

PM04

19713-49

9/23/99

AUG 23 1999
 SEP 23 1999
 Under the Federal Insecticide, Fungicide, and Herbicide Act as amended, for use products registered under EPA Reg. No. 19713-49

10/12



Carbaryl 4L

For Agricultural or Commercial Use Only

ACTIVE INGREDIENT:

Carbaryl (1-naphthyl N-methylcarbamate)	43.0%
OTHER INGREDIENTS:	<u>57.0%</u>
TOTAL:	100.0%

Contains 4 pounds Carbaryl per gallon.

KEEP OUT OF REACH OF CHILDREN

CAUTION

See Below for Practical Treatment (FIRST AID)

EPA Reg. No. 19713-49

EPA Est. No. 19713-TN-1

Net Contents: _____

PRACTICAL TREATMENT (FIRST AID)

Carbaryl is an N-methyl carbamate insecticide.

IF SWALLOWED: Never give anything by mouth to an unconscious or convulsing person. If conscious and not convulsing, drink 1 to 2 glasses of water and induce vomiting by touching back of throat with finger. Get medical attention.

IF IN EYES: Flush eyes with plenty of water. Get medical attention if irritation persists.

IF ON SKIN: Wash thoroughly with soap and water.

IF INHALED: Move from contaminated atmosphere and call a physician.

GENERAL: Contact a physician immediately in all cases of suspected poisoning. Transport to a physician or hospital immediately and SHOW A COPY OF THIS LABEL TO THE PHYSICIAN. If poisoning is suspected in animals, contact a veterinarian.

ANTIDOTE STATEMENT: Atropine sulfate is highly effective as an antidote. Narcotics and other sedatives should not be used. Further, drugs like 2-PAM (pyridine-2-aldoxime methiodide) are NOT recommended. See "Note to Physician".

NOTE TO PHYSICIAN: Treat symptomatically. Overexposure to materials other than this product may have occurred. Carbaryl is an N-methyl carbamate insecticide, which is a cholinesterase inhibitor. Overexposure to this substance may cause toxic signs and symptoms due to stimulation of the cholinergic nervous system. These effects of overexposure are spontaneously and rapidly reversible. Gastric lavage may be used if this product has been swallowed. Carbaryl poisoning may occur rapidly after ingestion and prompt removal of stomach contents is indicated.

Specific treatment consists of parenteral atropine sulfate. Caution should be maintained to prevent over atropinization. Improve tissue oxygenation as much as possible before administering atropine to minimize the risk of ventricular fibrillation. Mild cases may be given 1 to 2 mg intramuscularly every 10 minutes until full atropinization has been achieved and repeated thereafter whenever symptoms reappear. Severe cases should be given 2 to 4 mg intravenously every 10 minutes until fully atropinized, then intramuscularly every 30 to 60 minutes as needed to maintain the effect for at least 12 hours. Dosages for children should be appropriately reduced. Complete recovery from overexposure is to be expected within 24 hours.

Narcotics and other sedatives should not be used. Further, drugs like 2-PAM (pyridine-2-aldoxime methiodide) are NOT recommended. To aid in confirmation of a diagnosis, urine samples should be obtained within 24 hours of exposure and immediately frozen.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION: Harmful if swallowed, absorbed through skin, inhaled or if in eyes. Avoid breathing vapors or spray mist. Avoid contact with eyes, skin or clothing. Keep out of reach of children and domestic animals.

OVEREXPOSURE MAY CAUSE: Salivation, watery eyes, pinpoint eye pupils, blurred vision, muscle tremors, difficult breathing, excessive sweating, abdominal cramps, nausea, vomiting, diarrhea, weakness, headache. **IN SEVERE CASES, CONVULSION, UNCONSCIOUSNESS AND RESPIRATORY FAILURE MAY OCCUR. SIGNS AND SYMPTOMS MAY OCCUR RAPIDLY FOLLOWING OVEREXPOSURE TO THIS PRODUCT.**

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear: Long-sleeved shirt and long pants, chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), or viton, shoes plus socks and chemical-resistant headgear for overhead exposure.

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

When handlers used closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240 (d) 4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should: 1) Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. 2) Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS

This product is extremely toxic to aquatic and estuarine invertebrates. 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. Discharge from rice fields may kill aquatic and estuarine invertebrates. Do not apply when weather conditions favor drift from area treated. Do not contaminate water by cleaning equipment or disposal of wastes. Do not contaminate water when disposing of equipment washwaters.

BEE CAUTION: MAY KILL HONEYBEES IN SUBSTANTIAL NUMBERS. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. Contact you Cooperative Agricultural Extension Service for further information.



Manufactured By:

Drexel Chemical Company

P.O. BOX 13327, MEMPHIS, TN 38113-0327

STATE 1999

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read the entire label before using this product.

Strictly observe label directions and precautions. 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, 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), restricted entry interval (REI) and notification to workers. 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 of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: Coveralls, chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC) or viton, shoes plus socks and chemical-resistant headgear for overhead exposure.

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.

The area being treated must be vacated by unprotected persons. Keep unprotected persons out of treated areas until sprays have dried.

GENERAL PRECAUTIONS AND RESTRICTIONS

CARBARYL 4L Insecticide is a suspension of microfine carbaryl insecticide in an aqueous medium. It readily disperses in water to form a spray which may be applied by air or ground.

Plant Response Precautions: Application to wet foliage or during periods of high humidity may cause injury to tender foliage.

Do not use on Boston ivy, Virginia creeper and maidenhair fern as injury may result. Carbaryl may also injure Virginia and sand pines. The use of adjuvants may increase the potential for crop injury to sensitive crops.

PRE-HARVEST AND GRAZING RESTRICTIONS AND LIMITATIONS

Tolerances established under the Federal Food, Drug and Cosmetic Act permit the sale of labeled crops bearing probable carbaryl residues when this product is used in accordance with the label directions. If used as directed, treated forage may be grazed or used as feed for dairy and meat animals without causing illegal residues in meat or milk. Do not apply at greater rates or at more frequent intervals than stated on the label. To do so may result in illegal residues in crops, meat and milk.

Do not use reclaimed irrigation water for crops treated with carbaryl on crops for which carbaryl tolerances are not established.

Do not plant rotational food and feed crops not listed on this or other carbaryl labels in carbaryl treated soil.

APPLICATION STATEMENTS

Calibrate and adjust application equipment to insure proper rate and accurate placement. To clean spray system after use, drain and flush with water and detergent mixture. Rinse thoroughly with clean water. Refer to the "Storage and Disposal" section for disposal instructions. NOTE: Staining may occur on certain surfaces such as stucco, brick, cinder block and wood. Spray deposits on painted or stained surfaces or finishes (i.e., cars, houses, trailers, boats, etc.) should be immediately removed by washing to prevent discoloration. Avoid applications to surfaces where visible spray residues are objectionable.

RESISTANT SPECIES NOTICE: All references to Armyworm on the crops listed below refer to the species, *Pseudaletia unipuncta*, often called the "True armyworm". Except where indicated otherwise, this product is not registered for the control of other Armyworm species. Regional differences have been noted in the susceptibility of certain strains of Colorado potato beetle, Diamondback moth, Fall armyworm and Southern green stink bug to carbaryl. If local experience indicated inadequate control, use an alternative pesticide.

MIXING, LOADING AND HANDLING INSTRUCTIONS

TO ASSURE A UNIFORM SUSPENSION, AGITATE, STIR OR RECIRCULATE ALL CONTAINERS OF THIS PRODUCT PRIOR TO USE. Remove oil, rust, scale, pesticide residues and other foreign matter from mix tanks and entire spray system. Flush with clean water. Fill spray or mix tank with $\frac{1}{2}$ to $\frac{3}{4}$ the desired amount of water. Start mechanical or hydraulic agitation. Slowly add the required amount of this product and then the remaining volume of water. Include rinse water from container. Prepare only as much spray mixture as can be applied on the day of mixing. MAINTAIN CONTINUOUS AGITATION DURING MIXING AND APPLICATION TO ASSURE A UNIFORM SUSPENSION. DO NOT STORE SPRAY MIXTURE FOR PROLONGED PERIODS OR DEGRADATION OF CARBARYL MAY OCCUR. Local water conditions may also accelerate the degradation of spray mixtures containing carbaryl. See "Compatibility Statement" below.

