

5481-8974

03/27/2013

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

Kelly Naujock  
Amvac Chemical Corporation  
4695 MacArthur Court, Suite 1250  
Newport Beach, CA 92660

**MAR 27 2013**

Subject: Addition of succulent green bean use restrictions and accompanying language  
Orthene 90S  
EPA Reg. No.: 5481-8974  
Submission date: October 19, 2012  
Decision #: 434395

Dear Ms. Naujock:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable. A stamped copy is enclosed for your records. Please submit one copy of your final printed labeling before you release the product for shipment. If you have any questions regarding this label, please contact Dr. Jennifer Urbanski at 703-347-0156 or [urbanski.jennifer@epa.gov](mailto:urbanski.jennifer@epa.gov).

Sincerely yours,

A handwritten signature in black ink that reads "Venus Eagle". The signature is fluid and cursive, with a long horizontal line extending to the right.

Venus Eagle  
Product Manager (01)  
Insecticide-Rodenticide Branch  
Registration Division (7505P)

Enclosure- Stamped Label

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# ORTHENE<sup>®</sup> 90 S

[Master Label]

Sub-Label 1 – Orthene<sup>®</sup> 90 S [Insecticide in a Water-Soluble Packet]

Sub-Label 2 - Orthene<sup>®</sup> 90 S [Insecticide for Hopper Box and Ant Treatment Uses]

Active Ingredient	By Weight
*Acephate.....	90.0%
Inert Ingredients.....	10.0%
Total.....	100.0%

\*O,S-Dimethyl acetylphosphoramidothioate

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

**Formulation for Eggs/DEADHATCH<sup>®</sup>**

EPA Reg. No.: 5481-8974

[Sub-Label 1]

**Orthene 90 S**

[INSECTICIDE IN A WATER-SOLUBLE PACKET]

**ACCEPTED**  
**MAR 27 2013**  
 Under the Federal Insecticide, Fungicide,  
 and Rodenticide Act, as amended, for the  
 pesticide registered under:  
 EPA. Reg. No: 5481-8974

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# ORTHENE<sup>®</sup> 90 S

## Soluble Powder

[Insecticide in a Water-Soluble Packet]

Active Ingredient	By Weight
*Acephate.....	90.0%
Inert Ingredients.....	10.0%
Total.....	100.0%

\*O,S-Dimethyl acetylphosphoramidothioate

### KEEP OUT OF REACH OF CHILDREN CAUTION

<b>FIRST AID</b>	
<b>Acephate is an organophosphate, cholinesterase inhibitor.</b>	
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air:</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>

<b>EMERGENCY INFORMATION</b>	
<b>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. FOR THE FOLLOWING EMERGENCIES, PHONE 24 HOURS A DAY:</b>	
<b>For Medical Emergencies phone:</b> .....	1-888-681-4261
For Transportation Emergencies, including spill, leak or fire, phone: CHEM.....	1-800-424-9300
For Product Use Information phone : AMVAC.....	1-888-462-6822

**NOTE TO PHYSICIAN**

This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure but decisions regarding treatment will usually need to be made before test results are available. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTOPAM) is also antidotal and may be used in conjunction with atropine but should not be used alone.

SEE SIDE/BACK PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND DIRECTIONS FOR USE.

EPA Reg. No. 5481-8974  
EPA Est. No.

Net Contents:  
As Marked on Container



**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS & DOMESTIC ANIMALS**

**CAUTION**

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes, skin and clothing.

**PERSONAL PROTECTIVE EQUIPMENT (PPE):**

Some materials that are chemical-resistant to this product are butyl rubber, nitrile rubber, or neoprene. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

**Mixers, Loaders, Applicators and Other Handlers must wear:**

- Long sleeved shirt and long pants
- Chemical-resistant gloves
- Socks plus shoes.

**In addition, Applicators using low pressure hand wand application equipment must wear:** A NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approved number prefix TC-21C or a NIOSH-approved respirator with any N, R, P or HE filter.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. As soon as possible, wash thoroughly and change into clean clothing.

See Engineering Controls for additional requirements.

**ENGINEERING CONTROLS:**

Water soluble packets when used correctly qualify as a closed mixing/loading system under the Worker Protection Standard for Agricultural Pesticides [40 CFR 170.240(d)(4)]. Mixers and Loaders using water soluble packets must wear: the personal protective equipment required above for Mixers/Loaders and must be provided, must have immediately available and must use in an emergency, such as a broken package, spill or equipment breakdown the following PPE: coveralls, chemical-resistant footwear and a NIOSH approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any N, R, P or HE filter.

Pilots must use an enclosed cockpit in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

The use of human flaggers is prohibited.

<b>USER SAFETY REQUIREMENTS</b>	
Users should:	<ul style="list-style-type: none"> <li>• Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.</li> <li>• Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.</li> <li>• Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.</li> </ul>

**ENVIRONMENTAL HAZARDS:**

This pesticide is toxic to birds. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Cover or soil-incorporate spills.

Exposed treated seed may be hazardous to birds and other wildlife. Dispose of all excess treated seed and seed packaging by burial away from bodies of water.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

This product and its degradate are highly toxic to bees exposed to direct treatment 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.

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## **DIRECTIONS FOR USE**

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It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.**

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 interval. 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 24 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
- chemical resistant gloves made of any waterproof material
- shoes plus socks.

### **NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Do not enter or allow others to enter until sprays have dried.

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### **TANK MIXES**

**NOTICE: Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user, applicator and/or application advisor.**

Read and follow the entire label of each product to be used in the tank mix with this product.

## WATER SOLUBLE PACKAGING

### MULTIPLE PACKAGING

This bag contains multiple water soluble packets of ORTHENE 90 S. Do not handle the packets with wet gloves or allow the packets to become wet prior to addition to spray tank. Do not break open packets. Refer to the Tables of Equivalents to calculate the number of packets to use. If all packets are not used, close and reseal outer bag to protect remaining packet(s).

### SINGLE PACKAGING

This packet contains one water soluble packet of ORTHENE 90 S. Do not handle the packet with wet gloves or allow the packet to become wet prior to addition to spray tank. Do not break open packets. Refer to the Tables of Equivalents to calculate the number of packets to use. Open outer bag by pulling perforated tearstrip and drop the unopened inner packet of ORTHENE 90 S into spray tank.

### PREPARATION OF SPRAY SOLUTION

To prepare spray solution, drop the unopened packet(s) of ORTHENE 90 S into a spray tank containing at least one-half the total quantity of water required. Direct water at the floating packet(s) and continue to add water with the agitator running until the spray volume is reached. **Do not add any liquid fertilizers, micronutrients or adjuvants to the spray solution until after the packet and its contents have completely dissolved.** Water soluble packet(s) should completely dissolve in approximately five minutes. Dissolution rate may be slowed by cold water, lack of agitation or water containing high concentrations of boron or sulfur.

## TABLE OF EQUIVALENTS

Rates of ORTHENE 90 S Per Acre	Acres Treated by a 2.5 lb. WSP Packet
1.6 oz	25.0
2.2 oz	18.1
3.2 oz	12.5
0.28 lb.	8.9
0.4 lb	6.3
0.56 lb.	4.5
0.8 lb.	3.1
0.83 lb	3
1.1 lb.	2.3
2.2 lbs	1.14
2.3 lbs	1.10
2.5 lbs	1
2.7 lbs	0.9
3.3 lbs	0.76
3.4 lbs	0.74
4.4 lbs	0.57

Rates of Orthene 90 S per 100 gals of water	Number of Gallons of Water per 2.5 lb water soluble packet
0.28 lb.	893
0.56 lb.	446
0.8 lb.	313
1.1 lb.	227

Note: For other labeled application rates and rate equivalency refer to specific crop.

### USE INFORMATION

ORTHENE 90 S a soluble powder is an insecticide for control of pests on selected agricultural crops and in certain non-crop areas. The active ingredient in ORTHENE 90 S is acephate, a water-soluble insecticide readily absorbed by plant roots and foliage to give systemic control of feeding insects. Insect pests are generally controlled more effectively by ORTHENE 90 S through ingestion than by contact. Application of ORTHENE 90 S to maintain control should be repeated only as directed.

[The following paragraph is for ornamental use labels only.]

To ensure that ORTHENE 90 S, a soluble powder, is compatible with the variety or cultivar of the listed ornamental crops under your specific conditions, test the product on a limited scale and observe for phytotoxicity over two weeks before making large scale applications. The large number of existing ornamental varieties and cultivars coupled with the constant introduction of new variants precludes specific testing of each type. It is impossible to field test this product in every locale where sold or in all of the combinations created by differences including those in soil or media type, pH, moisture of fertility, environment conditions such as temperature, lighting or degree days and horticultural practice including planting dates, control of other pests, timing of various horticultural practice and the manner of use and application of this product.

**FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR INSECT CONTROL, CROP INJURY AND/OR ILLEGAL RESIDUES.**

#### **USE RESTRICTIONS**

- For use on turf, use limited to sod farms and golf courses, except when applying to mound or spot treatment for fire ant and harvester ant control.
- Do not apply with low pressure handwand except for control of fire ants as a mound treatment and when used on ornamental trees, shrubs and floral plants grown for non-agricultural or non-commercial use.
- Not for indoor residential use. For greenhouse use, use is limited to commercial greenhouses for use on ornamental, floral and foliage plants and tobacco (float bed application).

#### **CHEMIGATION**

**Apply to Cranberries only by sprinkler irrigation systems. Do not apply by chemigation to any other crop, or this crop using any other type of irrigation system.**

#### **SPRAY DRIFT MANAGEMENT**

Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, nontarget crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals. A variety of factors including weather conditions, (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator and grower must evaluate all factors and make appropriate adjustments when applying this product.

