



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

June 22, 2015

Timothy M. Formella  
FMC Corporation  
1735 Market Street  
Philadelphia, PA 19103

Subject: Notification per PRN 98-10 – Add “Liquid Fertilizer Ready” Logo  
Product Name: F4121-1  
EPA Registration Number: 279-3473  
Application Date: June 1, 2015  
Decision Number: 505888

Dear Mr. Formella:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped “Notification” and will be placed in our records.

If you have any questions, please contact Maggie Rudick by phone at 703-347-0257, or via email at [rudick.maggie@epa.gov](mailto:rudick.maggie@epa.gov).

Sincerely,

A handwritten signature in blue ink that reads "Maggie Rudick for".

Kable Bo Davis, Product Manager 3  
Invertebrate & Vertebrate Branch 1  
Registration Division (7505P)  
Office of Pesticide Programs

**RESTRICTED USE PESTICIDE**

Toxic to fish and aquatic organisms. For retail sale to and use only by certified applicators, or persons under their direct supervision and only for those uses covered by the certified applicator's certification.

<b>GROUP</b>	<b>3</b>	<b>INSECTICIDE</b>
<b>GROUP</b>	<b>44</b>	<b>FUNGICIDE</b>

**NOTIFICATION**

279-3473

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

06/22/2015

# F4120-1



For mixing directly with liquid fertilizer to control listed soil pests.

EPA Reg. No. 279-3473

EPA Est. No. \_\_\_\_\_

**Active Ingredient:**

Bifenthrin *:	15.67%
<i>Bacillus amyloliquefaciens</i> strain D747 **:	5.00%
<b>Other Ingredients:</b>	<u>79.33%</u>
	100.00%

\*Cis isomers 97% minimum, trans isomers 3% maximum

\*\* Contains a minimum of 1x 10<sup>10</sup> colony-forming units (cfu) per milliliter

This product contains 1.5 lbs bifenthrin per gallon.

## KEEP OUT OF REACH OF CHILDREN CAUTION

This label must be in the possession of the user at the time of application.

See other panels for additional precautionary information.

FIRST AID	
<b>If Swallowed:</b>	-Call a poison control center or doctor immediately for treatment advice. -Have person sip a glass of water if able to swallow. -Do not induce vomiting unless told to do so by a poison control center or doctor. -Do not give anything by mouth to an unconscious person.
<b>If in Eyes:</b>	-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.
<b>If on Skin:</b>	-Take off contaminated clothing. -Rinse skin immediately with plenty of water for 15-20 minutes. -Call a poison control center or doctor for treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-331-3148 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.	
<b>For Emergency Assistance Call (800) 331-3148.</b>	

Net Contents: \_\_\_\_\_

**Sold By:**

FMC Corporation  
Agricultural Products Group  
1735 Market Street  
Philadelphia, PA 19103

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## PRECAUTIONARY STATEMENTS

### Hazards to Humans (and Domestic Animals)

#### Caution

Harmful if swallowed. Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**Personal Protective Equipment (PPE):** Handlers who may be exposed to the concentrate through mixing, loading, application, or other tasks must wear:

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

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the 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:**

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## **Environmental Hazards**

This pesticide is extremely toxic to fish and aquatic invertebrates. Use with care when applying in areas adjacent to any body of water. 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 make applications when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin. Prior to use in a particular county contact the local extension service for procedures and precautions to use to protect endangered species.

## **DIRECTIONS FOR USE**

### **Restricted Use Pesticide**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product through any type of irrigation system.

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 12 hours. Exception: If the product is soil-injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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, and Shoes plus socks.

## **Resistance Management**

Some pests are known to develop resistance to pesticides that have been used repeatedly. While the development of pest resistance is well understood, it is not easily predicted. Therefore pesticides should be used in conjunction with the resistance management strategies in the area. Consult the local or State agricultural advisors for details. If pest resistance should develop in the area, this product used alone may not continue to provide sufficient levels of pest control. If the reduced levels of control cannot be attributed to improper application techniques, improper use rates, improper application timing, unfavorable weather conditions or abnormally high pest pressure, a resistant strain may have developed.

To reduce the potential for pesticide resistance use this product in a rotation program with other classes of chemistry and modes of action. Always apply this product at the recommended rates and in accordance with the use directions. Do not use less than recommended label rates alone or in tank mixtures. Do not use reduced rates of the tank mix partner. For optimum performance, scout fields carefully and begin applications when pests are smaller rather than larger. If resistance is suspected, contact the local or State agricultural advisors.

