

# Specimen Label



**Naturalyte® Insect Control**

®Trademark of Dow AgroSciences LLC

**A Naturalyte® insect control product formulated for the organic grower. For control of lepidopterous larvae (worms or caterpillars), leafminers, and thrips in asparagus, bushberries, caneberries, cereal grains, citrus, cole crops, corn (field corn, sweet corn, popcorn, and corn grown for seed) and teosinte, cotton, cranberry, cucurbits, fig, fruiting vegetables (okra, tomatoes, peppers and eggplants), grape, herbs, leafy vegetables, leaves of root and tuber and legume vegetables, peanut, pome fruits, potatoes and tuberous and corm vegetables, root vegetables, soybean, stone fruits, strawberry, succulent and dry beans and peas, tree farms or plantations, tree fruits, and tree nuts and pistachios, and for control of red imported fire ants.**

**The contents of this package are not for individual resale.**

Group	5	INSECTICIDE
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Active Ingredients:

spinosad

(a mixture of spinosyn A and spinosyn D) ..... 80.0%

Inert Ingredients ..... 20.0%

Total ..... 100.0%

Contains 80% active ingredient on a weight basis.

U.S. Patent No. 5,362,634 and 5,496,931



Listed by the Organic Materials Review Institute (OMRI) for use in organic production.

EPA Reg. No. 62719-282

**Keep Out of Reach of Children**

**CAUTION PRECAUCION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

## Precautionary Statements

### Hazard to Humans and Domestic Animals

**Causes Moderate Eye Irritation**

**Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.**

### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:**

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

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

Users should:

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

### First Aid

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

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

### Environmental Hazards

This product is toxic to bees exposed to treatment for 3 hours following treatment. Do not apply this pesticide to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period. This product is toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

**Notice:** Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies elsewhere on this label. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at [www.dowagro.com](http://www.dowagro.com).

## Directions for Use

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

Read all Directions for Use carefully before applying.

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

## Agricultural Use Requirements

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

## Storage and Disposal

Do not contaminate water, food or feed by storage and disposal.

**Pesticide Storage:** Store in original container only.

**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:** Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

## General Information

Entrust® is a Naturalyte® insect control product for control of many foliage feeding pests including lepidopterous larvae (worms or caterpillars), Colorado potato beetles, leafminers and thrips infesting labeled crops. This product's active ingredient, spinosad, is biologically derived from the fermentation of *Saccharopolyspora spinosa*, a naturally occurring soil organism. Spinosad is classified as an organic substance by the USDA National Organic Standards Board. Entrust (wetable powder) should be mixed with water and applied as a foliar spray with aerial or ground equipment equipped for conventional insecticide spraying.

## General Use Precautions

### Integrated Pest Management (IPM) Programs

Entrust is recommended for IPM programs in labeled crops. Entrust should be applied when field scouting indicates target pest densities have reached the economic threshold, i.e., the point at which the insect population must be reduced to avoid economic losses beyond the cost of control. Other than reducing the target pest species as a food source, Entrust does not have a significant impact on certain parasitic insects or the natural predaceous arthropod complex in treated crops, including big-eyed bugs, ladybird beetles, *Stethorus*, flower bugs, lacewings, minute pirate bugs, damsel bugs, assassin bugs, predatory mites or spiders. The feeding activities of these beneficials will aid in natural control of other insects and reduce the likelihood of secondary pest outbreaks. If Entrust is tank mixed with any insecticide that reduces its selectivity in preserving beneficial predatory insects, the full benefit of Entrust in an IPM program may be reduced.

### Insecticide Resistance Management (IRM)

Entrust contains a Group 5 insecticide. Insect/mite biotypes with acquired resistance to Group 5 may eventually dominate the insect/mite population if Group 5 insecticides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Entrust or other Group 5 insecticides. Currently, Entrust (spinosad) is the only active ingredient classified as a Group 5 insecticide and may be rotated with all other labeled products. However, since few products are labeled for organic use, a resistance management plan must be followed.

To delay development of insecticide resistance, the following practices are recommended:

- Avoid consecutive use of insecticides with the same mode of action (same insecticide group) on the same insect species.
- Use tank mixtures or premix products containing insecticides with different modes of action (different insecticide groups) provided the products are registered for the intended use.
- Base insecticide use on comprehensive IPM programs including crop rotations.
- Monitor treated insect populations in the field for loss of effectiveness.
- Contact your local extension specialist, certified crop advisor, and/or manufacturer for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.
- See individual crop guidelines for specific restrictions.
- For further information or to report suspected resistance, you may contact your local Dow AgroSciences representative or by calling 800-253-3033 or over internet at [www.dowagro.com](http://www.dowagro.com).

## Mixing

### Application Rate Reference Table

Application Rate of Entrust (oz/acre)	Active Ingredient Equivalent (lb a.i./acre)	Acres per Pound of Entrust
0.5	0.025	32
1	0.05	16
1.25	0.0625	12.8
1.5	0.075	10.6
2	0.1	8
2.5	0.125	6.4
3	0.15	5.3

**Mixing Entrust Alone:** Fill the spray tank with water to about 1/2 of the required spray volume. Start agitation and add the required amount of Entrust. Continue agitation while mixing and filling the spray tank to the required spray volume. Maintain sufficient agitation during application to ensure uniformity of the spray mix. Do not allow water or spray mixture to back-siphon into the water source.

**Tank Mixing:** When tank mixing Entrust with other materials, a compatibility test (jar test) using relative proportions of the tank mix ingredients should be conducted prior to mixing ingredients in the spray tank. If foliar fertilizers are used, the jar test should be repeated with each batch of fertilizer utilizing the mixing water source. Do not use acidifying buffering agents in tank-mixes with Entrust. Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

**Mixing Order for Tank Mixes:** Fill the spray tank with water to 1/4 to 1/3 of the required spray volume. Start agitation. Add different formulation types in the order indicated below, allowing time for complete dispersion and mixing after addition of each product. Allow extra dispersion and mixing time for dry flowable products.

Add different formulation types in the following order:

1. Water dispersible granules
2. Entrust and other wettable powders

Maintain agitation and fill spray tank to 3/4 of total spray volume. Then add:

3. Emulsifiable concentrates and water-based solutions
4. Spray adjuvants, surfactants and oils
5. Foliar fertilizers

Finish filling the spray tank. Maintain continuous agitation during mixing, final filling and throughout application. If spraying and agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be resuspended before spraying is resumed. A sparger agitator is particularly useful for this purpose.