- All aerial, ground and air-assisted/airblast application equipment must be properly maintained and calibrated using water as carrier. Use the largest droplet size consistent with good pest control. Small droplets are more prone to spray drift and can 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.
- Do not apply at wind speeds greater than 10 mph at the application site.
- Apply as close to target plants as practical to obtain a good spray pattern for adequate coverage.
- For aerial applications, do not apply at heights greater than 10 ft. (consistent with flight safety).
- For airblast applications, direct spray above foliage and turn off outward pointing nozzles at row ends and outer rows. Apply only when wind speed is 3 to 10 mph at the application site as measured by an anemometer outside of the treated area on the upwind side.
- For aerial applications, the spray boom should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum boom length should be used and must not exceed 75% of wing span or rotor diameter. The boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3 to 10 mph as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground.
- For ground boom applications apply with nozzle height no more than 4 feet above the ground or crop canopy and when wind speed is 10 mph or less at the application site as measured by an anemometer. Use medium or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. The applicator also must use all other measures necessary to control drift.

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**BEANS AND LIMA BEANS - Dry Forms , Succulent Forms (Except Green Beans, Which Includes String Beans, Snap Beans and Wax Beans) and Succulent Green Beans Grown Only for Seed.**

**USE RESTRICITONS**

- Do not feed treated vines to livestock.
- Do not apply more than 2.2 lbs./A (2 lbs. ai) ORTHENE 90 S [insecticide in a Water Soluble Packet] per crop cycle.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

RESTRICTIONS: Use on succulent green beans as a food crop is prohibited (includes string beans, snap beans and wax beans). Succulent green bean use is permitted ONLY if grown for seed.

**RESTRICTIONS FOR SUCCULENT GREEN BEANS GROWN FOR SEED:**

- Do not feed crop residues to livestock or allow animals to graze treated areas.
- Do not apply to succulent green beans grown for fresh market or processing.
- No portion of the succulent green bean plant may be used or distributed for food or feed purposes.
- Seeds grown from succulent green beans shall bear a tag or container label which forbids use of the seed for human consumption or animal feed.
- Seed grown from succulent green beans may not be distributed for human consumption or animal feed.

**TABLE 1 BEANS AND LIMA BEANS - Dry forms , succulent forms (except green beans, which includes string beans, snap beans and wax beans) and succulent green beans grown only for seed. - Directions for Use**

APPLICATION METHODS	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 20 to 100 gals./A of spray  <b>By Air:</b> Minimum of 2 gals./A of spray	Fleahoppers Grasshoppers	0.28 to 0.56 lb. (4.48 to 8.96 oz.)	Apply when eggs or insects first appear. Use higher rates within the specified rate range for severe insect infestations.	14  (dry beans)
	Aphids (excluding Black Bean Aphid) Bean Leaf Beetle Bean Leafroller Cabbage Looper Cutworms Green Cloverworm Leafhoppers Mexican Bean Beetle Plantbugs (Lygus) Soybean Looper Thrips Whitefly (except Sweetpotato or Silverleaf Whitefly)	0.56 to 1.1 lbs. (8.96 to 17.6 oz.)		1  (lima beans – succulent form)
	Armyworms (excluding Beet Armyworm) Corn Earworm European Com Borer	0.8 to 1.1 lbs. (12.8 to 17.6 oz.)		



**CELERY**

**USE RESTRICTITONS**

- All celery must be trimmed (tops removed) before shipment for use.
- Do not use trimmed tops for food or feed.
- Do not apply more than 2.2 lbs ORTHENE 90 S (2 lbs. ai) /A [insecticide in a Water Soluble Packet] per crop cycle.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**TABLE 2 CELERY -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 50 to 100 gals./A of spray  <b>By Air:</b> Minimum of 5 gals./A of spray	Green Peach Aphid	0.56 to 1.1 lbs. (8.96 to 17.6 oz.)	Apply when eggs or insects first appear.	21
	Cabbage Looper Fall Armyworms	1.1 lbs. (17.6 oz.)		

**COLE CROPS - Brussels Sprouts and Cauliflower**

**USE RESTRICTITONS**

- Do not apply more than 2.2 lbs ORTHENE 90 S (2 lb. ai) /A [Insecticide in a Water Soluble Packet] per crop cycle.
- Do not feed trimmings to livestock or allow animals to graze in treated areas.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**TABLE 3 COLE CROPS - Brussels Sprouts and Cauliflower -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 25 to 150 gals./A of spray  <b>By Air:</b> Minimum of 5 gals./A of spray	Green Peach Aphid	0.56 to 1.1 lbs. (8.96 to 17.6 oz.)	Use the high rate when heavy infestations of aphids are present.	14
	Cabbage Looper Diamondback Moth Larvae Imported Cabbage Worm	1.1 lbs. (17.6 oz.)	Apply when eggs or insects first appear.  <b>Diamondback Moth Larvae:</b> This insect has demonstrated an ability to develop resistance to various classes of insecticides. Consult your local Agricultural Extension Service for current recommended control practices for this insect.	

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## COTTON

### USE RESTRICTIIONS

- Do not use treated seed for food or feed purposes or process for oil.
- Do not feed treated forage or gin trash to livestock.
- Do not allow animals to graze on treated areas.
- Do not apply more than 4.4 lbs ORTHENE 90 S (4 lbs. ai) /A [Insecticide in a Water Soluble Packet] per crop cycle. This includes all foliar spray, in-furrow application and seed treatment uses.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

### For Aerial Application:

- Do not apply more than 1.1 lbs./A ORTHENE 90 S per application to cotton grown in AZ and CA.
- Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton grown in all other states except AZ and CA.

**TABLE 4 COTTON -**

APPLICATION METHODS	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS <sup>1</sup>	DAYS TO HARVEST
<b>IN FURROW</b>  <b>By Ground:</b> 3 to 5 gals./A of spray.  <b>AT-PLANTING APPLICATION</b>	Aphids* Black (Greasy) Cutworm (except CA) Thrips (including Western Flower Thrips)	0.56 to 1.1 lb.	Use flat fan nozzles for in-furrow application. Align nozzles to ensure good spray deposition into the seed furrow. Cone type nozzles are not recommended since unacceptable spray deposition may occur.	At-Planting Application
	*Excluding Cotton Aphids in AZ & CA.	<b>NOTE: For the Blacklands of Texas use 1.1 lb./A ORTHENE 90 S.</b>	Securely fasten spray system tubing to furrow opener and check frequently to ensure proper positioning and operation.  ORTHENE 90 S can be mixed with fungicides that are sprayed in-furrow for disease control.	
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 25 gals./A of spray  <b>By Air:</b> 3 to 10 gals/A of spray (minimum of 5 gals./A in AZ & CA) <sup>2</sup>	Thrips (including Western Flower Thrips)	3.2 oz.	Apply when eggs or insects first appear.	21
	Plantbugs (Lygus)	0.28 to 1.1 lb.	Apply when eggs or insects first appear.	21
		0.56 to 1.1 lb. (AZ & CA)	Use highest rate for Lygus adults that have migrated into cotton.	
	Fleahopper	0.28 lb.	Apply when eggs or insects first appear.	21
	Cotton Aphids (excluding AZ and CA)	0.56 to 1.1 lb.	This insect may develop resistance to various classes of insecticides. Consult your local Agricultural Extension Service for current control recommendations.	21
	Whitefly (excluding Sweetpotato Whitefly/Silverleaf Whitefly)	0.56 to 1.1 lb.		21
	Armyworms (excluding Beet Armyworm) Cabbage Looper	1.1 lb.	Apply when eggs first appear.	21

continued

TABLE 4 COTTON - continued

APPLICATION METHODS	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS <sup>1</sup>	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 25 gals./A of spray.  <b>By Air:</b> 3 to 10 gals./A of spray (minimum of 5 gals./A in AZ & CA) <sup>2</sup>	Bollworm Tobacco Budworm Adults Larvae	0.56 to 1.1 lb. (East of Rockies)  1.1 lb. (AZ & CA)	Early Season: Use 0.56 lb./A for light infestation.  Mid and Late Season: Use 0.8 to 1.1 lb./A for moderate to severe infestations.  Apply when eggs first appear.  Moths of budworm larvae are controlled by direct contact with spray. Moth kill is most likely to occur when late evening applications are made.  DEADHATCH: Control of emerging larvae by consumption of treated egg casings.	21
	Eggs/DEADHATCH <sup>®</sup>	0.28 to 0.56 lb.		
	Stinkbugs	0.8 lb.	Apply when eggs first appear.	21
	Pink Bollworm (AZ & CA)	1.1 lb.	Apply when insects first appear.	21
Cutworms	0.8 lb.	Ground application is recommended.  Aerial applications are less effective, but may be used.  Control is most effective when ground application is made in the evenings and sprays are directed toward the base and lower portion of plant.  Apply when insects first appear or damage is first noted.	21	

<sup>1</sup>For repeat applications, use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

<sup>2</sup>For Aerial Application: Do not apply more than 1.1 lb./A ORTHENE 90 S per application to cotton grown in AZ and CA. Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton grown all other states except AZ and CA.

#### RESISTANCE-MANAGEMENT

Cotton pest control programs, especially those for control of silverleaf whitefly populations, should employ a properly designed resistance-management strategy. Such resistance-management strategies include mixture or rotation of alternative classes of chemistry including organophosphates, carbamates, pyrethroids or insect growth regulators. Consult your state or area agricultural extension service for local resistance management strategies and advice on alternative insecticides.

**COMMERCIALLY TREATED COTTONSEED  
(FOR USE BY COMMERCIAL SEED TREATERS ONLY)**

**USE RESTRICTONS**

- This formulation does not contain a dye. Compliance with the Federal Seed Act and 21 CFR Chapter 1, Section 2.5 requires that all seed treated with this product must be colored to distinguish from, and prevent subsequent inadvertent use as, food for humans or feed for animals.
- Treated seed must not be used for or mixed with food or animal feed or processed for oil. Seed treated with ORTHENE 90 S [Insecticide in a Water Soluble Packet] may be considered adulterated under state and federal laws if sold or shipped as food or feedstuffs. Seed commercially treated with ORTHENE 90 S must be labeled as follows: "TREATED SEED. DO NOT USE FOR FOOD, FEED OR OIL."
- Observe all precautions and limitations on labeling of all products used in mixtures.
- ORTHENE 90 S contains a water soluble systemic insecticide which helps to reduce injury to cotton seedlings by several insects.

