralls Waterproof gloves and Shoes plus socks

See supplemental label for directions for use in California

STORAGE AND DISPOSAL

Pesticide Storage

Keep out of reach of children and animals Store in original containers only Store in a cool dry place and avoid excess heat Do not store at temperatures below 32°F (0 C) Rough handling may cause breakage especially at low temperatures Allow to warm above 50°F (10°C) before use Do not allow inner bags to become wet during storage Do not handle inner bag with wet hands or wet gloves Do not put concentrate or diluted material into food or drink containers Do not contaminate other pesticides fertilizers water food or feed by storage or disposal

In case of spill avoid contact isolate area and keep out animals and unprotected persons Confine spills Call FMC (800) 331 3148

To confine spill If liquid dike surrounding area or absorb with sand cat litter or commercial clay If dry material cover to prevent dispersal Place damaged package in a holding container Identify contents

Pesticide Disposal

Pesticide wastes are toxic Improper disposal of excess pesticide spray mixture or rinsate is a violation of Federal law If these wastes cannot be disposed of by use according to label instructions contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative of the nearest EPA Regional Office for guidance

Container Disposal

When all water soluble bags are used the outer package should be clean and may be disposed of in a sanitary landfill by incineration or if allowed by state and local authorities by burning If burned stay out of smoke if the outer container contacts formulated product in any way it must be triple rinsed with clean water Add rinsate to the spray tank and dispose of the outer package as described above

GENERAL INSTRUCTIONS

Unless otherwise directed by registered supplemental labeling follow the Directions for Use in each crop group section

The product in this outer package is a wettable powder formulation of the insecticide bifenthrin packaged in a translucent water soluble bag Do not allow the inner bag to become wet before adding it to the spray or nurse tank Do not handle the inner bag with wet hands or wet gloves Rough handling may cause breakage Do not store at temperatures below 32°F (0 C) Allow to warm above 50 F (10°C) before use Cooler water temperatures increase the time needed for the inner bag to dissolve completely

Brigade WSB insecticide needs to be diluted with water prior to spray application Do not use nozzle screens (e.g. strainers) greater than 50 mesh size Determine the number of water soluble bag(s) to make up necessary spray suspension

Calculate the number of bags needed for the recommended rate and number of acres to be treated by using the following equation

Recommended		# Acres to be	
Rate for Pest	x	Treated with	
(Active/Acre)		Tankload #	= of Brigade Water Soluble Bags

5/22

0.05 (amt ai in each bag) to use for acres to be treated

Do not break bags When the equation results in less than a whole number of bags use the next higher whole number of bags

Fill the spray tank 1/2 full with water. Open the outer wrapper of this product and immediately dump required contents into the spray tank. Allow the water soluble bag(s) to dissolve completely. Start agitation in the tank. Air agitation is not recommended. Mix thoroughly to fully disperse and suspend the wettable powder. Fill the spray tank with the required amount of water. Maintain agitation during storage in nurse or supply tank and during application.

Mix as needed do not store diluted material

Rotational Crops

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days following the final application of bifenthrin.

Tank-Mixture

Brigade WSB Insecticide/Miticide may be applied in tank mixtures with other products approved for use on registered crops. Observe all restrictions and precautions that appear on the labels of these products. Test for compatibility of products before mixing using a standard jar test or other similar method.

Application Instructions

Rate of application is variable according to pest pressure, timing of sprays, and field scouting. Use lower rates under light to moderate infestation, higher rates under heavy insect pressure and for mite control. Arid climates generally require higher rates.

In New York State this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or streams that drain into coastal marshes.

Do not cultivate within 10' of the aquatic area so as to allow growth of a vegetative filter strip.

