

62719-523

07/27/2005

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (7505C)  
1200 Pennsylvania Avenue NW  
Washington, D.C. 20460

EPA Reg. Number:  
62719-523

Date of Issuance:  
07/27/05

NOTICE OF PESTICIDE:

Registration  
 Reregistration

(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Success OPTIM  
Naturalye Insect Control

Name and Address of Registrant (include ZIP Code):

Dow AgroSciences LLC  
9330 Zionsville Road  
Indianapolis, IN 46268-1054

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.
2. Make the following labeling changes before you release the product for shipment:
  - a. Revise the EPA Registration Number to read: "EPA Registration No. 62719-523"

Signature of Approving Official:

*George LaRocca*  
George LaRocca  
Product Manager (RM 13)  
Insecticide Branch  
Registration Division (7505C)

Date:

July 27, 2005

- b. You may choose to delete the signal word “Caution”, and “Causes Moderate Eye Irritation” under Precautionary Statement, along with the corresponding First Aid Statements (“If in eyes ...”). These are not required due to the Acute Toxicology Profile (Category IV for all routes).
- c. Delete the “*red imported fire ants*” claim or provide the data, or the appropriate efficacy citations along with the data matrix to support this claim.
- d. Under Personal Protective Equipment, add a third bullet for “***Chemical-resistant gloves (such as Natural Rubber, Selection Category A)***.”
- e. Under General Information/General Use Precautions in the Table of Contents: List the following:
- ***Integrated Pest Management (IPM) Programs***
  - ***Insecticide Resistance Management (IRM)***
  - ***Mixing***
- e. Under General Information/Application in the Table of Contents: List the following application types:
- ***Row Crop Application***
  - ***Orchard Spraying***
  - ***Concentrate Spray Application***
  - ***Aerial Application***
  - ***Application by Chemigation***
- f. Under General Information (Page 7), delete the last part of the second sentence - - “..... ***however, this formulation is not considered organic by all certifiers***”.
- g. General Use Precautions/Integrated Pest Management (IPM) Programs/ Second paragraph: Replace the statement Success OPTIM is ***generally safe*** to the natural predaceous ... mints or spiders.” with the following statement - “Success OPTIM ***does not have a significant impact*** on the natural predaceous ... mints or spiders.” - See labeling for EPA Reg No. 62719-282.
- h. Approved Uses/Pests and Application Rates table: For Bushberries, Citrus, Cole Crops, Cotton, Cranberry, Cucurbits, Fruiting Vegetables and Okra, Grape, Herbs, Leafy Vegetables and Leaves of Root and Tuber and Legume Vegetables, Pome Fruits, Potatoes and Tuberos and Corm Vegetables, Stone Fruits, Strawberry, Succulent and Dried Beans and Peas, and Tree Fruits, add the following footnote for thrips: “***Control of thrips may be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing***”.
- i. Submit to the Agency, data on one year storage stability testing (830.6317), conducted concurrently with the corrosion characteristics study (830-6320) at 0, 3, 6, 9 and 12 months of warehouse storage.
- j. Submit two (2) copies of the revised final printed label bearing the above stated revisions prior to releasing this product for sale.

If you fail to comply with the above stated conditions, this registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A copy of the stamped label is enclosed for your records. If you have any questions concerning this action, please contact Dr. B. A. Akinlosotu at (703) 605-0653.

Enclosure

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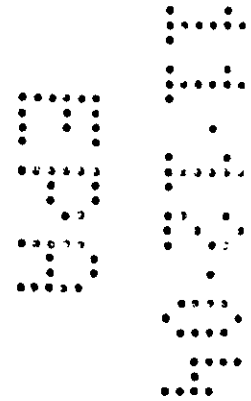
# Success<sup>®</sup> OPTIM<sup>™</sup>

EPA Reg. No. 62719-XXX

## Registration Notes:

Proposed Section 3 label.

