

Mr. Robert F. Bischoff
Dow Chemical U.S.A.
P.O. Box 1706
Midland, MI 48640

Dear Mr. Bischoff:

Subject: Addition of Cole Crops
Foliar Application
Lorsban 4E
EPA Reg. No. 464-448
Your letter of October 26, 1987

The amendment referred to above, submitted in connection with registration under FIFRA sec. 3(c)(7)(A), is acceptable provided that you:

1. Submit and/or cited all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data.

Submit five (5) copies of your final printed labeling before you release the product for shipment.

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

A stamped copy of the labeling is enclosed for your records.

Sincerely yours,

Dennis H. Edwards, Jr.
Product Manager (12)
Insecticide-Rodenticide Branch
Registration Division (TS-767)

Enclosure

IN CASE OF AN EMERGENCY

endangering life or property involving this product, call collect 517-636-4400

AGRICULTURAL CHEMICAL

Do Not Ship or Store with Food, Feeds, Drugs, or Clothing

REENTRY STATEMENT

Do not allow reentry into treated areas within 24 hours unless protective clothing is worn. Protective clothing consists of at least a hat or other suitable head covering, a long-sleeved shirt and long-legged trousers or a coverall type garment (all of closely woven fabric covering the body, including the arms and legs), shoes and socks. Because certain states may require more restrictive reentry intervals for various crops treated with this product, consult your State Department of Agriculture for further information

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. These oral warnings shall inform workers of areas or fields that may not be entered without protective clothing and actions to take in case of accidental exposure as shown by the Statement of Practical Treatment section on this label. When oral warnings are given, warnings shall be given in a language customarily understood by workers. Written warnings must include the following information: WARNING: Area treated with LORSBAN 4E insecticide on (insert date of application) Do not enter without protective clothing for 24 hours. In case of accidental exposure (insert actions to take as shown by the Statement of Practical Treatment section on this label)

Do not use on turf or for structural pest control. Do not formulate this product into other end use products.

ENDANGERED SPECIES RESTRICTIONS

The following restrictions apply to use of this product after February 1, 1988.

Before using this pesticide on corn, soybeans, sorghum, or cotton in the counties listed below, you must obtain the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES for the county in which the product is to be used. The bulletin is available from your County Extension Agent, State Fish and Game Office, or your pesticide dealer. Use of this product in a manner inconsistent with the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES is a violation of Federal laws.

ALABAMA Colbert, Greene, Jackson Lamar, Lauderdale Limestone, Madison, Marshall, Morgan, Pickens and Sumter
ARIZONA: Graham, Maricopa, Mohave, Pima, Pinal and Santa Cruz

ARKANSAS: Benton, Clay, Clark, Cross, Lawrence, Lee, Poinsette, Polk, Randolph, Sharp and St Francis

CALIFORNIA: Butte, Colusa, Glenn, Imperial, Kern, Merced, Inyo, Los Angeles, Modoc, Orange, Riverside, Sacramento, San Bernardino, San Diego, Santa Barbara, Solano, Stanislaus, Sutter, Tehama, Yolo and Ventura

FLORIDA: Alachua, Baker, Bradford, Brevard, Broward, Charlotte, Citrus, Clay, Collier, Columbia, Dade, De Soto, Dixie, Duval, Flagler, Gadsden, Gilchrist, Glades, Hardee, Hendry, Hernando, Highlands, Hillsborough, Indian River, Jefferson, Lafayette, Lake, Lee, Leon, Levy, Madison, Manatee, Marion, Martin, Monroe, Nassau, Orange, Okeechobee, Osceola, Palm Beach, Pasco, Pinellas, Polk, Putnam, St Johns, St Lucie, Sarasota, Seminole, Sumter, Suwannee, Taylor, Union, Volusia and Wakulla

GEORGIA: Brantley, Bryan, Bulloch, Burke, Camden, Candler, Charlton, Chatham, Effingham, Emanuel, Evans, Glascock, Glynn, Jefferson, Jenkins, Johnson, Liberty, Long, McIntosh, Pierce, Richmond, Screven, Ware, Washington and Wayne

KANSAS: Clark, Comanche, Meade and Stafford

KENTUCKY: Ballard, Butler, Edmundson, Green, Hart, Jackson, Laurel, Livingston, Marshall, McCracken, McCreary, Pulaski, Rockcastle, Taylor, Warren and Wayne

MISSISSIPPI: Claiborne, Copiah, Hinds, Itawamba, Lowndes, Monroe and Noxubee

MISSOURI: Barry, Benton, Camden, Christian, Dallas, Greene, Hickory, Jasper, Lawrence, Miller, Newton, Osage, Polk, St. Clair, Stone and Webster

MONTANA: Garfield, McCone, Sheridan and Valley

NEBRASKA: Boyd, Brown, Buffalo, Butler, Cass, Cedar, Colfax, Dawson, Dodge, Douglas, Hall, Hamilton, Holt, Howard, Kearney, Keya Paha, Knox, Nemack, Nance, Phelps, Platte, Polk, Rock, Sarpy and Saunders

NEVADA: Clark

NEW MEXICO: Chaves, DeBaca and Eddy

NORTH CAROLINA: Edgecombe, Nash and Pitt

NORTH DAKOTA: Benson, Bottineau, Burke, Burleigh, Divide, Dunn, Eddy, Emmons, Foster, Kidder, Logan, McHenry, McIntosh, McKenzie, McLean, Mercer, Morton, Mountrail, Nelson, Oliver, Pierce, Ramsey, Renville, Rolette, Shendan, Sioux, Stutsman, Towner, Ward, Wells and Williams

OHIO: Pickaway

OKLAHOMA: Delaware, McCurtain and Pushmataha

OREGON: Lake

SOUTH CAROLINA: Aiken, Barnwell, Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper and Marion

SOUTH DAKOTA: Clay, Haakon, Hughes, Potter, Stanley, Sully, Union, Walworth, Yankton, and Ziebach

TENNESSEE: Bedford, Blount, Claiborne, Decatur, Franklin, Hancock, Hardin, Hawkins, Hickman, Knox, Lawrence, Lincoln, Loudon, Marshall, Maury, Meigs, Monroe, Rhea, Roane, Scott, Sequatchie, Smith, Sullivan, Trousdale, and Wayne

TEXAS: Aransas, Austin, Bastrop, Burleson, Cameron, Colorado, Comal, Fort Bend, Goliad, Harris, Hays, Jeff Davis, Pecos, Reeves, Refugio and Victoria

UTAH: Utah and Washington

VIRGINIA: Lee, Russell, Scott, Smyth, Tazewell, Washington and Wise

CONTENTSPAGE NO.

Hazards

Human and Domestic Animal	1
Physical and Chemical	1
Environmental	1
Reentry Interval	2
Endangered Species	2
Directions for Use (Federal approved)	
General Information	3
Mixing Instructions	3
Overhead Sprinkler Irrigation	3-4
Use and Dosage Recommendations	4
Alfalfa	4
Asparagus	4
Cherries	4
Citrus Fruits	5
Cranberries	5
Corn	5
Cotton	6
Figs	7
Grain Sorghum	8
Grapes	8
Mint	8
Nectaries	8
Onions	8

Peaches	8
Peanuts	8
Soybeans	8
Strawberries	9
Sunflowers	9
Sugarbeets	9
Sweet Potatoes	9
Tobacco	9
Tree Fruits (Dormant/Delayed Dormant)	10
Tree Nuts	10
Vegetables	11
Storage and Disposal	11
Special Local Needs	12

DIRECTIONS FOR USE

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

General Information

LORSBAN 4E insecticide forms an emulsion when diluted with water and is suitable for use in all conventional spray equipment.

Mixing Instructions

To prepare the spray, add a portion of the required amount of water to the spray tank and with agitation add the LORSBAN 4E. Complete filling the tank with the balance of water needed. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture.