COMPATIBILITY STATEMENT

This product, when diluted with at least an equal volume of water, is compatible with a wide range of pesticides. It is not compatible with diesel fuel, kerosene, fuel oil or aromatic solvents. If compatibility with another product and the resulting crop response is unknown, the mixture should be tested on a small scale. Curdling, precipitation, greasing, layer formation or increased viscosity are symptoms of incompatibility. Incompatibility will reduce insect control and may cause application and handling difficulties or plant injury. Observe all precautions and limitations on labeling of all products used in mixtures. WHEN PREPARING COMBINATION SPRAYS, FIRST ADD THIS PRODUCT TO AT LEAST AN EQUAL VOLUME OF WATER, MIX THOROUGHLY AND THEN ADD COMBINATION PRODUCTS TO THE MIXTURE. DO NOT APPLY TANK MIX COMBINATIONS UNLESS YOUR PREVIOUS EXPERIENCE INDICATES THE MIXTURE IS EFFECTIVE AND WILL NOT RESULT IN APPLICATION PROBLEMS OR PLANT INJURY.

Carbaryl is unstable under highly alkaline conditions and mixture with strong bases, such as Bordeaux, lime-sulfur and casein-lime spreaders, will result in chemical degradation of the insecticide. Do not use this product in water with pH values above 6.0 unless a buffer is added. If necessary, water should be buffered to neutral (pH = 7.0) before adding this product to the spray tank. Overhead irrigation with alkaline or muddy water after application will also accelerate chemical degradation and may result in reduced insect control.

APPLICATION PROCEDURES AND PRECAUTIONS

On all crops, use sufficient gallonage to obtain thorough and uniform coverage. Observe crop label instructions for specific directions regarding spray volume where they occur. Calibrate spray equipment to deliver the required volume. The flow rate of this product diluted 1:1 with water is similar to water. Use of 50 mesh slotted strainers in spray system and 25 mesh slotted strainers behind nozzles is recommended.

Ground Application: Apply in sufficient volume for adequate coverage on all crops and sites. To prepare small volumes of spray mixture, use $\frac{1}{2}$ fluid ounce (approximately 2 teaspoons) of this product in an adequate amount of water and apply to 500 square feet, where rates of 1 quart per acre are indicated.

Aerial Application: For adequate distribution, use at least 10 gallons of spray mixture per acre for application for tree and orchard crops or at least 2 gallons of spray mixture per acre for application to other crops.

Sprinkler Irrigation Systems: Apply this product only through sprinkler irrigation systems including center pivot and solid set. Do not apply this product through any other type of irrigation system.

Spray Preparation: First prepare a suspension of this product in a mix tank. Fill tank with $\frac{1}{2}$ to $\frac{3}{4}$ the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of this product and then the remaining volume of water. (Suspension concentrations using the appropriate dosage per acre recommended on this label, per 1 to 4 gallons of water are recommended.) Then set sprinkler to deliver 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of this product into the irrigation water line so as to deliver the desired rate per acre. The suspension of this product should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. If you should have any other questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

NOTE: When treatment with this product has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the chemical off the crop.

General Precautions For Applications Through Sprinkler Irrigation Systems: Maintain continuous agitation in mix tank during mixing and application to assure a uniform suspension.

Greater accuracy in calibration and distribution will be achieved by injecting a larger volume of a more dilute solution per unit time.

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 shutdown. 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.

Do not apply when wind speed favors drift, when system connection or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained. Crop injury, lack of effectiveness or illegal pesticide residues in the crop may result from nonuniform distribution of treated water. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut the system down and make necessary adjustments should the need arise.

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

Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut the system down and make necessary adjustments should the need arise.

SPECIFIC USE DIRECTIONS

Crop/Site Groupings: Asparagus, Brassica Leafy Vegetable Crops, Cereal Grain Crops (Field and Pop Corn, Grain Sorghum, Rice, Sweet Corn, Wheat and Proso Millet); Cotton, Cucurbit Vegetables, Flax, Forage Crops (Alfalfa, Bird's-foot Trefoil, Clovers, Pasture and Grasses Grown for Seed, Rangeland), Fruiting Vegetables, Leafy Vegetables, Legume Vegetables, Noncropland (Conservation Reserve Program-Ditchbanks, Hedgerows, Rights-of-Way, Roadsides, Wasteland), Peanuts, Root and Tuber Crops (except Sugar Beets and Sweet Potatoes), Small Fruits and Berries, Sunflower, Tobacco, Tree Fruit Crops (Citrus Fruits, Olives, Pome Fruits, Stone Fruits), Tree Nut Crops (Pistachios, Tree Nuts), Forested Areas and Rangeland Trees, Trees and Ornamentals, Turfgrass, Control of Specific Pests Across Multiple Sites (Adult Mosquito Control, Grasshoppers, Imported fire ants, Ticks which Vector Lyme Disease), Nuisance Pest Control and Poultry Pest Control.

INSECT CONTROL

Begin application when insect populations reach recognized economic threshold levels. Consult the Cooperative Extension Service, consultants or other qualified authorities to determine appropriate threshold levels for treatment and specific use information in your area. Where a dosage range is indicated, use the lower rate on light to moderate infestations, young plants and early instars and use the higher rate on heavy infestations, mature plants, advanced instars and adults. Thorough and uniform spray coverage is essential for effective control.

ASPARAGUS

Repeat applications as necessary up to a total of 3 times prior to harvest or a total of 5 times per crop but not more often than once every 3 days.

Crop	Pest	Quarts of This Product Per Acre
Asparagus	Apache cicada, Asparagus beetle, Cutworms	1 to 2
	SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.	
	Apache cicada, Asparagus beetle, Cutworms	2 to 4
SPECIFIC DIRECTIONS: Apply to ferns or brush growth following harvest of spears. Repeat applications as necessary but not more often than every 7 days. Do not make more than a total of 5 applications per year to spears and ferns combined.		
RESTRICTIONS AND PRECAUTIONS: Do not apply within 1 day of harvest. Do not apply more than a total of 6 quarts per acre before harvest of spears. Do not apply more than a total of 10 quarts per acre per year.		

BRASSICA LEAFY VEGETABLES CROPS

Repeat applications as needed up to a total of 4 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Broccoli, Brussels Sprouts, Cauliflower, Cabbage, Chinese Cabbage, Collards, Kale, Kohlrabi, Mustard Greens	Flea beetles, Harlequin bug, Leafhoppers	½ to 1
	Armyworm, Aster leafhopper, Corn earworm, Diamondback moth, Fall armyworm, Imported cabbageworm, Lygus bugs, Spittle bugs, Stink bugs, Tarnished plant bug	1 to 2

RESTRICTIONS AND PRECAUTIONS: For Broccoli, Brussels Sprouts, Cabbage, Cauliflower and Kohlrabi, do not apply within 3 days of harvest. For Chinese Cabbage, Collards, Kale and Mustard Greens, do not apply within 14 days of harvest. Do not apply more than a total of 6 quarts per acre per group.

CEREAL GRAIN CROPS

Repeat applications as needed up to a total of 4 times but not more often than once every 14 days. Optimum timing and good coverage are essential for effective control.

Crop	Pest	Quarts of This Product Per Acre
Field Corn, Popcorn	Armyworm, Chinch bugs, Corn earworm, Corn rootworm adults, Fall armyworm, Flea beetles, Japanese beetle, Sap beetles, Southwestern corn borer, Leafhoppers	1 to 2
	SPECIFIC DIRECTIONS: For optimum Chinch bug control, use ground equipment to apply at least 20 gallons of water per acre and direct spray toward stalk to provide thorough coverage.	
	European corn borer	1½ to 2
	SPECIFIC DIRECTIONS: For optimum European corn borer control, do not apply in less than 3 gallons of water by ground.	
	Cutworms, Western bean cutworm	2
SPECIFIC DIRECTIONS: For optimum Cutworm control, apply in a 12-inch band over the row, using sufficient volume of water to obtain thorough coverage. For broadcast application, use at least 20 gallons by ground or 5 gallons by air per acre. For Cutworm control, this product is most effective against species which feed on the upper portions of the plant. For Western bean cutworm, treat when infestation averages 15% and at 90 to 100% tassel emergence. Treatment after 100% silk emergence will reduce effectiveness.		