®™ Trademark of Dow AgroSciences LLC



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(Base label):

(logo) Dow AgroSciences

# Success<sup>®</sup> OPTIM<sup>™</sup>

## Naturalyte<sup>®</sup> Insect Control

For control of lepidopterous larvae (worms or caterpillars), leafminers, and thrips in asparagus, bushberries, caneberrries, 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.

Group	5	INSECTICIDE
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Active Ingredients:

spinosad  
 (a mixture of spinosyn A  
 and spinosyn D)..... 36%

Inert Ingredients..... 64%  
 Total..... 100%

Contains 36% active ingredient on a weight basis.

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

**ACCEPTED**  
**with COMMENTS**  
**In EPA Letter Dated:**  
**JUL 27 2005**  
 Under the Federal Insecticide,  
 Fungicide, and Rodenticide Act,  
 as amended, for the pesticide  
 registered under EPA Reg. No.  
 62719-523

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.

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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.

**Agricultural Use Requirements**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

**Refer to label booklet for Directions for Use including Storage and Disposal.**

**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 at end of label booklet. 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).

EPA Reg. No. 62719-XXX

EPA Est. \_\_\_\_\_

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Net Weight \_\_\_\_\_

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(Datapack cover):

(logo) Dow AgroSciences

# Success<sup>®</sup> OPTIM<sup>™</sup>

## Naturalyte<sup>®</sup> Insect Control

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.

Active Ingredients:

spinosad	
(a mixture of spinosyn A	
and spinosyn D).....	36%
Inert Ingredients.....	64%
Total .....	100%

Contains 36% active ingredient on a weight basis.

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### Keep Out of Reach of Children

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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.)

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 Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to the label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for additional precautionary information including Personal Protective Equipment (PPE) and User Safety Recommendations, and Directions for Use including Storage and Disposal.

**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 at end of label booklet. If terms are unacceptable, return at once unopened.

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Net Weight \_\_\_\_\_



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**Precautionary Statements**

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**Hazard to Humans and Domestic Animals****CAUTION****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.

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**Directions for Use**

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

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### 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), restricted entry interval, and notification to workers (as applicable). 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.

For early entry into 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, wear:

- Coveralls
- Chemical-resistant gloves
- Shoes plus socks

### Non-Agricultural Use Requirements

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

**Entry Restrictions for Non-WPS Uses:** For applications to non-cropland areas, do not allow entry into areas until sprays have dried, unless applicator and other handler PPE is worn.

### 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 must 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

Success<sup>®</sup> OPTIM™ is a Naturalyte<sup>®</sup> 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; however, this formulation is not considered organic by all certifiers. Success OPTIM (water dispersable granule) 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

Success OPTIM is recommended for IPM programs in labeled crops. Success OPTIM is generally safe to 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

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spiders. The feeding activities of these beneficials will aid in natural control of other insects and reduce the likelihood of secondary pest outbreaks. If Success OPTIM is tank mixed with any insecticide that reduces its selectivity in preserving beneficial predatory insects, the full benefit of Success OPTIM in an IPM program may be reduced. Success OPTIM 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.

### **Insecticide Resistance Management (IRM)**

Success OPTIM 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 Success OPTIM or other Group 5 insecticides. Currently, Success OPTIM (spinosad) is the only active ingredient classified as a Group 5 insecticide and may be rotated with all other labeled products.

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 the internet at [www.dowagro.com](http://www.dowagro.com).

## **Mixing**

### **Application Rate Reference Table**

<b>Application Rate of Success OPTIM (oz/acre)</b>	<b>Active Ingredient Equivalent (lb ai/acre)</b>	<b>Acres per Pound of Success OPTIM</b>
0.8	0.18	19.5
1.1	0.25	14.5
1.7	0.38	9.6
2.2	0.050	7.3
2.8	0.062	5.8
3.3	0.075	4.8
4.4	0.100	3.6
5.5	0.125	2.9

**Mixing Success OPTIM Alone:** Fill the spray tank with water to about 1/2 of the required spray volume. Start agitation and add the required amount of Success OPTIM. 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 Success OPTIM 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 Success OPTIM.