LORSBAN 4E insecticide may also be used in tank mixtures with certain herbicides and/or with non-pressure fertilizer solutions as recommended under specific crop use directions. Note that LORSBAN 4E may be inactivated by sulfur containing fertilizer solutions. Prepare tank mixtures in the same manner as recommended above for use of LORSBAN 4E alone. When tank mixtures of LORSBAN 4E and herbicides are involved, add wettable powders first, flowables second, and emulsifiable concentrates last. Where a fertilizer solution is involved, it is strongly recommended that a fertilizer pesticide compatibility agent such as Unite(1) or Compex(2) be used. Maintain constant agitation during both mixing and application to ensure uniformity of the spray mixture. Do not allow spray mixtures to stand overnight.

NOTE: Test compatibility of the intended tank mixture before adding LORSBAN 4E to the spray or mix tank. Add proportionate amounts of each ingredient to a pint or quart jar, cap, shake, and let set 15 minutes. Formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used.

(1) Trademark of The Hopkins Agricultural Chemical Company

(2) Trademark of Kalo Laboratories, Inc

Overhead Sprinkler Irrigation

The following use directions are to be followed when LORSBAN 4E is applied through overhead sprinkler irrigation systems. Thoroughly clean the injection system and tank of any fertilizer or chemical residues, and dispose of the residues according to state and federal laws. Flush the injector with soap and water. Calibrate the injector system. Prepare a mixture of LORSBAN 4E plus non-emulsifiable oil and/or water in a steel mix tank after determining the amount of insecticide that will be injected per hour at the desired rate and time of operation. Pump the required LORSBAN 4E insecticide into the steel tank, start mechanical or hydraulic agitation, and add in order the non-emulsifiable oil and/or water. Continually agitate the mixture containing LORSBAN 4E. Set the sprinkler system to deliver the desired inches of water per acre. Start the water pump and sprinkler, and let the system achieve the desired pressure and speed before starting the injector. The mixture containing LORSBAN 4E must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. This procedure is necessary to deliver the desired rate per acre in a uniform manner. When application is finished, allow the entire irrigation and injector system to be thoroughly flushed clean before stopping the system.

The following use precautions will result in a safe and successful application of mixtures containing LORSBAN 4E.

- 1 In water dilutions of less than 1 part LORSBAN 4E to 14 parts water, use only in steel mix tanks.
- 2 USERS OF LORSBAN 4E INSECTICIDE THROUGH OVERHEAD SPRINKLER IRRIGATION SYSTEMS MUST COMPLY WITH ALL FIRE REGULATIONS THAT APPLY TO CLASS 1C FLAMMABLE LIQUIDS. MINIMUM DISTANCES AND PROPER ELECTRICAL CONSTRUCTION IS ESSENTIAL TO SAFELY HANDLE LORSBAN 4E. ELECTRICAL INSTALLATIONS MUST MEET CLASS 1 GROUP D DIV. 1 OR 2 REQUIREMENTS AS SPECIFIED IN THE NATIONAL ELECTRICAL CODE 70 (NEC 70). THIS TYPE OF WIRING IS GENERALLY REFERRED TO AS EXPLOSION PROOF. CONSULT WITH A LICENSED ELECTRICIAN TO CORRECTLY WIRE THE INJECTION SYSTEM AS DEFINED BY NEC 70. WHEN LORSBAN 4E INSECTICIDE IS DILUTED WITH AT LEAST 2 PARTS WATER THE CHEMICAL INJECTOR MOTOR AND WIRING NEED NOT BE EXPLOSION PROOF. NON-EXPLOSION PROOF ELECTRICAL EQUIPMENT MUST EITHER BE OUTSIDE THE HAZARD ZONE OR DISCONNECTED FROM THE POWER SOURCE WHILE MAKING THE DILUTION.
3. The irrigation pumping plant and the chemical injection pump must be interlocked so that if the irrigation pumping plant stops, the chemical injection pump also will stop. This procedure will prevent the possibility of filling the entire irrigation pipeline with the chemical mixture from the supply tank.
- 4 Properly functioning check and vacuum relief valves (antisiphon devices) are required in the irrigation pipeline to keep water and/or a mixture of water and chemical from draining or siphoning back into the irrigation well and polluting the ground water. Both of these valves are located between the irrigation pump discharge and the place of chemical injection into the irrigation pipeline.
- 5 A properly functioning check valve in the chemical injection line is required to stop the flow of water from the irrigation system into the chemical supply tank.
6. A positive displacement pump is required to provide uniform injection into the water line. The injector pump must provide a greater pressure than that of the irrigation system at the point of injection. The pump must contain Viton seals and be rated for use in hazardous areas. All electrical service inside the hazard zone must meet National Fire Protection Association 30 (NFPA 30) and NEC 70.
7. To insure uniform mixing of the insecticide into the water line, inject the mixture into the fertilizer injection port or just ahead of an elbow or tee in the irrigation line so that the turbulence created at those points will assist in mixing. It is suggested that the injection point be higher than the insecticide tank to prevent siphoning.
- 8 The steel tank holding the insecticide mixture should be large enough to allow the system to complete a revolution with one filling. It should be free of rust, fertilizer, sediment, and foreign material, and equipped with an inline strainer situated between the tank and the injector pump.
- 9 In order to calibrate the irrigation system and injector to apply the mixture containing LORSBAN 4E, determine the following: 1) calculate the number of acres covered by the system, 2) the number of minutes for the system to make one revolution, 3) the number of inches of water per acre delivered by the system, 4) the number of minutes required for the injector pump to inject one gallon of insecticide mixture, and 5) the total gallons of insecticide mixture needed to cover the desired acreage. Divide the total gallons of insecticide mixture needed to cover the irrigated area by the number of minutes to make one circle. This value equals the gallons per minute output that the injector must deliver. It is suggested that the system be calibrated at least twice before operation, and the system should be monitored during operation.
- 10 Do not apply a pesticide solution when wind speed or direction results in unacceptable drift from the application.

area. End guns which overshoot the treatment area must be turned off during the application

11. Do not allow irrigation runoff to collect or runoff and pose a hazard to livestock, wells, or adjoining crops.
12. Allow foliage to dry before reentering the field.
13. Do not apply through sprinkler systems without a reasonably uniform watering pattern such as certain water drive units

Use and Dosage Recommendations

ALFALFA: Use LORSBAN 4E to control the following pests at the dosages indicated by application as a broadcast, foliar spray.

Aphids	1 1/2 pint per acre
Corn rootworm adults (spotted cucumber beetle), grasshoppers	1 1/2 to 1 pint per acre
Alfalfa blotch leafminer, alfalfa looper, alfalfa weevil larvae and adults, armyworms, cutworms, Egyptian alfalfa weevil larvae and adults, plant bugs, leafhoppers, spittlebugs	1 to 2 pints per acre

Note: Use higher rates to control spotted alfalfa aphid in California and Nevada. Stubble spray may be applied to control leafhopper in the Northeast.

Mix the required dosage with enough water to ensure thorough coverage of crop foliage and apply using aerial (fixed-wing or helicopter) or power-operated ground spray equipment. For aerial application use 2 to 5 gallons of water per acre. Control may be reduced at low spray volumes under high temperature and wind conditions. Treat when field counts or crop injury indicates that damaging pest populations are developing or present; however, do not apply more than once per crop cutting. Some reduction in insect control may be evident under excessively cool conditions. For Egyptian alfalfa weevil control in California, apply the specified dosage in a minimum of 5 gallons of water per acre when larvae are actively feeding and populations reach 15 to 20 larvae per 180 degree sweep with a 15-inch diameter net.

LORSBAN 4E may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of LORSBAN 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

LORSBAN 4E insecticide should not be tank-mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use. Some phytotoxic symptoms may be observed on young, tender rapidly growing alfalfa when treated with LORSBAN 4E. Alfalfa will outgrow the symptoms and no yield loss should be expected.

This product is highly toxic to bees exposed to direct treatment on alfalfa. Do not apply if nearby bees are clustered outside of

hives and bees are foraging. Protective information may be obtained from your Agricultural Extension Service.