RESTRICTIONS AND PRECAUTIONS: Observe Bee Caution. Do not apply more than a total of 8 quarts per acre per crop.

GRAIN SORGHUM

Repeat applications as necessary up to a total of 4 times, but not more often than once every 7 days. Direct spray into forming heads for optimum control of insects attacking heads.

Crop	Pest	Quarts of This Product Per Acre
Grain Sorghum	Armyworm, Chinch bugs, Corn earworm, Fall armyworm, Stink bugs, Webworms	1 to 2
	SPECIFIC DIRECTIONS: For optimum Chinch bug control, use high gallonage ground application at the base of the plants.	
	Southwestern corn borer	1½
	Cutworms	2
SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.		

RESTRICTIONS AND PRECAUTIONS: Do not apply within 21 days of harvest for grain or fodder or within 14 days of harvest or grazing of forage or silage. Do not apply more than a total of 8 quarts per acre per crop.

RICE

Up to 2 applications per crop may be made, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Rice	Armyworm, Chinch bugs, Fall armyworm, Leafhoppers, Stink bugs	1 to 1½
	Tadpole shrimp	1½
	SPECIFIC DIRECTIONS: CA Only. For optimum Tadpole shrimp control, apply to water when pest first appears.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of harvest for grain or straw. Do not apply more than a total of 4 quarts per acre per crop. May kill shrimp, crabs and crayfish. Do not apply propanil herbicides within 15 days before or after application of this product or plant injury may result.		

SWEET CORN

Observe Bee Caution. Repeat applications as necessary up to a total of 8 times, but not more than once every 3 days. Optimum timing and good coverage are essential for effective control.

For insects attacking silks and ears.

Insecticide sprays should be applied starting when first silks appear and continuing until silks begin to dry. During silking, the minimum retreatment interval (3 days) may not provide adequate levels of protection under conditions of rapid growth or severe pest pressure. The use of an alternative product should be considered in conjunction with this product.

Crop	Pest	Quarts of This Product Per Acre
Sweet Corn	Armyworm, Chinch bugs, Corn earworm, Corn rootworm adults, Fall armyworm, Flea beetles, Japanese beetle, Sap beetles, Southwestern corn borer, Leafhoppers	1 to 2
	SPECIFIC DIRECTIONS: For optimum Chinch bug control, use ground equipment to apply at least 20 gallons of water per acre and direct spray toward stalk to provide thorough coverage.	
	European corn borer	1½ to 2
	SPECIFIC DIRECTIONS: For optimum European corn borer control, do not apply in less than 3 gallons of water by ground.	
	Cutworms, Western bean cutworm	2
SPECIFIC DIRECTIONS: For optimum Cutworm control, apply in a 12-inch band, over the row, using sufficient volume of water to obtain thorough coverage. For broadcast application, use at least 20 gallons by ground or 5 gallons by air per acre. For cutworm control, this product is most effective against species which feed on the upper portions of the plant. For Western bean cutworm, treat when infestation average 15% and at 90 to 100% tassel emergence. Treatment after 100% silk emergence will reduce effectiveness.		
RESTRICTIONS AND PRECAUTIONS: Do not apply within 2 days of harvest of ears, within 14 days of harvest or grazing of forage. Do not apply more than a total of 16 quarts per acre per crop.		

WHEAT AND PROSO MILLET

Up to 2 applications per crop may be made, but not more often than once every 14 days.

Crop	Pest	Quarts of This Product Per Acre
Wheat, Proso Millet DO NOT USE IN CA	Flea beetles	½ to 1
	Cereal leaf beetle	1
(Continued)	SPECIFIC DIRECTIONS: Application is effective against eggs, larvae and adults of the Cereal leaf beetle.	

Crop	Pest	Quarts of This Product Per Acre
(Continued) Wheat, Proso Millet DO NOT USE IN CA	Armyworm, Fall armyworm	1 to 1½
SPECIFIC DIRECTIONS: Application for Armyworm control should be made when Armyworms are actively feeding on the upper foliage and night temperatures are not expected to drop below 55° F. If applied by air to lush growth, use a minimum spray volume of 5 gallons per acre to optimize coverage.		
RESTRICTIONS AND PRECAUTIONS: Do not apply within 21 days of harvest for grain or straw or within 7 days of harvest or grazing of forage. Do not apply more than a total of 3 quarts per acre per crop.		

CUCURBIT VEGETABLES

Repeat applications as necessary up to a total of 6 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Cucumbers, Melons, Pumpkins, Squash	Melonworm, Pickleworm	½ to 1
	Cucumber beetles, Flea beetles, Leafhoppers, Squash bugs	1
	SPECIFIC DIRECTIONS: For optimum control of Squash bugs, apply sufficient spray volume for thorough coverage and time sprays for early morning or late afternoon.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 3 days of harvest. Do not apply more than a total of 6 quarts per acre per crop. Observe plant response precautions.		

FLAX

Up to 2 applications per crop may be made, but not more than once every 14 days.

Crop	Pest	Quarts of This Product Per Acre
Flax	Armyworm	1 to 1½
RESTRICTIONS AND PRECAUTIONS: Do not apply within 42 days of harvest for seed or straw. Do not apply more than a total of 3 quarts per acre per crop.		

FORAGE CROPS

On dense growth, use 25 to 40 gallons of water per acre with ground equipment to ensure adequate coverage.

Crop	Pest	Quarts of This Product Per Acre
Alfalfa, Birdfoot Trefoil, Clovers	Blister beetles, Mexican bean beetles	½ to 1
	Alfalfa caterpillar, Bean leaf beetle, Cucumber beetles, Green cloverworm, Japanese beetle, Leafhoppers, Potato leafhopper, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar	1
	Alfalfa blotch leafminer, Armyworm, Cloverhead weevil, Corn earworm, Cutworms, Egyptian alfalfa weevil larvae, Essex skipper, European alfalfa beetle, Fall armyworm, Lygus bugs, Stink bugs, Webworms, Yellow striped armyworm	1 to 1½
	SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.	
	Alfalfa weevil larvae (West of the Rocky Mountains)	1 to 1½
	SPECIFIC DIRECTIONS: For Alfalfa weevil larvae, if pretreatment damage is extensive, cut alfalfa and treat the stubble. This product is not effective against adult alfalfa weevils.	
	Alfalfa weevil larvae (East of the Rocky Mountains)	1½
	SPECIFIC DIRECTIONS: For Alfalfa weevil larvae, if pretreatment damage is extensive, cut alfalfa and treat the stubble. This product is not effective against adult alfalfa weevils.	
RESTRICTIONS AND PRECAUTIONS: Observe Bee Caution. Observe plant response precautions. Do not apply more than once per cutting. Do not apply within 7 days of harvest or grazing. Do not exceed 1½ quarts per acre per cutting. Carbaryl may cause a temporary bleaching of tender alfalfa foliage.		

PASTURE AND GRASSES GROWN FOR SEED

Up to 2 applications per year may be made, but not more often than once every 14 days.

Crop	Pest	Quarts of This Product Per Acre
Pasture and Grasses Grown for Seed	Armyworm, Chinch bugs, Essex skipper, Fall armyworm, Striped grass looper, Thrips, Range caterpillar, Range crane fly, Ticks	1 to 1½
	SPECIFIC DIRECTIONS: To control Thrips in grasses grown for seed, use high spray pressure to improve penetration into the boot. Carefully mark swaths to avoid over-application.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of harvest or grazing. Do not exceed a total of 3 quarts per acre per year.		

RANGELAND

Do not make more than 1 application per year. Carefully mark swaths to avoid over-application.