**TABLE 5 COMMERICALLY TREATED COTTONSEED –**

PESTS CONTROLLED	AMOUNT PER 100 LBS. COTTONSEED	EFFICACY	ADDITIONAL USE INSTRUCTIONS
Cotton Aphids Thrips	7.1 oz. Mix one 2.5 lb water soluble packet in slurry water to treat 563 lbs of seed.	Gives effective reduction of Thrips and Cotton Aphids for up to three weeks after planting.	ORTHENE 90 S can be mixed in the slurry tank with most of the fungicide seed treatments in common use. ORTHENE 90 S can also be applied as a separate treatment using enough water to give adequate coverage of the seed. ORTHENE 90 S dissolves quickly in water with a minimum of agitation.
Black (Greasy) Cutworm	7.1 oz. Mix one 2.5 lb water soluble packet in slurry water to treat 563 lbs of seed.	Gives effective reduction of Black (Greasy) Cutworm from planting through the 3rd to 4th leaf stage of development.  When planting into fields where large cutworms are present (5th instar and larger) economic damage may occur.	

**COTTON TANK MIXES**

**USE RESTRICTITONS**

- Do not feed gin trash or treated forage to livestock.
- Do not allow livestock to graze on treated areas.
- Do not apply more than 4.4 lbs ORTHENE 90 S (4 lbs. ai) /A [Insecticide in a Water Soluble Packet] per crop cycle. This includes all foliar spray, in-furrow application and seed treatment uses.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**For Aerial Application:**

- Do not apply more than 1.1 lbs./A ORTHENE 90 S per application to cotton grown in AZ and CA.
- Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton grown in all other states except AZ and CA.

Always read and follow all label directions when using any pesticide alone or in tank mix combinations. Observe all restrictions and precautions which appear on all product labels. The most restrictive labeling applies when using a tank mix.

**TABLE 6 COTTON TANK MIXES -**

APPLICATION METHOD	PESTS CONTROLLED	ORTHENE 90 S AND TANK MIX PARTNER	AMOUNT OF ORTHENE 90 S + TANK MIX PARTNER PER ACRE	REMARKS <sup>1</sup>	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 25 gals./A spray.  <b>By Air:</b> 3 to 10 gals./A of spray (minimum 5 gals./A in AZ & CA) <sup>2</sup> .	Sweetpotato Whitefly (Silverleaf Whitefly)	ORTHENE 90 S  +	0.56 to 1.1 lb.  +	Always read and follow all label directions, restrictions and precautions on the EPA registered label for Danitol 2.4 EC Spray.  Always read and follow all label directions, restrictions and precautions on the EPA registered label for LORSBAN® 4 E.  <b>Cutworms:</b> Use of 0.8 lb./A ORTHENE 90 S  <b>By Ground:</b> Ground application is recommended.  Control is most effective when ground application is made in the evenings and sprays are directed toward the base and lower portion of plant.  <b>By Air:</b> Aerial applications are less effective, but may be used.  Apply when insects first appear or when damage is first noted.	21
	Armyworms (excluding Beet Armyworm) Bollworm Cabbage Looper Cotton Aphid Cutworms Fleahopper Grasshoppers Pink Bollworm Plantbugs (Lygus, Mirids) Salt Marsh Caterpillar Thrips (including Western Flower Thrips) Tobacco Budworm Whitefly (excluding Sweetpotato/Silverleaf Whitefly)	ORTHENE 90 S  +  LORSBAN® 4E	0.28 to 1.1 lbs.  +  1 to 2 pts.		21

<sup>1</sup>For repeat applications, use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

<sup>2</sup>**For Aerial Application:** Do not apply more than 1.1 lb./A ORTHENE 90 S per application to cotton grown in AZ and CA. Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton grown in all other states except AZ and CA.

**RESISTANCE-MANAGEMENT**

Cotton pest control programs, especially those for control of silverleaf whitefly populations, should employ a properly designed resistance-management strategy. Such resistance-management strategies include mixture or rotation of alternative classes of chemistry including organophosphates, carbamates, pyrethroids or insect growth regulators. Consult your state or area agricultural extension service for local resistance management strategies and advice on alternative insecticides.

**COTTON TANK MIXES WITH PYRETHROIDS**

**USE RESTRICTITONS**

- Do not feed gin trash or treated forage to livestock.
- Do not allow livestock to graze on treated areas.
- Do not apply more than 4.4 lbs. Orthene 90 S (4 lbs. ai) /A [insecticide in a Water Soluble Packet] per crop cycle. This includes all foliar spray, in-furrow application and seed treatment uses.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**For Aerial Application:**

- Do not apply more than 1.1 lbs./A ORTHENE 90 S per application to cotton grown in AZ and CA.
- Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton grow all other states except in AZ and CA.

Synthetic Pyrethroids should be used within the guidelines of state and/or regional resistance management programs and recommendations.

Always read and follow all label directions when using any pesticide alone or in tank mix combinations. Observe all restrictions and precautions which appear on all product labels. The most restrictive labeling applies when using a tank mix

**TABLE 7 COTTON TANK MIXES WITH PYRETHROIDS –**

APPLICATION METHOD	PESTS CONTROLLED	ORTHENE 90 S AND TANK MIX PARTNER	AMOUNT OF ORTHENE 90 S + TANK MIX PARTNER PER ACRE	REMARKS <sup>1</sup>	DAYS TO HARVEST	
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 25 gals./A spray.  <b>By Air:</b> 3 to 5 gals./A spray (minimum 5 gals./A in AZ & CA). <sup>2</sup> See remarks for Cutworms.	Aphids Bollworm Cabbage Looper Cotton Leaf Perforator Cutworms Fall Armyworm Fleahoppers Pink Bollworm (AZ & CA) Plantbugs Stinkbugs Sweetpotato/Silverleaf Whitefly Thrips (including Western Flower Thrips) Tobacco Budworm Whitefly	ORTHENE 90 S	0.56 to 1.1 lb.	Apply when eggs or insects first appear.  <b>Stinkbugs:</b> Use 0.8 lb./A of ORTHENE 90 S  <b>*Cutworms:</b> Use 0.8 lb./A of ORTHENE 90 S  <b>By Ground:</b> Ground application is recommended.  Control is most effective when ground application is made in the evenings and sprays are directed toward the base and lower portion of plant.	21	
		+ one of the following:	+ one of the following:			
		AMMO <sup>®</sup> 2.5 EC*	Refer to the AMMO 2.5 EC approved label for use instructions.			21
		ASANA <sup>®</sup> XL*	Refer to the ASANA XL approved label for use instructions.			21
		BAYTHROID <sup>®</sup> 2 EC	Refer to the BAYTHROID 2 EC approved label for use instructions.			21
		CAPTURE <sup>®</sup> 2 EC	Refer to the CAPTURE 2 EC approved label for use instructions.			21
		KARATE <sup>®</sup> 1 E (Except CA)	Refer to the KARATE 1 E approved label for use instructions.		21	

<sup>1</sup>For repeat applications, use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

<sup>2</sup>For Aerial Application: Do not apply more than 1.1 lb./A ORTHENE 90 S per application to cotton grown in AZ and CA. Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton all other states except AZ and CA.

**TABLE 7 COTTON TANK MIXES WITH PYRETHROIDS - continued**

APPLICATION METHOD	PESTS CONTROLLED	ORTHENE 90 S AND TANK MIX PARTNER	AMOUNT OF ORTHENE 90 S + TANK MIX PARTNER PER ACRE	REMARKS <sup>1</sup>	DAYS TO HARVEST
		SCOUT X-TRA® (Except CA)	Refer to the SCOUT X-TRA approved label for use instructions.	<p><b>By Air:</b> 3 to 10 gals./A spray (minimum 5 gals./A in CA)</p> <p>Aerial applications are less effective, but may be used.</p> <p>Apply when eggs or insects first appear or damage is first noted.</p>	28

<sup>1</sup>For repeat applications, use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

<sup>2</sup>**For Aerial Application:** Do not apply more than 1.1 lb./A ORTHENE 90 S per application to cotton grown in AZ and CA. Do not apply more than 0.83 lb./A ORTHENE 90 S per application to cotton in all other states except AZ and CA.

**RESISTANCE MANAGEMENT**

Cotton pest control programs, especially those for control of silverleaf whitefly populations, should employ a properly designed resistance management strategy. Such resistance management strategies include mixture or rotation of alternative classes of chemistry including organophosphates, carbamates, pyrethroids or insect growth regulators. Consult your state or area agricultural extension service for local resistance management strategies and advice on alternative insecticides.

**CRANBERRY**

**USE RESTRICTITONS**

- Limit to one application per growing season.
- Do not apply more than 1.1 lbs ORTHENE 90 S (1 lb. ai) /A [insecticide in a Water Soluble Packet] per season.
- Do not apply from start of bloom until all berries are set.

**TABLE 8 CRANBERRY -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<p><b>FOLIAR</b></p> <p><b>By Ground or Sprinkler:</b> Sufficient water to give thorough coverage</p> <p><b>By Air:</b> Minimum of 2 gals./A of spray</p>	<p>Cranberry Blossom Worm</p> <p>Cranberry Cutworm</p> <p>Gypsy Moth</p> <p>False Armyworm</p> <p>Fireworm</p> <p>Spanworm</p> <p>Sparganothis</p>	<p>1.1 lbs. (17.6 oz.)</p>	<p><b>SPRINKLER IRRIGATION APPLICATION TO CRANBERRIES:</b></p> <p>This product may only be applied through sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, travelers, big gun, solid set, or hand move. Do not apply this product through any other type of irrigation system.</p> <p>Crop injury, lack of effectiveness, or illegal pesticide residues in the crop may result from non-uniform distribution of treated water.</p> <p>If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.</p> <p>Maximum number of applications per year is 1.</p>	75

**Chemigation:** Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the label prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

**Solid Set System:** Apply specified dosage for the entire length of the irrigation period or for a 30 to 60 minute period at the end of a regular irrigation set or as a 30 to 60 minute injection as a separate application not associated with a regular irrigation. Allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water. To ensure the lines are flushed and free of remaining pesticide, a dye indicator may be injected into the lines to mark the end of the application period. See NOTE.