Restrictions: Do not cut or graze treated alfalfa within 7 days after application of 1 1/2 pint of LORSBAN 4E per acre, within 14 days after application of 1 pint per acre, or within 21 days after application of rates above 1 pint per acre. Do not make more than 4 applications per year or apply more than once per crop cutting.

ASPARAGUS: Use LORSBAN 4E to control cutworms, asparagus aphids, and asparagus beetles by application at the rate of 2 pints per acre. Mix the specified dosage in sufficient water to ensure thorough coverage of treated plants and apply as a broadcast, foliar spray. For cutworms, it is preferable to apply LORSBAN 4E when the soil is moist and worms are active on or near the soil surface. Applications may be made during the fern stage for control of asparagus beetles and asparagus aphids when field counts or crop injury indicates that damaging pest populations are developing or present.

Restrictions: Do not make more than one preharvest application per season or apply within one day of harvest. Do not make more than two postharvest applications during the fern stage. Based on available residue data, the use of LORSBAN 4E on asparagus is limited to the Midwest and Pacific Northwest.

CHERRIES: Use LORSBAN 4E for the control of lesser peachtree borer, greater peachtree borer, and American plum borer by application as a trunk spray. Mix 1-1.2 to 3 quarts of LORSBAN 4E with 100 gallons of water and apply as a coarse, low-pressure spray to give uniform coverage of tree trunks and lower limbs. Make a second application two weeks after the first one and a third application after harvest. Avoid contact with foliage in sweet cherries as premature leaf drop may result. Consult your State Agricultural Experiment Station or Extension Service Specialist for proper time to treat in your area.

In addition, one of the three allowable applications per year may be applied as a dormant or delayed dormant spray for control of San Jose scale, peach twig borer, and climbing cutworms. For control of these pests tank mix 1/2 to 1 pint of LORSBAN 4E with 1 to 2 gallons of a petroleum oil recommended for dormant use in 100 gallons of water and spray the entire tree by application to runoff using ground spray equipment. For low volume (concentrate) sprays (40 to 100 gallons of spray mixture per acre) use the same amounts of LORSBAN 4E and spray oil per acre required for application as a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use the higher dosage of LORSBAN 4E for severe infestations. Use oil as recommended by your State Agricultural Experiment Station or Extension Service Specialist.

Restrictions: Make only three applications per year. Do not apply within 6 days before harvest. Do not allow meat or dairy animals to graze in treated orchards.

CITRUS FRUITS: Use LORSBAN 4E insecticide at the rates indicated to control the following pests. Use the lower rates for light infestations and increase the dosage for heavier infestations.

CROP	PEST	Dosage LORSBAN 4E for Spray Coverage		Gallons of Spray Per Acre For Dilute Applications ¹	Remarks
		Dilute (Pints/100 gal. water)	Dilute or Concentrate (Pints/Acre)		
Grapefruit Lemons Oranges and Other Citrus Fruits	Aphids, Katydid Lepidopterous larvae Cutworms Fruit tree leafroller Orange tortrix Western tussock moth	Outside Coverage Spray (OC) 1/2 to 1	 2 to 7	 200 to 700	Use directions apply in all states including California
	Citrus thrips ¹ , Mealy bugs ¹ Scale insects ² Black scale Brown soft scale California red scale Snow scale, Chaff scale	1/2 to 1	2 to 7	200 to 700	Use directions apply in all states except California (See footnotes 1 & 2)
	Citrus rust mite (suppression)		4 to 7	100 to 700	Use directions apply in Florida only

- (1) In California apply as Outside Coverage (OC) using 6 to 12 pints of LORSBAN 4E per acre in 100 to 300 gallons of finished spray per acre.
 (2) In California apply as Thorough Coverage (TC) using 8 to 12 pints of LORSBAN 4E per acre. For dilute sprays apply 1200 to 2400 gallons of spray per acre but do not apply

- more than 12 pints of LORSBAN 4E per acre or use less than 1 2 pint of LORSBAN 4E per 100 gallons of finished spray per acre.
 (3) Gallonage per acre based on average size of mature trees. Adjust to tree size per acre.

For dilute applications, use the specified dosage per 100 gallons of water for the spray type indicated for pest to be controlled. For concentrate sprays, use the same amount of LORSBAN 4E per acre that would be needed for application as a dilute spray, using appropriate application/coverage procedures. A petroleum spray oil recommended for use on citrus may be added to dilute spray mixtures only at a rate of up to 1.8 gallons per 100 gallons of water to improve control of aphids, mealybugs, scale insects, and thrips. Treat when insects become a problem or in accordance with the local spray schedule recommended by your State Extension Service Specialist. Do not apply when temperature exceeds 95°F. LORSBAN 4E is highly toxic to bees exposed to direct treatment and should not be applied when bees are actively visiting the area. Apply late in evening or early morning to groves where honey bees are expected to visit.

Precautions: Observe local use directions for tank mix combinations especially in regard to applications of LORSBAN 4E plus spray oil. Consult with a County Farm Advisor, County Agent, Extension Service personnel, or Agricultural Commissioner for such information regarding a given locality. LORSBAN 4E should not be used in combination with spray oil when temperatures are expected to exceed 95°F the day of application or for several consecutive days thereafter. LORSBAN 4E should not be used in combination with PLICTRAN® 50W miticide except in dilute applications. Do not apply when trees are stressed by drought or high temperature. LORSBAN 4E should not be tank mixed with Difolatan(1) 80 Sprills as crop injury may occur.

(1) Trademark of Chevron Chemical Company

Restrictions: Do not apply more than 2 applications per fruit year or more than 15 pints of LORSBAN 4E insecticide per acre per fruit year. Do not make second application within 30 days of the first application. Do not treat within 21 days before harvest for applications up to 7 pints of LORSBAN 4E per acre nor within 35 days for application of rates above 7 pints per acre. Do not pick fruit or do other work involving contact with trees within 2 days after treatment. Do not allow livestock to graze in treated areas.

CITRUS ORCHARD FLOORS: Use LORSBAN 4E to control red imported fire ants and other ant species by applying the specified dose in 25 or more gallons of water with ground application equipment that will uniformly apply the spray to the

orchard floor. To control foraging ants and suppress mounds, apply LORSBAN 4E to the orchard floor at the rate of 3/4 to 1 quart per acre. Retreat as needed. For best insect control, uniform coverage of the orchard floor is necessary. Do not apply where weed growth or other obstructions would impede uniform coverage of the orchard floor. Do not apply in tank mixtures with Roundup(1) or paraquat herbicides. Foliar applications of LORSBAN 4E may be made in addition to the orchard floor treatments.

(1) Trademark of Monsanto Company

RESTRICTIONS: Do not apply more than 10 quarts of LORSBAN 4E per acre per season. Do not apply last treatment within 28 days before harvest. Do not allow livestock to graze in treated areas. In Florida, do not make more than 3 applications per season.

CRANBERRIES: Use LORSBAN 4E by application as a broadcast, foliar spray to control brown spanworm, cranberry fruitworm, cranberry weevil, cutworms, fireworms, and Sparganothis fruitworms at the rate of 3 pints per acre. Mix the specified dosage in enough water to ensure thorough coverage and apply no less than 5 gallons of spray per acre when using aerial equipment or no less than 100 gallons of spray per acre when using ground equipment. For weevil control, apply once at flower bud development (late May, early June) and, if weevils are present, once after 100% bloom (early to mid July). For other insects, treat when field counts indicate damaging insect populations are developing or present. Apply only after the winter flood has been removed. To avoid pesticide contamination of flood waters, make no applications while bogs are flooded.

Restrictions: Do not make more than two applications per year or apply within 60 days before harvest.

FIELD CORN, POPCORN, SWEET CORN: For use to control cutworms, armyworms, corn earworm, corn rootworm adults, chinch bugs, grasshoppers, wireworms, flea beetle larvae and adults, aphids, billbugs, grubs, western bean cutworm, corn borers, symphylans, common stalk borer, and lesser cornstalk borer.

Preplant Incorporation Treatment: Use LORSBAN 4E at the following rates by application in sufficient water to the soil surface and incorporate into the soil.