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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. Success OPTIM and other water dispersible granules
2. 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 should be used to improve the control of leafminers, and may help control thrips and other insects 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 non-emulsified mineral oil.

## 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 Success OPTIM. 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-

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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) using a nozzle configuration that will provide a median droplet size of 200-300 microns (example D4-D6 or 6504-6508 nozzles). Boom length must be less than 75% of wing or rotor span. Observe minimum safe application height (should not exceed 12 feet above target). Use swath markers or flagging. The aircraft boom nozzle configurations used should be patterned previously (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 and preferably only 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**

Success OPTIM may be applied through properly equipped chemigation systems for insect control in corn, cranberries and potatoes. To apply Success OPTIM via chemigation, prepare a water suspension prior to injection. Do not allow the suspension to sit for more than 3 hours without agitation. Follow use directions for these crops in the Approved Uses section of this label. Do not apply Success OPTIM by chemigation to other labeled crops, except as specified in Dow AgroSciences supplemental labeling or product bulletins.

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

Success OPTIM 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 suspension containing Success OPTIM 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 Success OPTIM needed to cover the desired acreage. Mix according to instructions in the Mixing section above. Continually agitate the mixture during mixing and application.

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**Equipment Calibration:** In order to calibrate the irrigation system and injector to apply the mixture containing Success OPTIM, 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

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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 and must contain Viton or Teflon seals.

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	Success OPTIM (oz/acre)
asparagus beetle	2.2 – 3.3

##### **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 Success<sup>®</sup> OPTIM<sup>™</sup> Naturalyte<sup>®</sup> 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 Success OPTIM 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.

##### **Specific Use Restrictions:**

- Do not apply more than a total of 12.4 oz of Success OPTIM (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, Elderberry, Gooseberry, Huckleberry, Juneberry, Lingonberry, Salal

##### **Pests and Application Rates:**

Pests	Success OPTIM (oz/acre)
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armyworms cherry fruitworm cranberry fruitworm currant fruitfly fireworms leafrollers loopers thrips	2.2 – 3.3
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**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 Success OPTIM 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 Success OPTIM more than 3 times in any 30 day period. Whenever Success OPTIM is applied 3 times in succession this should be followed by no use of Success OPTIM for a 30 day period or rotation to another insecticide class.

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (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	Success OPTIM (oz/acre)
beet armyworm bertha armyworm green fruitworm leafrollers looper sawfly western raspberry fruitworm	2.2 – 3.3

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

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

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (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	Success OPTIM (oz/acre)
cereal leaf beetle	1.1 – 3.3
armyworms corn earworm (headworm) southwestern corn borer web worms	1.7 – 3.3

**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 Success OPTIM 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.

**Specific Use Restrictions:**

- Do not apply more than 12.4 oz of Success OPTIM (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	Success OPTIM (oz/acre)
citrus leafminer citrus orangedog citrus peelminer citrus thrips	2.2 – 5.5

**Specific Use Directions:**

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**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 Success<sup>®</sup> OPTIM<sup>™</sup> Naturalyte<sup>®</sup> insect control 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 Success OPTIM 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.

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (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

**Pests and Application Rates:**

Pests	Success OPTIM (oz/acre)
diamondback moth	0.8 – 2.2
cabbage looper imported cabbageworm	1.7 – 3.3
armyworms (including beet armyworm) leafminers <sup>†</sup> thrips	2.2 – 5.5

<sup>†</sup>Control of leafminers will 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 Success OPTIM to successive generations of insects. Do not apply Success OPTIM more than 3 times to any single generation or within any 30 day period. After use of Success OPTIM (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 Success OPTIM per calendar year for diamondback moth on a farm.