**Center Pivot Systems:** Inject the specified dosage per acre continuously for one complete revolution of the system. See NOTE.

**NOTE:** Constant agitation must be maintained in the chemical supply tank during the entire period of insecticide application. Inject the product with a positive displacement pump into the main line ahead of a right turn to ensure adequate mixing.

**Application of more than label-recommended quantities of irrigation water per acre may result in decreased product performance by removing the chemical from the zone of effectiveness.**

**HEAD LETTUCE - Crisphead Type Only**

**USE RESTRICTONS**

- Do not apply more than 2.2 lbs ORTHENE 90 S (2 lbs. ai) /A [insecticide in a Water Soluble Packet] per crop cycle.
- Do not feed trimmings to livestock or allow animals to graze on treated areas.
- AZ & CA, (desert areas): Do not apply after first head begins to form in crops which germinate from mid-September through November.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**TABLE 9 HEAD LETTUCE - Crisphead Type Only -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	DAYS TO HARVEST
<b>FOLIAR</b> By Ground: 10 to 60 gals./A of spray broadcast. By Air: Minimum of 5 gals./A of spray	Aster Leafhopper Green Peach Aphid	0.56 to 1.1 lbs. (8.96 to 17.6 oz.)	21  Spring, Summer and early Fall crops in all areas, Winter crops in Florida and Texas, late Fall crops in Arizona and Winter crops in Arizona and California.
	Armyworms (excluding Beet Armyworm) Cabbage Looper	1.1 lbs. (17.6 oz.)	



**MINT – Peppermint and Spearmint**

**USE PRECAUTION**

- Do not apply more than 2.2 lbs ORTHENE 90 S (2 lbs. ai) /A [insecticide in a Water Soluble Packet] per crop cycle.
- Do not graze treated areas.
- Do not feed spent mint hay to animals.

**TABLE 10 MINT - Peppermint and Spearmint -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<p><b>FOLIAR</b></p> <p><b>By Ground:</b> 20 to 100 gals./A of spray</p> <p><b>By Air:</b> 5 to 10 gals./A of spray</p>	<p>Alfalfa Looper</p> <p>Aphids</p> <p>Cutworms</p>	<p>1.1 lbs.</p> <p>(17.6 oz.)</p>	<p>Apply when eggs or insects first appear.</p> <p>Maximum number of applications per year is 2. The minimum application interval is 7 days</p>	<p>14</p>
<p><b>FOLIAR</b></p> <p><b>By Ground:</b> 40 to 100 gals./A of spray</p>	<p>Strawberry Root Weevil Adult</p> <p>Black Vine Weevil Adult</p>	<p>1.1 lbs.</p> <p>(17.6 oz.)</p>	<p>Strawberry Root and Black Vine Weevil:</p> <p>For control, apply in water in a minimum of 40 gals. spray per acre by ground. Good spray coverage and canopy spray penetration is critical for control. Increase spray volume and pressure with tall or dense mint canopy.</p> <p>Apply after adult emergence is complete but prior to egg laying. Apply at dusk or during the night on a warm still evening. Maximum number of applications per year is 2. The minimum application interval is 7 days.</p>	<p>14</p>

**NON-BEARING CITRUS**

**USE RESTRICTONS**

- Do not graze treated areas.
- DO NOT HARVEST citrus for one year after treatment.

**TABLE 11 NON-BEARING CITRUS -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS
<b>FOLIAR</b>  By Ground: 100 to 200 gals./A of spray.	Aphids Grasshoppers Katydid Mealybugs Orangedogs Plantbugs Thrips Whiteflies (except Sweetpotato/Silverleaf Whiteflies)	0.56 lb. (8.96 oz.)	For repeat applications use a minimum spray interval of 7 days.
	Citrus Blackfly*	0.56 to 0.8 lb. (8.96 to 12.8 oz.)	Apply when eggs or insects first appear.  Use the high rate when a heavy infestation is present.  For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.
	Ants (excluding Fire, Harvester, Carpenter and Pharaoh Ants)	0.8 lb. (12.8 oz.)	For repeat applications use a minimum spray interval of 7 days.
Spray individual juvenile or non-bearing trees for coverage with total application not to exceed specified rate in lbs. per acre. Length of residual activity will depend upon spray coverage and the amount of moisture following application.			
<b>SOIL MOUND TREATMENT</b>  <b>DRENCH METHOD</b>	Ants Including Fire Ants and Harvester Ants*	Mix one 2.5 lbs water soluble packet in 250 gals of water	Apply 1 gal. of mix to each mound area by sprinkling the mound until it is wet and treat a 4 ft. diameter circle around the mound.  For best results apply the material in the early morning or late afternoon when the ants are most active.  Applications made under prolonged hot and dry conditions may be ineffective due to the location of the ants deep within the nest.

\*Not register in CA for control of Citrus Blackfly and Harvester Ant.

**NON-CROP AREAS**  
**Field Borders, Fencerows, Roadsides, Ditchbanks, Borrow Pits**

**USE RESTRICTONS**

- Do not graze or feed vegetation cut from treated areas.

**TABLE 12 NON-CROP AREAS - Field borders, Fencerows, Roadsides, Ditchbanks, Borrow Pits**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 20 gals./A of spray  <b>By Air:</b> 1 to 5 gals./A of spray (minimum of 5 gals./A in CA)	Grasshoppers	0.28 lb. (4.48 oz.)	For early to mid-season application.  Use the higher volumes when spraying dense foliage.  An approved drift retardant may be added to aid in controlling drift and reducing evaporation of aerial sprays.

**NON-CROP AREAS - Wasteland**

**USE RESTRICTONS**

- Do not make more than one application per season.
- Do not graze or feed vegetation cut from treated areas.

**TABLE 13 NON-CROP AREAS - Wasteland -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 20 gals./A of spray  <b>By Air:</b> 1/2 gal./A of spray (minimum of 5 gals./A in CA)	Black Grass Bugs Grasshoppers Mormon Crickets	1.6 to 2.2 oz.	Use the higher volumes when spraying dense foliage.  An approved drift retardant may be added to aid in controlling drift and reducing evaporation of aerial sprays.

**PEANUTS**

**USE RESTRICTITONS**

- Do not feed treated forage or hay to livestock.
- Do not allow animals to graze on treated areas.
- Do not apply more than 4.4 lbs ORTHENE 90 S (4.0 lbs. ai) /A [insecticide in a Water Soluble Packet] per crop cycle. This includes the use of ORTHENE 90 S on peanuts as a foliar spray in addition to the peanut planterbox seed treatment use.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**TABLE 14 PEANUTS -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 10 to 50 gals./A of spray  <b>By Air:</b> 5 to 10 gals./A of spray	Grasshoppers	0.28 to 0.56 lb. (4.48 to 8.96 oz.)	<p>Apply when eggs or insects first appear.</p> <p>ORTHENE can be tank mixed with registered at-cracking and early post-emergence peanut herbicides, provided those products do not prohibit tank mixes, provided the most restrictive of label limitations and precautions are observed, and provided no label dosage rates are exceeded.</p>	14 (of digging)
	Thrips	0.4 to 0.8 lb. (6.4 to 12.8 oz.)	<p>To determine physical compatibility, pour the recommended proportions of each chemical with the same proportion of water as will be present in the chemical supply tank into a suitable container, mix thoroughly and allow to stand for 5 minutes. If the combination remains mixed, or can be remixed readily, the mixture is considered physically compatible. When mixing wettable powder or dry flowable formulations, add and disperse these first, then add liquid pesticides. Conduct another compatibility test at concentrations which will be present in the irrigation lines. If there is any separation which cannot be remixed readily, AMVAC recommends that the combination not be used.</p>	
	Corn Earworm Fall Armyworm Leafhoppers Loopers Velvetbean Caterpillar	0.8 to 1.1 lbs. (12.8 to 17.6 oz.)	<p>Combinations should be kept agitated and should be applied immediately. Do not allow combinations to set for prolonged periods in the chemical supply tank or irrigation lines</p>	

**PEPPERS - Bell**

**USE RESTRICTITONS**

- Do not apply more than 2.2 lbs ORTHENE 90 S (2 lbs. ai) /A [insecticide in a Water Soluble Bag] per crop cycle.
- For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

**TABLE 15 PEPPERS - Bell -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 25 to 150 gals./A of spray  <b>By Air:</b> Minimum of 3 gals./A of spray (minimum of 5 gals./A in CA)	Grasshoppers	0.28 to 0.56 lb. (4.48 to 8.96 oz.)	Apply when eggs or insects first appear.	7
	Cabbage Looper Green Peach Aphid Tobacco Hornworm	0.56 to 1.1 lbs. (8.96 to 17.6 oz.)		
	European Corn Borer	0.8 to 1.1 lbs. (12.8 to 17.6 oz.)		

**PEPPERS - Non-Bell**

**FOR USE ONLY IN STATES EAST OF THE MISSISSIPPI RIVER AND IN PUERTO RICO.**

**USE RESTRICTITONS**

- Do not apply more than 1.1 lbs ORTHENE 90 S (1 lbs. ai) /A [insecticide in a Water Soluble Bag] per crop cycle.
- For repeat applications use a minimum spray interval of 3 days.

**TABLE 16 PEPPERS - Non-Bell -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b>  <b>By Ground:</b> 40 to 150 gals./A of spray	Aphids	0.56 lb. (8.96 oz.)		7

**SOYBEANS**

**USE RESTRICTITONS**

- Do not graze or cut vines for hay or forage.
- Do not apply more than 1.66 lbs ORTHENE 90 S (1.5 lbs. ai/A) /A of per season.
- Do not apply ORTHENE 90 S within 14 days of harvest.
- For rates up to 0.56 lb./A, at least 3 days must pass between applications of ORTHENE 90 S
- For rates between 0.56 lb./A and 1.1 lbs./A, at least 7 days must pass between applications of ORTHENE 90 S.
- Always read and follow all label directions, restrictions and precautions when using any pesticide alone or in tank mix combinations. The most restrictive labeling applies when using a tank mix.