Cutworms, symphilians 2 to 4 pints per acre:
 Wireworms, billbugs, flea beetle larvae, grubs, seed corn
 maggots, seed corn beetle 4 pints per acre
 Lesser cornstalk borer, corn rootworm
 larvae 6 pints per acre

Use recommended rate in not less than 10 gallons of water per acre and apply as a broadcast spray to the soil surface using suitable power-operated ground spray equipment. On the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of soil using a disc, field cultivator or equivalent equipment

LORSBAN 4E insecticide may also be applied in tank mixtures with non-pressure fertilizer solutions and/or with Bladex(1), Eradicane(2), Sutan(3), Lasso(4), Dual(5), and Atrazine herbicides. See the Mixing Instructions section of this label for further information. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for the other products used in combination with LORSBAN 4E

- (1) Trademark of Shell Chemical Company
- (2), (3) Trademark of Stauffer Chemical Company
- (4) Trademark of Monsanto Company
- (5) Trademark of Ciba-Geigy Corporation

Preplant, At-Plant or Preemergence Treatment in Conservation Tillage: Use LORSBAN 4E at the following rates by application in sufficient water to surface trash and exposed soil:

Cutworms, armyworms 1 to 2 pints per acre.
 Use recommended rate in not less than 20 gallons of water per acre and apply as a broadcast spray using suitable power-operated ground spray equipment. Use higher rates for residual control

LORSBAN 4E may also be applied in tank mixtures with non-pressure fertilizer solutions and/or with paraquat and Roundup(1). See the Mixing Instructions section of this label for further information. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for the other products used in combination with LORSBAN 4E.

- (1) Trademark of Monsanto Company

Cultivation Time Treatment: Use LORSBAN 4E at the rate of 2 pints per acre to control corn rootworm larvae. Apply LORSBAN 4E as a water emulsion on both sides of the row at the base of the plants just ahead of the cultivator shovels. Cover the insecticide with soil around the brace roots. The best time to apply a basal treatment of a soil insecticide with cultivation is near the beginning of egg hatch. A cultivation application of LORSBAN 4E may be made in addition to an at planting application of LORSBAN 15G granular insecticide

Postemergence Treatment: Use LORSBAN 4E at the following rate by application in sufficient water to ensure thorough coverage of treated plants:

Grasshoppers 1/2 to 1 pint per acre:
 Armyworms, chinch bugs, aphids, corn rootworm adults, webworms, western bean cutworm 1 to 2 pints per acre:
 European and southwestern corn borer,
 corn earworm 1-1/2 to 2 pints per acre:
 Cutworms, billbugs, lesser cornstalk borer, flea beetle adults, common stalk borer 2 to 3 pints per acre.

Note: The recommended dosage will control silk clipping by corn rootworm adults.

Treat when field counts indicate that pests are or may become a problem. For best billbug, chinch bug, and flea beetle control, apply with sufficient water to ensure a minimum spray volume of 20 to 40 gallons per acre and 40 psi using ground spray equipment. On corn less than 6 inches tall, apply the insecticide spray in a 9 to 12 inch wide band over the row. On corn greater than 6 inches tall, apply the insecticide spray using drop nozzles directed to the base of the plant. When chinch bugs continue to immigrate to corn over a prolonged period or under extreme pressure, a second application of LORSBAN 4E may be needed

For cutworm, webworm, western bean cutworm, armyworm, aphid, European and southwestern corn borer, grasshopper, lesser cornstalk borer, corn rootworm adult, corn earworm,

and common stalk borer control, apply as a broadcast spray using either aerial (fixed-wing or helicopter) or power-operated ground spray equipment. For aerial application use 2 to 5 gallons of spray per acre. Control may be reduced at low spray volumes under high temperature and wind conditions. For cutworms, it is preferable to apply LORSBAN 4E when soil is moist and worms are active on or near the soil surface. If ground is dry, cloddy or crusty at time of treatment, worms may be protected from the spray and effectiveness will be reduced. If such conditions exist, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment may improve control. Consult your Agricutlural Experiment Station or Extension Service specialist for additional information concerning control practices in your area. For webworm control, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment is necessary. For first-generation European corn borer control, treat when 25 to 50 percent of the corn plants show pinhole feeding or leaf-feeding scars. Ground applications should be directed into the corn whorls. For second-generation European corn borer control, treat when field counts of egg masses indicate pests are or may become a problem. For southwestern corn borer control, treat when field counts of egg masses indicate pests are or may become a problem. A second application may be applied 10 to 14 days later, if needed due to reinfestation. For common stalk borer control, treat approximately 11 days after application of Roundup(1) herbicide or after complete burndown with paraquat herbicide(3 to 5 days). Do not use LORSBAN 4E in combination with the burndown herbicide for control of common stalk borer.

- (1) Trademark of Monsanto Company

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar insects. For best results, use the recommended rate of LORSBAN 4E in a tank mix with 2 pints per acre of non-emulsifiable oil. Maintain vigorous tank agitation to assure uniformity of the LORSBAN 4E plus oil mixture throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

Restrictions: Do not apply within 35 days before harvest of grain. Do not apply more than a total of 15 pints of LORSBAN 4E per acre per season. Do not allow livestock to graze in treated areas nor harvest treated corn silage as feed for meat or dairy animals within 14 days after last treatment. Do not feed treated corn fodder to meat or dairy animals within 35 days after last treatment

SWEET CORN Grown Only in Florida and Georgia: Use LORSBAN 4E to control infestations of beet armyworm, fall armyworm and corn earworm by application as a broadcast. Foliar spray at the rate of 1 to 2 pints per acre. Mix the specified dosage in enough water to ensure thorough coverage and apply using suitable aenal or ground spray equipment. For aenal application, use at least 2 gallons of spray per acre. Treat when field counts indicate damaging pest populations are developing or present. Re-treat as necessary to maintain control but do not apply more than twenty-two 1-pint or eleven 2-pint treatments per season.

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar insects. For best results, use the recommended rate of LORSBAN 4E in a tank mix with 2 pints per acre of non-emulsifiable oil. Maintain vigorous tank agitation to assure uniformity of the LORSBAN 4E plus oil mixture throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information

Restrictions: Do not apply more than 22 pints of LORSBAN 4E per acre per season. Do not harvest corn ears, allow livestock to graze in treated areas, nor feed treated silage, fodder, or grain to meat or dairy animals within 21 days after treatment. Do not use in conjunction with postplant broadcast, foliar applications of LORSBAN 15G granular insecticide.

COTTON: Use LORSBAN 4E for control of the following pests in all states except Arizona and California at the dosages indicated:

Cotton fleahopper, plant bugs
(*Lygus, Mirids*) 3/8 to 1 pint per acre.
Cotton aphid, fall armyworm, grasshoppers, spider mites,
thrips, yellow-striped armyworm 1/2 to 1 pint per acre:
Beet armyworm, bollworms (*Heliothis spp.*),
boll weevil, cutworms, pink bollworm, salt
marsh caterpillar 1 1/2 to 2 pints per acre

NOTE: The recommended dosage rate of 3/8 pint per acre will not achieve the high degree of control of the higher label rate but will minimize the damage done by plant bugs and cotton fleahopper and allow the beneficial insects to survive, build up, and be available to aid in the control of bollworms infesting cotton.

Use LORSBAN 4E for control of the following pests in Arizona and California at the dosages indicated:

Amyworms, cotton aphid, cotton fleahopper, *Lygus*, salt marsh caterpillar, thrips 1 to 2 pints per acre.
Bollworms, (*Heliothis spp.*), boll weevil, cutworms, pink bollworm 2 pints per acre

NOTE: The 2 pint rate will aid in the suppression of cotton leafperforator and spider mites.

Mix the required dosage with sufficient water to ensure thorough coverage of plants and apply using aerial or power-operated ground spray equipment. For aerial application, use at least 1 gallon of spray per acre. Treat when field counts indicate damaging insect populations are developing or present. Re-treat as necessary to maintain control.

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of LORSBAN 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days after initial treatment to control newly hatched nymphs.