## Application and Mixing Instructions

Shake well before using.

F4120-1 is an insecticide/fungicide that contains 1.5 pounds of bifenthrin per gallon along with *Bacillus amyloliquefaciens* strain D747 at a minimum of  $1 \times 10^{10}$  colony-forming units (cfu) per milliliter. *Bacillus amyloliquefaciens* strain D747 is a naturally occurring beneficial bacterium used for control or suppression of fungal and bacterial plant diseases. F4120-1 can be mixed directly with liquid fertilizer or with water. The rate of application is variable according to pest pressure, timing of treatments and field scouting. Use lower rates under light to moderate pest infestations, and higher rates under heavier pest pressure. In arid climates applications rates are generally higher. Fill the tank one-half full with liquid fertilizer or water and begin spray tank agitation. Add the proper amount of F4120-1, and then add the rest of the fertilizer or water. Maintain agitation until the mixture has been applied.

Agitate the F4120-1 spray solutions in nurse tanks prior to moving the solution to spray system.

Cultivation within 10 feet of a water body is prohibited to allow for the growth of a vegetated filter strip. In New York State this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or streams that drain into coastal marshes.

F4120-1 can be applied in-furrow with the seed, as a T-band (band over the open furrow), as a broadcast application, as a band over the row or as a transplant-water drench during setting. Refer to the individual crop use directions for pest control or suppression instructions.

F4120-1 can be mixed with commonly used liquid starter or pop-up fertilizers. Follow liquid fertilizer recommendations regarding seed safety and use guidelines. Conduct a preliminary jar test using the appropriate ratio of fertilizer and F4120-1. Do not allow a tank mixture to set overnight, but if this occurs agitate tank mixture prior to application.

## Crop Rotation Restrictions

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days following the final application of bifenthrin.

## Tank-Mixtures

F4120-1 may be applied in tank mixtures with other products approved for use on registered crops. Observe all restrictions and precautions which appear on the labels of these products. To insure successful applications, product compatibility tests should be conducted.

## Maximum Allowable F4120-1 Use Per Acre Per Season

Refer to the individual crop sections for maximum allowable F4120-1 usage per acre per season. The maximum allowable use must include all registered use patterns including at-plant, soil applied and/or foliar applications for the 12 months period. The 12 month period is to begin upon the initial application to the acre.

## BUFFER ZONES

### Vegetative Buffer Zones

Construct and maintain a minimum 10-foot-wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or natural ponds; estuaries; and commercial fish farm ponds).

Only apply products containing bifenthrin onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: *Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21pp. <http://www.in.nrcs.usda.gov/technical/agronomy/newconbuf.pdf>.*

**Buffer Zone for Ground Application (groundboom, overhead chemigation, or airblast)** – Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

**Buffer Zone for ULV Aerial Application** - Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

**Buffer Zone for Non-ULV Aerial Application** – Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, natural ponds, estuaries, and commercial fish ponds).

# Spray Drift Requirements

## Wind Direction and Speed

Only apply this product if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph.

## Temperature Inversion

Do not make aerial or ground applications into temperature inversions. Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

## Droplet Size

Use only Medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

## Additional Requirements for Ground Applications

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.

For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

## Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

## BRASSICAS

Head and Stem Brassica Vegetables including: Broccoli, Chinese, Broccoli (gailon, white flowering broccoli), Brussels Sprouts, Cauliflower, Cavalo broccoli, Kohlrabi, Cabbage, Chinese Cabbage (napa), and Chinese Mustard Cabbage (gai choy)

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band (T-band) over the open seed furrow, or in-furrow with the seed. Cutworm and armyworm treatments may be applied as broadcast treatments to the soil surface.

PEST/DISEASE	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
Grubs			
Seedcorn maggot			
Cabbage maggot			
Root maggots			
Root aphids			
Army cutworm			
Cutworm species			
Armyworm species			
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

## Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.

Do not apply more than 0.5 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## CILANTRO, CORIANDER

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band) in-furrow with the seed, or broadcast to the soil surface.