Artichoke

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Artichoke	Cribrate Weevil Artichoke Plume Moth	16.0 (0.10)	<p>Apply when pest population reaches damaging threshold and repeat as necessary to maintain control, but not more often than 15 day intervals.</p> <p>Do not exceed 2 bags (0.10 lb ai/A) between bud formation and harvest of an individual fruit.</p> <p>Application by ground Apply a full cover spray in a minimum of 75 gallons of finished spray per acre.</p> <p>Application by air Apply specified dosage in a minimum of 10 gallons per acre.</p> <p>Do not exceed 10 bags (0.5 lb ai) per acre per season.</p> <p>Do not apply within 5 days of harvest.</p> <p>*1 bag = 0.05 lb ai</p>

Hops*

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Hops	Aphids Armyworms Cutworms Leafrollers Loopers	9.6 to 16.0 (0.06 to 0.1)	Do not exceed 2 bags (0.1 lb ai) per acre per application Do not exceed 6 bags (0.3 lb ai) per acre per season
	Root Weevils	8.0 to 16.0 (0.05 to 0.1)	A spray interval of 21 days between applications must be maintained
	Twospotted spider mite	16.0 (0.10)	Do not apply within 14 days of harvest Application by ground For best results full coverage is essential Early season recommend 100-150 gallons of spray per acre Late season recommend 200-250 gallons of spray per acre For Root Weevil control make a directed spray to the base of the plant Spray up the vine 3 feet and the soil surface 1.5 to 2 feet on either side of the plant Application by air for late season control of twospotted spider mites Apply no less than 16 oz (0.1 lb ai) per application in a minimum of 10 gallons per acre 1 bag = 0.05 lb ai = 8 oz formulated product

Not for use in California

Strawberries

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Strawberries	Aphids Armyworms Flea beetles Heliothis spp Leafrollers Lygus spp Plant Bugs Spittlebugs Stink Bugs Strawberry Clipper Strawberry Sap Beetle	6.4 to 32.0 (0.04 to 0.2)	Apply when pest populations reach damaging thresholds and repeat as necessary at 7-14 day intervals Do not apply more than 0.5 lb ai (80 oz formulated) per acre per season No pre harvest interval is required
	Strawberry Root Weevil Black Vine Weevil	8.0 to 32.0 (0.05 to 0.2)	Application by ground Apply a full cover spray in a minimum of 50 gallons of finished spray per acre
	Spider mites	16 to 32.0 (0.1 to 0.2)	Application by air (Aerial application is prohibited in Florida) Apply specified dosage in a minimum of 5 gallons per acre 1 bag = 0.05 lb ai = 8 oz formulated product

CALIFORNIA SPECIFIC REQUIREMENTS FOR STRAWBERRY HARVESTERS Harvesters and other personnel performing tasks with all day foliage contact in treated fields within five (5) days of application must wear a long sleeved shirt long pants and shoes plus socks

Following treatment of strawberry fields at rates of Brigade® WSB greater than 0.1 lb ai/acre harvesters must wear gloves for five (5) days following application

Caneberries

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Caneberries Including Blackberries Bingleberries Dewberries Lowberries Marionberries Olallieberries Youngberries Loganberries Raspberries	Leafrollers Orange Tortrix Root Weevils Black Vine Weevil	8.0 to 16.0 (0.05 to 0.1)	Apply by air or ground equipment using sufficient water to obtain full coverage of foliage (Minimum of 10 gallons per acre by air and 50 gallons per acre by ground)
	Twospotted Spider Mite Carmine Mite Raspberry Crown Borer	16.0 (0.1)	One application may be made pre bloom and a second application may be made post bloom For Crown Borer apply 0.1 lb ai / a post harvest (fall) or pre bloom (spring) as a drench application directed at the crown of plants in a minimum of 200 gallons water / acre Greater efficacy is observed at higher water gallonages (up to 400 gallons/a) or in an application prior to a significant rainfall event Do not make both pre bloom foliar and pre bloom drench applications Do not exceed 0.2 lb ai (32 oz formulated) per acre per season Do not apply within 3 days of harvest 1 bag = 0.05 lb ai = 8 oz formulated product