Crop	Pest	Quarts of This Product Per Acre
Rangeland	Black grass bug, Grasshoppers, Mormon cricket, Range caterpillar, Range crane fly	½ to 1
	Ticks	1
RESTRICTIONS AND PRECAUTIONS: May be harvested or grazed the same day of treatment. Do not apply more than 1 quart per acre per year.		

FRUITING VEGETABLES

Repeat applications as necessary up to a total of 7 times, but not more often than once every 7 days.

When disease transmission is suspected, monitor fields following application and retreat if reinfestation occurs, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Eggplant, Peppers, Tomatoes	Colorado potato beetle, European corn borer, Fall armyworm, Lace bugs, Stink bugs (suppression), Tarnished plant bug, Thrips (suppression), Tomato fruitworm, Tomato hornworm, Tomato pinworm	1 to 2
	SPECIFIC DIRECTIONS: Thorough coverage is essential to effectively suppress Stink bugs.	
	Flea beetles, Leafhoppers	½ to 1
	Cutworms	2
RESTRICTIONS AND PRECAUTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.		
RESTRICTIONS AND PRECAUTIONS: Do not apply within 3 days of harvest. Do not apply more than a total of 8 quarts per crop.		

Crop	Pest	Quarts of This Product Per Acre
Eggplant, Peppers, Tomatoes	Colorado potato beetle, European corn borer, Fall armyworm, Lace bugs, Stink bugs (suppression), Tarnished plant bug, Thrips (suppression), Tomato fruitworm, Tomato hornworm, Tomato pinworm	1 to 2
	SPECIFIC DIRECTIONS: Thorough coverage is essential to effectively suppress Stink bugs.	
	Flea beetles, Leafhoppers	½ to 1
	Cutworms	2
RESTRICTIONS AND PRECAUTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.		
RESTRICTIONS AND PRECAUTIONS: Do not apply within 3 days of harvest. Do not apply more than a total of 8 quarts per crop.		

LEAFY VEGETABLES

Repeat applications as necessary up to a total of 5 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Celery, Dandelion, Endive, Lettuce (head and leaf), Parsley, Spinach, Swiss Chard	Flea beetles, Harlequin bug, Leafhoppers	½ to 1
	Armyworm, Aster leafhopper, Corn earworm, Fall armyworm, Imported cabbageworm, Lygus bugs, Spittlebugs, Stink bugs, Tarnished plant bug	1 to 2
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of harvest. Do not apply more than a total of 6 quarts per acre per crop.		

LEGUME VEGETABLES

Repeat applications as necessary up to a total of 4 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Cowpeas, Fresh and Dried Beans (<i>Phaseolus</i> species including snap, navy and kidney), Fresh and Dried Peas (<i>Pisum</i> species), Lentils, Southern Peas, Soybeans DO NOT USE ON LENTILS IN CA	Bean leaf beetle, Blister beetle, Cucumber beetles, Grape colapsis, Green cloverworm, Japanese beetle, Mexican bean beetle, Velvetbean caterpillar	½ to 1
	Corn earworm	½ to 1½
	Alfalfa caterpillar, Colorado potato beetle, Flea beetles, Leafhoppers, Three cornered alfalfa hopper, Thrips, Western bean cutworm	1
	Amyworm, Cutworms, European corn borer, Fall armyworm, Stink bugs, Tarnished plant bug, Webworms	1 to 1½
	SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant. Use lower rates for light to moderate populations and smaller instars and to provide maximum survival of beneficial insects and spiders. Use the higher rates for heavy populations and larger instars.	
Alfalfa looper (suppression), Cowpea curculio (suppression), Painted lady (Thistle caterpillar), Pea leaf weevil, Pea weevil, Saltmarsh caterpillar, Woollybean caterpillar, Yellow-striped armyworm	1½	
CA ONLY Corn earworm (suppression), Limabean podborer (suppression), Lygus bugs (suppression), Stink bugs (suppression)	1½	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of grazing or harvest for forage or within 3 days of harvest of fresh beans or peas or within 21 days of harvest of dried beans or peas, seed or hay. Do not apply more than a total of 6 quarts per acre per crop. Do not apply a combination of this product and 2,4-DB herbicides to soybeans as crop injury may result. Observe plant response precautions.		

NONCROPLAND

Up to 2 applications per year may be made, but not more often than once every 14 days. Carefully mark swaths to avoid over-application.

Crop	Pest	Quarts of This Product Per Acre
Conservation Reserve Program Acreage, Set-Aside Program Acreage, Wasteland, Rights-of-Way, Hedgerows, Ditchbanks, Roadsides	Black grass bug	¼ to ½
	Mormon cricket, Range caterpillar, Range crane fly	½ to 1
	Ticks	1 to 1½
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of grazing or harvest for forage or hay. Do not apply more than a total of 3 quarts per acre per year.		

PEANUTS

Repeat applications as necessary up to a total of 5 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Peanuts (Continued)	Blister beetles, Mexican bean beetle	½ to 1

(Continued)

PEANUTS

Crop	Pest	Quarts of This Product Per Acre
Peanuts	Alfalfa caterpillar, Bean leaf beetle, Cucumber beetle, Green cloverworm, Japanese beetle, Leafhoppers, Rednecked peanutworm, Three cornered alfalfa hopper, Thrips, Velvetbean caterpillar	1
	SPECIFIC DIRECTIONS: For optimum control of Thrips, use directed or banded sprays with hollow cone spray nozzles. Ensure adequate coverage for the underside of leaves.	
	Amyworm, Corn earworm, Fall armyworm, Stink bugs, Webworms	1 to 1½
	Whitefringed beetle adults, Cutworms	2
	SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.	

ROOT AND TUBER CROPS

(Except Sugar Beets and Sweet Potatoes)

Repeat applications as necessary up to a total of 6 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Carrots, Garden Beets, Horseradish, Parsnips, Potatoes, Radishes, Rutabagas, Salsify	Flea beetles, Leafhoppers	½ to 1
	Amyworm, Aster leafhopper, Colorado potato beetle, Corn earworm, Cutworms, European corn borer, Fall armyworm, Lace bugs, Lygus bugs, Spittlebugs, Stink bugs, Tarnished plant bug	1 to 2
	SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 7 days of harvest. Do not apply more than a total of 6 quarts per acre per crop.		

SUGAR BEETS

Repeat applications as necessary up to a total of 2 times, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Sugar Beets	Amyworm, Beet leaf beetle, Fall armyworm, flea beetles, Leafhoppers, Webworms	1 to 1½
	Cutworms	1 to 2
	SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 28 days of harvest for roots or forage. Do not apply more than a total of 4 quarts per acre per crop.		

SWEET POTATOES

Crop	Pest	Quarts of This Product Per Acre
Sweet Potatoes	Corn earworm, Cucumber beetles, Flea beetles, Sweet potato hornworm, Sweet potato weevil, Tortoise beetle, White-fringed beetle	1 to 2
	<p>SPECIFIC DIRECTIONS: Pre-plant dip for control of Sweet potato weevil: Just prior to planting, dip sweet potato cuttings in a suspension containing 2 gallons of this product is 2.6 fluid ounces per gallon of water). For foliar sprays, repeat applications as necessary up to a total of 8 times, but not more often than once every 7 days.</p>	
	Yellowstriped armyworm	2
<p>RESTRICTIONS AND PRECAUTIONS: Do not apply within 7 days of harvest. Do not apply more than a total of 8 quarts per acre per crop with in-season sprays. Do not apply more than a total of 1½ quarts per acre as a pre-plant dip treatment.</p>		

SMALL FRUITS AND BERRIES

Repeat applications as necessary up to a total of 8 times, but not more often than once every 7 days. Observe Bee Caution.