**Premixing:** Dry and flowable formulations may be premixed with water (slurried) and added to the spray tank through a 20-35 mesh screen. This procedure assures good initial dispersion of these formulation types.

**Use of Adjuvants:** Adjuvants may be used to improve the control of leafminers and thrips in situations where achieving uniform plant coverage is difficult such as closed crop canopy, dense foliage, penetration into waxy leaf surfaces, and when less than optimum application equipment is used.

- Use only adjuvant products labeled for agricultural use and follow the manufacturer's label directions. A nominal concentration of 1 to 2 qt/100 gal (0.25 to 0.5% v/v) is generally sufficient.
- For leafminers and thrips, emulsified crop oils or methylated crop oil plus organosilicone combination products are recommended.
- When using adjuvants, always conduct a jar test to determine the compatibility of the various components in the mixture. Crop safety should be determined in a small area of the crop whenever there is a significant change in spray mixture ingredients or source of water for the spray mixture.
- Do not use diesel fuel or pure mineral oil.
- Adjuvants may require organic certification; consult your organic certifier.

### Rate Chart for Small Plantings

Entrust oz per acre	Amount of Entrust Per Quantity of Spray Solution Dry Ounces or Grams					
	Per Gallon of Spray		Per 3 Gallons or 1000 ft <sup>2</sup>		Per 5 gallons of Spray	
	oz	gm	oz	gm	oz	gm
1	0.008	0.23	0.024	0.69	0.04	1.15
1.5	0.012	0.34	0.036	1.02	0.06	1.7
2	0.015	0.43	0.046	1.30	0.075	2.15
2.5	0.019	0.54	0.058	1.64	0.095	2.7
3	0.023	0.65	0.069	1.96	0.115	3.25

For small plantings or spot sprays, add the required amount of Entrust to the recommended amount of water, mix thoroughly, and apply uniformly to plant foliage up to the point of runoff. It is recommended to mix only as much spray as needed for a single treatment. Do not use more than 3 gallons of spray per 1000 sq ft of area. If your scale cannot accurately weigh the amount needed, multiply by a factor that delivers an amount within your scale's accuracy and then divide the amount weighed volumetrically by this factor (e.g., if your scale will only accurately weigh amounts of 2 gms or greater and you only need 1 gm, weigh out 4 gms and then divide this volume into 4 parts). Follow all label instructions for mixing and applications.

### Application

Proper application techniques help ensure thorough spray coverage and correct dosage for optimum insect control. The following recommendations are provided for ground and aerial application of Entrust® Naturalyte® insect control. Attention should be given to sprayer speed and calibration, wind speed, and foliar canopy to ensure adequate spray coverage.

### Row Crop Application

Use calibrated power-operated ground spray equipment capable of providing uniform coverage of the target crop. Orient the boom and nozzles to obtain uniform crop coverage. A minimum of 10 gallons per acre should be utilized, increasing volume with crop size and/or pest pressure. Use hollow cone, disc-core hollow cone or twin jet flat fan nozzles suitable for insecticide spraying. Under certain conditions, drop nozzles may be required to obtain complete coverage of plant surfaces. Follow manufacturer's recommendations for ideal nozzle spacing and spray pressure and minimize boom height to optimize uniformity of coverage and maximize deposition (optimize on-target deposition) to reduce drift.

### Orchard Spraying

- **Dilute Spray Application:** This application method is based on the premise that all plant parts are thoroughly wetted, to the point of runoff, with spray solution. To determine the number of gallons of dilute spray per acre, contact your state agricultural experiment station, certified pest control advisor, or extension specialist for assistance.
- **Concentrate Spray Application:** This application method is based on the premise that all the plant parts are uniformly covered with spray solution but not to the point of runoff as with a dilute spray. Instead, a lower spray volume is used to deliver the same application rate per acre as used for the dilute spray.

### **Aerial Application**

Apply in a spray volume of 5 or more gallons per acre (10 or more gallons per acre for tree or orchard crops). Nozzle configuration should provide a medium to fine droplet size per ASAE S-572 standard (see USDA-ARS or NAAA handbook). Guidance for ASAE S-572 nozzle configuration can be found at the following web site: [www.cproductsinc.com](http://www.cproductsinc.com). Boom length must be less than 75% of wing or 90% of rotor span and swath adjustment (offset) to compensate for crosswinds. Observe minimum safe application height (under 12 feet for ag canopies). Use GPS equipment, swath markers or flagging to ensure proper application to the target area. The boom nozzle configurations used should be patterned (e.g., at NAAA Fly-In) for both crosswind and near parallel winds. If application is made parallel to the wind direction, swath width should be adjusted downward. Use swath adjustment (offset) to compensate for crosswinds. Do not apply under completely calm wind conditions. It is best to apply when wind speed is between 2-10 mph. Under conditions of low humidity and high temperatures, adjust spray volume and droplet size upward to compensate for evaporation of spray droplets. Insect control by aerial application may be less than control by ground application because of reduced coverage.

### **Application by Chemigation**

Entrust may be applied through properly equipped chemigation systems for insect control in corn, cranberries and potatoes. Follow use directions for these crops in the Approved Uses section of this label. Do not apply Entrust by chemigation to other labeled crops, except as specified in Dow AgroSciences supplemental labeling or product bulletins.

#### **General Directions for Chemigation:**

Entrust may be applied through overhead sprinkler irrigation systems that will apply water uniformly, including center pivot, lateral move, end tow, side (wheel) roll, traveler, solid set, micro sprinkler, or hand move. Do not apply this product through any other type of irrigation system. Sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units are not recommended.

For continuously moving systems, the mixture containing Entrust must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. If continuously moving irrigation equipment is used, apply in no more than 0.25 inch of water. For sprinkler systems that do not move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

**Preparation:** The following use directions are to be followed when this product is applied through 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 or a cleaning agent and water. Determine the amount of Entrust needed to cover the desired acreage. Mix according to instructions in the Mixing section above. Continually agitate the mixture during mixing and application.

**Equipment Calibration:** In order to calibrate the irrigation system and injector to apply the mixture containing Entrust, determine the following:

1) Calculate the number of acres irrigated by the system; 2) Set the irrigation rate and determine the number of minutes for the system to cover the intended treatment area; 3) Calculate the total gallons of insecticide mixture needed to cover the desired acreage. Divide the total gallons of insecticide mixture needed by the number of minutes to cover the treatment area. This value equals the gallons per minute output that the injector must deliver. Convert the gallons per minute to milliliters or ounces per minute. Calibrate the injector pump with the system in operation at the desired irrigation rate. It is suggested that the injector pump be calibrated at least twice before operation, and the system should be monitored during operation.