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
<b>FOLIAR</b> By Air: 5 to 10 gals./A of spray  By Ground: 10 to 50 gals./A of spray	Grasshopper Thrips	0.28 to 0.56 lb.	Repeat treatment as necessary to maintain control.	14
	Potato Leafhopper Stink Bugs	0.56 to 1.1 lbs.		
	Armyworms (except Beet) Bean Leaf Beetle Cabbage Looper Green Cloverworm Mexican Bean Beetle Soybean Aphid Threecornered Alfalfa Hopper Velvetbean Caterpillar	0.83 to 1.1 lbs.		

**TOBACCO  
(Except CA)**

**USE RESTRICTITONS**

- Do not apply more than 4.4 lbs ORTHENE 90 S. (4 lbs. ai) /A [insecticide in a Water Soluble Packet] per crop cycle. This includes the use of ORTHENE 90 S in transplant water, plant bed; soil, float bed (greenhouse), and foliar applications.
- Make transplant-water applications using mechanical transplant equipment only. Using such equipment, the insecticide/water mixture is mechanically applied directly into the soil along with the transplanted plants.

**TABLE 17 TOBACCO (Except CA) -**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
FLOATBED <b>FOLIAGE</b>	Cutworm Flea Beetle Green Peach Aphid Tobacco Aphid	0.8 lb. (12.8 oz.) Mix one 2.5 lb water soluble packet in 408 gals of water using 3 gals of mixture per 1,000 sq ft of floatbed.	Apply evenly to ensure thorough coverage.  NOTE: Floatbed water should be disposed of in the transplanted field as transplanter water or foliar spray.  For repeat applications, use a minimum spray interval of 7 days.	
PLANT BED <b>FOLIAGE</b>	Cutworm Flea Beetle Green Peach Aphid Tobacco Aphid	0.8 lb. (12.8 oz.) Mix one 2.5 lb water soluble packet in 136 gals of water using 1 gal of mixture per 1,000 sq ft of plantbed.	Apply evenly to ensure thorough coverage.  For repeat applications, use a minimum spray interval of 7 days.	
<b>TRANSPLANT</b>	Cutworms Flea Beetle Green Peach Aphid Potato Tuberworm Tobacco Aphid Tobacco Thrips	0.8 lb. (12.8 oz.) Mix one 2.5 lb water soluble packet in 313 gals of water using 100 gals of transplant water per acre.	Provides control for approximately 3 to 4 weeks after transplanting.  For control late in the season, apply foliar sprays of ORTHENE 90 S. Maximum number of applications per year is 1.	

**USE RESTRICTITONS:**

Do not apply more than 0.8 lb./A ORTHENE 90 S as a transplant-water application as some phytotoxicity may occur.

<b>FOLIAR</b>  <b>By Ground:</b> 10 to 50 gals./A of spray  <b>By Air:</b> Minimum of 3 gals./A of spray	Grasshoppers	0.28 to 0.56 lb. (4.48 to 8.96 oz.)	For repeat applications use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.	3
	Flea Beetle Green Peach Aphid Hornworm Tobacco Thrips	0.56 lb. (8.96 oz.)		
	Stinkbugs Tobacco Aphid Vegetable Weevils	0.56 to 0.8 lb. (8.96 to 12.8 oz.)		
	Budworm Cabbage Looper Cutworm Japanese Beetle	0.8 lb. (12.8 oz.)		

continued

**ORNAMENTAL TREES AND SHRUBS**

**TABLE 17 TOBACCO (Except CA) - continued**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S	REMARKS	DAYS TO HARVEST
<b>SOIL MOUND TREATMENT</b>				
<b>DRENCH METHOD</b>	Ants (excluding carpenter and pharaoh)	Mix one 2.5 lb water soluble packet in 250 gals of water.	Apply 1 gal. of mix to each mound area by sprinkling the mound until it is wet and treat a 4 ft. diameter circle around the mound.  Apply in the early morning or late afternoon, when the ants are most active, for best results.  Applications made under prolonged hot and dry conditions may be ineffective due to the location of the ants deep within the nest.	3
<b>USE RESTRICTONS:</b> Treat a maximum of 13 mounds per acre. Do not treat more than once per crop cycle.				

**CONTAINER GROWN NURSERY STOCK**

PLANTS	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER 100 GALS.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Container Grown Nursery Stock (Arborvitae, Azalea, Camellia, Rhododendron, Roses, Viburnum, Yew)	Black Vine Weevil Strawberry Root Weevil	0.8 lb (12.8 oz) Mix one 2.5 lb water soluble packet in 313 gals of water.	Application should be made by mid-September for greenhouse stock and by mid-October for outdoor stock. Consult your local county extension agent for information on the identification and control of root weevils on ornamentals.	Apply the specified amount of ORTHENE 90 S per 100 gals. of solution so as to thoroughly drench the root system. For repeated applications use a minimum spray interval of 7 days.
	Ants (excluding Fire, Harvester, Carpenter and Pharaoh Ants)	0.8 lb (12.8 oz) Mix one 2.5 lb water soluble packet in 313 gals of water.	Apply as needed to control the pest.	



**USE RESTRICTITONS**

- Do not exceed 17.6 oz./A of ORTHENE 90 S [insecticide in a Water Soluble Packet] per 100 gals. water per application.
- For foliar applications, do not apply with a low pressure handwand.
- Foliar applications for all trees except Flowering Crabapples and Douglas Fir must not be made more than once every 14 days. See "Further Use Instructions" for spray interval information regarding Flowering Crabapples and Douglas Fir.
- For repeat applications use a minimum spray interval of 3 days. For rates greater than 0.5 lb ai/A (0.56 lb Orthene 90 S/A) the minimum application interval is 7 days.

PLANTS	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER 100 GALS.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Trees and Shrubs (except Flowering Crabapple and Douglas fir, see below).	Aphids Bagworms Birch Leafminer Tent Caterpillars* Lace Bugs Leafrollers	0.28 lb. (4.5 oz.)	As the insects begin to appear.	Apply the specified amount of ORTHENE 90 S in 100 gals. water with a hydraulic sprayer. The addition of a suitable sticker improves control of Gypsy Moth larvae.
	Gypsy Moth Larvae* Webworms	0.56 lb (8.9 oz.)	As the insects begin to appear.	*Mist blower application. Adjust rates to 1.1 lbs. per 100 gals. water for Gypsy Moth control and 1.0 lb. per 100 gals. water for Tent Caterpillar control.
	Scales (Crawlers)	0.56 lb (8.9 oz.)	As crawlers begin to appear. Repeat applications, at a 2 week or more interval, may be necessary where there is continuous crawler production.	Do not apply to Huckleberry, Balm of Gilead, Cottonwood, Lombardy Poplar and Viburnum suspensum.  Nursery crops. Before treating large plantings, spray only a few plants and observe 2 weeks for phytotoxicity.
	Ponderosa Pine Needle Miner	0.56 lb (8.9 oz.)	Time of application is important. Consult you Farm Advisor or County Extension Agent.	Apply the specified amount of ORTHENE 90 S in 100 gals. Water with a hydraulic sprayer as a full coverage spray.
	Grasshoppers	0.56 lb (8.9 oz.)	As the grasshoppers begin to appear.	
	California Oakworm Cankerworm (Spring and Fall)	0.28 to .056 lb. (4.5 to 8.9 oz.)	As the insects begin to appear. Use the higher amount when the larger larvae are present.	Apply the specified amount of ORTHENE 90 S in 100 gals. water with a hydraulic sprayer.
	Nantucket Pine Tip Moth Larvae	0.8 lb. (12.8 oz.)	Time of application is important. Consult your Farm Advisor or County Extension Agent. Repeat applications will be required for subsequent generations.	
	Root Weevil Adults	0.8 lb. (12.8 oz.)	Apply when first feeding damage occurs. Repeat applications, at 4 week intervals until the first heavy frost, may be necessary for complete foliage protection.	Apply the specified amount of ORTHENE 90 S in 100 gals. water with a hydraulic sprayer as a full coverage spray.
	Box Elder Bugs Sawflies Budworms Leafhoppers	0.8 lb. (12.8 oz.)		
	Japanese Beetle	1.1 lb. (17.6 oz.)	As the Japanese Beetles begin to appear. Repeat applications, at 2 week intervals, may be necessary.	
Elf Leaf Beetle (larvae)	1.1 lb. (17.6 oz.)	As the larvae begin to appear. ORTHENE will not prevent Elm Leaf Beetle eggs from hatching.		

## ORNAMENTAL TREES AND SHRUBS continued

PLANTS	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER 100 GALS.	TIME OF APPLICATION	RECOMMENDED APPLICATION
Douglas Fir (Christmas Trees)	Douglas Fir Needle Midge Douglas Fir Tussock Moth	0.56 lb. (8.9 oz.)	Application should be made no more than 2 weeks prior to bud burst. For additional pest management information, consult your County Extension Service.	Apply the specified amount of ORTHENE 90 S in not less than 2 gals. of spray per acre by air or in 100 gals. of spray per acre by ground. Do not make more than 1 application per season.
Flowering Crabapples	Aphids Tent Caterpillar Leafroller	0.28 lb. (4.5 oz.)	As the insects begin to appear.	Apply the specified amount of ORTHENE 90 S in 100 gals. water with a hydraulic sprayer.  Do not apply more often than 3 times in a growing season at a 4 week interval.  <b>Caution:</b> Phytotoxicity has occurred on the following Crabapple varieties: Hopa, Ichonoski, Malusfloribunda, Pink Perfection, Red Wine and Snow Cloud.