Crop	Pest	Quarts of This Product Per Acre
Blueberries, Caneberries, Cranberries, Grapes, Strawberries	European fruit lecanium, European raspberry aphid, Flea beetles, Grape leafroller, Grape leafroller, Japanese beetle, Leafhoppers, Leafrollers, Meadow spittlebug, Omnivorous leaf-tier, Rose chafer, Snowy tree cricket, Strawberry bud weevil, Strawberry clipper, Strawberry fruitworm, Strawberry leafroller, Strawberry weevil, Western grapeleaf skeletonizer, Western yellowstriped armyworm	1 to 2
	<p>SPECIFIC DIRECTIONS: In grapes for Grape leafroller control, apply before the first brood larvae emerge from rolls.</p>	
	Blueberry maggot, Cherry fruitworm, Cranberry fireworm, Cranberry fruitworms, Cranberry twig girdler, Elm spanworm, Gypsy moth, Spaganothus worm, Tarnished plant bug	1½ to 2
	Eight-spotted forester, Cutworms, Grape berry moth, June beetle, Omnivorous leafroller, Orange tortrix, Raspberry fruitworm, Raspberry sawfly, Redbanded leafroller, Saltmarsh caterpillar	2
<p>SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.</p>		
<p>RESTRICTIONS AND PRECAUTIONS: Do not apply within 7 days of harvest. Do not apply more than a total of 10 quarts per acre per crop. NOTE: Use in cranberries may kill shrimp and crabs. Do not use in areas where these are important resources. Carbaryl may injure Early Dawn and Sunrise varieties of strawberries.</p>		

SUNFLOWERS

Up to 2 applications may be made, but not more often than once every 7 days.

Crop	Pest	Quarts of This Product Per Acre
Sunflowers (Do not use in CA)	Stem weevil, Sunflower beetle	1 to 1½
	Armyworm, Cutworms, Fall armyworm, Sunflower moth	1½
<p>SPECIFIC DIRECTIONS: For Cutworm control, this product is most effective against species which feed on the upper portions of the plant.</p>		
<p>RESTRICTIONS AND PRECAUTIONS: Do not apply within 30 days of grazing or harvest for forage or within 60 days of harvest for seed. Do not apply more than a total of 3 quarts per acre per crop.</p>		

TOBACCO

Plant bed and Field Treatment—Repeat treatments as necessary up to a total of 4 times per crop, but not more often than once every 7 days.

Use lower rate on young plants (up to knee height). Use at least 10 gallons of prepared spray per acre. Begin treatments when worms are small.

Crop	Pest	Quarts of This Product Per Acre
Tobacco	Budworms, Fall armyworm, Hornworms, Japanese beetle, June beetle, Suckfly, Tobacco flea beetle	1 to 2
<p>RESTRICTIONS AND PRECAUTIONS: Tobacco may be harvested on the day of treatment. Do not apply more than a total of 8 quarts per acre per crop. Observe plant response precautions.</p>		

TREE FRUIT CROPS

On all tree fruit crops, apply in sufficient volume for adequate coverage. This will vary depending on the pest and its severity, the tree condition, size, density and other factors.

Crop	Pest	Quarts of This Product Per Acre
Citrus Fruits	Avocado leafroller, California orange-dog, Citrus cutworm, Fruitree leafroller, Orange Tortrix, Western tussock moth	2 to 3
	<p>SPECIFIC DIRECTIONS: Repeat applications as necessary up to a total of 8 times, but not more often than once every 14 days.</p>	
	Citrus rust mite, Eriophyid mites, Plant bugs, Scale insects (Black scale, Brown soft scale, California red scale [except in CA], Citrus snow scale, Yellow scale [except in CA])	3 to 5
	<p>SPECIFIC DIRECTIONS: For Scale control, apply when crawlers are present. For best control of Eriophyid mites, including Citrus rust mite, apply when pest populations are low.</p>	
	Apopka weevil (adult), Citrus root weevils (adults), Fuller rose beetle, Little leaf notcher (adult)	5 to 7½
	CA Only: California red scale, Yellow scale	5 to 16
<p>SPECIFIC DIRECTIONS: Do not make more than 1 application per season for California red scale. Apply when crawlers are present.</p>		
<p>RESTRICTIONS AND PRECAUTIONS: Do not apply within 5 days of harvest. Do not apply more than a total of 20 quarts per acre per crop.</p>		

OLIVES

Up to 2 applications per crop may be made, but not more often than once every 14 days.

Crop	Pest	Quarts of This Product Per Acre
Olives	Scale insects (Olive scale, Black scale)	5 to 7½
<p>RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of harvest. Do not apply more than a total of 15 quarts per acre per crop.</p>		

POME FRUITS

Repeat applications as necessary up to a total of 8 times per crop (including thinning sprays on apples), but not more often than once every 14 days.

Crop	Pest	Quarts of This Product Per Acre
Apples, Crab-apples, Pears, Loquats, Oriental Pears	White apple leafhopper	½ to 1½
	Apple aphid, Codling moth	1 to 3
	Apple aphid, Apple maggot, Apple mealybug, Apple rust mite, Bagworms, California pearslug (Pear sawfly) European apple sawfly, Eyespotted bud moth, Fruitree leafroller, Gypsy moth, Japanese beetle, Lesser appleworm, Lygus bugs, Orange tortrix, Pearleaf blister mite, Pear psylla, Pear rust mite, Periodical cicada, Plum curculio, Redbanded leafroller, Rosy apply aphid, Scale insects (Forbes scale, Lecanium scale, San Jose scale), Tarnished plant bug, Tentiform leafminers, Woolly apple aphid, Yellowheaded fireworm	1½ to 3
<p>SPECIFIC DIRECTIONS: On apples, avoid use during the period from full bloom until 30 days after full bloom unless fruit thinning is desired. Use for pest control during this period also may result in fruit removal. For Psylla control, apply when eggs hatch or young nymphs are present. For Scale control, apply when crawlers are present.</p>		
Apples Only, for Fruit Thinning	--	1 to 3
<p>SPECIFIC DIRECTIONS: For easily thinned varieties: Apply ½ to ¾ qt. per 100 gal. of spray mixture. For difficult to thin varieties: apply ¾ to 1 qt. per 100 gals. of spray mixture. Apply between 10 and 25 days after full bloom. Factors such as tree age, variety, nutrition, previous crop, pruning, bloom and degree of set favor excessive fruit thinning with this product. Exercise caution to avoid possible yield reduction. Rates may vary depending on variety and local orchard conditions. Consult with your County Extension Service or other experts for advice on the proper use of this product.</p>		
<p>RESTRICTIONS AND PRECAUTIONS: Observe Bee Caution. Do not apply to quince. Do not use on pears between the tight flower cluster up to the 20 mm fruit size. Use during this period may result in undesirable fruit thinning and/or deformed fruit. Do not apply within 3 days of harvest. Do not apply more than a total of 15 quarts per acre per crop. Do not make more than a total of 8 applications per crop.</p>		

STONE FRUITS

Repeat applications as necessary up to a total of 3 times per crop but not more often than once every 7 days. An additional application at the dormant or delayed dormant timing may be made.

Crop	Pest	Quarts of This Product Per Acre
Apricots, Cherries, Nectarines, Peaches, Plums, Prunes	Apple pandemis, Black cherry aphid, Cherry fruitworm, Cherry maggot (Cherry fruit fly), Codling moth, Cucumber beetles, Eastern tent caterpillar, Eyespotted bud moth, European earwig, Fruitree leafroller, Green fruitworm, Gypsy moth, Japanese beetle, June beetle, Lesser peachtree borer, Mealy plum aphid, Orange tortrix, Oriental fruit moth, Peach twig borer, Periodical cicada, Plum curculio, Prune leafhopper, Redbanded leafroller, Rose chafer, Scale Insects (Brown soft scale, Forbes scale, Lecanium scale, Olive scale, Oystershell scale, San Jose scale), Tarnished plant bug, Tussock moth, Variegated leafroller	2 to 3
<p>SPECIFIC DIRECTIONS: Observe Bee Caution. Repeat applications as necessary up to a total of 3 times per crop, but not more often than once every 7 days. An additional application at the dormant or delayed dormant timing may be made. For optimum scale control, apply when crawlers are present. For Lesser peachtree borer, best results have been found by thoroughly spraying limbs and tree trunks at weekly intervals during moth flight.</p>		
<p>CA ONLY: Black cherry aphid, Cherry fruitworm, Cherry maggot (Cherry fruit fly), Codling moth, Cucumber beetles, Eyespotted bud moth, European earwig, Fruitree leafroller, Green fruitworm, Mealy plum aphid, Orange tortrix, Oriental fruit moth, Peach twig borer, Scale insects (Brown soft scale, Forbes scale, Lecanium scale, Olive scale, Oystershell scale, San Jose scale), Tarnished plant bug, Tussock moth</p>		3 to 4
<p>SPECIFIC DIRECTIONS: Observe Bee Caution. Repeat applications as necessary up to a total of 3 times per crop but not more often than once every 14 days. An additional application at the dormant or delayed dormant timing may be made. For optimum scale control, apply when crawlers are present.</p>		
<p>Peach twig borer, Scale insects (Brown soft scale, Forbes scale, Lecanium scale, Olive scale, Oystershell scale, San Jose scale)</p>		4 to 5
<p>SPECIFIC DIRECTIONS: For dormant or delayed dormant timing, apply in combination with a recommended dormant oil. Refer to the dormant oil product label for additional use directions and restrictions.</p>		
<p>RESTRICTIONS AND PRECAUTIONS: Do not apply within 3 days of harvest, except in CA. In CA, do not apply within 1 day of harvest. Do not apply more than a total of 14 quarts per acre per crop. Do not apply more than a total of 5 quarts per acre at the dormant or delayed dormant timing. Do not apply more than a total of 9 quarts per acre during the production season.</p>		