PEST/DISEASE	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Armyworm species Cutworm species Flea beetle larvae	3.4 - 6.8	0.2 - 0.39	0.04 - 0.08
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

### Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application. Do not apply more than 0.5 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## CITRUS (BARE SOIL SURFACE UNDER DRIP LINE)

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply F4120-1 by ground equipment to bare soil beneath citrus trees. F4120-1 must be uniformly applied from the trunk to the drip line of tree. Apply in a minimum of 40 gallons of dilute spray per acre. Greater spray volume should insure greater uniformity of coverage. A pre- and post-application irrigation may aid in the uniformity of coverage as well.

F4120-1 protects citrus tree roots from Diaprepes and other citrus root weevil feeding by forming a barrier which provides contact activity on newly hatched larvae (neonates). As citrus root weevil eggs hatch in new foliage, neonates fall to the soil surface beneath the tree and come in contact with F4120-1 as they attempt to burrow into the root zone. Disturbance of the soil beneath trees should be minimized.

Timing of F4120-1 applications is critical. Current information suggests that peak emergence of adult Diaprepes Weevil varies by citrus growing region and these emergence peaks can be dramatically affected by environmental factors, such as soil moisture. Typically, two peaks are observed for Diaprepes, first in spring then late summer or early fall. Southern Blue- Green and Blue-Green Citrus Weevils and Fuller Rose Beetle typically exhibit a single emergence peak in the spring. Brown and Little Leaf Notchers typically exhibit three emergence peaks, spring, summer and fall. Since emergence varies seasonally and by location, timing of F4120-1 application can be accurately forecast by observing adults. Adults are most active early morning and late afternoon; numbers can be estimated by trapping throughout spring and summer (emergence periods). Egg laying will occur for 8 to 10 weeks following adult emergence from the soil; larval invasion of the soil will begin 2 to 3 weeks following adult emergence. It is critical to have the F4120-1 soil barrier in place prior to drop of the neonates.

F4120-1 is one of several effective tools in an integrated pest management program for Citrus Root Weevils. Application of F4120-1 should be used in conjunction with good cultural practices, biological control of larvae and foliar control of adults. Consult local university extension personnel for current information to protect citrus trees from Citrus Root Weevils and other pests.

Apply to individual citrus resets, when not in solid planted rows, using hand-gun or shielded sprayer.

Peak emergence of Diaprepes root weevil generally occurs in the spring. Depending on weather conditions, a minor emergence of Diaprepes root weevil may also occur in the fall.

If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring, 42.5 fluid ounces formulated product should be used to obtain the longest residual management of Diaprepes

root weevil. If the citrus grove to be treated is in an area where weather conditions will promote more than one peak of pest emergence, 21.25 fluid ounces formulated product can be applied early season and 21.25 fluid ounces formulated product can be applied later in the season.

PEST	USE RATES	
	Fluid oz/acre	Pound bifenthrin/acre
Fire ants ( <i>Solenopsis species</i> ) Asian cockroach ( <i>Blattella asahinæ</i> )	8.5 - 21.25	0.1 - 0.25
Diaprepes Root Weevil ( <i>Diaprepes abbreviatus</i> ) Southern Blue Green Citrus Root Weevil ( <i>Pachnaeus litus</i> ) Blue Green Citrus Root Weevil ( <i>Pachnaeus opalus</i> ) Brown Leaf Notcher ( <i>Epicaerus mexicanus</i> ) Little Leaf Notcher ( <i>Artipus floridanus</i> ) Fuller Rose Beetle ( <i>Asynonychus godmani</i> )	21.25- 42.5	0.25 - 0.5

**Restrictions:**

- Do not apply through irrigation systems.
- Do not allow any application of F4120-1 to contact fruit or foliage.
- Do not apply more than a total of 42.5 fluid ounces of formulated product (0.5 pound bifenthrin active ingredient) per acre per year.
- Apply the specified dosage in a minimum of 40 gallons of finished spray per acre.
- Do not apply by air.

**CORN (AT PLANT)**

Field Corn (Grain and Silage), Popcorn, Field Corn Grown for Seed, Sweet Corn, Sweet Corn Grown for Seed

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. For Army cutworm, Stalkborer, Cutworm species, True armyworm or Armyworm species, apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), in-furrow with the seed, or broadcast to the soil surface.