For best results on bollworms, it is suggested that fields be scouted twice per week and treatments made when worms are 1/4 inch or less in length. The following table illustrates the size of worms in relation to age and stage of development (instar) as a guide to timing of treatments for best control.

From the table it can be seen that a scouting schedule of only once per week will not be satisfactory since the worms may be too big to control effectively by the seventh or eighth day.

Timing for the best worm control

	Age (days)	Size	Instar
Get the worms at this stage	Hatch	1/16"	Hatch
	3	3/32"	I
	5	5/32"	II
	6	7/16"	III
	8	1 1/16"	IV



Proper application techniques help to ensure thorough spray coverage and correct dosage and are thus important in obtaining good control of pests. Consider these suggestions when applying LORSBAN 4E insecticide on cotton.

Aerial Application: Shorten boom length to avoid spray entering the vortices at the wing tips. Swath width should be reduced when wind direction is the same as direction of spraying.

The proper nozzle arrangement and swath width to avoid skips and vortices effect can be checked out by flying over a

paper tape (adding machine paper) using water with or without soluble dye. (The dye gives a permanent record.)

Flying at a height of 5-15 feet above the target results in the best coverage.

Nozzle orientation of the boom is important. More break-up occurs when nozzles are pointed straight down versus the straight back position. Desired droplet size (100-200 microns) can be obtained by angling the nozzles somewhere in this range.

Marking of swath by flagging or permanent markers is essential.

Ground Application: Orient the boom and nozzles so that uniform coverage is obtained. The swath width should not be wider than the boom; drift spray is wasted spray so do not depend on it. Use flat fan or disc-core hollow cone nozzles with maximum spacing of 20 inches and a spray pressure of 40-60 psi with a droplet size of 100-200 microns.

Restrictions: Do not apply within 14 days before harvest. Do not allow livestock to graze in treated areas. Do not feed gin trash or treated forage to livestock.

LORSBAN 4E insecticide may also be used in tank mixtures in all states to control armyworms, bollworms (*Heliothis spp.*), boll weevil, cotton fleahopper, plant bugs (*Lygus, Mirids*), and spider mites as indicated in the following table.

TANK MIXTURE	RATE/ACRE
LORSBAN 4E plus Ambush ¹ 2E	1 to 2 pints plus 1.5 to 2.5 pint
LORSBAN 4E plus Pounce ² 3 2E	1 to 2 pints plus 1.8 to 1/4 pint
LORSBAN 4E plus Pydrin ³ 2 4E	1 to 2 pints plus 1.6 to 1/3 pint
LORSBAN 4E plus Bolstar ⁴ 6E	1/2 to 1 pint plus 2/3 to 1 1/3 pints
LORSBAN 4E plus methyl parathion ⁵ Plus EPN ⁵	1 pint plus 0.6 lb a.i. plus 0.6 lb a.i.

¹ Trademark of CI Americas Inc.
² Trademark of FMC Corporation
³ Trademark of Shell Chemical Company
⁴ Trademark of Farbentfabriken Bayer GmbH Leverkusen
⁵ Use only emulsifiable formulations containing these active ingredients (a.i.)

Mix the tank mixture components in sufficient water to ensure thorough coverage of plants (at least 1 gallon of spray per acre) and apply using aerial spray equipment. Treat when field counts indicate damaging insect populations are developing or present. Re-treat as necessary to maintain control.

In California and Arizona, use LORSBAN 4E at 1 to 2 pints per acre plus Monitor(6) 4E at 1 to 2 pints per acre or LORSBAN 4E at 1 to 2 pints per acre plus Orthene(6) 75S at 0.33 to 1.3 pounds per acre for control of armyworms, bollworms, cabbage looper, cotton aphids, cotton fleahopper, cutworms, grasshopper, omnivorous leafroller, pink bollworm, plant bugs (*Lygus, Mirids*), saltmarsh caterpillar, thrips, and whitefly (suppression). Apply in 10 to 25 gallons of water per acre with ground spray equipment or in 5 to 10 gallons of water per acre with aerial spray equipment. Treat when field counts indicate that damaging insect populations are developing or present. For tank mixtures which include Monitor 4E apply before 65 percent of the bolls have opened. Re-treat as necessary to maintain control.

(6) Trademark of Chevron Chemical Company

Restrictions: Make no applications of these tank mixtures closer to harvest than the longest pre-harvest interval shown for any of the products in the tank mixture. Do not allow livestock to graze in treated areas. Do not feed gin trash or treated forage to livestock. Workers entering the field within 48 hours after application should wear protective clothing.

FIGS: Use LORSBAN 4E at the rate of 2 quarts per acre for control of driedfruit beetle by application in sufficient water to

the soil surface followed by incorporation into the top 3 inches of soil. Apply to fig orchard soil as a dormant application in late winter prior to beetle emergence and prior to leaf formation.

Restrictions: Make only one application per year. Do not apply within 7 months of harvest. Based on available residue data, use of LORSBAN 4E on figs is restricted to California.

GRAIN SORGHUM: Use LORSBAN 4E insecticide for control of the following pests at the dosages indicated:

Sorghum midge 1.2 pint per acre
(Apply when 30 to 50 percent of the seed heads are in bloom repeat at 3-day intervals if necessary.);

Greenbugs, grasshoppers, yellow sugar cane aphid, and other aphids 1.2 to 1 pint per acre.

Chinch bugs, lesser cornstalk borer 1 to 2 pints per acre

(Apply as a directed spray toward the base of the plant using power-operated ground spray equipment with sufficient water to ensure coverage of an 8 to 12 inch band centered on the row. On plants less than 6 inches high, apply an 8 to 12 inch band over the row.);

Armyworms, corn earworm, cutworms 1 to 2 pints per acre.

European and southwestern corn borer 1.2 to 2 pints per acre.

Webworms 2 pints per acre.

Mix the specified dosage in enough water to ensure thorough coverage and apply using suitable aerial or ground spray equipment. To minimize chemical injury, do not apply LORSBAN 4E to drought stressed grain sorghum within 3 days following irrigation or rain except where the product is applied in irrigation water.

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of LORSBAN 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

Restrictions: The treated crop is not to be used for forage, fodder, hay, or silage within 30 days after application of 1 pint of LORSBAN 4E per acre or within 60 days after application of rates above 1 pint per acre. Do not treat sweet varieties of sorghum. Do not apply more than 3 pints of LORSBAN 4E per acre per season.

GRAPES: Use LORSBAN 4E insecticide for control of grape root borer by application just before the pest emerges from the soil. Mix 4 1/2 pints of LORSBAN 4E with 100 gallons of water and apply 2 quarts of the diluted spray mixture to the soil surface on a 15-square foot area around the base of each vine. Do not allow spray to contact fruit or foliage.

Restrictions: Do not make more than one application per season or apply within 35 days before harvest. Based upon available residue data, the use of LORSBAN 4E in grapes is restricted to states East of the Rocky Mountains.

MINT: Use LORSBAN 4E by application as a broadcast, foliar spray to control cutworms at the rate of 2 to 4 pints per acre and mint root borer at the rate of 4 pints per acre. Mix the specified dosage in water to give no less than 10 gallons of spray per acre and apply using ground spray equipment. For cutworm control, treat during May and June when field counts indicate damaging insect populations are developing or present. When larvae are less than 3/4 inch in length, use the 2 pint rate. When larvae are 3/4 inch or more in length, use the higher rate. Make only one application during the growing season. Do not apply within 90 days before harvest. For mint root borer control, apply post-harvest when field counts indicate damaging insect populations are developing or present. Follow treatment with approximately 1 acre inch of sprinkler irrigation immediately after application to incorporate the insecticide into the soil. Make only one post-harvest application per season.

NECTARINES, PEACHES: Use LORSBAN 4E insecticide for the control of peach tree borers by application as a trunk spray before newly hatched borers enter the trees. Mix 3 quarts of LORSBAN 4E with 100 gallons of water and apply as a coarse, low-pressure spray to give uniform coverage of tree trunks. Thoroughly wet all bark areas from ground level to scaffold limbs. Do not allow spray to contact fruit. Consult your State Agricultural Experiment Station or Extension Service Specialist for proper time to treat in your area.