**Operation:** Start the water pump and sprinkler, and let the system achieve the desired pressure and speed before starting the injector. Start the injector and calibrate the injector system according to Special Use Precautions. This procedure is necessary to deliver the desired rate per acre in a uniform manner. When the application is finished, allow the entire irrigation and injector system to be thoroughly flushed clean before stopping the system.

#### **Precautions:**

- Lack of effectiveness or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- If you have questions about calibration, you should contact state extension service specialists, equipment manufacturers or other experts.
- Do not connect an irrigation system used for pesticide application (including greenhouse systems) to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- Do not apply when wind speed favors drift beyond the area intended for treatment. End guns must be turned off during the application, if they irrigate nontarget areas.
- Do not allow irrigation water to collect or runoff and pose a hazard to livestock, wells, or adjoining crops.
- Do not enter treated area during the reentry interval specified in the Agricultural Use Requirements section of this label unless required PPE is worn.
- Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.

#### **Specific Equipment Requirements:**

1. 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 back flow. Refer to the American Society of Agricultural Engineer's Engineering Practice 409 for more information.

2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. 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. The metering pump must provide a greater pressure than that of the irrigation system at the point of injection. The pump must meet Section 675 for "Electrically Driven or Controlled Irrigation Machines" NEC 70.
7. To insure uniform mixing of the insecticide into the water line, inject the mixture through a nozzle placed in 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 tank holding the insecticide mixture should be large enough to allow the system to complete a revolution with 1 filling. It should be free of rust, fertilizer, sediment, and foreign material, and equipped with an in-line strainer situated between the tank and the injector pump.

## Approved Uses

### Asparagus (Post Harvest Protection of Ferns Only)

#### Pests and Application Rates:

Pests	Entrust (oz/acre)
asparagus beetle	1.25 - 2

#### Specific Use Directions:

**Application Timing:** For determining when to treat, scout with enough regularity to monitor the population size of the labeled pest. Make applications **only to asparagus ferns**. Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Apply Entrust® Naturalyte® insect control as a foliar spray at the rate indicated to control asparagus beetle in asparagus fern. Use a higher rate in the rate range for heavy infestations or advanced growth stages of the beetle. Heavy infestations may require repeat applications, but follow resistance management guidelines.

**Resistance Management:** For resistance management purposes, do not apply more than 3 times in any 30-day period. Rotate to a different class of insect control products or use no treatment for the next 30 days. Do not make more than 3 applications per crop.

#### Restrictions:

- Do not apply more than a total of 5.6 oz of Entrust (0.28 lb a.i. of spinosad) per acre per crop.
- **Preharvest Interval:** This use is only for asparagus ferns; do not apply within 60 days of spear harvest.
- Do not feed treated ferns to meat or dairy animals.

### Bushberries

#### (Insect Suppression)

**Including, but not limited to: Blueberry, Currant, Gooseberry, Huckleberry, Elderberry, Juneberry, Lingonberry, Salal**

#### Pests and Application Rates:

Pests	Entrust (oz/acre)
armyworms cherry fruitworm cranberry fruitworm currant fruitfly fireworms leafrollers loopers thrips <sup>†</sup>	1.25 - 2

<sup>†</sup>Control of thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

#### Specific Use Directions:

**Application Timing:** Treat when pests appear, targeting eggs at hatch or small larvae. Heavy infestations may require repeat applications but follow resistance management guidelines. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** The amount of Entrust per acre will depend on plant size and volume of foliage present and pest pressure. Choose a lower rate for light infestations and/or small plants and a higher rate for heavy infestations and/or larger plants.

**Resistance Management:** Do not apply Entrust more than 3 times in any 30 day period. Whenever Entrust is applied three times in succession this should be followed by no use of Entrust for a 30 day period or rotation to another insecticide class.

#### Restrictions:

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop or make more than 6 applications per calendar year.
- **Minimum Treatment Interval:** Do not make applications less than 6 days apart.
- **Preharvest Interval:** Do not apply within 3 days of harvest.

### Caneberries

**Including, but not limited to: Blackberry, Loganberry, Red and Black Raspberry, and Cultivars and/or Hybrids of these**

#### Pests and Application Rates:

Pests	Entrust (oz/acre)
beet armyworm bertha armyworm green fruitworm leafrollers looper sawfly western raspberry fruitworm	1.25 - 2

#### Specific Use Directions:

**Application Timing:** Treat when pests appear, targeting eggs at hatch or small larvae. Heavy infestations may require repeat applications, not less than 5 days apart, but follow resistance management guidelines. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** The amount of Entrust per acre will depend on plant size and volume of foliage present and pest pressure. Use a higher rate in the rate range for larger larvae or moderate to severe infestations and/or larger plant volume.

**Resistance Management:** Do not apply Entrust more than 3 times in any 30 day period. Whenever Entrust is applied three times in succession, this should be followed by no use of Entrust for a 30 day period or rotation to another insecticide class.

#### Restrictions:

- Do not apply more than a total of 9 oz of Entrust (0.45 lb ai of spinosad) per acre per crop or make more than 6 applications per calendar year.
- Minimum Treatment Interval:** Do not make applications less than 5 days apart.
- Preharvest Interval:** Do not apply within 1 day of harvest.

#### Cereal Grains

**Including, but not limited to:** Barley, Buckwheat, Grain Amaranth, Milo, Oats, Pearl Millet, Proso Millet, Rye, Sorghum, Triticale, Wheat

#### Pests and Application Rates:

Pests	Entrust (oz/acre)
cereal leaf beetle	0.5 - 2
armyworms corn earworm (headworm) southwestern corn borer web worms	1 - 2

#### Specific Use Directions:

**Application Timing:** Scout for **armyworms** with enough regularity to monitor egg laying and egg hatch and treat when thresholds are reached. Applications of Entrust perform best when timed to coincide with peak egg hatch and/or small larval stage of growth of each generation.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations, advanced growth stages of target pests, or difficult spray coverage situations.

#### Restrictions:

- Do not apply more than 5.6 oz of Entrust (0.28 lb a.i. of spinosad) per acre per year.
- Preharvest Interval:** Do not apply within 21 days of grain or straw harvest or within 14 days of forage or hay harvest.

#### Citrus

**Including, but not limited to:** Grapefruit, Lemons, Limes, Oranges, Tangerines

#### Pests and Application Rates:

Pests	Entrust (oz/acre)
citrus leafminer citrus orangedog citrus peelminer citrus thrips <sup>†</sup>	1.25 - 3

<sup>†</sup>Control of thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

#### Specific Use Directions:

**Application Timing:** Treat when pests appear or in accordance with local economic thresholds. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** The rate per acre of Entrust will depend on tree size and pest pressure. Use a lower rate for light infestations and/or small trees and a higher rate for heavy infestations and/or large trees.

