

Entrust -Naturalyte Insect Control Product for Organic and Conventional Fruit and Vegetable Production

Entrust Naturalyte Insect Control Product is available to organic and conventional fruit and vegetable growers in Canada. The active ingredient in Entrust is spinosad, a fermented by-product from a soil-dwelling bacterium *Saccharopolyspora spinosa*.

The first Spinosad product was registered in Canada several years ago but, unfortunately, organic producers in Canada were not allowed to use the original formulation. The product was then reformulated by its manufacturer. Organic certifiers in Canada are now allowing the use of the Entrust and it is listed by the Organic Materials Review Institute (OMRI).

Originally, the product was sold as Entrust 80W, a wettable powder which was used in small amounts. Application rates varied from 50 to 120 grams of product per hectare depending on the crop and insect pest. This product is now replaced by Entrust™, a liquid formulation which should be easier to use (see label for rates of application). It is important to note that other spinosad Naturalyte products exist but will not be discussed in this document.

This insecticide causes a rapid excitation of the insect nervous system, leading to involuntary muscle contractions, prostration with tremors, and paralysis. The insecticide has a rapid contact and ingestion activity. Insects will cease feeding and paralysis may occur a few minutes after ingestion, resulting in insect death one to three days after ingestion. Since this insecticide is applied against larvae, it is recommended that the product is applied when insect larval thresholds are reached or when peak egg hatch occurs, depending upon the pest, for optimal results.

The days to harvest interval varies from 1 to 14 days, depending on the crop, but is 3 days for most crops. Refer to the label for application rates, days to harvest interval and re-entry times. It is important to note that there are maximum rate of application of product and number of applications permitted per year depending on the crop (see label).

Entrust is considered to have low toxicity to mammals, birds, and fish, however, that it is highly toxic to bees. Do not apply this product or allow it to drift to blooming plants if bees are visiting the treatment area. Also avoid using the product when the crop is in full bloom. The product is highly toxic to aquatic invertebrates, harmful to insect parasitoids (beneficial insects) and predatory (beneficial) mites and slightly harmful to foliage-dwelling predators.

It is important to note that proper resistance management strategies are recommended because, within any insect population, there may be individuals that are already resistant to the active ingredient. Repetitive treatments of the same product may encourage the proliferation of these individuals. Rotating spinosad (group 5 insecticide) with an insecticide from a different group is

highly recommended. It may be a good option to alternate a *Bacillus thuringiensis* (B.t.) product with spinosad, depending upon the suitability of the crop and insect pest.

Although the spinosad product is a naturalyte, growers are required to have their pesticide applicator's licence in order to purchase and apply the pesticide.

Entrust is a relatively broad spectrum insecticide and is registered on various crops for various insect pests. Some of these crops and pests are listed below:

Pome fruits (including apple, crabapple, pear, Oriental pear, Quince):

Pests: For control of obliquebanded leafroller larvae, threelined leafroller larvae, fruittree leafroller larvae, European leafroller larvae, eyespotted budmoth larvae and for the suppression of codling moth.

Potato:

Pests: For control of Colorado potato beetle larvae and European corn borer larvae.

Root and tuber vegetables (including horseradish, radish, rutabaga, turnip):

Pests: For control of cabbage looper, imported cabbageworm and diamondback moth larvae.

Brassica leafy vegetables (including cauliflower, cabbage, broccoli, Brussels sprouts):

Pests: For control of cabbage looper, imported cabbageworm and diamondback moth larvae. For suppression of crucifer flea beetle, thrips and reduction in damage from Swede midge.

Leafy vegetables, except Brassica (including arugula, head and leaf lettuce, parsley, spinach, celery):

Pests: For control of cabbage looper, imported cabbageworm and diamondback moth larvae.

Fruiting vegetables, except cucurbit (including eggplant, groundcherry, bell pepper, chilli pepper, nonbell pepper, sweet nonbell pepper, tomatillo, tomato):

Pests: For control of Colorado potato beetle larvae, European corn borer larvae, cabbage looper, imported cabbageworm and diamondback moth larvae.

Sweet corn:

Pest: For control of European corn borer larvae.

Cranberry:

Pest: For the suppression of cranberry fruitworm larvae, control of blackheaded fireworm and sparganothis fruitworm larvae.

Blueberries: (including low and high bush)

Pest: For the suppression of blueberry flea beetle and for the control of oblique banded leafroller, spanworm, winter moth and cabbage looper.

Grapes:

For the Suppression of Western flower thrips and grape berry moth.

Raspberries and blackberries:

Pest: For the Control of oblique banded leafroller, cabbage looper, spanworm and winter moth.

Greenhouse vegetables (including greenhouse cucumber, greenhouse pepper, greenhouse tomato, greenhouse eggplant):

Pest: To control Cabbage looper, European corn borer and exposed western flower thrip (suppression only).

Bulb Vegetables (including garlic, dry bulb onion, green onions, leeks, chives (fresh leaves), Chinese Chives (fresh leaves), shallots, wild leek, bunching onion (Beltsville bunching onion):

Pest: For the suppression of onion thrips and leek moth.

Entrust™ has received emergency registration for the control of Spotted Wing Drosophila on Stone Fruit (Crop Group 12-09) and Berries (Crop Subgroup 13-07 A, B, F and G), from June 1, 2014 to November 30, 2014 only.

This fact sheet is provided for general information only. Always consult the product label before use. Revised May 2014.