LORSBAN 4E may also be used as a preplant dip application for non-bearing peach trees at the equivalent application rate of 3 quarts per 100 gallons of water for control of peach tree borer. Dip trees several inches above the grafting bud scar and plant immediately or allow to dry before returning to storage.

Restrictions: Make only one application per season. Do not apply within 14 days before harvest. Do not allow meat or dairy animals to graze in treated orchards.

ONIONS (dry bulb): Use LORSBAN 4E insecticide to control onion maggot by application as an in-furrow drench. Apply LORSBAN 4E at the rate of 1.1 fluid ounce per 1000 linear feet of row at an 18-inch row spacing. Use a minimum of 40 gallons of total drench per acre. Incorporate to a depth of 1 to 2 inches.

Restrictions: Do not make more than one application per year.

PEANUTS: Use LORSBAN 4E for control of the following pests at the dosages indicated:

Lesser cornstalk borer 2 to 4 pints per acre
(as a directed spray to the base of the plants in an 8 to 10 inch wide band);

Armyworms, corn earworm, cutworms, leafhoppers, mites, redecked peanutworm, thrips 1 to 2 pints per acre;

Velvetbean caterpillar, green cloverworm 1/2 to 1 pint per acre;

(as a broadcast, foliar spray using ground or aerial equipment when field counts indicate damaging insect populations are developing or present).

Mix the required dosage in enough water to ensure thorough coverage.

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of LORSBAN 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

LORSBAN 4E should not be tank mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use. To minimize chemical injury, do not apply LORSBAN 4E to drought stressed peanuts within 3 days following irrigation or rain except where the product is applied in irrigation water.

Restrictions: Do not make more than one application per season as a directed spray. Directed and foliar sprays should not exceed 8 pints of LORSBAN 4E per acre or 4 pounds of chlorpyrifos (active ingredient) per acre per season. Do not harvest within 21 days after treatment. Do not feed treated peanut forage or hay to meat or dairy animals.

SOYBEANS: For use to control armyworms, bean leaf beetle, corn earworm, cutworms, European corn borer, grasshoppers, green cloverworm, lesser cornstalk borer, Mexican bean beetle, saltmarsh caterpillar and other woollybears, southern green stink bug, spider mites, and velvetbean caterpillar.

Soil Treatment: Use LORSBAN 4E at the rate of 1 to 2 pints per acre to control cutworms and lesser cornstalk borer. Mix the specified dosage in a minimum of 10 gallons of spray per acre and apply to the soil surface using suitable ground spray equipment. Equivalent rates of insecticide spray required per 100 feet of row for various row spacing are given in the accompanying table. For at-plant treatments apply the insecticide over the row in a 4 to 6-inch band in front of the planter shoe or press wheel or after the press wheel followed by a drag chain for light incorporation. Do not apply as an in-furrow

treatment. For postemergence rescue treatments, apply as a directed spray in a 9 to 12-inch band at the base of the plant. To plants under 6 inches high apply over the top in a 6- to 12-inch band. Treat when field counts or conditions indicate that pests are or may become a problem.

Volume of Spray Per Acre	Fluid Ounces of Spray Required Per 100 Feet of Row for Various Row Spacing			
	36"	32"	28"	24"
10 Gallons	8.8	7.9	6.9	5.9
15 Gallons	13.2	11.8	10.3	8.8
20 Gallons	17.6	15.7	13.7	11.8

Foliar Treatment: Use LORSBAN 4E at the following rate by application in sufficient water to ensure thorough coverage of treated plants:

- European corn borer, southern green stink bug 2 pints per acre
- Bean leaf beetle, cutworms, corn earworm, saltmarsh caterpillar and other woollybears 1 to 2 pints per acre;
- Mexican bean beetle, armyworms 1 to 1-1/2 pints per acre;
- Velvetbean caterpillar, grasshoppers, green cloverworm, spider mites 1/2 to 1 pint per acre.

Apply as a broadcast spray using either aerial or ground equipment when field counts indicate damaging insect populations are developing or present; retreat as necessary to maintain control. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days after initial treatment to control newly-hatched nymphs. On determinate soybeans do not apply more than one application after pod set.

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of LORSBAN 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

Restrictions: Do not apply more than 6 pints of LORSBAN 4E per acre or 3 pounds of chlorpyrifos (active ingredient) per acre per season. Do not apply last treatment within 28 days before harvest nor apply last two treatments closer than 14 days apart. Do not allow livestock to graze in treated areas or otherwise feed treated soybean forage, hay, and straw to meat or dairy animals.

STRAWBERRIES: Use LORSBAN 4E insecticide by application as a broadcast foliar spray to control strawberry bud weevil at the rate of 1 quart per acre. Apply in a minimum of 40 gallons of spray per acre when buds first appear and 10 to 14 days later. Do not apply after berries start to form or when berries are present. LORSBAN 4E should not be tank mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use. Phytotoxicity may occur when LORSBAN 4E is applied to strawberries experiencing high temperature and drought stress.

Restrictions: For pre-bloom use only. Do not make more than two applications per season or apply within 21 days before harvest.

SUNFLOWERS: For use to control cutworms, sunflower beetle larvae and adults, stem weevil, sunflower moth, banded sunflower moth, woollybears, seed weevil, and grasshoppers.

Preplant Incorporation Treatment: Use LORSBAN 4E insecticide at the following rates by application in sufficient water to the soil surface and incorporate into the soil

Cutworms 2 to 4 pints per acre.

Use recommended rate in not less than 10 gallons of water per acre and apply as a broadcast spray to the soil surface using suitable power-operated ground spray equipment. On

the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of soil using a disc, field cultivator or equivalent equipment.

Postemergence Treatment: Use LORSBAN 4E for control of the following pests at the dosage indicated by application in sufficient water to ensure thorough coverage of treated plants:

- Cutworms 2 to 3 pints per acre.
- Sunflower beetle larvae and adults, stem weevil, sunflower moth, banded sunflower moth, woollybears, and seed weevil 1 to 1 1/2 pints per acre;
- Grasshoppers 1 pint per acre

Apply as a broadcast spray using either aerial (fixed-wing or helicopter) or power-operated ground spray equipment when field counts indicate that pests are or may become a problem. For cutworm control, a second treatment may be made 7 to 10 days later, if needed. For stem weevil control, optimal treatment time is within 5 to 7 days after adult weevils begin to appear. For sunflower moth control, make first application during early 1 to 5 percent bloom stage. A second treatment may be made 7 days later, if needed. For seed weevil control, treat when field counts indicate there are 10 to 12 adults per plant for oil crops and 1 to 3 adults per plant on confectionary crops. Additional treatments should be made at successive 7 to 10 day intervals if field counts indicate need to re-treat. For sunflower beetle larvae or adult control, treat when field counts indicate there are 10 larvae or 1 to 2 adults per seedling. Additional treatments may be made at successive 7 to 10 day intervals if field counts indicate need to re-treat.

Restrictions: Do not apply more than 9 pints of LORSBAN 4E per acre per season. Do not apply within 42 days before harvest. Do not allow livestock to graze in treated areas.

SUGAR BEETS: Use LORSBAN 4E by application as a broadcast, foliar spray to control beet armyworms at a rate of 1 1/2 to 2 pints per acre and cutworms at a rate of 2 pints per acre. Treat when field counts indicate that damaging insect populations are or may be a problem. Mix the specified dosage with 2 to 5 gallons of water per acre and apply using suitable aerial spray equipment or with 10 to 30 gallons of water per acre when using power-operated ground spray equipment. Re-treat as necessary to maintain control.

Restrictions: Do not apply within 30 days before harvest of beet roots and tops. Do not apply more than a total of 8 pints of LORSBAN 4E per acre per season. Do not allow livestock to graze in treated areas nor harvest treated beet tops as feed for meat or dairy animals within 30 days after last treatment.