TREE NUT CROPS

On all tree nut crops, apply in sufficient volume for adequate coverage. This will vary depending on the pest and its severity, the tree condition, size, and density, and other factors.

Crop	Pest	Quarts of This Product Per Acre
Pistachios	Brown soft scale, Lecanium scale, Navel orangeworm	3 to 5
	SPECIFIC DIRECTIONS: Repeat applications as necessary up to a total of 4 times per crop (including any applications at the dormant or delayed dormant timing), but not more often than once every 7 days. For scale control, apply when crawlers are present.	
	Scale insects	4 to 5
	SPECIFIC DIRECTIONS: For dormant or delayed dormant timing, apply in combination with a recommended dormant oil. Refer to the dormant oil product label for additional use directions and restrictions.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of harvest. Do not apply more than a total of 15 quarts per acre per crop, including any application at the dormant or delayed dormant timing.		
Almonds, Chestnuts, Filberts, Pecans, Walnuts	Black margined aphid, Calico scale, Codling moth, European fruit lecanium, Fall webworm, Filbert aphid, Filbert leafroller, Filbertworm, Frosted scale, Fruitree leafroller, Hickory shuckworm, Lesser webworm, Navel orangeworm, Peach twig borer, Pecan leaf phylloxera, Pecan stem phylloxera, Pecan nut casebearer, Pecan spittlebug, Pecan weevil, San Jose scale, Twig girdler, Walnut caterpillar	2 to 5
	SPECIFIC DIRECTIONS: Observe Bee Caution. Repeat applications as necessary up to a total of 4 times per crop (including any applications at the dormant or delayed dormant timing), but not more often than once every 7 days. Use lower rates for pests attacking leaves. Use higher rates for pests attacking fruit and for higher infestations. For scale control, apply when crawlers are present. For Peach twig borer, best results with foliar applications have been found by making applications in "popcorn" or petal fall stages when the May brood begins to hatch. For Navel orangeworm in almonds and walnuts, best results have been found by timing early and midseason applications to correspond with moth flight peaks. For Filbert leafroller, best results have been found by making applications when eggs are hatching, repeating application in first appearance of moths and again 3 to 4 weeks later. For Codling moth in walnuts, best results have been found by making applications when average cross-sectional diameters of developing nuts are 1/2 to 3/4 inches and again during middle or late June as needed.	
	Chestnut weevil, European earwig	4 to 5
	SPECIFIC DIRECTIONS: For Chestnut weevil, best results have been found with 4 applications at weekly intervals beginning in late July. The last application should be made prior to shuck split. For European earwig, thorough coverage of trunks, branches, and nuts is needed for best results.	
Almonds Only	Peach twig borer, Scale insects	4 to 5
	SPECIFIC DIRECTIONS: For dormant or delayed dormant timing, apply in combination with recommended dormant oil. Refer to the dormant oil product label for additional use directions and restrictions.	
RESTRICTIONS AND PRECAUTIONS: Do not apply within 14 days of harvest. Do not apply more than a total of 15 quarts per acre per crop, including any applications at the dormant or delayed dormant timing.		

FORESTED AREAS AND RANGELAND TREES

Apply in sufficient volume for adequate coverage. This will vary depending on the tree size, density and stage of growth.

Crop	Pest	Quarts of This Product Per Acre	
Non-urban Forests, Tree Plantations, Planted Christmas Trees, Parks, Rural Shelter Belts, Rangeland Trees	Ants, Apple aphid, Armyworm, Ash whitefly, Azalea leafminer, Bagworms, Balsam twig aphid, Birch leafminer, Blister beetle, Boxelder bug, Boxwood leafminer, Brown tail moth, Cankerworms, Catalpa sphinx, Chiggers, Cooley spruce gall adelgid, Cutworms, Cypress tip moth, Douglas-fir tussock moth, Eastern spruce gall adelgid, Elm leaf aphid, Elm leaf beetle, Elm spanworm, Eriophyid mites, European pine shoot moth, Fall armyworm, Flea beetle, Fuchsia gall mite, Fuller rose beetle, Gall midges, Gall wasps, Greenstriped mapleworm, Grasshoppers, Hackberry nipplegall maker, Holly bud moth, Holly leafminer, June beetles, Lace bugs, Leafhoppers, Leafrollers, Locust borer, Maple leafcutter, Mealybugs, Mimosa webworm, Nantucket pine tip moth, Oak leafminers, Oak moth, Oak skeletonizer, Oakworm complex, Oleander caterpillar, Olive ash borer, Orange-striped oakworm, Periodical cicada, Pine looper, Pine sawfly, Pine spittlebug, Pitch pint tip moth, Spruce budworm, Plant bugs, Poinsettia hornworm, Psyllids, Puss caterpillar, Redhumped oakworm, Rose aphid, Rose chafer, Rose slug, Saddled prominent, Sawflies (exposed), Scale insects (crawlers), Sowbugs, Spiney elm caterpillar, Springtails, Spruce needleminer, Sub-tropical pine tip moth, Tent caterpillars, Thorn bug, Thrips (exposed), Ticks, Walnut caterpillar, Webworms, Western hemlock looper, Western spruce budworm, Willow leaf beetles, Woolley gall aphid, Yellow poplar weevil	1	
	SPECIFIC DIRECTIONS: Observe plant response precautions. Obtain thorough coverage of upper and lower leaf surfaces. The addition of a sticker may improve residual control. To control scale insects, treat trunks, stems and twigs in addition to plant foliage. For optimum worm control, treat when pests are small. Do not use on syrup-producing sugar maples where sap is harvested. Applications for control of Maple leafcutter on sugar maple should be made when larvae are in 2nd instar after mining and as cases are being formed. Repeat treatments as necessary up to a total of 2 times per year, but not more often than once every 7 days.		
	Gypsy moth	3/4 to 1	
	SPECIFIC DIRECTIONS: For Gypsy moth control, use the higher rate for heavy infestations.		
	Elm bark beetle, Ips engraver beetles, Mountain pine beetle, Roundheaded pine beetle, Spruce beetle, Western pine beetle	2% solution (5 fluid ounces per gallon)	
	SPECIFIC DIRECTIONS: Direct Trunk Treatment - Effective as a preventative treatment only. Repeat annually as required to prevent beetle attacks. Apply 1 gal. of spray per 50 sq. ft. of bark prior to Beetle flight or host-tree attack. Treat tree trunk from ground level up, until trunk diameter is less than 5 inches. For Elm bark beetle; apply approximately 20 to 30 gals. of spray mixture for each 50 ft. of elm tree for thorough coverage of all bark surfaces on trunks, limbs and twigs. Do not make more than 2 applications per year or repeat applications more often than once every six months.		
	RESTRICTIONS AND PRECAUTIONS: Do not make more than 2 applications per year. To prepare small volumes of spray mixture, use 1/3 fl. oz. (approximately 2 teaspoons) of this product in an adequate amount of water and apply to 500 sq. ft. where rates of 1 quart per acre are indicated. DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL SPRAYS HAVE DRIED.		