**GOLF COURSE TURFGRASS**

**USE RESTRICTONS**

- Do not allow livestock to graze treated areas.
- Do not feed treated grass to livestock.
- Do not apply to turfgrass by air.
- Do not apply more than 4.4 lbs ORTHENE 90 S. (4.0 lbs. ai) /A [insecticide in a Water Soluble Packet] to Golf Courses.
- For repeat applications, use a minimum spray interval of 3 days for application rates up to and including 0.56 lb./A and a minimum of 7 days for rates exceeding 0.56 lb./A.

PLANT	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER 1000 SQ. FT.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Golf Course Turfgrass	Cutworm Fall Armyworm Southern Armyworm Yellow Striped Armyworm	0.4 to 1.0 oz. (1.1 to 2.7 lbs./A)	As the insects appear. A repeat application at 2 week intervals may be necessary.	Apply the specified amount of ORTHENE 90 S per 1,000 sq. ft. Use a minimum of 5 gals. water per 1,000 sq. ft. to obtain good coverage.
	Chinch Bugs	0.4 to 1.6 oz. (1.1 to 4.4 lbs./A)	Apply as needed for adult population knockdown (10 to 14 days).	
	Sod Webworm	0.4 to 0.83 oz. (1.1 to 2.3 lbs./A)	As sod webworms begin to appear. Use the higher amount when quick knockdown is needed or with heavy infestations.  Repeat application may be necessary. Do not repeat at more than 1 week intervals.	
	Leafhopper	0.83 oz. (2.3 lbs./A)	As the leafhoppers begin to appear. A repeat application at 1 week intervals may be necessary.	

Continued

**GOLFCOURSE TURFGRASS - continued**

PLANT	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER 1000 SQ. FT.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Golf Course Turfgrass	Mole Cricket (except CA) Spittlebug (except CA)	0.83 to 1.6 oz. (2.3 to 4.4 lbs./A)	As mole crickets begin to appear. For knockdown of existing populations, more than 1 application may be required throughout the growing season. For heavy infestations, use the higher dosage rate.	Apply the specified amount of ORTHENE 90 S per 1,000 sq. ft. Use 1 to 15 gals. water per 1,000 sq. ft. to obtain good coverage.  Apply during late afternoon or early evening hours and after an irrigation. Do not irrigate after application.  The use of a lemon fragrance substance in the spray mix may enhance control by acting as a flushing agent and thus provide increased mole cricket contact with the ORTHENE 90 S. The following lemon-scented products have been shown to be effective flushing agents: Lemon Joy, Lemon Palmolive and Mighty Myrt Products Manufacture- Base Pure Lemon Fragrance. The use rate for these lemon-scented products is 2 tsps. per gal. of water for small total mix volumes or 6 fl. oz. per 50 gals. of water for large total mix volumes.
	Greenbug ( <i>Schizaphis graminum</i> ) Grasshopper	0.4 oz. (1.1 lbs./A)	Apply when insects or their damage first appears. Repeat as necessary. Application is not to be repeated at more than 1 week intervals.	Apply the specified amount of ORTHENE 90 S. Use 4 gals. of water per 1,000 sq. ft. to obtain good coverage. Do not mow turfgrass for at least 24 hours after application.
	Black Turfgrass Ataenius (except CA)	1.25 to 1.6 oz (3.4 to 4.4 lbs./A)	Apply when insects or their damage first appear.	Apply the specified amount of ORTHENE 90 S per 1,000 sq. ft. Use a minimum of 5 gals. water per 1000 sq. ft. Irrigate lightly after application (not more than 1/2 inch). Use the higher rate for severe infestations.

**SOD FARM TURFGRASS**

**USE RESTRICTONS**

- Do not allow livestock to graze treated areas.
- Do not feed treated grass to livestock.
- Do not apply to turfgrass by air.
- Do not apply more than 3.3 lbs ORTHENE 90 S (3.0 lbs. ai./A) [insecticide in a Water Soluble Packet] to Sod Farms.
- Allow at least 3 days between last application and harvesting of sod.

PLANT	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER 1000 SQ. FT.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Sod Farm Turfgrass	Cutworm Fall Armyworm Grasshoppers Greenbug Leafhopper Sod Webworm Southern Armyworm Yellow Striped Armyworm	0.4 to 1.0 oz. (1.1 to 2.7 lbs./A)	As the insects appear. A repeat application at 2 week intervals may be necessary.	Apply the specified amount of ORTHENE 90 S per 1,000 sq. ft. Use a minimum of 5 gals. water per 1,000 sq. ft. to obtain good coverage. Do not apply more than 4 lbs./A in a single application.
	Chinch Bugs Mole Cricket (except CA) Spittlebug (except CA)	1.0 to 1.2 oz. (2.7 to 3.3 lbs./A)	Apply as needed for adult population knockdown (10 to 14 days).	Apply the specified amount of ORTHENE 90 S per 1,000 sq. ft. Use 1 to 15 gals. water per 1,000 sq. ft. to obtain good coverage. Do not apply more than 3.3 lbs./A in a single application.
	Sod Webworm	0.4 to 0.83 oz. (1.1 to 2.3 lbs./A)	As sod webworms begin to appear. Use the higher amount when quick knockdown is needed or with heavy infestations.  Repeat application may be necessary. Do not repeat at more than 1 week intervals.	

**MOUND TREATMENT OF FIRE ANTS AND HARVESTER ANTS IN TURFGRASS**

**USE RESTRICTONS**

PLANT	PESTS CONTROLLED	AMOUNT ORTHENE 90 S	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Turfgrass  Residential, Recreational, and Commercial Turf	Imported Fire Ants and Harvester Ants	<b>Drench Method:</b> Mix one 2.5 lbs water soluble packet in 250 gals of water.  Apply 1 gal. of mix to each mound area by sprinkling the mound until it is wet and treat a 4 ft. diameter circle around the mound.	For best results apply the material in the early morning or late afternoon when the ants are most active.  Applications made under prolonged hot and dry conditions may be ineffective due to the location of the ants deep within the nest.	Apply the specified amount of ORTHENE 90 S as directed.  Grass in treated areas may be injured.  Do not treat mound more than once per season.

## OUTDOOR AND PERIMETER SPRAY

### USE RESTRICTITONS

- Do not apply with a low pressure handwand.
- Do not use on residential turfgrass.

LOCATION	PESTS CONTROLLED	AMOUNT ORTHENE 90 S PER GALLON	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Outdoor and Perimeter Area.	Wasp	1.3 oz. (0.08 lb.) Mix one 2.5 lb water soluble packet in 31.25 gals of water.	Treat early or late in the day, as wasp are generally less active during these times.	Apply specified amount of ORTHENE 90 S per each gallon of water used. Apply as a spot treatment to the nest, nest entrance, and surrounding areas where the wasps alight.
	Ants (excluding Fire Ants, Harvester Ants, Carpenter Ants and Pharaoh Ants) Crickets Cockroaches Earwigs Pillbugs	1.3 oz. (0.08 lb.) Mix one 2.5 lb water soluble packet in 31.25 gals of water.	As the insects appear.	ORTHENE 90S applications do not provide long-term control. Repeat application as needed.  Apply specified amount of ORTHENE 90 S per each gallon of water used.  Apply to a band of soil 6 to 10 ft. adjacent to the structure and to a height of 2 to 3 ft. on the foundation where pests may be active or may find entrance. Also apply as a residual spray or with a paint brush to surfaces of buildings, window frames, shutters, entryways, screens, eaves, patios, garages, carports, around garage areas and other areas where these pests congregate.

## ORNAMENTAL PLANTS GROWN FOR CUT FLOWER PRODUCTION

### USE RESTRICTITONS

- Do not apply more than 8.9 oz (0.56 lb/A) of ORTHENE 90 S [insecticide in a Water Soluble Bag] per 100 gals. of water.
- Do not make more than one (1) application per crop season.

PLANTS	PESTS CONTROLLED	AMOUNT ORTHENE 90 S per 100 gals.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Chrysanthemums Daises Gladioli Roses	Aphids Lygus Thrips	0.56 lb (8.9 oz)	As insects begin to appear.	Apply the specified amount of ORTHENE 90 S in 100 gals. of water with a hydraulic sprayer as a full coverage spray.

**GREENHOUSE (Commercial Only) AND OUTDOOR ORNAMENTAL PLANTS,  
FLORAL CROPS, GROUND COVERS AND FOLIAGE PLANT CROPS  
(Plants Not Produced for Cut Flower Production)**

**USE RESTRICTITONS**

- Do not apply more than 1.1 lbs ORTHENE 90 S (17.8 oz./A) /A [insecticide in a Water Soluble Packet] per 100 gals. of water.
- Do not apply with low pressure handwand.
- For repeat applications, use a minimum spray interval of 3 days for application rates up to and including 0.5 lb./A and a minimum of 7 days for rates exceeding 0.5 lb./A.
- Not for residential greenhouse use.

PLANTS	INSECTS CONTROLLED	AMOUNT ORTHENE 90 S PER 100 GALS.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Chrysanthemums	Aphids Thrips	0.56 lb. (8.9 oz.)	As Aphids begin to appear.  As thrips begin to appear or at the tight flower bud stage. Repeat applications may be necessary.	Apply the specified amount of ORTHENE 90 S in 100 gals. water with a hydraulic sprayer as a full coverage spray.  Application to Chrysanthemums more often than once every 28 days may result in phytotoxicity.  <b>Caution:</b> Phytotoxicity has occurred on the following Chrysanthemum varieties: Albatross, Bonnie Jean, Dixie, Garland, Gem, Iceberg, Pride, Showoff, Statesman, Tally Ho, Westward Ho and Wild Honey.  Before treating large Chrysanthemum plantings, spray only a few plants and observe 2 weeks for varietal phytotoxicity. Valent does not recommend that application be made to Chrysanthemums with open flowers.