PEST	USE RATES		
	Fluid oz/acre*	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Corn rootworm larvae (Northern, Southern and Western)	6.8 – 17.0	0.39 - 0.98	0.08 - 0.2
Wireworm Grape colaspis Grubs Seedcorn maggot Root aphids Army cutworm Cutworm species True armyworm Armyworm species Stalkborer Seed corn beetle Sugarcane beetle	3.4 – 17.0	0.2 - 0.98	0.04 - 0.2
**Suppression of "Damping off,"			



seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			
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\*Based on 30" row spacing

\*\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

Heavy Corn Rootworm Pressure Management Program: In areas where large corn rootworm populations are present, a multi-approach system may be needed for optimal pest management. However, if the population level is not known and if a corn rootworm adult scouting program along with threshold adult control measures were not completed during the previous growing season, then utilize a maximum dosage seed treatment program or genetically modified corn rootworm resistant hybrid in addition to F4120-1.

**Restrictions:**

Do not apply more than 0.2 pound bifenthrin active per acre per season as an at-plant application.

For field corn: Do not apply more than 0.3 pound bifenthrin active ingredient per acre per season including ppi, at-plant, pre-emergence, and foliar applications of other bifenthrin products.

For sweet corn: Do not apply more than 0.2 pound bifenthrin active ingredient per acre total per season including ppi, at-plant, pre-emergence, and foliar applications of other bifenthrin products.

F4120-1 Required Per Acre for Various Row Spacings					
Row Spacing	36"	30"	20"	15"	Twin Row 30" centers
Linear row ft/acre	14,520 ft	17,424 ft	26,136 ft	34,848 ft	34,848 ft
<b>Conversion</b>					
0.19 Fluid oz/1000 Linear ft =	2.8 fl oz/acre	3.3 fl oz/acre	5.0 fl oz/acre	6.6 fl oz/acre	6.6 fl oz/acre
0.23 Fluid oz/1000 Linear ft =	3.4 fl oz/acre	4.0 fl oz/acre	6.0 fl oz/acre	8.0 fl oz/acre	8.0 fl oz/acre
0.31 Fluid oz/1000 Linear ft =	4.5 fl oz/acre	5.4 fl oz/acre	8.1 fl oz/acre	10.8 fl oz/acre	10.8 fl oz/acre
0.46 Fluid oz/1000 Linear ft =	6.7 fl oz/acre	8.0 fl oz/acre	12.0 fl oz/acre	16.0 fl oz/acre	16.0 fl oz/acre
0.55 Fluid oz/1000 Linear ft =	8.0 fl oz/acre	9.6 fl oz/acre	14.4 fl oz/acre		
0.67 Fluid oz/1000 Linear ft =	9.7 fl oz/acre	11.7 fl oz/acre			
0.80 Fluid oz/1000 Linear ft =	11.6 fl oz/acre	13.9 fl oz/acre			
0.92 Fluid oz/1000 Linear ft =	13.4 fl oz/acre	16.0 fl oz/acre			
1.38 Fluid oz/1000 Linear ft =	20.0 fl oz/acre	24.0 fl oz/acre			

Rates less than the equivalent of 8.0 fl oz/A at 30" row spacing may not provide adequate control of corn rootworm.

**CORN (PRE & PPI)**

Field Corn (Grain and Silage), Popcorn, Field Corn Grown for Seed, Sweet Corn, Sweet Corn Grown for Seed

When applied as directed, F4120-1 will provide control of the pests listed in the table below. For PPI treatments, the 4 - 5.3 fluid oz/A rate must be used. F4120-1 can be tank mixed and applied with PPI herbicides. Incorporation of F4120-1 should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

For PRE treatments, the 3.4 fluid oz/A rate may be applied and can be tank mixed and applied with PRE herbicides.

PEST	USE RATES	
	Fluid oz/acre	Pound bifenthrin/acre
Black Cutworm Grape colaspis White Grub Wireworm Seedcorn Maggot Armyworm species Seed corn beetle	4 to 5.3 Pre-Plant Incorporated (PPI)	0.047 to 0.062 Pre-Plant Incorporated (PPI)
Black Cutworm Armyworm species Stalkborer Seed corn beetle	3.4 Pre-Emergence (PRE)	0.04 Pre-Emergence (PRE)

*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora	3.4 to 5.3 (PPI and PRE)	0.04 to 0.062 (PPI and PRE)
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\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

For field corn: Do not apply more than 0.3 pound bifenthrin active ingredient per acre total per season including ppi, at-plant, pre-emergence, and foliar applications of other bifenthrin products.  
 For sweet corn: Do not apply more than 0.2 pound bifenthrin active ingredient per acre total per season including ppi, at-plant, pre-emergence, and foliar applications of other bifenthrin products.