TREES AND ORNAMENTALS

Apply in sufficient volume for adequate coverage. This will vary depending on the plant or tree size, density and stage of growth.

Crop	Pest	Quarts of This Product Per Acre
Trees, Ornamentals: (Roses, Flowers, Other Herbaceous Plants), Woody Plants, Shrubs in Commercial and Residential Areas and in Nursery Production Areas	Ants, Apple aphid, Armyworm, Ash whitefly, Azalea leafminer, Bagworms, Balsam twig aphid, Birch leafminer, Blister beetle, Boxelder bug, Boxwood leafminer, Brown tall moth, Cankerworms, Catalpa sphinx, Chiggers, Cooley spruce gall adelgid, Cutworms, Cypress tip moth, Douglas-fir tussock moth, Eastern spruce gall adelgid, Elm leaf aphid, Elm leaf beetle, Elm spanworm, Eriophyid mites, European pine shoot moth, Fall armyworm, Flea beetle, <i>Fuchsia</i> gall mite, Fuller rose beetle, Gall midges, Gall wasps, Greenstriped mapleworm, Grasshoppers, Hackberry nipplegall maker, Holly bud moth, Holly leafminer, June beetle, Lace bugs, Leafhoppers, Leafrollers, Locust borer, Maple leafcutter, Mealybugs, Mimosa webworm, Nantucket pine tip moth, Oak leafminers, Oak moth, Oak skeletonizer, Oakworm complex, Oleander caterpillar, Olive ash borer, Orange-striped oakworm, Periodical cicada, Pine looper, Pine sawfly, Pine spittlebug, Pitch pint tip moth, Spruce budworm, Plant bugs, Poinsettia hornworm, Psyllids, Puss caterpillar, Redhumped oakworm, Rose aphid, Rose chafer, Rose slug, Saddled prominent, Sawflies (exposed), Scale insects (crawlers), Sowbugs, Spiney elm caterpillar, Springtails, Spruce needleminer, Sub-tropical pine tip moth, Tent caterpillars, Thorn bug, Thrips (exposed), Ticks, Walnut caterpillar, Webworms, Western hemlock looper, Western spruce budworm, Willow leaf beetle, Woolly gall aphid, Yellow poplar weevil	1
	SPECIFIC DIRECTIONS: Observe plant response precautions. Obtain thorough coverage of upper and lower leaf surfaces. The addition of a sticker may improve residual control. To control scale insects, treat trunks, stems and twigs in addition to plant foliage. For optimum worm control, treat when pests are small. Do not use on syrup-producing sugar maples where sap is harvested. Applications for control of Maple leafcutter on sugar maple should be made when larvae are in 2nd instar after mining and as cases are being formed. Repeat treatments as necessary up to a total of 2 times per year, but not more often than once every 7 days.	
	Gypsy moth	$\frac{1}{2}$ to 1
	SPECIFIC DIRECTIONS: For Gypsy moth control, use the higher rate for heavy infestations.	
	Elm bark beetle, Ips engraver beetles, Mountain pine beetle, Roundheaded pine beetle, Spruce beetle, Western pine beetle	2% solution (5 fluid ounces per gallon)
	SPECIFIC DIRECTIONS: Direct Trunk Treatment - Effective as a preventative treatment only. Repeat annually as required to prevent beetle attacks. Apply 1 gal. of spray per 50 sq. ft. of bark prior to Beetle flight or host-tree attack. Treat tree trunk from ground level up, until trunk diameter is less than 5 inches. For Elm bark beetle, apply approximately 20 to 30 galls. of spray mixture for each 50 ft. of elm tree for thorough coverage of all bark surfaces on trunks, limbs and twigs. Do not make more than 2 applications per year or repeat applications more often than once every six months.	
<p>RESTRICTIONS AND PRECAUTIONS: Do not make more than 2 applications per year. To prepare small volumes of spray mixture, use $\frac{1}{2}$ fl. oz. (approximately 2 teaspoons) of this product in an adequate amount of water and apply to 500 sq. ft. where rates of 1 quart per acre are indicated. DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL SPRAYS HAVE DRIED.</p>		

TURFGRASS

Apply the recommended rates using pressure-type equipment in sufficient spray volume for thorough coverage and thatch penetration.

10/12

Crop	Pest	Quarts of This Product Per Acre
Golf Turf, Sports Fields, Sod Farms, Domestic and Commercial Lawns, Cemeteries, Parks, Campsites, Recreational Areas	Ants, Armyworm, Centipedes, Chiggers, Cutworms, Earwigs, Essex skipper, European chafer, Fall armyworm, Fiery skipper, Grasshoppers, Green June beetle larvae, Leafhoppers, Lucerne moth, Millipedes, Mosquitoes (adults), Scarab beetle adults (May beetle, June beetle, Japanese beetle, Green June beetle), Sowbugs, Spittlebugs, Springtails, Ticks, Yellowstriped armyworm	2 to 4 (1 1/2 to 3 fl. oz. per 1,000 sq. ft.)
	SPECIFIC DIRECTIONS: For Armyworm, Cutworm and Fall armyworm control: do not irrigate treated areas within 24 hours following insecticide application. For Green June Beetle Grub (larvae) Control: Make applications when grubs are feeding near the soil surface. Water or irrigate turfgrass soon after treatment. Repeat applications as necessary up to a total of 4 times a year, but not more often than once every 7 days.	
	Chinch bugs, Sod webworm (lawn moths)	6 to 8 (4.4 to 6 fl. oz. per 1,000 sq. ft.)
	SPECIFIC DIRECTIONS: For Chinch bug Control: Treat entire grass area rather than just damaged areas. Irrigation prior to treatment will aid in penetration of insecticide into turfgrass. Do not irrigate treated areas within 24 hours following insecticide application. Repeat applications as necessary up to 2 times per year, but not more often than once every 7 days.	
	Bluegrass billbug larvae, European crane fly, Fleas, White grubs (Japanese beetle, Chafer beetle and <i>Phyllophaga</i> spp. larvae), Black turfgrass atsenius beetle larvae, Hyperoides weevil (Bluegrass weevil larvae)	8 (6 fl. oz. per 1,000 sq. ft.)
	SPECIFIC DIRECTIONS: For European Crane Fly Control: Treatments should be applied in early Spring, April 1 to April 15, or as recommended by Local Agricultural Extension Service agents. Water or irrigate turfgrass soon after treatment. For White Grub Control: Applications should be made when grubs are feeding near the soil surface, usually during late March through May or July through early September or as recommended by Local Agricultural Extension Service agent. Water or irrigate turfgrass soon after treatment. Repeat applications as necessary up to 2 times per year, but not more often than once every 7 days.	
<p>RESTRICTIONS AND PRECAUTIONS: DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL SPRAYS HAVE DRIED.</p>		
<p>CONTROL OF SPECIFIC PESTS ACROSS MULTIPLE SITES</p>		
All Crops on this Label	Grasshoppers	1/2 to 1 1/2*
	SPECIFIC DIRECTIONS: Apply 1/2 to 3/4 quarts per acre of this product for nymphs on small plants or sparse vegetation. Apply 1 to 1 1/2 quarts per acre for mature grasshoppers or applications to dense foliage or if extended residual control is desired. Be certain spray volumes are appropriate to assure adequate coverage.	
<p>*NOTE: Refer to individual site listing elsewhere on this label for use limitations and restrictions. Do not use rates higher than listed for the site or exceed other use restrictions.</p>		

CONTROL OF TICKS WHICH VECTOR LYME DISEASE

For control of juvenile and adult ticks which vector Lyme Disease, apply the recommended amount in sufficient volume for thorough coverage.