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**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (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:**

<b>Pests</b>	<b>Success OPTIM (oz/acre)</b>
European corn borer fall armyworm true armyworm	1.1 – 3.3
beet armyworm corn earworm southwestern corn borer western bean cutworm	2.2 – 3.3

**Specific Use Directions:**

**Application Timing:** Scout for European corn borer and armyworms with enough regularity to monitor egg laying and egg hatch. Applications of Success OPTIM 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:** Success OPTIM may be applied to corn by chemigation at labeled rates. Refer to the Application by Chemigation section for application guidelines for chemigation.

**Specific Use Restrictions:****Sweet Corn, Popcorn, Corn Grown for Seed**

- Do not apply more than 20 oz of Success OPTIM (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 8.3 oz of Success OPTIM (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:**

<b>Pests</b>	<b>Success OPTIM (oz/acre)</b>
European corn borer cotton bollworm (pre-	1.7 – 3.3

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bloom) cotton leafperforator tobacco budworm	
armyworms (including beet armyworm, fall armyworm) cotton bollworm (post- bloom) leafminers loopers (including soybean looper, cabbage looper) saltmarsh caterpillar thrips	2.2 – 3.3

**Specific Use Directions:****Application Timing:**

**Tobacco Budworm and/or Cotton Bollworm:** For the most effective control, fields should be scouted twice per week and Success OPTIM 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 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 Success OPTIM 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 Success OPTIM 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 local 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 Success OPTIM 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 Success OPTIM to control the 1st and 3rd generations 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 Success OPTIM to control either the 2nd or 3rd generation of tobacco budworm and/or cotton bollworm.

**Specific Use Restrictions:**

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- Do not apply more than a total of 20 oz of Success OPTIM (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	Success OPTIM (oz/acre)
armyworms currant fruitfly fireworms leafrollers loopers sparganothis fruitworm thrips	2.2 – 5.5

### 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/or larger plant volume.

**Chemigation:** Success<sup>®</sup> OPTIM<sup>™</sup> Naturalyte<sup>®</sup> insect control may be applied to corn by chemigation at labeled rates. Refer to the Application by Chemigation section for application guidelines for chemigation.

### Specific Use Restrictions:

- Do not apply more than a total of 20 oz of Success OPTIM (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	Success OPTIM (oz/acre)
armyworm cabbage looper melon worm pickleworm rindworm	2.2 – 4.4

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leafminers† thrips	3.3 – 4.4
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†Control of leafminers will be improved by addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing.

#### Specific Use Directions:

**Application Timing:** Use Success OPTIM 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.

#### Specific Restrictions:

- Do not apply more than 20 oz of Success OPTIM (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 Success OPTIM	
	(oz/acre)	Dilute Spray (oz/100 gal)
navel orangeworm	2.2 – 5.5	0.55 – 1.38

#### Specific Use Directions:

**Application Timing:** Apply Success OPTIM 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 Success OPTIM 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 Success OPTIM against more than 2 generations per year.

#### Specific Use Restrictions:

- Do not apply more than a total of 20 oz of Success OPTIM (0.45 lb of spinosad) per acre per crop.

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- **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	Success OPTIM (oz/acre)
lepidopterous larvae (maintenance only)	0.8 – 1.7
Colorado potato beetle European corn borer hornworms loopers tomato fruitworm	1.7 – 3.3
armyworms (including beet armyworm) flower thrips thrips palmi tomato pinworm	2.2 – 4.4
leafminers <sup>†</sup> ( <i>Liriomyza</i> spp.)	3.3 – 5.5

<sup>†</sup>Control of leafminers will 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 Success OPTIM 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 Success OPTIM 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.

#### Specific Use Restrictions:

- Do not apply more than 20 oz of Success OPTIM (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:



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Pests	Success OPTIM (oz/acre)
climbing cutworms grape berry moth grape leaffolder grape leaf skeletonizer omnivorous leafroller orange tortrix thrips	2.2 – 4.4

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

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

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (0.45 lb ai of spinosad) per acre per crop.
- The maximum seasonal application rate east of the Rocky Mountains is 0.36 lb ai per acre (16 oz of Success OPTIM).
- **Minimum Treatment Interval:** Do not make applications less than 5 days apart.
- **Preharvest Interval:** Do not apply within 7 days of harvest.