**CUCURBITS**

Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cucumber, Gherkin, Gourd, edible *Lagenaria* species (includes hyotan, cucuzza), *Luffa* species (includes hechima, Chinese okra), *Momordica* species (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo*) (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), Pumpkin (*Cucurbita* species), Squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), Squash, winter (includes butternut squash, calabaza, hubbard squash (*C. mixta*; *C. pepo*) includes acorn squash, spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus* species).

When applied as directed, F4120-1 will provide control of the pests listed in the table below. To control rootworm larvae, apply as a 5 to 7 inch band over an open furrow (T-band), or in-furrow with the seed.  
 To control wireworm, grubs, and flea beetle larvae, apply as a 5 to 7 inch band over an open furrow (T-band), or in-furrow with the seed or transplant  
 To control army cutworm, cutworm species, true armyworm and armyworm species, apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), in-furrow with the seed, broadcast to the soil surface or banded over the row.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Cucumber beetle larvae	6.8 - 8.5	0.39 - 0.49	0.08 - 0.1
Wireworm Grubs Flea beetle larvae Army cutworm Cutworm species True armyworm Armyworm species	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
 Do not apply more than 0.3 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## DRIED BEANS AND PEAS

Dried cultivars of: Bean (Lupinus); Bean (Phaseolus), Field bean, Kidney bean, Lima bean (dry), Navy bean, Pinto bean, Tepary bean; Bean (Vigna), Adzuki bean, Blackeyed pea, Catjang, Cowpea, Crowder pea, Moth bean, Mung bean, Rice bean, Southern pea, Urd bean; Broad bean (dry), Chickpea, Guar, Lablab bean, Lentil; Pea (Pisum), Field pea, Pigeon pea.

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, 5 to 7 inch band (T-band) over an open furrow, or in-furrow with the seed. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Grape colaspis Wireworm Grubs Root maggot Army cutworm Cutworm species True armyworm Armyworm species	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

### Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.

Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season to peas or 0.3 pound bifenthrin active ingredient per acre per season to beans including at-plant plus foliar applications of other bifenthrin products.

## EGGPLANT

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast to the soil surface for control of Army Cutworm, Cutworm Species, True Armyworm or Armyworm species.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grubs Root maggot Army cutworm Cutworm species True armyworm Armyworm species	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

**HEAD LETTUCE**

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, armyworm species or bulb mites.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grubs Root maggot Lettuce root aphid Army cutworm Cutworm species True armyworm Armyworm species Bulb mites	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.5 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## LEAFY BRASSICAS, TURNIP GREENS

Broccoli Raab, Bok Choy, Collards, Kale, Mizuna, Mustard Greens, Mustard Spinach, Rape Greens, Turnip Greens

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5-7 inch band over the row on the soil surface, a 5-7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm or armyworm species

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grubs Root maggot Lettuce root aphid Army cutworm Cutworm species True armyworm Armyworm species	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

### Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.4 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## OKRA

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), in-furrow with the seed, or broadcast to the soil surface.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Armyworm Cutworm Flea beetle larvae	3.4 - 6.8	0.2 - 0.39	0.04 - 0.08
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

**PEPPERS (BELL and NON-BELL)**

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, Armyworm species or Stalk borer.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grubs Root maggot Flea beetle larvae Pepper maggot Root aphid Army cutworm Cutworm species True armyworm Armyworm species Stalk borer	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

**SOD FARMS (FOLIAR)**

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a broadcast treatment. Use higher volumes up to 10 gallons of carrier per 1000 square feet to get uniform coverage when treating dense grass foliage.

Irrigation to treated area within a few hours following application can improve efficacy to sub-surface pests including mole crickets.

The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, F4120-1 may be applied at up to 0.4 fluid oz. per 1000 square feet to control each of the pests listed in this table. The higher application rates should be used when maximum residual control is desired or heavy pest populations occur.