**Resistance Management:** Citrus thrips are present most of the time on the crop during the growing season and have demonstrated a high potential to develop resistance to insect control products. In order to prevent or delay resistance development in thrips, do not apply Entrust more than 2 times per year. If additional treatments are required, rotate to another class of products. For resistance management purposes, do not apply to citrus nurseries or citrus in greenhouses.

#### Restrictions:

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- Preharvest Interval:** Do not apply within 1 day of harvest.

#### Cole Crops (*Brassica* Vegetables)

**Including, but not limited to:** Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Broccoli, Chinese Cabbage (Bok Choy), Chinese Cabbage (Napa), Chinese Mustard Cabbage (Gai Choy), Cauliflower, Cavalo, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens, Turnip Greens

**In the state of Georgia,** do not apply Entrust to: Broccoli Raab, Chinese Cabbage (Bok Choy), Collards, Kale, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
diamondback moth	0.5 – 1.25
cabbage looper imported cabbageworm	1 – 2
armyworms (including beet armyworm) leafminers <sup>†</sup> thrips <sup>†</sup>	1.25 - 3

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Timing:** Treat when pests appear, targeting eggs at hatch or small larvae. Heavy infestations may require repeat applications, but follow resistance management guidelines. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests.

**Resistance Management:** Do not apply Entrust to successive generations of insects. Do not apply more than 3 times to any single generation or within any 30 day period. After use of Entrust (once or up to 3 times) in a 30-day period, rotate to another class or use no insecticide for the next 30 days. Use this calendar or window approach for the entire farm and consider area wide programs if other growers are in close proximity. Do not make more than 6 applications of Entrust per calendar year for diamondback moth on a farm.

**Restrictions:**

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- **Preharvest Interval:** Do not apply within 1 day of harvest.
- Do not apply to seedling cole crops grown for transplant within a greenhouse, shade house, or field plot.

**Corn (Field Corn, Sweet Corn, Popcorn, and Corn Grown for Seed) and Teosinte**

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
armyworms European corn borer	0.5 - 2
beet armyworm corn earworm southwestern corn borer western bean cutworm	1 - 2

**Specific Use Directions:**

**Application Timing:** Scout for European corn borer and armyworms with enough regularity to monitor egg laying and egg hatch. Applications of Entrust<sup>®</sup> Naturalyte<sup>®</sup> insect control should be timed to coincide with peak egg hatch of each generation. Frequent treatments may be necessary when the crop is growing rapidly, during silking or under heavy pest pressure.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests.

**Spray Delivery:** For control of first generation European corn borer and armyworms, apply broadcast or as a directed spray into the leaf whorls. For control of corn earworm, apply broadcast or direct spray to ear zone. Use sufficient spray volume and nozzle pressure to ensure thorough wetting of the silks.

**Chemigation:** Entrust may be applied to corn by chemigation at labeled rates. Refer to the Application by Chemigation section for application guidelines for chemigation.

**Restrictions:**

**Sweet Corn, Popcorn, Corn Grown for Seed**

- Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per year.
- **Preharvest Interval:** Do not apply within 1 day of grains harvest or 7 days of forage harvest.

**Field Corn and Teosinte**

- Do not apply more than 3.75 oz of Entrust (0.188 lb a.i. of spinosad) per acre per year.
- **Preharvest Interval:** Do not apply within 28 days of grain or fodder harvest or within 7 days of forage harvest.

**Cotton**

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
European corn borer cotton bollworm (pre-bloom) cotton leafperforator tobacco budworm	1 – 2
armyworms (including beet armyworm, fall armyworm) cotton bollworm (post-bloom) leafminers loopers (including soybean looper, cabbage looper) saltmarsh caterpillar thrips	1.25 – 2

**Specific Use Directions:**

**Application Timing:**

**Tobacco Budworm and/or Cotton Bollworm:** For the most effective control, fields should be scouted twice per week and Entrust applied when the majority of the population is within the time of blackhead egg stage to 1/8-inch larval length. The following table illustrates the size of development of worms in relation to age and stage of development (instar) as a guide to timing treatments for optimum control:

Age (Days)	Average Size	Instar <sup>†</sup>
Hatch	1/16"	1st
3	1/4"	2nd
5	1/2"	3rd
8	7/8"	4th
10	1"	5th

<sup>†</sup>**Note:** A scouting schedule of only once per week is risky since hatching worms will have grown to 3rd instar before the next scouting observation has determined the need to spray.

**Beet Armyworm:** Economic thresholds vary with local conditions and sampling methods. The following is an example of one such method: apply Entrust when field scouting reveals 3 or more occurrences of egg hatch or larval feeding per 100 feet of row.

**Loopers:** Economic thresholds vary with local conditions and sampling methods. The following is an example of one such method: apply Entrust when field scouting reveals 4 larvae per 1 foot of row or 25% defoliation.

**Application Rate:** Choose a higher rate within the rate range and higher spray volume when one or more of the following is true: tobacco budworms or bollworms are more than 1/4 inch in length; target pest population is 2X above state threshold level; or foliage canopy is tall/dense and worms are present in the lower part of the canopy. Heavy infestations may require repeat applications, but follow resistance management guidelines.

**Resistance Management:** For resistance management purposes, do not apply more than 3 times in any 30-day period. Rotate to a different class of insect control products or use no treatment for the next 30 days. For **tobacco budworm and/or cotton bollworm** where early season conservation of beneficial insects is practical, use Entrust to control the 1st and 3rd generation of tobacco budworm and/or cotton bollworm. Where conservation of beneficial insects is not as critical (for example, fields have received non-selective early season treatments for boll weevil or lygus bugs), use Entrust to control either the 2nd or 3rd generation of tobacco budworm and/or cotton bollworm.

**Restrictions:**

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per growing season.
- **Minimum Treatment Interval:** Do not make applications less than 5 days apart for high rates of application.
- **Preharvest Interval:** Do not apply within 28 days of harvest.

**Cranberry  
(Insect Suppression)**

**Pests and Application Rates:**

Pests	Rate of Entrust
	Broadcast (oz/acre)
armyworms currant fruitfly fireworms leafrollers loopers sparganothis fruitworm thrips	1.25 – 3

**Specific Use Directions:**

**Application Timing:** For determining when to treat, scout with enough regularity to monitor the population size of each of the labeled pests. Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Application rate within the rate range will depend on plant size and volume of foliage present and pest pressure. Use a higher rate in the rate range for larger larvae or moderate to severe infestations and and/or larger plant volume.