**Herbs**

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	Success OPTIM (oz/acre)
armyworms loopers thrips	2.2 – 3.3

**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.

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**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, but follow resistance management guidelines.

**Resistance Management:** For resistance management purposes, do not apply Success<sup>®</sup> OPTIM<sup>™</sup> Naturalyte<sup>®</sup> insect control 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.

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (0.45 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	Success OPTIM (oz/acre)
diamondback moth	0.8 – 1.7
cabbage looper imported cabbage worm	1.7 – 3.3
armyworms (including beet armyworm)	2.2 – 4.4
leafminers <sup>†</sup> thrips	3.3 – 5.5

<sup>†</sup>Control of leafminers will 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 Success OPTIM 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 Success OPTIM is applied 3 times in succession, do not apply again for at least 21 days.

**Specific Use Restrictions:**

- Do not apply more than 20 oz of Success OPTIM (0.45 lb a.i. of spinosad) per acre per crop.
- **Preharvest Intervals:**  
Leafy greens: Do not apply within 1 day of harvest.

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- 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 registered in California)

### Pests and Application Rates:

Pests	Success OPTIM (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	1.7 – 3.3

### 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.

### Specific Use Restrictions:

- Do not apply more than a total of 12.4 oz of Success OPTIM (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 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 Success OPTIM	
	(oz/acre)	Dilute Spray (oz/100 gal)
leafminers † spotted tentiform western tentiform	2.2 – 5.5	0.55 – 1.38
apple maggot	3.3 – 5.5	0.83 – 1.38

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(suppression) codling moth leafrollers oblique-banded pandemis oriental fruit moth thrips tufted apple budmoth		
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†Control of leafminers will 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 Success OPTIM 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 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:** Leafrollers have demonstrated the ability to develop resistance to many insect control products. Rotate to products with different modes of action after applying Success OPTIM against 2 consecutive generations of insects. For resistance management purposes, do not apply more than 3 sprays targeted at leafrollers per season.

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (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, Sugarbeet, Sweet Potatoes, Tumeric, Yams

**Pests and Application Rates:**

Pests	Success OPTIM (oz/acre)
Colorado potato beetle	1.7 - 3.3
European corn borer	

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armyworms artichoke plume moth dipteran leafminers ( <i>Liriomyza</i> ) <sup>†</sup> loopers thrips	2.5 – 3.3
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<sup>†</sup> Control of leafminers will 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:** Success OPTIM 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 Success OPTIM to consecutive generations of Colorado potato beetle and do not make more than 2 applications per single generation of Colorado potato beetle. Do not apply Success OPTIM 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.

**Specific Use 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 14.4 oz (16.7 oz for artichoke) of Success OPTIM (0.33 lb a.i. of spinosad) per crop.
- **Preharvest Intervals:**
  - Artichoke:** Do not apply within 2 days of harvest.
  - Sugarbeets 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	Success OPTIM (oz/acre)
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black salsify carrot celeriac chicory edible burdock ginseng horseradish Oriental radish parsnip radish rutabaga salsify skirret Spanish salsify turnip turnip-rooted chervil turnip-rooted parsley	armyworms dipteran leafminers† European corn borer fleabeetle loopers thrips	1.7 – 3.3
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†Control of dipteran leafminers will 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. 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.

**General Use Restrictions:**

- **Minimum Treatment Interval:** Do not make applications less than 5 days apart.
- **Pre-harvest Interval:** Do not apply within 3 days of harvest.

**Specific Use 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 14.5 oz of Success® OPTIM™ Naturalyte® insect control (0.33 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 12 oz of Success OPTIM (0.28 lb ai of spinosad) per acre per crop or make more than 3 applications per calendar year.