Crop	Pest	Quarts of This Product Per Acre
All Crops on this Label: Pastures, Forested Areas, Wasteland, Rights-of-Way, Hedgerows, Ditchbanks, Roadsides, Set-Aside and Conservation Reserve Program Acreage, Trees and Ornamentals, Turfgrass	Ixodes spp. (Deer tick, Bear tick, Black legged tick), Amblyomma spp. (Lone star tick) SPECIFIC DIRECTIONS: Use the higher rate for heavy tick infestations. ¹ Use higher spray volumes for dense ground cover or heavy leaf litter. Target applications for nymphal control in late Spring or early Summer. Control of Adult tick can be obtained with late Summer and Fall applications. Do not use spot treatments. Treat entire area and perimeter areas where exposure to ticks may occur. Ticks may be reintroduced from surrounding areas on host animals. Retreat as necessary to maintain adequate control levels. ²	1 to 2"
RESTRICTIONS AND PRECAUTIONS ¹ Refer to individual site listings elsewhere on this label for use limitations and restrictions. Do not use rates higher than listed for the site or exceed other use restrictions. ² DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATION OR UNTIL SPRAYS HAVE DRIED.		

IMPORTED FIRE ANTS

Crop/Site	Pest	Quarts of This Product Per Volume of Water
Pastures, Rangelands, Forested Areas, Trees and Ornamentals, Turfgrass, Wasteland	Imported fire ants SPECIFIC DIRECTIONS: Drench Applications - Apply a total of 2 gallons of the diluted solution over the surface of each mound or at least 1 quart per 6 inches of mound diameter using a bucket, can or other appropriate equipment. Thoroughly wet mound and surrounding areas to a 4 ft. diameter (12 sq. ft.). Do not disturb mound prior to treatment. Pour solution from a height of about three (3) feet to give sufficient force to break mound apex and flow into ant tunnels. For best results apply in cool weather (65 to 80° F) or in early morning or late evening hours. Repeat application if mound activity resumes after 7 days. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.	¼ fluid ounce per gallon
Nursery Stock, Vegetable Transplants*, Foliage Plants, Bedding Plants (Outdoor Use Only)	Imported fire ants SPECIFIC DIRECTIONS: Avoid contact with foliage and treat only the growing media when using on bedding plants. Do not make more than one application, either as a root dip or drench treatment (applied to the point of saturation).	1¼ quarts per 100 gallons
RESTRICTIONS AND PRECAUTIONS: DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL DRENCH HAS DRIED. DO NOT USE IN GREENHOUSES. To prepare small amounts, use ¼ fluid ounce (approximately 1 ½ tablespoons) of this product per each gallon of mix where 1 ¼ quarts per 100 gallons are indicated. *NOTE: DO NOT USE ON ANY FOOD CROP NOT LISTED ON THIS LABEL. Refer to specific crop section for additional restrictions and precautions.		

ADULT MOSQUITO CONTROL

Apply In sufficient gallonage for thorough coverage.

Crop	Pest	Quarts of This Product Per Acre
Pastures, Rangeland, Forested Lands, Trees and Ornamentals, Turfgrass, Wastelands	Mosquitoes (adults) SPECIFIC DIRECTIONS: Observe Bee Caution. Treat shrubbery and areas where adult mosquitoes congregate. Treat when adult mosquitoes are active in early mornings or late evenings. Repeat applications as necessary*. Use ¼ to ½ quart per 100 gallons in mistblowers, ¼ to 1 quart per acre in low pressure ground sprayers.	¼ to 1"
RESTRICTIONS AND PRECAUTIONS: DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATION OR UNTIL SPRAYS HAVE DRIED. May kill shrimp and crabs. Do not use in areas where these are important resources. To prepare small volumes of spray mixture, use ½ fl. oz. (approximately 2 teaspoons) of this product in an adequate amount of water and apply to 500 sq. ft. where rates of 1 quart per acre are indicated. *NOTE: Refer to individual site listings elsewhere on this label for use limitations and restrictions. Do not use rates higher than listed for the site or exceed other use restrictions.		

POULTRY INSECT CONTROL

Site	Pest	Quarts of This Product Per 100 Gallons of Water
Direct Spray on Chicken, Ducks, Geese, Game Birds, Pigeons, Turkeys	Chicken mite, Fleas, Lice, Northern fowl mite SPECIFIC DIRECTIONS: For use as a direct spray on birds by: (1) Misting with Electric Fog Machine - Mix ¼ quart (9.6 ounces) of this product in 1 gallon of spray. Use 1½ gallons per 1,000 hens in cages, on litter or on slatted floors. Repeat in 4 weeks if necessary. (2) Spraying with knapsack of cylinder type compressed air sprayers - Mix ¼ quarts (5.4 ounces) of this product in 5 gallons of spray. Use 1 gallon per 100 hens in cage, on litter or on slatted floors. Repeat in 4 weeks if necessary. For Northern fowl mite control, ensure pressured spray penetrates feathers of vent area on birds. Direct spray misting for Chicken mite and Fleas is a supplement to spraying rooms and buildings for control of these pests.	-
Poultry Quarters	Bed bugs, Chicken mite, Fleas, Lice, Northern fowl mite SPECIFIC DIRECTIONS: Apply 1 to 2 gallons of spray mixture with conventional power spray of knapsack equipment per 1,000 square feet of wall, litter or roost surface. Force spray into cracks. Repeat as needed. Avoid spraying nests, eggs and feeding and water troughs. Fowl tick	4 (2¼ tablespoons per gallon) 16 (10 tablespoons per gallon)
SPECIFIC DIRECTIONS: Ventilate while spraying.		

POULTRY INSECT CONTROL

Darkling Beetle (Lesser Mealworm or Litter Beetle)

Site	Pest	Pounds of This Product
Poultry Quarters	Darkling beetle (Lesser mealworm or litter beetle) SPECIFIC DIRECTIONS: Apply as a dilute spray to floor surface, walls, cracks, posts and crevices with sufficient volume of finished spray to wet all surfaces thoroughly. Optimum application timing is immediately after removing old flock from, or before placing new flock into the house when Beetles are most active. Ventilate during application. Avoid contamination of feeding and watering units.	¼ to 1¼ pounds per 1,000 sq. ft.
RESTRICTIONS AND PRECAUTIONS: Do not treat birds or premises within 7 days of slaughter.		

NUISANCE PEST CONTROL

For use as a perimeter treatment to prevent infestations of buildings, apply the specified dosage in a band 8 to 10 feet wide around the outside perimeter of the structure.

Pest	Rate CARBARYL 4L
Ants, Bees, Brown dog tick, Centipedes, Cockroaches, Crickets, Darkling beetle (Lesser mealworm or Litter beetle), Earwigs, Firebrats, Fleas, Millipedes, Scorpions, Silverfish, Spiders, Wasps	1% solution or 2½ fluid ounces per gallon

SPECIFIC DIRECTIONS: Observe plant response precautions. Apply as a coarse wet spray in a band 6 to 10 feet wide around the outside perimeter of buildings. Confine applications to areas immediately adjacent to the building. Direct application to the structure should be minimal and restricted to cracks, crevices and areas where insects tend to congregate. For use in and around flower beds and ornamental plantings, apply as a coarse wet spray in and around plant beds. May be applied to outdoor sleeping quarters of pets. Do not treat animals. Do not allow animals to use treated area until sprays have dried.

RESTRICTIONS AND PRECAUTIONS: DO NOT ALLOW PUBLIC USE OF TREATED AREAS DURING APPLICATIONS OR UNTIL SPRAYS HAVE DRIED.

NOTE: Staining may occur on certain surfaces such as stucco, brick, cinder block, wood, fabrics and carpet. Spray deposits on painted or stained surfaces of finishes (e.g., cars, house trailers, boats, etc.) should be removed immediately by washing to prevent discoloration. Avoid application to surfaces where visible spray residues are objectionable. Staining of fabrics and carpet may be permanent.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal. Open dumping is prohibited.

STORAGE INSTRUCTIONS: Store unused product in original container only, in cool, dry areas out of reach of children and animals. Do not store in areas where temperatures frequently exceed 100° F. If container is damaged, before cleaning up, put on Personal Protective Equipment.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, by incineration or, if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

WARRANTY—CONDITION OF SALE

OUR RECOMMENDATIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the Seller. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

In no case shall the Manufacturer or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by the Seller and is accepted as such by the Buyer.