Pears

Crop	Pest	Dosage oz/A (lb /ai/A)	Directions
Pears	Aphids Codling Moth Cutworms Green Fruitworm Leafhoppers Leafminers Leafrollers Lygus spp Plant Bugs Plum Curculio San Jose Scale (Crawlers) Stink Bugs Tarnished Plant Bugs	6.4 to 32.0 (0.04 to 0.2)	<p>Application by ground Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray in sufficient water to provide thorough coverage</p> <p>Application by air Apply the specified dosage in a minimum of 10 gallons per acre by air</p> <p>Do not apply more than 0.5 pound active (80 oz formulated) per acre per season with no more than 0.45 pound active per acre applied after petal fall. Apply as necessary to maintain control using a minimum of 30 day spray interval</p> <p>Do not apply within 14 days of harvest</p> <p>Do not graze livestock in treated orchards or cut treated cover crops for feed</p> <p>1 bag = 0.05 lb ai = 8 oz formulated product</p>
	Yellow Spider Mite	9.6 to 32.0 (0.06 to 0.2)	
	European Red Mite Twospotted Spider Mite	12.8 to 32.0 (0.08 to 0.2)	

Tree Nut Crops

Crop	Pest	Dosage oz/A (lb /ai/A)	Directions
Almond Beech nut Brazil nut Butternut Cashew Chestnut Chinquapin Filbert (hazelnut) Hickory nut Macadamia nut (bush nut) Pecan Pistachio Walnut (black and English)	Black Pecan Aphid Codling Moth Filbert Worm Hickory Shuckworm Leaffooted Bugs Navel Orangeworm Oblique banded Leafroller Peach Twig Borer Pecan Leaf Casebearer Pecan Nut Casebearer Pecan Phylloxera Plant Bugs Stink Bugs Walnut Aphid Yellow Pecan Aphid	8.0 to 32.0 (0.05 to 0.2)	<p>Application by ground Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray in sufficient water to provide thorough coverage</p> <p>Application by air Apply the specified dosage in a minimum of 10 gallons of finished spray per acre</p> <p>Minimum Spray Intervals Apply Brigade WSB as needed to maintain control but do not apply at intervals sooner than 15 days</p> <p>Observe a 21 day Pre Harvest Interval (phi) for Pecans and a 7 day pre harvest Interval (phi) for all other registered tree nut crops</p> <p>Do not exceed 0.2 lb ai per acre per application do not exceed 0.50 lb ai (80 oz formulated) per acre per season</p> <p>Do not graze livestock in treated orchards or cut treated cover crops for feed</p> <p>1 bag = 0.05 lb ai = 8 oz formulated product</p>
	European Red Mite Spider Mites	12.8 to 32.0 (0.08 to 0.2)	
	Fire Ants Walnut Husk Fly	16.0 to 32.0 (0.1 to 0.2)	

Citrus

Crop	Pest	Dosage oz/A (lb /ai/A)	Directions
Citrus	<p>Diaprepes Root Weevil</p> <p>Southern Blue Green Citrus Root Weevil</p> <p>Blue Green Citrus Root Weevil</p> <p>Brown Leaf Notcher</p> <p>Little Leaf Notcher</p>	<p>40 0 to 80 0 (0 25 to 0 50)</p>	<p>Apply Brigade WSB by ground equipment to bare soil beneath citrus trees Brigade WSB must be uniformly applied from the trunk to the drip line of tree apply in a minimum of 40 gallons of dilute spray per acre Greater spray volume should insure greater uniformity of coverage A pre and post application irrigation may aid in the uniformity of coverage as well</p> <p>Brigade WSB protects citrus tree roots from Diaprepes and other citrus root weevil feeding by forming a barrier which provides contact activity on newly hatched larvae (neonates) As citrus root weevil eggs hatch in new foliage neonates fall to the soil surface beneath the tree and come in contact with Brigade WSB as they attempt to burrow into the root zone Disturbance of the soil beneath trees should be minimized</p> <p>Timing of Brigade WSB applications is critical Current information suggests that peak emergence of adult Diaprepes Weevil varies by citrus growing region and these emergence peaks can be dramatically affected by environmental factors such as soil moisture Typically two peaks are observed for Diaprepes first in spring then late summer or early fall Southern Blue Green and Blue Green Citrus Weevils and Fuller Rose Beetle typically exhibit a single emergence peak in the spring Brown and Little Leaf Notchers typically exhibit three emergence peaks spring summer and fall Since emergence varies seasonally and by location timing of Brigade WSB application can be accurately forecast by observing adults Adults are most active early morning and late afternoon numbers can be estimated by trapping throughout spring and summer (emergence periods) Egg laying will occur for 8 to 10 weeks following adult emergence from the soil larval invasion of the soil will begin 2 3 weeks following adult emergence It is critical to have the Brigade WSB soil barrier in place prior to drop of the neonates</p> <p>Brigade WSB is one of several effective tools in an integrated pest management program for Citrus Root Weevils Application of Brigade WSB should be used in conjunction with good cultural practices biological control of larvae and foliar control of adults Consult local university extension personnel for current information to protect citrus trees from Citrus Root Weevils and other pests</p>