Continued

**GREENHOUSE (Commercial Only) AND OUTDOOR ORNAMENTAL PLANTS, FLORAL CROPS, GROUND COVERS AND FOLIAGE PLANT CROPS (Plants Not Produced for Cut Flower Production) continued**

PLANTS	INSECTS CONTROLLED	AMOUNT ORTHENE 90 S PER 100 GALS.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Dahlias Daisies Easter Lily Gladioli Gypsophila Pachysandra Pansy Peony Sedum Statice Strawflower Yarrow Zinnia Foliage Plants Anthuriums Cacti Orchids Poinsettia	Aphids	0.28 to 0.56 lb. (4.5 to 8.9 oz.)	As aphids begin to appear.	Apply the specified amount of ORTHENE 90 S in 100 gals. of water with a hydraulic sprayer as a full coverage spray. DO NOT EXCEED 17.8 OZ. OF ORTHENE 90 S PER ACRE. The addition of a wetting agent may be required on difficult to wet foliage  <b>Caution:</b> Phytotoxicity has occurred on the following foliage plants: <i>Bletchum gibbum</i> , <i>Cissus antarctica</i> , <i>Ficus triangularis</i> , <i>Fittonia verschaffelti</i> , <i>Maranta leuconeura kerchoviana</i> , <i>Pachystachya lutea</i> , <i>Plectranthus australis</i> , <i>Polypodium aureus</i> , <i>Polystichum</i> , <i>Pteris ensiformis</i> , <i>Tolmiea menziesii</i> . Before treating large plantings spray only a few plants and observe 2 weeks for varietal phytotoxicity.  Application of ORTHENE 90 S on Poinsettias after bract formation may result in phytotoxicity on certain varieties.
	Mealybugs Thrips Whiteflies	0.56 lb. (8.9 oz.)	As the insects begin to appear. A repeat application, at a 2 week interval, may be necessary for control of mealybugs and whiteflies.	
	Scales (Crawlers)	0.56 lb. (8.9 oz.)	As crawlers begin to appear. Repeat applications, at a 2 week or more interval, may be necessary where there is continuous crawler production	



**GREENHOUSE (Commercial Only) AND OUTDOOR ORNAMENTAL PLANTS, FLORAL CROPS, GROUND COVERS AND FOLIAGE PLANT CROPS (Plants Not Produced for Cut Flower Production) continued**

PLANTS	INSECTS CONTROLLED	AMOUNT ORTHENE 90 S PER 100 GALS.	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Dahlias Daisies Easter Lily Gladioli Gypsophila Pachysandra Pansy Peony Sedum Statice Strawflower Yarrow Zinnia Foliage Plants Anthuriums Cacti Orchids Poinsettia	Sweetpotato Whiteflies (except CA)	0.28 lb. (4.5 oz.)  +  TAME® 2.4 EC Spray 10 2/3 fl. oz. (0.2 lb. ai)	Apply when insects first appear. If a population is well established, make 1 applicatioin of the tank mix and follow 5 to 7 days later with TAME 2.4 EC spray alone at 16 fl. oz. per 100 gals. water. See TAME 2.4 EC spray label for instructions.	For sweet potato whitefly control: Apply the specified amount of ORTHENE 90 S (do not exceed 17.8 oz. of product per acre) plus TAME 2.4 EC spray as a tank mix at a volume necessary to obtain good coverage. Follow the TAME 2.4 EC label for specific instructions on the alternation of TAME 2.4 EC plus ORTHENE 90 S and TAME 2.4 EC alone and the rotation instructions to avoid potential resistance.
Roses	Aphids Leafrollers Thrips	0.56 to 0.8 lb. (8.96 to 12.8 oz.)	As leafrollers begin to appear. Use the higher amount when the large larvae are present.	Apply the specified amount of ORTHENE 90 S in 100 gals. water with a hydraulic sprayer as a full coverage spray.  Valent does not recommend that application be made to roses with open flowers.

**STORAGE AND DISPOSAL**

**Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment**

**PESTICIDE STORAGE**

- Keep pesticide in original container.
- Do not put concentrate or dilute into food or drink containers.
- Store in cool, dry place. Protect from excessive heat.
- Do not contaminate food or foodstuffs.
- Do not store or transport near feed or food.
- Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.
- For help with any spill, leak, fire or exposure involving this material, call day or night 1-800-892-0099.

**PESTICIDE DISPOSAL**

**To avoid wastes, use all materials in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).**

**CONTAINER DISPOSAL**

- Outer Bag [For multiple packaging]: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or dispose of the empty outer bag in the trash as long as WSP is unbroken.
- Packet [For single packaging]: Offer for recycling if available or dispose of the empty packet in the trash as long as WSP is unbroken.

**LIMITED WARRANTY AND DISCLAIMER**

The manufacturer warrants (a) that this product conforms to the chemical description on the label; (b) that this product is reasonably fit for the purposes set forth in the directions for use, subject to the inherent risks referred to herein, when it is used in accordance with such directions; and (c) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions.

**THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH HEREIN. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR REPRESENTATIVE, TO MAKE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF QUALITY OR PERFORMANCE. THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSS OR DAMAGE WHICH RESULTS FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS OR CAUTIONS.**

**TO THE EXTENT CONSISTENT WITH APPLICABLE LAW BUYER'S EXCLUSIVE REMEDY AND MANUFACTURER'S OR SELLER'S EXCLUSIVE LIABILITY FOR ANY AND ALL CLAIMS, LOSSES, DAMAGES, OR INJURIES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER OR NOT BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY IN TORT OR OTHERWISE, SHALL BE LIMITED, AT THE MANUFACTURER'S OPTION, TO REPLACEMENT OF, OR THE REPAYMENT OF THE PURCHASE PRICE FOR, THE QUANTITY OF PRODUCT WITH RESPECT TO WHICH DAMAGES ARE CLAIMED. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW MANUFACTURER OR SELLER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.**

AMVAC offers this product, and Buyer accepts it, subject to the foregoing Limited Warranty which may

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be varied only by agreement in writing signed by an authorized representative of AMVAC.

AMMO<sup>®</sup> - Reg. TM of FMC Corporation for cypermethrin insecticide.

ASANA<sup>®</sup> - Reg. TM of E. I. du Pont de Nemours & Co., Inc. for esfenvalerate insecticide.

BAYTHROID<sup>®</sup> - Reg. TM of Bayer Corporation for cyfluthrin synthetic pyrethroid.

CAPTURE<sup>®</sup> - Reg. TM of FMC Corporation for bifenthrin insecticide miticide.

DANITOL<sup>®</sup> - Reg. TM of Sumitomo Chemical Company, LTD for fenpropathrin insecticide-miticide.

DEADHATCH<sup>®</sup> - Reg. TM of Valent U.S.A. Corporation.

KARATE<sup>®</sup> - Reg. TM of Syngenta for lambda-cyhalothrin insecticide.

LORSBAN<sup>®</sup> - Reg. TM of Dow AgroSciences LLC for chlorpyrifos insecticide.

ORTHENE<sup>®</sup> - Reg. TM of OMS Investments, Inc. for acephate insecticide.

SCOUT X-TRA<sup>®</sup> - Reg. TM of Hoechst-Roussel Agri-Vet Co. for tralomethrin pyrethroid insecticide.

TAME<sup>®</sup> - Reg. TM of Valent U.S.A. Corporation

AMVAC Chemical Corporation  
4100 E. Washington Boulevard  
Los Angeles, CA 90023 U.S.A.  
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**[Sub-Label 2]  
Orthene 90 S  
[SOLUBLE POWDER INSECTICIDE FOR HOPPER BOX AND ANT TREATMENT USES]**

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# ORTHENE® 90 S

[SOLUBLE POWDER INSECTICIDE FOR HOPPER BOX AND ANT TREATMENT USES]

Active Ingredient	By Weight
*Acephate.....	90.0%
Inert Ingredients.....	10.0%
Total.....	100.0%

\*O,S-Dimethyl acetylphosphoramidothioate

## KEEP OUT OF REACH OF CHILDREN CAUTION

<b>FIRST AID</b>	
<b>Acephate is an organophosphate, cholinesterase inhibitor.</b>	
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>EMERGENCY INFORMATION</b>	
<p><b>Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</b></p> <p>FOR THE FOLLOWING EMERGENCIES, PHONE 24 HOURS A DAY:</p> <p><b>For Medical Emergencies phone:</b>.....1-888-681-4261</p> <p>For Transportation Emergencies, including spill, leak or fire, phone: CHEM.....1-800-424-9300</p> <p>For Product Use Information phone : AMVAC.....1-888-462-6822</p>	
<b>NOTE TO PHYSICIAN</b>	
<p>This material contains a cholinesterase inhibitor. Measurement of blood cholinesterase activity may be useful in monitoring exposure but decisions regarding treatment will usually need to be made before test results are available. If signs of cholinesterase inhibition appear, atropine sulfate is antidotal. 2-PAM (PROTOPAM) is also antidotal and may be used in conjunction with atropine but should not be used alone.</p>	

SEE SIDE/BACK PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND DIRECTIONS FOR USE.

EPA Reg. No. 5481-8974  
EPA Est. No.

Net Contents:  
As Marked on Container



**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS & DOMESTIC ANIMALS**

**CAUTION**

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes, skin and clothing.

**PERSONAL PROTECTIVE EQUIPMENT (PPE):**

Some materials that are chemical-resistant to this product are butyl rubber, nitrile rubber, or neoprene. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

**Mixers, Loaders, Applicators and Other Handlers must wear:**

- Long sleeved shirt and long pants
- Chemical-resistant gloves
- Socks plus shoes.

**In addition, Applicators using low pressure hand wand application equipment must wear:** A NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approved number prefix TC-21C or a NIOSH-approved respirator with any N, R, P or HE filter.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. As soon as possible, wash thoroughly and change into clean clothing.

**USER SAFETY REQUIREMENTS**

Users should:

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

**ENVIRONMENTAL HAZARDS:**

This pesticide is toxic to birds. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters. Cover or soil-incorporate spills.

Exposed treated seed may be hazardous to birds and other wildlife. Dispose of all excess treated seed and seed packaging by burial away from bodies of water.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

This product and its degradate are highly toxic to bees exposed to direct treatment 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.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

**READ ENTIRE LABEL. USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.**

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 interval. 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 24 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
- chemical resistant gloves made of any waterproof material
- shoes plus socks.