**Chemigation:** Entrust may be applied to corn by **chemigation** at labeled rates. Refer to the Application by Chemigation section for application guidelines for chemigation.

**Restrictions:**

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop or make more than 6 applications per calendar year.
- **Minimum Treatment Interval:** Do not make applications less than 7 days apart.
- **Preharvest Interval:** Do not apply within 21 days of harvest.

**Cucurbits**

**Including, but not limited to: Cucumber, Edible Gourds, Muskmelons (Cantaloupe, Honeydew, etc.), Pumpkin, Summer Squash, Watermelon, Winter Squash**

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
armyworm cabbage looper melon worm pickleworm rindworm	1.25 – 2.5
leafminers <sup>†</sup> thrips <sup>†</sup>	2 – 2.5

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Timing:** Use Entrust® Naturalyte® insect control at the dosages indicated by application as a foliar spray. Heavy infestations may require repeat applications, but make no more than 6 applications per crop. Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional area use recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests.



**Resistance Management:** Leafminers and thrips have demonstrated the ability to develop resistance to numerous classes of products. Because leafminer and thrips generations overlap, rotate insecticides for leafminers and thrips and never apply more than 2 consecutive applications of a single insecticide with the same mode of action.

**Restrictions:**

- Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per season.
- **Preharvest Interval:** Do not apply within 3 days of harvest for all crops except cucumbers. Do not apply within 1 day of harvest for cucumbers.

**Fig**

**Pests and Application Rates:**

Pests	Rate of Entrust	
	(oz/acre)	Dilute Spray (oz/100 gal)
navel orangeworm	1.25 - 3	0.3 – 0.75

**Specific Use Directions:**

**Application Timing:** Apply Entrust as a foliar spray when pests appear or in accordance with local conditions. Apply as a concentrate or dilute spray using conventional, power operated spray equipment (see Orchard Spraying section under Application section). Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** The rate per acre of Entrust will depend on tree size and volume of foliage present and pest pressure. Choose a higher rate for large trees or heavy infestations.

**Spray Volume:** Dilute sprays are sprayed to the point of runoff. The application rate range for dilute sprays in the table is based on a spray volume of 400 gallons per acre. Gallonage of dilute sprays will vary depending on tree size, density of canopy, stage of seasonal growth, and spacing in the orchard.

**Resistance Management:** Although navel orangeworm has not had major resistance problems, it is recommended to avoid applying Entrust against more than 2 generations per year.

**Restrictions:**

- Do not apply more than a total of 9 oz of Entrust (0.45 lb of spinosad) per acre per crop.
- **Preharvest Interval:** Do not apply within 7 days of harvest.

**Fruiting Vegetables and Okra**

**Including, but not limited to: Eggplant, Ground Cherry, Okra, Pepino, Pepper (except black), Tomatillo, and Tomato**

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
lepidopterous larvae (maintenance only)	0.5 - 1
Colorado potato beetle European corn borer hornworms loopers tomato fruitworm	1 - 2
armyworms (including beet armyworm) flower thrips <sup>†</sup> thrips palmi <sup>†</sup> tomato pinworm	1.25 – 2.5
leafminers <sup>†</sup> ( <i>Liriomyza</i> spp.)	2 – 2.5

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Timing:** Scout weekly throughout the season to monitor and track populations of leafminers and thrips to determine when economic thresholds are exceeded. Scout weekly throughout the season to monitor and track pest and beneficial populations. For tracking **lepidopterous larvae**, scout with enough regularity to monitor the population size of each of the labeled pests. Applications of Entrust should be timed to coincide with peak egg hatch in species without overlapping generations. Consult current pest management recommendations for specific guidelines.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests.

**Resistance Management:** For resistance management, do not apply more than 3 times in any 21 day period. Rotate to a different class of insect control products or use no treatment for the next 21 days.

**Restrictions:**

- Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- **Preharvest Interval:** Do not apply within 1 day of harvest.
- Do not apply to seedling fruiting vegetables grown for transplant within a greenhouse, shade house, or field plot.

## Grape

### Pests and Application Rates:

Pests	Entrust (oz/acre)
climbing cutworms grape berry moth grape leaffolder grape leaf skeletonizer omnivorous leafroller orange tortrix thrips	1.25 – 2.5

### Specific Use Directions:

**Application Timing:** Treat when pests appear, targeting eggs at hatch or small larvae. Heavy infestations may require repeat applications, not less than 5 days apart, but follow resistance management guidelines. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Equipment and spray volume should be carefully adjusted to assure thorough uniform coverage of infested parts of the crop. Use a higher rate in the rate range for larger larvae or moderate to severe infestations and/or larger plant volume.

**Resistance Management:** Do not apply Entrust more than 3 times in any 30 day period. Whenever Entrust is applied 3 times in succession, this should be followed by no use of Entrust for a 30 day period or rotation to another insecticide class.

### Restrictions:

- Do not apply more than a total of 7.5 oz of Entrust (0.375 lb ai of spinosad) per acre per crop.
- Minimum Treatment Interval:** Do not make applications less than 5 days apart.
- Preharvest Interval:** Do not apply within 7 days of harvest.
- The maximum seasonal application rate east of the Rocky Mountains is 0.36 lb ai per acre.

## Herbs

### (Insect Suppression)

**Including, but not limited to:** Angelica, balm, basil, borage, burnet, camomile, catnip, chervil (dried), chive, chive (Chinese), clary, coriander (leaf), costmary, cilantro (leaf), curry (leaf), dillweed, horehound, hyssop, lavender, lemongrass, lovage (leaf), marigold, marjoram, nasturtium, parsley (dried) pennyroyal, rosemary, rue, sage, savory (summer and winter), sweet bay, tansy, tarragon, thyme, wintergreen, woodruff and wormwood

### Pests and Application Rates:

Pests	Entrust (oz/acre)
armyworms loopers thrips	1.25 - 2

### Specific Use Directions:

**Application Timing:** For determining when to treat, scout with enough regularity to monitor the population size of each of the labeled pests. Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated to control target pests. Use a higher rate in the rate range for larger larvae or high infestations and/or larger plant volume. Heavy infestations may require repeat applications, not less than 5 days apart, but follow resistance management guidelines.

**Resistance Management:** For resistance management purposes, do not apply more than 3 times in any 30-day period. Rotate to a different class of insect control products or use no treatment for the next 30 days. Do not make more than 4 applications per crop.