Citrus	Fireant Asian Cockroach	16 0 to 40 0 (0 1 to 0 25)	<p>Additional Instructions</p> <p>Apply to individual citrus resets when not in solid planted rows using handgun or shielded sprayer</p> <p>Peak emergence of Diaprepes root weevil generally occurs in the spring. Depending on weather conditions a minor emergence of Diaprepes root weevil may also occur in the fall</p> <p>If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring 0 50 pound active (80 oz formulated) should be used to obtain the longest residual management of Diaprepes root weevil</p> <p>If the citrus grove to be treated is in an area where weather conditions will promote more than one peak of pest emergence 0 25 pound active (40 oz formulated) can be applied early season and 0 25 pound active can be applied later in the season</p> <p>Do not apply through irrigation systems</p> <p>Do not allow any application of Brigade WSB to contact fruit or foliage</p> <p>Do not apply more than a total of 0 5 lb ai (80 oz formulated) per acre per year</p> <p>Do not apply within 1 day of harvest</p> <p>Apply the specified dosage in a minimum of 40 gallons of finished spray per acre</p> <p>Ground application only Do not apply by air</p> <p>1 bag = 0 05 lb ai = 8 oz formulated product</p>
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Cotton

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Cotton	European Corn Borer Soybean (Banded) Thrips Tobacco Thrips	3.2 to 16.0 (0.02 to 0.10)	Brigade WSB may be applied in water
	Boll Weevil Bollworm Cabbage Looper Cotton Aphid Cotton Fleahopper Cotton Leafperforator Cutworms Fall Armyworm Plant Bugs Saltmarsh Caterpillar Southern Garden Leafhopper Stink Bugs Tobacco Budworm Yellow Striped Armyworm	6.4 to 16.0 (0.04 to 0.10)	<p>Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallons per acre by aircraft</p> <p>To Control Boll Weevil Apply Brigade WSB at an interval of 3 to 4 days until pest numbers are reduced to acceptable levels</p> <p>To Control Mites and Aphids Apply when pests first appear Repeat as necessary to maintain control Higher rates will be required once a damaging threshold is established</p>
	Beet Armyworm Carmine Spider Mite Lygus Spp Pink Bollworm Twospotted Spider Mite Whitefly	9.6 to 16.0 (0.06 to 0.10)	<p>Do not apply more than 0.5 pound active (80 oz formulated) per acre per season</p> <p>Do not apply within 14 days of harvest</p> <p>Do not graze livestock in treated areas or cut treated crops for feed</p> <p>Do not make more than 10 synthetic pyrethroid applications (of one product or combination of products) to a cotton crop in one growing season Synthetic pyrethroid products include Ambush® Ammo® Asana® XL Baythroid® Capture® Danitol® Karate® Mustang® and Scout X TRA®</p> <p>1 bag = 0.05 lb ai = 8 oz formulated product</p>