SWEET POTATOES: Use LORSBAN 4E to control Conoderus wireworms, Systena flea beetles and the sweet potato flea beetle by preplant application at the rate of 4 pints per acre as a broadcast (overall) spray to the soil surface followed by incorporation. Mix the specified dosage with enough water to obtain uniform coverage of the treated area and apply as a coarse spray using suitable ground spray equipment. After application, incorporate the insecticide into the soil to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner as soon as possible after treatment.

Restrictions: Do not make more than one application per season. Do not harvest within 125 days of treatment.

TOBACCO: Use LORSBAN 4E for preplant treatment to control larvae of cutworms, flea beetles, hole crickets, root maggots, and wireworms. Apply 2 to 3 quarts of LORSBAN 4E per acre in not less than 10 gallons of water as a broadcast (overall) spray to the soil surface one week before transplanting. Immediately following application, incorporate the insecticide into the soil to a depth of 2 to 4 inches using suitable equipment.

To control infestations of nematodes, apply LORSBAN 4E in a tank mix with Nematicur(1) 3 at the rate of 2 quarts of LORSBAN 4E plus 4 quarts of Nematicur 3 per acre. Apply the specified dosage in not less than 10 gallons of water as a broadcast (overall) spray to the soil surface one week before bedding and transplanting. Immediately following application, incorporate into the soil to a depth of at least 4 inches using suitable equipment. Where the nematode species *Meloidogyne arenaria* or *M. javanica* are present increase the

amount of Nemacur 3 in the tank mix to 6.67 quarts per acre. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for Nemacur 3 used in combination with LORSBAN 4E.

Restrictions: Do not make more than one application per season.

(1) Trademark of FarbenFabriken Bayer GmbH, Leverkusen.

TREE FRUITS: Use LORSBAN 4E as a dormant or delayed dormant spray at the rates indicated to control the following insects on the crops listed.

Crop	Insect	Dosage LORSBAN 4E
Apples	Rosy apple aphid	1/2 to 1 pint
	San Jose scale	
	Lygus	
	Pandemis leafroller	
Pears	Climbing cutworms	
	Pear psylla adults	
Plums, Prunes	San Jose scale	
	Mealy plum aphid	
	Climbing cutworms	
Almonds, Peaches, Nectarines	Peach twig borer	
	San Jose scale	
	Peach twig borer	
	Climbing cutworms	

Tank mix the specified dosage with 1 to 2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water and spray the entire tree by application to runoff using suitable ground spray equipment. (SEE PRECAUTIONS FOR USE IN CALIFORNIA.) For low volume (concentrate) sprays (40 to 100 gallons of spray mixture per acre), use

the same amounts of LORSBAN 4E and spray oil per acre required for application as a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use the higher dosage of LORSBAN 4E for severe infestations. Use oil as recommended by your State Agricultural Experiment Station or Extension Service Specialist.

Precautions: Because cold or dry conditions may cause LORSBAN 4E plus oil sprays to infuse trees resulting in bud damage or drop, do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated.

Additional Precautions Specific to California: Use a minimum of 250 gallons of total spray volume per acre. Do not use more than 4 pints of LORSBAN 4E per acre. Do not use more than 4 gallons of spray oil per acre on almonds, peaches, or nectarines. Do not use any adjuvants or surfactants in addition to or as a substitute for a petroleum spray oil in a tank mix with LORSBAN 4E. Do not apply on almonds in the following counties in California: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

Restrictions: Make only one application during the dormant season. Do not allow meat or dairy animals to graze in treated orchards.

TREE NUTS: Use LORSBAN 4E at the dosages indicated by application as a foliar spray to control pests listed in the following table. Mix the required dosage in sufficient water to ensure thorough and complete coverage of the foliage and crop and apply as a concentrate or dilute spray using conventional, power-operated spray equipment. For dilute sprays applied to tree nut crops, mix the required dosage in sufficient water to allow for spray to runoff. For concentrate sprays, apply an equivalent amount of LORSBAN 4E per acre. Treat when pests appear or in accordance with local conditions. Consult your State Agricultural Experiment Station or Extension Service specialists for specific use information in your area.

Crop	Insects Controlled	Dosage LORSBAN 4E	Restrictions
Almonds	Navel orangeworm	4 pints per acre	Make no more than 3 applications per season on almonds and filberts and no more than 2 applications per season on walnuts. Do not apply within 14 days of harvest. Do not allow livestock to graze in treated orchards.
	Peach twig borer		
	San Jose scale		
Filberts	Eyespotted bud moth	3 to 4 pints per acre	
	Filbert aphid		
	Filbert leafroller		
	Filbertworm		
	Obliquebanded leafroller		
	Omnivorous leaftier		
Walnuts	Winter moth	4 pints per acre	
	Codling moth		
Pecans	Walnut scale	2 pints per 100 gallon	
	Black pecan aphid		
	Hickory shuckworm	1 pint of LORSBAN 4E plus 2-2 3 ounce of Pydrin ¹ 2 4E per 100 gallon	
	Pecan nut casebearer		
	Phyloxera spp.		
	Fall webworm		
	Spittlebug		

¹ Trademark of Shell Chemical Company

treatment. For postemergence rescue treatments, apply as a directed spray in a 9 to 12-inch band at the base of the plant. To plants under 6 inches high apply over the top in a 6- to 12-inch band. Treat when field counts or conditions indicate that pests are or may become a problem.

Volume of Spray Per Acre	Fluid Ounces of Spray Required Per 100 Feet of Row for Various Row Spacing			
	36"	32"	28"	24"
10 Gallons	8.8	7.9	6.9	5.9
15 Gallons	13.2	11.8	10.3	8.8
20 Gallons	17.6	15.7	13.7	11.8

Foliar Treatment: Use LORSBAN 4E at the following rate by application in sufficient water to ensure thorough coverage of treated plants:

Europe in corn borer, southern green stink bug 2 pints per acre
 Bean leaf beetle, cutworms, corn earworm, saltmarsh caterpillar and other woollybears 1 to 2 pints per acre;
 Mexican bean beetle, armyworms 1 to 1-1/2 pints per acre;
 Velvetbean caterpillar, grasshoppers, green cloverworm, spider mites 1/2 to 1 pint per acre.

Apply as a broadcast spray using either aerial or ground equipment when field counts indicate damaging insect populations are developing or present; retreat as necessary to maintain control. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days after initial treatment to control newly-hatched nymphs. On determinate soybeans do not apply more than one application after pod set.

LORSBAN 4E insecticide may also be applied through overhead sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of LORSBAN 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See the Overhead Sprinkler Irrigation section of this label for further information.

Restrictions: Do not apply more than 6 pints of LORSBAN 4E per acre or 3 pounds of chlorpyrifos (active ingredient) per acre per season. Do not apply last treatment within 28 days before harvest nor apply last two treatments closer than 14 days apart. Do not allow livestock to graze in treated areas or otherwise feed treated soybean forage, hay, and straw to meat or dairy animals.

STRAWBERRIES: Use LORSBAN 4E insecticide by application as a broadcast foliar spray to control strawberry bud weevil at the rate of 1 quart per acre. Apply in a minimum of 40 gallons of spray per acre when buds first appear and 10 to 14 days later. Do not apply after berries start to form or when berries are present. LORSBAN 4E should not be tank mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use. Phytotoxicity may occur when LORSBAN 4E is applied to strawberries experiencing high temperature and drought stress.

Restrictions: For pre-bloom use only. Do not make more than two applications per season or apply within 21 days before harvest.

SUNFLOWERS: For use to control cutworms, sunflower beetle larvae and adults, stem weevil, sunflower moth, banded sunflower moth, woollybears, seed weevil, and grasshoppers

Preplant Incorporation Treatment: Use LORSBAN 4E insecticide at the following rates by application in sufficient water to the soil surface and incorporate into the soil:

Cutworms 2 to 4 pints per acre.

Use recommended rate in not less than 10 gallons of water per acre and apply as a broadcast spray to the soil surface using suitable power-operated ground spray equipment. On

the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of soil using a disc, field cultivator or equivalent equipment.