### Restrictions:

- Do not apply more than a total of 7.5 oz of Entrust (0.33 lb ai of spinosad) per acre per crop or make more than 5 applications per calendar year.
- Preharvest Interval:** Do not apply within 1 day of harvest.

## Leafy Vegetables and Leaves of Root and Tuber and Legume Vegetables

**Including, but not limited to:** Arugula, Beets, Celery, Chervil, Cilantro, Corn Salad, Cress, Dandelion, Dock, Edible Chrysanthemum, Endive, Fennel, Garden Peas, Head Lettuce, Leaf Lettuce, Parsley, Purslane, Radicchio, Rhubarb, Spinach, Swiss Chard, Turnip Greens, Water Cress

### Pests and application rates:

Pests	Entrust (oz/acre)
diamondback moth	0.5 - 1
cabbage looper imported cabbage worm	1 - 2
armyworms (including beet armyworm)	1.25 – 2.5
leafminers <sup>†</sup> thrips <sup>†</sup>	2 - 3

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

### Specific Use Directions:

**Application Timing:** Scout at least weekly and consider the impact of both pests and beneficials. Treat when economic thresholds are exceeded, targeting eggs at hatch or small larvae. Heavy infestations may require repeat applications, but follow resistance management guidelines. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests.

**Resistance Management:** For resistance management, do not apply more than 3 times in any 21 day period. Rotate to a different class of insect control products or use no treatment for the next 21 days. Do not apply more than 6 treatments per crop. If Entrust is applied 3 times in succession, do not apply again for at least 21 days.

**Restrictions:**

- Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- **Preharvest Intervals:**  
**Leafy greens:** Do not apply within 1 day of harvest.  
**Leaves of root, tuber and legume Vegetables:** Do not apply within 3 days of harvest.
- Do not apply to seedling leafy crops grown for transplant within a greenhouse or shade house.

**Peanut**

(Not for Use in California)

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
armyworms, including: beet armyworm fall armyworm true armyworm yellowstriped armyworm cabbage looper corn earworm European corn borer green cloverleaf worm red-necked peanut worm saltmarsh caterpillar soybean looper velvetbean caterpillar	1- 2

**Specific Use Directions:**

**Application Timing:** Regularly monitor the population size of each of the labeled pests. Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Use a higher rate in the rate range for larger larvae or moderate to severe infestations and/or larger plant volume.

**Resistance Management:** Do not apply Entrust® Naturalyte® insect control more than 3 times in any 30 day period. Whenever Entrust is applied three times in succession, this should be followed by no use of Entrust for a 30 day period or rotation to another insecticide class.

**Restrictions:**

- Do not apply more than a total of 5.6 oz of Entrust (0.28 lb ai of spinosad) per acre per crop or make more than 3 applications per calendar year.
- **Minimum Treatment Interval:** Do not make applications less than 7 days apart.
- **Preharvest Interval:** Do not apply within 3 days of nut harvest or within 14 days of forage.
- **Grazing Restrictions:** Do not allow grazing of crop residue or harvest of crop residue for hay until 14 days after the last application.

**Pome Fruits**

Including, but not limited to: Apples, Crabapple, Loquat, Mayhaw, Pears, Quince

**Pests and Application Rates:**

Pests	Rate of Entrust	
	(oz/acre)	Dilute Spray (oz/100 gal)
leafminers <sup>†</sup> spotted tentiform western tentiform	1. 5– 3	0.5 - 1
apple maggot (suppression) codling moth leafrollers oblique-banded pandemis oriental fruit moth thrips <sup>†</sup> tufted apple budmoth	2 – 3	0.67 - 1

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Timing:** Optimal timing for **leafminers** and **leafrollers** may vary between species and geographic location. For **leafminers**, monitor the moth flights and infestation densities of both the sap-feeding and tissue-feeding stage. For optimum control, treat at first appearance of leaf mining activity. For **leafrollers**, monitor the moth flights and the infestation densities of the larval stages. Repeat application as necessary to maintain control. **Codling moth** and **oriental fruit moth** treatments should closely follow regional spray recommendations based on biofix dates and pheromone trap catches. **Codling moth** and **oriental fruit moth** larvae must be controlled before they penetrate the fruit. **Codling moth** and **oriental fruit moth** applications will provide control for no more than 10 days. Repeat application as necessary to maintain control. Consult with your Dow AgroSciences representative, state agricultural experiment station, certified pest control advisor or extension specialist for specific application timings in your area.

**Application Rate:** The amount of Entrust per acre will depend on tree size and pest pressure. Choose lower rates for light infestations and/or small trees and the higher rates for heavy infestations and/or larger trees.

**Spray Volume:** Dilute sprays are sprayed to the point of runoff. The application rate range in the table is based on a spray volume of 300 gallons per acre. Gallonage of dilute sprays will vary depending on tree size, density of canopy, stage of seasonal growth, and spacing in the orchard.

**Resistance Management:** Leafrollers have demonstrated the ability to develop resistance to many insect control products. Rotate to products with different modes of action after applying Entrust against 2 consecutive generations of insects. For resistance management purposes, do not apply more than 3 sprays targeted at leafrollers per season.

**Restrictions:**

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- **Preharvest Interval:** Do not apply within 7 days of harvest.

**Potatoes and Tuberous and Corm Vegetables**

**Including, but not limited to: Artichoke, Cassava, Chayote Root, Chinese Artichoke, Garden Beet, Ginger, Jerusalem Artichoke, Potatoes, Sugar Beet, Sweet Potatoes, Tumeric, Yams**

**Pests and Application Rates:**

Pests	Entrust (oz/acre)
Colorado potato beetle European corn borer	1 - 2
armyworms artichoke plume moth dipteran leafminers ( <i>Liriomyza</i> ) loopers thrips <sup>†</sup>	1.5 - 3

<sup>†</sup>Control of thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Timing:** Treat when pests appear, targeting eggs at hatch or small larvae. When plants are growing rapidly, repeat applications may be necessary to protect new foliage. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests. Heavy infestations may require repeat applications but follow resistance management guidelines.

**Chemigation:** Entrust may be applied to potatoes by **chemigation** at labeled rates. Refer to the Application by Chemigation section for application guidelines for chemigation.

**Resistance Management:** Do not apply to consecutive generations of Colorado potato beetle and do not make more than two applications per single generation of Colorado potato beetle. Do not apply more than 3 times in any 30-day period. Rotate to a different class of insect control product or use no treatments for the next 30 days.