12/22

SUCCULENT PEAS AND BEANS

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Pea (Pisum spp) Dwarf pea Edible pod pea English pea Garden pea Green pea Snow pea Sugar snap pea Pigeon pea Bean (Phaseolus spp) Broadbean (succulent) Lima bean (green) Runner bean Snap bean Wax bean Bean (Vigna spp) Asparagus bean Blackeyed pea Chinese longbean Cowpea Moth bean Southern pea Yardlong bean Jackbean Soybean (immature seed) Sword bean	Wireworm Maggot Grubs	8 0 to 16 0 (0 05 – 0 10)	Planting Time Use For Wireworm maggot or grubs apply in furrow with the seed or transplant
	Flea Beetle Grasshoppers Aster Leafhopper Leafhoppers	4 0 to 16 0 (0 025 0 10)	Foliar Use Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment
	Aphids Beet Armyworm Fall Armyworm Southern Armyworm Yellowstriped Armyworm Bean Leaf Beetle Cucumber Beetles Japanese beetle Adult Sap Beetle Plant Bug Stink Bugs Tarnished Plant Bug Alfalfa Caterpillar Cloverworm European Corn Borer Cutworms Western Bean Cutworm Corn Earworm Loopers Corn Rootworm Adult Thrips Webworms Pea Weevil Pea Leaf Weevil	5 3 to 16 0 (0 033 0 10)	Thorough coverage is essential to achieve control Do not apply more than 0 2 lb active ingredient (32 0 oz formulated) per acre perseason including at plant applications Do not apply within 3 days of harvest 1 bag = 0 05 lb ai = 8 oz formulated product
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp Whitefly	12 8 to 16 0 (0 08 0 10)	

BRASSICAS

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Head and Stem Brassica Vegetables including Broccoli Chinese Broccoli (gailon white flowering broccoli) Brussels Sprouts Cauliflower Cavalo broccolo Kohlrabi Cabbage Chinese Cabbage (napa) Chinese Mustard Cabbage (gai choy)	Wireworm	8 0 to 16 0	Planting Time Use For Wireworm maggot or grubs apply in furrow with the seed or transplant
	Maggot Grubs	(0 05 – 0 10)	
	Cutworms Corn Earworm	5 3 to 16 0 (0 033 0 10)	Foliar Use Apply in a minimum of 5 gallons of finished spray per acre by air or a minimum of 20 gallons per acre with ground equipment Thorough coverage is essential to achieve control Do not apply more than 0 5lb active ingredient (80oz formulated per acre per season) Do not apply within 7 days of harvest Do not make applications less than 7 days apart Do not make more than 5 applications after bloom
	Tobacco Budworm Saltmarsh Caterpillar Leafhoppers Flea Beetles Imported Cabbageworm Cucumber Beetles Aphids Armyworms Loopers Stink Bugs Crickets Ground Beetles Thrips Wireworm (adults) Diamondback Moth		
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp Whitefly	12 8 to 16 0 (0 08 0 10)	1 bag = 0 05 lb ai = 8 oz formulated product

CANOLA, CRAMBE, RAPESEED

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Canola Crambe Rapeseed	Aphids Cutworms Diamondback Moth Loopers Other Lepidopterous Larvae Flea Beetle Flea Hopper Grasshopper Plant Bug Stink Bugs Seedpod Weevil Thrips Armyworms	5.3 to 6.4 (0.033 0.04)	<p>Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment</p> <p>Thorough coverage is essential to achieve control</p> <p>Do not apply more than 0.08 lb active ingredient (12.8 oz formulated) per acre per season</p> <p>Do not make applications less than 14 days apart</p> <p>Do not apply within 35 days of harvest</p> <p>1 bag = 0.05 lb ai = 8 oz formulated product</p>