**Soybean**

**Pests and Application Rates:**

Pests	Success OPTIM (oz/acre)
green clover worm	1.1 – 2.2
soybean looper	
true armyworm	
velvet bean caterpillar	1.7 – 2.2
armyworms (such as fall	

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armyworm, yellowstriped armyworm, beet armyworm) corn earworm (podworm) saltmarsh caterpillar	
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**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.

**Specific Use Restrictions:**

- Do not apply more than 8.3 oz of Success OPTIM (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 Success OPTIM	
	(oz/acre)	Dilute Spray (oz/100 gal)
cherry fruit fly (suppression)	2.2 – 4.4	0.73 – 1.47
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		
western cherry fruit fly		

<sup>†</sup>Control of leafminers will 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. The residual control of cherry fruit flies is approximately 7 days. Consult with your Dow AgroSciences representative, state agricultural experiment station, certified pest control advisor or extension specialist for specific application timings in your area.

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**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.

**Specific Use Restrictions:**

- Do not apply more than 20 oz of Success OPTIM (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	Success OPTIM (oz/acre)
armyworms, including beet armyworms leafrollers thrips	2.2 – 3.3

**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 Success OPTIM 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 Success OPTIM. Do not make more than 5 applications per year.

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (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	Success OPTIM (oz/acre)
European corn borer	1.7 – 3.3



(eggs and larvae)	
armyworms corn earworm loopers	2.2 – 3.3
leafminers† thrips	2.5 – 3.3

†Control of leafminers will 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 Success OPTIM or compounds with the same mode of action.

**Specific Use Restrictions:**

**Succulent Beans and Peas:**

- Do not apply more than 20 oz of Success OPTIM (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 8.3 oz of Success OPTIM (0.188 lb a.i. of spinosad) per acre per season.
- **Preharvest Interval:** Do not apply within 28 days of harvest.
- Do not feed treated forage or hay to meat or dairy animals.

**Tree Farms or Plantations**

**Conifers, Including Christmas Trees, and Deciduous Trees**

**Pests and Application Rates:**

Pests	Success OPTIM (oz/acre)
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Lepidopterous larvae, such as: bagworm fall webworm gypsy moth hemlock looper jackpine budworm pine tip moth redhumped caterpillar spruce budworm tent caterpillar tussock moths Sawfly larvae, such as: European pine pear redheaded pine	1.1 – 4.4
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**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 Success<sup>®</sup> OPTIM<sup>™</sup> Naturalyte<sup>®</sup> insect control 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.

**Specific Use Restrictions:**

- Do not apply more than 20 oz of Success OPTIM (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, Ilama, 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	Success OPTIM (oz/acre)
katydids	2.2 – 5.5
lepidopterous larvae	
avocado leafroller	
citrus peelminer	
cutworms	
fruit tree leafroller	
orange tortrix	
western tussock moth	
thrips	

**Specific Use Directions:**

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**Application Rate:** The amount of Success OPTIM 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.

**Specific Use Restrictions:**

- In order to prevent or delay resistance development in thrips, do not apply Success OPTIM 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 20 oz of Success OPTIM (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 Success OPTIM	
	(oz/acre)	Dilute Spray (oz/100 gal)
codling moth	2.2 – 5.5	0.55 – 1.38
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 Success OPTIM 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 Success OPTIM 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.

**Specific Use Restrictions:**

- Do not apply more than a total of 20 oz of Success OPTIM (0.45 lb a.i. of spinosad) per acre per crop.

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- **Minimum 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 Orniamentals, in Greenhouses, and in Other Outdoor Areas

Recommended Dilution Rate	
Success OPTIM per 1 gallon	Success OPTIM per 10 gallons
0.035 oz (1 gm)	0.35 oz (10 gm)

#### Specific Use Recommendations:

**Fire ants such as red imported:** Apply diluted Success OPTIM 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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1. Refund of purchase price paid by buyer or user for product bought, or
2. Replacement of amount of product used

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