Postemergence Treatment: Use LORSBAN 4E for control of the following pests at the dosage indicated by application in sufficient water to ensure thorough coverage of treated plants:

Cutworms 2 to 3 pints per acre
 Sunflower beetle larvae and adults, stem weevil, sunflower moth, banded sunflower moth, woollybears, and seed weevil 1 to 1 1/2 pints per acre;
 Grasshoppers 1 pint per acre

Apply as a broadcast spray using either aerial (fixed-wing or helicopter) or power-operated ground spray equipment when field counts indicate that pests are or may become a problem. For cutworm control, a second treatment may be made 7 to 10 days later, if needed. For stem weevil control, optimal treatment time is within 5 to 7 days after adult weevils begin to appear. For sunflower moth control, make first application during early 1 to 5 percent bloom stage. A second treatment may be made 7 days later, if needed. For seed weevil control, treat when field counts indicate there are 10 to 12 adults per plant for oil crops and 1 to 3 adults per plant on confectionary crops. Additional treatments should be made at successive 7 to 10 day intervals if field counts indicate need to re-treat. For sunflower beetle larvae or adult control, treat when field counts indicate there are 10 larvae or 1 to 2 adults per seedling. Additional treatments may be made at successive 7 to 10 day intervals if field counts indicate need to re-treat.

Restrictions: Do not apply more than 9 pints of LORSBAN 4E per acre per season. Do not apply within 42 days before harvest. Do not allow livestock to graze in treated areas.

SUGAR BEETS: Use LORSBAN 4E by application as a broadcast, foliar spray to control beet armyworms at a rate of 1 1/2 to 2 pints per acre and cutworms at a rate of 2 pints per acre. Treat when field counts indicate that damaging insect populations are or may be a problem. Mix the specified dosage with 2 to 5 gallons of water per acre and apply using suitable aerial spray equipment or with 10 to 30 gallons of water per acre when using power-operated ground spray equipment. Re-treat as necessary to maintain control.

Restrictions: Do not apply within 30 days before harvest of beet roots and tops. Do not apply more than a total of 8 pints of LORSBAN 4E per acre per season. Do not allow livestock to graze in treated areas nor harvest treated beet tops as feed for meat or dairy animals within 30 days after last treatment.

SWEET POTATOES: Use LORSBAN 4E to control Conoderus wireworms, Systena flea beetles and the sweet potato flea beetle by preplant application at the rate of 4 pints per acre as a broadcast (overall) spray to the soil surface followed by incorporation. Mix the specified dosage with enough water to obtain uniform coverage of the treated area and apply as a coarse spray using suitable ground spray equipment. After application, incorporate the insecticide into the soil to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner as soon as possible after treatment.

Restrictions: Do not make more than one application per season. Do not harvest within 125 days of treatment.

TOBACCO: Use LORSBAN 4E for preplant treatment to control larvae of cutworms, flea beetles, mole crickets, root maggots, and wireworms. Apply 2 to 3 quarts of LORSBAN 4E per acre in not less than 10 gallons of water as a broadcast (overall) spray to the soil surface one week before transplanting. Immediately following application, incorporate the insecticide into the soil to a depth of 2 to 4 inches using suitable equipment.

To control infestations of nematodes, apply LORSBAN 4E in a tank mix with Nematicur(1) 3 at the rate of 2 quarts of LORSBAN 4E plus 4 quarts of Nematicur 3 per acre. Apply the specified dosage in not less than 10 gallons of water as a broadcast (overall) spray to the soil surface one week before bedding and transplanting. Immediately following application, incorporate into the soil to a depth of at least 4 inches using suitable equipment. Where the nematode species *Meloidogyne arenaria* or *M. javanica* are present increase the

VEGETABLES: Use LORSBAN 4E to control root maggots on the following crops at the dosages indicated.

Cauliflower 1.6 to 2.4 fl oz per 1000 linear feet of row;

**Broccoli, Brussels Sprouts, Cabbage,
Chinese Cabbage, Collards, Kale, Kohlrabi,
Turnips** 1.6 to 2.75 fl oz per 1000 linear feet of row

For **direct seeded crops** apply the specified dosage in a water-based spray as a 4-inch wide band over the row at planting time, behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Apply in a minimum of 40 gallons of total spray per acre

For **transplanted crops**, apply LORSBAN 4E as a water-based spray directed to the base of the plants immediately after setting. Use a minimum of 40 gallons of total spray per acre. Do not add any additional adjuvants, surfactants, or spreader stickers. **Do not apply as a foliage application.**

Restrictions: Do not apply more than 2 pints of LORSBAN 4E to cauliflower planted in 40-inch rows. Use proportional amounts for other row spacings not to exceed 4 pints of LORSBAN 4E per acre. Do not apply more than 2.6 pints of LORSBAN 4E per acre to broccoli, Brussels sprouts, cabbage, Chinese cabbage, collards, kale, kohlrabi, and turnips planted in 40-inch rows or more than 4 1/2 pints of LORSBAN 4E per acre to these crops in 20-inch rows (or two rows per bed). Use proportional amounts for other row spacings not to exceed 4 1/2 pints of LORSBAN 4E per acre. Do not make more than one application per season or apply within 30 days before harvest

Radishes 1.0 fl oz per 1000 linear feet of row

Apply the specified dosage as a water-based drench in the seed furrows with the seed at planting time. Use a minimum of 40 gallons of total drench per acre

Restrictions: Do not apply more than 5 1/2 pints of LORSBAN 4E per acre or make more than one application per season

Rutabagas 1.6 to 3.3 fl oz per 1000 linear feet of row.

Apply the specified dosage in a water-based spray as a 4-inch wide band over the row at planting time, behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Use a minimum of 40 gallons of total spray per acre

Restrictions: Do not apply more than 4 1/2 pints of LORSBAN 4E per acre or make more than one application per season. Do not use rutabaga tops for food or feed purposes

To avoid phytotoxicity in vegetable crops, do not mix with other pesticide products or treat plants that are under extreme heat and drought stress

STORAGE AND DISPOSAL

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

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

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. For reusable portable containers, do not rinse or put any other material into container. When returning reusable portable container, seal all openings and return to owner

SPECIMEN LABEL 86-1417 DATE CODE H687
REPLACES 86-1417 DATE CODE G1086
DISCARD PREVIOUS SPECIMEN LABELS

OR

Container Disposal: Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke

ATTENTION

Do Not Cut or Weld Container

WARRANTY LIMITATIONS AND DISCLAIMER

The Dow Chemical Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions therein under normal conditions of use. THIS IS THE ONLY WARRANTY MADE ON THIS PRODUCT. NO OTHER EXPRESS AND NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OUTSIDE OF THIS LABEL. Therefore, neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, express or implied, extends to the use of this product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), under abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes, etc.) or under conditions not reasonably foreseeable to or beyond the control of seller.

When buyer or user suffers losses or damages resulting from the use or handling of this product (including claims based on contract, negligence, strict liability, or other legal theories), buyer or user must promptly notify in writing The Dow Chemical Company of any claims to be eligible to receive either remedy given below. The EXCLUSIVE REMEDY OF THE BUYER OR USER and the LIMIT OF LIABILITY of The Dow Chemical Company or any other seller will be one of the following, at the election of The Dow Chemical Company:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

The seller will not be liable for consequential or incidental damages or losses.

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Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kale and Kohlrabi: Use LORSBAN 4E to control cabbage aphid, cutworms, imported cabbageworm, and striped flea beetle adult by application as a full coverage foliar spray at the rate of 1 quart per acre in 20 to 150 gallons per acre using conventionally power-operated spray equipment. Apply when insects appear on the foliage and at 7 to 14 day intervals thereafter or as needed. Consult your State Agricultural Experiment Station, Extension Service Specialist, or Integrated Pest Control Advisor for proper time to treat in your area.



THE DOW CHEMICAL COMPANY
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REVISIONS INCLUDE:

- 1) ADDED ENDANGERED SPECIES RESTRICTIONS
- 2) REVISED ALFALFA RESTRICTIONS