CUCURBITS

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Chayote (fruit) Chinese waxgourd (Chinese preserving melon)	Wireworm Maggot Grubs	8.0 to 16.0 (0.05 – 0.10)	Planting Time Use For Wireworm maggot or grubs apply in furrow with the seed or transplant
Citron melon Cucumber Gherkin Gourd edible (includes hyotan cucuzza) (<i>Luffa</i> spp) (includes hechima Chinese okra) (<i>Momordica</i> spp) (includes balsam apple balsam pear bitter melon Chinese cucumber) Muskmelon (hybrids and/or cultivars of <i>Cucumis melo</i>) (includes true cantaloupe cantaloupe casaba crenshaw melon golden pershaw melon honeydew melon honey balls mango melon Persian melon pineapple melon Santa Claus melon and snake melon) Pumpkin (<i>Cucurbita</i> spp) Squash summer (includes crookneck squash scallop squash straightneck squash vegetable marrow zucchini) Squash winter (includes butternut squash calabaza hubbard squash (<i>C mixta C pepo</i>) includes acorn squash spaghetti squash) Watermelon (includes hybrids and/or varieties of <i>Citrullus</i> spp)	Aphids Cutworms Cabbage Looper Leafhoppers Cucumber Beetles Squash Bugs Melonworm Pickleworm Plant Bug Stink Bugs Rindworm Squash Vine Borer Armyworms Corn Earworm Tobacco Budworm Grasshopper	8.0 to 16.0 (0.05 – 0.10)	Foliar Use Apply in a minimum of 5 gallons of finished spray per acre by air or in a minimum of 20 gallons per acre with ground equipment Thorough coverage is essential to achieve control Do not apply more than 0.3lbs active ingredient (48.0 oz formulated) per acre per season Do not apply within 3 days of harvest Do not make more than two applications after bloom Do not make applications less than 7 days apart 1 bag = 0.05 lb ai = 8 oz formulated product
	Whitefly Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp	12.8 to 16.0 (0.08 – 0.10)	

LETTUCE, HEAD

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Lettuce Head	Aphids Armyworms Corn earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Imported Cabbageworm Leafhoppers Loopers Salt Marsh Caterpillar Stink bug Spp Tobacco Budworm	5.3 to 16.0 (0.033 0.10)	Apply in water as necessary for insect control using a minimum of 20 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air Thorough coverage is essential to achieve control Do not make applications less than 7 days apart A maximum of 0.5 lb active ingredient (80 oz formulated) may be applied per acre per season
	Lygus Spp Carmine Mite Two Spotted Spider Mite Whitefly	12.8 to 16.0 (0.08 0.10)	Do not apply within 7 days of harvest 1 bag = 0.05 lb ai = 8 oz formulated product

SPINACH

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Spinach	Colorado Potato Beetle Tomato Pinworm Tomato Hornworm Armyworms Corn earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Pepper Weevil Thrips	5.3 to 16.0 (0.033 to 0.10)	For control of fire ants apply Brigade WSB to the soil (at planting) or as a foliar treatment by ground or air at rates of up to 0.1 lb active (16 oz formulated) per acre at minimum 7 day intervals up to a maximum of 4 applications Do not apply within 40 days of harvest Apply the specified dosage in 5.50 gallons of finished spray per acre by air or 10.50 gallons finished spray per acre by ground
	Broad Mite Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp Fire Ants Whitefly	12.8 to 16.0 (0.08 to 0.10)	Do not make applications less than 7 days apart Do not apply more than 0.4 pounds active ingredient per acre per season For control of whiteflies apply foliar treatments of Brigade WSB by ground or air at rates up to 0.1 lb active (16 oz formulated) per acre at minimum 7 day intervals up to a maximum of 4 applications 1 bag = 0.05 lb ai = 8 oz formulated product

GRAPES

Crop	Pest	Dosage oz /A (lb ai/A)	Directions
Grapes	Cutworms Eastern grape leafhopper Grape berry moth Japanese beetles adults Variegated leafhopper Western grape leafhopper	8 0 to 16 0 (0 05 0 10)	Apply in a minimum of 10 gallons of finished spray by air or in a minimum of 25 gallons of finished spray with ground equipment Thorough coverage is essential to achieve control When pest pressure is moderate to severe use higher rate
	Black vine weevil Glassywinged sharpshooter Twospotted spider mite	16 0 (0 10)	Do not apply more than 0 10 lb ai per acre per season Do not apply within 30 days of harvest 1 bag = 0 05 lb ai = 8 oz formulated product