**NON-AGRICULTURAL USE REQUIREMENTS**

**Precautions and Restrictions**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Do not enter or allow others to enter until dusts have settled.

**TANK MIXES**

**NOTICE: Tank mixing or use of this product with any other product which is not specifically and expressly authorized by the label shall be the exclusive risk of user, applicator and/or application advisor.**

Read and follow the entire label of each product to be used in the tank mix with this product.

**USE INFORMATION**

ORTHENE 90 S a soluble powder is an insecticide for control of pests on selected agricultural crops and in certain non-crop areas. The active ingredient in ORTHENE 90 S is acephate, a water-soluble insecticide readily absorbed by plant roots and foliage to give systemic control of feeding insects. Insect pests are generally controlled more effectively by ORTHENE 90 S through ingestion than by contact. Application of ORTHENE 90 S to maintain control should be repeated only as directed.

**FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR INSECT CONTROL, CROP INJURY AND/OR ILLEGAL RESIDUES.**

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**COTTON**  
**[Soluble Powder Hopper Box Use]**

**USE RESTRICTONS**

- Do not use treated seed for food or feed purposes or process for oil.
- Do not feed gin trash to livestock.
- Do not allow animals to graze on treated areas.
- Do not apply more than 4.4 lbs ORTHENE 90 S (4 lbs. ai/A) per crop cycle. This includes all foliar spray, in-furrow application and seed treatment uses.
- ORTHENE 90 S cotton seed hopper box treatment is not permitted in Arizona, California and the Texas.

**COTTON –**

APPLICATION METHOD	PESTS CONTROLLED	RATES OF ORTHENE 90 S PER ACRE	REMARKS	DAYS TO HARVEST
Cotton Seed Hopper Box At-Planting Application	Black (Greasy) Cutworm Cotton Aphids Thrips (including Western Flower Thrips)	2.5 to 3.25 oz.	<p>Add dry ORTHENE 90 S to seed in the planter box to achieve an application rate of 2.5 to 3.25 oz./A</p> <p>Even coverage of seed is required for acceptable insect control. Plants grown from improperly treated seed may not exhibit insect control. To obtain even coverage, fill planter box 1/2 full of seed, add 1/2 of required ORTHENE 90 S and mix thoroughly. Add remainder of seed and ORTHENE 90 S to the hopper box and thoroughly mix.</p> <p>Improved distribution of ORTHENE 90 S on seed can be achieved by premixing both in a separate container and then transferring treated seed to hopper box.</p> <p>Use of ORTHENE 90 S with air planters is not recommended since loss of product will occur.</p>	At-Planting Application



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**PEANUTS**  
**[Soluble Powder Hopper Box Use]**

**USE RESTRICTITONS**

- Do not feed treated forage or hay to livestock.
- Do not allow animals to graze on treated areas.
- Do not apply more than 4.4 lbs ORTHENE 90 S. (4.0 lbs. ai) /A per crop cycle.

**PEANUTS –**

<b>CROP</b>	<b>PESTS CONTROLLED</b>	<b>RATE OF ORTHENE 90S PER 100 LBS. OF PEANUT SEED</b>	<b>FURTHER USE INSTRUCTIONS</b>
Planter Box Seed Treatment Application – Hopper Box	Thrips	3.5 oz.  Do not apply more than 3.5 oz. per acre.	Apply ORTHENE 90 S at a rate of 3.5 oz. per 100 lbs. of peanut seed in the planter box as a dry powder. Even coverage of seed is required for acceptable insect control.  MIXING: The following procedure for application of ORTHENE 90 S to peanut seed must be followed to ensure complete and adequate coverage:  STEP 1: Fill planter box 1/3 full of seed. Apply 1/3 of total amount of ORTHENE 90 S evenly over the surface of the peanuts.  STEP 2: Fill planter box 2/3 full of seed. Apply 1/3 of total amount of ORTHENE 90 S evenly over the surface of the peanuts.  STEP 3: Fill planter box with remaining seed. Apply 1/3 of total required amount of ORTHENE 90 S evenly over the surface of the peanuts.  DO NOT attempt to mix ORTHENE 90 S with the seed peanuts by stirring or other mechanical agitation. Such action will result in unacceptable damage to seed prior to planting.  Do not use treated seed for food or feed.

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**TOBACCO  
(Except CA)  
[Soluble Powder Ant Use]**

**USE RESTRICTONS**

- Do not apply more than 4.4 lbs ORTHENE 90 S (4 lbs. ai) /A per crop cycle. This includes the use of ORTHENE 90 S in transplant water, plant bed, soil float bed (greenhouse) and foliar applications.
- Treat a maximum of 13 mounds per acre.
- Do not treat more than once per season.

**TOBACCO (Except CA) –**

SOIL MOUND TREATMENT				DAYS TO HARVEST
<b>DRY METHOD</b>	Ants (excluding carpenter and pharaoh)	1 to 2 tsp.	Evenly distribute over the mound.  Apply in the early morning or late afternoon, when the ants are most active, for best results.  Applications made under prolonged hot and dry conditions may be ineffective due to the location of the ants deep within the nest.	3

**NON CROP AREAS  
[ANT MOUND TREATMENT]**

CROP	PESTS CONTROLLED	AMOUNT ORTHENE 90S	FURTHER USE INSTRUCTIONS
Non-Crop Areas	Fire Ants and Harvester Ants	<b>Mound Treatment – Drench Method:</b> Mix one 2.5 lb water soluble packet in 250 gals of water. Apply 1 gal. of mix to each mound area by sprinkling the mound until it is wet and treat a 4 ft. diameter circle around the mound.	For best results apply the material in the early morning or late afternoon when the ants are most active.  Applications made under prolonged hot and dry conditions may be ineffective due to the location of the ants deep within the nest.  Grass in treated area may be injured.  Do not treat mound more than once per season.

**MOUND TREATMENT OF FIRE ANTS AND HARVESTER ANTS IN TURFGRASS  
[Soluble Powder Ant Use]**

**USE RESTRICTONS**

- Do not apply to drift to food forage or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.

PLANTS	PESTS CONTROLLED	AMOUNT ORTHENE 90 S	TIME OF APPLICATION	FURTHER USE INSTRUCTIONS
Turfgrass Residential, Recreational and Commerical Turf	Imported Fire Ants and Harvester Ants	<b>Mound Treatment – Dry Method:</b> Evenly distribute 1 to 2 tsp. over the mound.	For best results apply the material in the early morning or late afternoon when the ants are most active.  Applications made under prolonged hot and dry conditions may be ineffective due to the location of the ants deep within the nest.	Apply the specified amount of ORTHENE 90 S as directed.  Grass in treated areas may be injured.  Do not treat mound more than once per season.

**STORAGE AND DISPOSAL**

**Do not contaminate water, food, or feed by storage, disposal or cleaning of equipment**

**PESTICIDE STORAGE**

- Keep pesticide in original container.
- Do not put concentrate or dilute into food or drink containers.
- Store in cool, dry place. Protect from excessive heat.
- Do not contaminate food or foodstuffs.
- Do not store or transport near feed or food.
- Do not contaminate water, food or feed by storage, disposal or cleaning of equipment.
- For help with any spill, leak, fire or exposure involving this material, call day or night **1-800-892-0099**.

**PESTICIDE DISPOSAL**

To avoid wastes, use all materials in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

**CONTAINER DISPOSAL**

- Outer Bag [For multiple packaging]: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available or dispose of the empty outer bag in the trash as long as WSP is unbroken.
- Packet [For single packaging]: Offer for recycling if available or dispose of the empty packet in the trash as long as WSP is unbroken.

(For Hopper Box Use)

Completely empty canister into application equipment. Do not reuse container. Dispose of empty canister in a sanitary landfill or by incineration.

LIMITED WARRANTY AND DISCLAIMER

The manufacturer warrants (a) that this product conforms to the chemical description on the label; (b) that this product is reasonably fit for the purposes set forth in the directions for use, subject to the inherent risks referred to herein, when it is used in accordance with such directions; and (c) that the directions, warnings, and other statements on this label are based upon responsible experts' evaluations of reasonable tests of effectiveness, of toxicity to laboratory animals and to plants and residues on food crops, and upon reports of field experience. Tests have not been made on all varieties of food crops and plants, or in all states or under all conditions.

**THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH HEREIN. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW THE MANUFACTURER NEITHER MAKES NOR INTENDS, NOR DOES IT AUTHORIZE ANY AGENT OR REPRESENTATIVE, TO MAKE ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, AND IT EXPRESSLY EXCLUDES AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF QUALITY OR PERFORMANCE. THIS WARRANTY DOES NOT EXTEND TO, AND THE BUYER SHALL BE SOLELY RESPONSIBLE FOR, ANY AND ALL LOSS OR DAMAGE WHICH RESULTS FROM THE USE OF THIS PRODUCT IN ANY MANNER WHICH IS INCONSISTENT WITH THE LABEL DIRECTIONS, WARNINGS OR CAUTIONS.**

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- AMMO® - Reg. TM of FMC Corporation for cypermethrin insecticide.
- ASANA® - Reg. TM of E. I. du Pont de Nemours & Co., Inc. for esfenvalerate insecticide.
- BAYTHROID® - Reg. TM of Bayer Corporation for cyfluthrin synthetic pyrethroid.
- CAPTURE® - Reg. TM of FMC Corporation for bifenthrin insecticide miticide.
- DANITOL® - Reg. TM of Sumitomo Chemical Company, LTD for fenpropathrin insecticide-miticide.
- DEADHATCH® - Reg. TM of Valent U.S.A. Corporation.
- KARATE® - Reg. TM of Syngenta for lambda-cyhalothrin insecticide.
- LORSBAN® - Reg. TM of Dow AgroSciences LLC for chlorpyrifos insecticide.
- ORTHENE® - Reg. TM of OMS Investments, Inc. for acephate insecticide.
- SCOUT X-TRA® - Reg. TM of Hoechst-Roussel Agri-Vet Co. for tralomethrin pyrethroid insecticide.
- TAME® - Reg. TM of Valent U.S.A. Corporation

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