**Restrictions:**

- Do not make applications less than 7 days apart or apply more than 4 times per crop.
- Do not apply more than a total of 6.5 oz (7.5 oz for artichoke) of Entrust (0.33 lb a.i. of spinosad) per crop.
- **Preharvest Intervals:**  
**Artichoke:** Do not apply within 2 days of harvest.  
**Sugar and Garden Beets:** Do not apply within 3 days of harvest.  
**All others:** Do not apply within 7 days of harvest.

**Root Vegetables**

**Including, but not limited to: Black Salsify, Carrot, Celeriac, Chicory, Edible Burdock, Ginseng, Horseradish, Parsnip, Radish, Oriental Radish, Rutabaga, Salsify, Skirret, Spanish Salsify, Turnip, Turnip-Rooted Chervil, and Turnip-Rooted Parsley**

**Pests and Application Rates:**

Crop	Pests	Entrust (oz/acre)
black salsify carrot chicory ginseng horseradish parsnip salsify skirret Spanish salsify turnip-rooted chervil turnip-rooted parsley	armyworms dipteran leafminers European corn borer fleabeetle loopers thrips <sup>†</sup>	1 - 2
celeriac edible burdock Oriental radish radish rutabaga turnip		

<sup>†</sup>Control of thrips may be improved with the addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Timing:** For determining when to treat, scout with enough regularity to monitor the population size of each of the labeled pests. Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in specified rate range for larger larvae or heavier infestations.

**Restrictions:**

- **Black salsify, carrot, chicory, ginseng, horseradish, parsnip, salsify, skirret, Spanish salsify, turnip-rooted chervil, turnip-rooted parsley** - Do not apply more than a total of 7 oz of Entrust (0.3 lb ai of spinosad) per acre per crop or make more than 4 applications per calendar year.
- **Celeriac, edible burdock, Oriental radish, radish, rutabaga, turnip** - Do not apply more than a total of 6 oz of Entrust (0.16 lb ai of spinosad) per acre per crop or make more than 3 applications per calendar year.
- **Minimum Treatment Interval:** Do not make applications less than 5 days apart.
- **Preharvest Interval:** Do not apply within 3 days of harvest.

## Soybean

### Pests and Application Rates:

Pests	Entrust (oz/acre)
green clover worm soybean looper true armyworm velvet bean caterpillar	1 – 2
armyworms (such as fall armyworm, yellowstriped armyworm, beet armyworm) corn earworm (podworm) saltmarsh caterpillar	1.25 – 2

### Specific Use Directions:

**Application Timing:** Treat when field counts or crop injury indicates damaging pest populations are present or developing. Time applications to treat small larvae and use sufficient spray volume to ensure good coverage. Use a higher rate in rate range for heavy infestations and/or difficult spray coverage situations.

### Restrictions:

- Do not apply more than 3.72 oz of Entrust (0.186 lb a.i. of spinosad) per acre per year.
- Preharvest Interval:** Do not apply within 28 days of harvest.
- Do not feed treated forage or hay to meat or dairy animals.

## Stone Fruits

Including, but not limited to: Apricots, Cherries, Nectarines, Peaches, Plums, Prunes

### Pests and Application Rates:

Pests	Rate of Entrust	
	(oz/acre)	Dilute Spray (oz/100 gal)
cherry fruit fly green fruitworm leafminers (such as spotted tentiform, western tentiform) <sup>†</sup> leafrollers (such as oblique-banded fruit tree pandemis redbanded variegated) oriental fruit moth peach twig borer thrips <sup>†</sup> western cherry fruit fly	1.25 – 2.5	0.42 – 0.83

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

### Specific Use Directions:

**Application Timing:** Optimal timing for **leafrollers** may vary between species and geographic location. For **leafrollers**, monitor the moth flights and the infestation densities of the larval stages. Repeat application as necessary to maintain control and ensure thorough coverage for optimal control. For **cherry fruit fly**, maintain protective sprays at 7-day intervals while adults are present and fruit is susceptible to attack. Consult with your Dow AgroSciences representative, state agricultural experiment station, certified pest control advisor or extension specialist for specific application timings in your area.

**Application Rate:** Choose a higher rate in the rate range for large trees, heavy infestations, or advanced growth stages of target pest, especially if spray volume or coverage is marginal.

**Spray Volume:** Dilute sprays are sprayed to the point of runoff. The application rate range in the table is based on a spray volume of 300 gallons per acre. Gallonage of dilute sprays will vary depending on tree size, density of canopy, stage of seasonal growth, and spacing in the orchard.

### Restrictions:

- Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per year.
- Preharvest Interval:** Do not apply within 7 days of harvest for cherries, plums, and prunes or within 14 days of harvest for peaches, nectarines and apricots.

## Strawberry

### Pests and Application Rates:

Pests	Entrust (oz/acre)
armyworms, including beet armyworms leafrollers thrips	1.25 – 1.5

### Specific Use Directions:

**Application Timing:** Treat when pests appear, targeting eggs at hatch or small larvae. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Application Rate:** Use Entrust<sup>®</sup> Naturalyte<sup>®</sup> insect control at the dosages indicated by application as a foliar spray to control target pests. Use a higher rate in the specified range for larger larvae or moderate to severe pest infestations. Heavy infestations may require repeat applications but follow resistance management guidelines.

**Resistance Management:** Rotate to a different class of insect control products after 2 successive applications of Entrust. Do not make more than 5 applications per year.

### Restrictions:

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- Preharvest Interval:** Do not apply within 1 day of harvest.

## Succulent and Dried Beans and Peas

Including, but not limited to: Adzuki Bean, Blackeyed Pea, Chickpea, Cowpea, Crowder Pea, Edible-Pod Pea, English Pea, Fava Bean, Field Bean, Field Pea, Garbanzo Bean, Garden Pea, Green Pea, Kidney Bean, Lentil, Lima Bean, Lupins, Mungbean, Navy Bean, Pigeon Pea, Pinto Bean, Runner Bean, Snap Bean, Snow Pea, Sugar Snap Pea, Tepary Bean, Wax Bean, Yardlong Bean

### Pests and Application Rates:

Pests	Entrust (oz/acre)
European corn borer (eggs and larvae)	1 - 2
armyworms corn earworm loopers	1.25 - 2
leafminers <sup>†</sup> thrips <sup>†</sup>	1.5 - 2

<sup>†</sup>Control of leafminers and thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

### Specific Use Directions:

**Application Timing:** For determining when to treat, scout with enough regularity to monitor the population size of each of the labeled pests. Heavy infestations may require repeat applications, but make no more than 6 applications per crop. Treat when pests appear, targeting eggs at hatch or small larvae. For European corn borer, initiate when moth flights first appear and use the lower end of the rate range to control eggs and larvae every 3 days before they enter the plant. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional recommendations for your area.