SOYBEAN

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Soybean	Soybean Aphid	5 3 to 16 0 (0 033 to 0 10)	Apply foliar treatments in at least 10 gallons per acre at the rate of 16 oz/ (0 1 lb active) per acre at a minimum of 30 days intervals
	Spider mites	12 8 to 16 0 (0 08 to 0 10)	Do not apply more than 0 3 lb ai per acre per season Do not apply within 18 days of harvest 1 bag = 0 05 lb ai = 8 oz formulated product

FRUITING VEGETABLES

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Eggplant Pepper (Bell & Non Bell) Groundcherry Pepino	Armyworms Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafminers Loopers Pepper weevil Plant Bug Stink Bug Thrips Tomato Pinworm Tomato Hornworm Vegetable Leafminer Whitefly	5.3 to 12.8 (0.033 to 0.08)	<p>Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air 1.2 quarts of emulsified oil may be substituted for 1.2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.</p> <p>Do not make applications less than 7 days apart.</p> <p>Do not apply more than 0.2 lb active ingredient (32.0 ounces formulated) per acre per season.</p> <p>Do not apply within 7 days of harvest.</p>
	Banks Grass Mite Twospotted Spider Mite Pacific Spider Mite Lygus Spp Broad Mite Carmine Mite Two Spotted Spider Mite	12.8 (0.08)	
Tomato Tomatillo	Aphids Armyworms Including Beet Armyworm Fall Armyworm Southern Yellowstriped Armyworm Bean Leaf Beetle Cabbageworm Carmine Mite Cloverworm Corn earworm Corn Rootworm Cucumber Beetles Cutworms Diamondback Moth European Corn Borer Flea Beetles Flea Hopper Grasshopper Japanese Beetle (Adult) Leafhoppers Loopers Lygus Spp Melonworm Pea Weevil Pea Leaf Weevil Pickleworm Plant Bug Rindworm Salt Marsh Caterpillar Sap Beetle Seedpod Weevil Squash Bugs Stink bug Spp Tobacco Budworm Tarnished Plant Bug Thrips Two Spotted Spider Mite Whitefly	5.3 to 12.8 (0.033 to 0.08)	<p>Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment.</p> <p>Thorough coverage is essential to achieve control.</p> <p>Do not make applications less than 10 days apart.</p> <p>A maximum of 4 applications may be applied per season.</p> <p>Do not apply within 1 day of harvest.</p> <p>1 bag = 0.05 lb ai = 8 oz formulated product.</p>

PEANUT

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Peanut	Beet armyworm Corn earworm Cutworm spp Fall armyworm Grasshoppers Green cloverworm Leafhoppers Lesser cornstalk borer Loopers Rednecked peanut worm Southern armyworm Southern corn rootworm Stink bugs Threecornered alfalfa hopper Velvetbean caterpillar Yellowstriped armyworm	5 3 16 0 (0 033 0 1)	Apply foliar treatments in at least 10 gallons per acre at the rate of 16 0 oz/ (0 1 lb active) per acre at a minimum of 14 days intervals Do not apply more than 0 5 lb ai per acre per season Do not apply within 14 days of harvest 1 bag = 0 05 lb ai = 8 oz formulated product
	Aphids Spider mites Thrips Whitefly	5 12 6 4 (0 08 0 1)	

ROOT CROPS (except sugar beets)

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Burdock edible Carrot Celeriac Chervil turnip rooted Chicory Ginseng Horseradish Parsley turnip rooted Parsnip Radish Radish oriental Rutabaga Salsify Salsify black Salsify Spanish Skirret Turnip	Spider mites Fire Ants Flea Beetles Whitefly Aphids Beet armyworm Celery leaf tier Corn earworm Cross striped cabbageworm Cutworms Diamondback moth European corn borer Fall armyworm Green cloverworm Hornworms Imported cabbageworm Loopers Southern armyworm Tobacco budworm Velvetbean caterpillar Yellowstriped armyworm	12 8 16 0 (0 08 0 10)	Apply foliar treatments in at least 25 gallons per acre Apply no more than once every 7 days Do not apply more than 0 5 lb ai per acre per season Do not apply within 21 days of harvest
Garden Beet	Spider mites Fire Ants Lepidopterous larvae Flea Beetles Whitefly Aphids	12 8 16 0 (0 08 0 10)	Apply foliar treatments in at least 25 gallons per acre Apply no more than once every 7 days Do not apply more than 0 4 lb ai per acre per season Do not apply within 1 day of harvest 1 bag = 0 05 lb ai = 8 oz formulated product

MAYHAW

Crop	Pest	Dosage oz/A (lb ai/A)	Directions
Mayhaw	Plum Curculio	12.8 - 16.0 (0.08 - 0.10)	<p>Apply foliar treatments in at least 28 gallons per acre</p> <p>Apply no more than once every 7 days</p> <p>Do not apply more than 0.2 lb ai per acre per season</p> <p>Do not apply within 30 days of harvest 1 bag = 0.05 lb ai = 8 oz formulated product</p>

LEAFY PETIOLE VEGETABLES

CROP	PEST	Dosage oz/A (lb ai/A)	REMARKS
Celery Cardoon Chinese celery Celtuce Florence fennel Rhubarb Swiss chard	Cutworms Corn Earworm Tobacco Budworm Saltmarsh Caterpillar Leafhoppers Flea Beetles Imported Cabbageworm Cucumber Beetles Aphids Whitefly Armyworms Loopers Stink Bugs Crickets Ground Beetles Thrips Wireworm (adults) Diamondback Moth	5.3 - 16.0 (0.033 - 0.10)	<p>Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment Thorough coverage is essential to achieve control</p> <p>Do not apply more than 0.5 lb active ingredient per acre per season</p> <p>Do not make applications less than 7 days apart</p> <p>Do not apply within 7 days of harvest</p> <p>1 bag = 0.05 lb ai = 8 oz formulated product</p>
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp	12.8 - 16.0 (0.08 - 0.10)	

BUSHBERRIES

CROP	PEST	Dosage oz/A (lb ai/A)	REMARKS
Blueberry highbush and lowbush Currant Elderberry Gooseberry Huckleberry	Blueberry maggot Fruitworms Lecanium scale (crawlers) Plum curculio Obliquebanded leaf roller Red band ed leafroller Variegated leafroller Spanworm Leafhoppers Aphids	5.3 – 16.0 (0.033 0.10)	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment Thorough coverage is essential to achieve control Do not apply more than 0.5 lb active ingredient per acre per season Do not make applications less than 7 days apart Do not apply within 1 day of harvest 1 bag = 0.05 lb ai = 8 oz formulated product
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp	12.8 – 16.0 (0.08 0.10)	

Spray Drift Precautions

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers

OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES RESERVOIRS RIVERS PERMANENT STREAMS MARSHES OR NATURAL PONDS ESTUARIES AND COMMERCIAL FISH FARM PONDS

Do not apply by ground equipment within 25 feet or by air within 150 feet of lakes reservoirs rivers permanent streams marshes or natural ponds estuaries and commercial fish farm ponds

Use of ultra low volume (ULV) application on hops is prohibited

Do not make aerial or ground applications during temperature inversions or if heavy rainfall is imminent Inversions are characterized by stable air and increasing temperatures with height above the ground Mist or fog may indicate the presence of an inversion in humid areas The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface

Make aerial or ground applications when the wind velocity favors on target product deposition (approximately 3 to 10 mph) Do not apply when wind velocity exceeds 15 mph Avoid applications when wind gusts approach 15 mph Inclusion of a compatible drift reducing agent is encouraged

For aerial applications the spray boom should be mounted on the aircraft so as to minimize drift caused by wingtip or rotor vortices The minimum practical boom length should be used and must not exceed 75% of wing span or rotor diameter

Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area

Use the largest droplet size consistent with good pest control Formation of very small droplets may be minimized by appropriate nozzle selection by orienting nozzles away from the air stream as much as possible and by avoiding excessive spray boom pressure

Spray should be released at the lowest height consistent with pest control and flight safety Applications more than 10 feet above the crop canopy should be avoided

Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift to aquatic areas. Avoid spraying during conditions of low humidity and/or high temperature.

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