**Application Rate:** Apply as a foliar spray at the rate indicated for target pest. Use a higher rate in the rate range for heavy infestations or advanced growth stages of target pests.

**Resistance Management:** Leafminers and thrips have demonstrated the ability to develop resistance to numerous classes of products. Because leafminer and thrips generations overlap, rotate leafminer and thrips insecticides and never apply more than 2 consecutive applications targeted against leafminers or thrips of a single compound including Entrust or compounds with the same mode of action.

### Restrictions:

#### Succulent Beans and Peas:

- Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per season.
- Preharvest Interval:** Do not apply within 3 days of harvest.

#### Dried Beans and Peas:

- Do not apply more than 3.75 oz of Entrust (0.188 lb a.i. of spinosad) per acre per season.
- Preharvest Interval:** Do not apply within 28 days of harvest.
- Do not feed forage or hay to meat or dairy animals.

## Tree Farms or Plantations

Conifers, Including Christmas Trees, and Deciduous Trees

### Pests and Application Rates:

Pests	Entrust (oz/acre)
Lepidopterous larvae, such as: bagworm fall webworm gypsy moth hemlock looper jackpine budworm pine tip moth redhumped caterpillar spruce budworm tent caterpillar tussock moths	0.5 – 2.5
Sawfly larvae, such as: European pine pear redheaded pine	

### Specific Use Directions:

**Application Timing:** Time applications to reach larvae when small or just hatching. Repeat application as necessary to maintain control. Consult with your Dow AgroSciences representative, state agricultural experiment station, certified pest control advisor or extension specialist for information on application timing for specific pests in your area.

**Application Rates:** The rate of Entrust per acre will depend on tree size and severity of infestation. Use a higher rate in the rate range for large trees or heavy infestations. Apply in sufficient volume to ensure thorough coverage.

**Restrictions:** Do not apply more than 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per year.

## Tree Fruits

### (Insect Suppression)

Including, but not limited to: Acerola, Atemoya, Avocado, Biriba, Black Sapote, Canistel, Cherimoya, Custard Apple, Feijoa, Guava, Ilima, Jaboticaba, Longan, Lychee, Mamey Sapote, Mango, Papaya, Passionfruit, Pulasan, Rambutan, Sapodilla, Soursop, Spanish Lime, Star Apple, Starfruit, Sugar Apple, Ti Palm Leaves, Wax Jambu (Wax Apple), White Sapote

### Pests and Application Rates:

Pests	Entrust (oz/acre)
katydids lepidopterous larvae avocado leafroller citrus peelminer cutworms fruit tree leafroller orange tortrix western tussock moth thrips <sup>†</sup>	1.25 – 3

<sup>†</sup>Control of thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

**Specific Use Directions:**

**Application Rate:** The amount of Entrust® Naturalyte® insect control per acre will depend on tree size and pest pressure. Choose a lower rate for light infestations and/or small trees and a higher rate for heavy infestations and/or large trees.

**Application Timing:** Treat when pests appear or in accordance with local economic thresholds. Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Restrictions:**

- In order to prevent or delay resistance development in thrips, do not apply Entrust more than 2 times per year.
- For resistance management purposes, do not apply to nurseries or in greenhouses.
- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- **Preharvest Intervals:** Do not apply within 1 day of harvest.

**Tree Nuts and Pistachios**

**Including, but not limited to: Almonds, Cashew, Chestnut, Filbert (Hazelnut), Macadamia Nut, Pecan, Pistachios, Walnut**

**Pests and Application Rates:**

Pests	Rate of Entrust	
	(oz/acre)	Dilute Spray (oz/100 gal)
codling moth	1.25 – 3	0.3 - 0.75
fall webworm		
filbert worm		
hickory shuckworm		
navel orange worm		
oblique banded leafroller		
peach twig borer		
pecan nut casebearer		
redhumped caterpillar		
walnut husk fly		

**Specific Use Directions:**

**Application Timing:** Apply Entrust as either a dormant or a foliar spray when pests appear or in accordance with local conditions. Apply as a concentrate or dilute spray using conventional, power operated spray equipment (see Orchard Spraying section under Application). Consult your Dow AgroSciences representative, extension service specialist, certified crop advisor or your state agricultural experiment station for any additional local use recommendations for your area.

**Use of Crop Oils:** Crop oils labeled for agricultural use may be added to the dormant spray solution for suppression of overwintering mites and scale insects. Consult specific oil labels and University of California recommendations for precautions and restrictions regarding the use of oils in nut and fruit trees.

**Application Rate:** The rate per acre of Entrust will depend on tree size and volume of foliage present and pest pressure. Choose a higher rate for large trees or heavy infestations.

**Spray Volume:** Dilute sprays are sprayed to the point of runoff. The application rate range in the table is based on a spray volume of 400 gallons per acre. Gallonage of dilute sprays will vary depending on tree size, density of canopy, stage of seasonal growth, and spacing in the orchard.

**Restrictions:**

- Do not apply more than a total of 9 oz of Entrust (0.45 lb a.i. of spinosad) per acre per crop.
- **Treatment Interval:** Do not apply treatments less than 7 days apart.
- **Preharvest Interval:** Do not apply within 14 days of harvest.

**Fire Ants – Mound Application in Turfgrass and Ornamentals, in Greenhouses, and in Other Outdoor Areas**

Recommended Dilution Rate	
Entrust per 1 gallon	Entrust per 10 gallons
0.0159 oz (0.45 gm)	0.159 oz (4.5 gm)

**Specific Use Recommendations:**

**Fire ants such as red imported:** Apply diluted Entrust to individual fire ant mounds as a drench application. Use 1 to 2 gallons per mound depending on the mound size. For mounds less than 8 inches in diameter, use 1 gallon of dilution per mound. Use a higher volume, up to 2 gallons, on mounds 8 inches or larger in diameter. Apply approximately 10% of the dilution volume around the perimeter of the mound out to about 12 inches and pour the remaining volume directly on the mound. Do not disturb mounds prior to application. If possible, apply following a recent rainfall. For best results, apply in cool weather, 65 to 85°F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays should not be used as they may disturb the ants and cause migration, reducing control.

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### **Inherent Risks of Use**

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1. Refund of purchase price paid by buyer or user for product bought, or
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LOES Number: 010-00035

EPA Accepted 07/20/05

#### **Revisions:**

1. Added restriction in state of Georgia for applying product on some cole crops (*Brassica*) vegetables.