PEST	Fluid oz/acre	Fluid oz/1000 sq. ft.
Armyworms <sup>1</sup> Cutworms <sup>1</sup> Sod Webworm <sup>1</sup>	2.8 - 4.35	0.066 - 0.1
Annual Bluegrass Weevil (Hyperodes) (Adult) <sup>2</sup> Banks Grass	4.35 - 8.7	0.1 - 0.2

Mite <sup>6</sup> Billbugs (Adult) <sup>3</sup> Black Turfgrass Ataenius (Adult) <sup>4</sup> Crickets Earwigs Fleas (Adult) Grasshoppers Mealybugs Mites <sup>6</sup>		
Ants Chinch Bugs <sup>5</sup> Fleas (Larvae) <sup>7</sup> Imported Fire Ants <sup>8</sup> Japanese Beetle (Adult) Mole Cricket (Adult) <sup>9</sup> Mole Cricket (Nymph) <sup>10</sup> Ticks <sup>11</sup>	8.7- 17.42	0.2 - 0.4

**In New York State, this product may NOT be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).**

**In New York State, do make a single repeat application of this product if there are signs of renewed insect activity, but not sooner than two weeks after the first application.**

**Comments**

<sup>1</sup>**Armyworms, Cutworms and Sod Webworms:** To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. If the grass area is being maintained at a mowing height of greater than 1 inch, then higher application rates (up to 0.4 fluid oz. per 1000 square feet) may be required during periods of high pest pressure.

<sup>2</sup>**Annual Bluegrass Weevil (*Hyperodes*) adults:** Applications should be timed to control adult weevils as they leave their overwintering sites and move into grass areas. This movement generally begins when *Forsythia* is in full bloom and concludes when flowering dogwood (*Cornus florida*) is in full bloom. Consult your State Cooperative Extension Service for more specific information regarding application timing.

<sup>3</sup>**Billbug adults:** Applications should be made when adult billbugs are first observed during April and May. Degree day models have been developed to optimize application timing. Consult your State Cooperative Extension Service for information specific to your region. In temperate regions, spring applications targeting billbug adults will also provide control of over-wintered chinch bugs.

<sup>4</sup>**Black Turfgrass Ataenius adults:** Applications should be made during May and July to control the first and second generation of black turfgrass ataenius adults, respectively. The May application should be timed to coincide with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhouttei*) and horse chestnut (*Aesculus hippocastanum*). The July application should be timed to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).

<sup>5</sup>**Chinch Bugs:** Chinch Bugs infest the base of grass plants and are often found in the thatch layer. Irrigation of the grass area before treatment will optimize the penetration of the insecticide to the area where the chinch bugs are located. Use higher volume applications if the thatch layer is excessive or if a relatively long mowing height is being maintained. Chinch Bugs can be one of the most difficult pests to control in grasses and the higher application rates (up to 0.4 fluid oz. per 1000 square feet) may be required to control populations that contain both nymphs and adults during the middle of the summer.

<sup>6</sup>**Mites:** To ensure optimal control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, five to seven days after the first, may be necessary to achieve acceptable control.

<sup>7</sup>**Flea larvae:** Flea larvae develop in the soil of shaded areas that are accessible to pets or other animals. Use a higher volume application when treating these areas to ensure penetration of the insecticide into the soil. Note: if the lawn area is being treated with this product at 0.1 fluid oz. per 1000 square feet for adult flea control, then the larval application rate may be achieved by increasing the application volume two- to four-fold.

<sup>8</sup>**Imported Fire Ants:** Control will be optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies. If the soil is not moist, then it is important to irrigate before application or use a high volume application. Broadcast treatments should apply 0.4 fluid oz. per 1,000 square feet. Mounds should be treated by diluting 0.05 fluid oz of F4120-1 per gallon of water and applying 1 to 2 gallons of finished spray per mound. The mounds should be treated with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. A four foot diameter circle around the mound should also be treated. For best results, apply in cool weather (65 - 80°F) or in early morning or late evening hours.

<sup>9</sup>**Mole Cricket adults:** Achieving acceptable control of adult mole crickets is difficult because preferred grass areas are subject to continuous invasion during the early spring by this extremely active stage. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized. Grass areas that receive pressure from adult mole crickets should be treated at peak egg hatch to ensure optimum control of subsequent nymph populations (see below).

<sup>10</sup>**Mole Cricket nymphs:** Grass areas that received intense adult mole cricket pressure in the spring should be treated immediately prior to peak egg hatch. Optimal control is achieved at this time because young nymphs are more susceptible to insecticides and they are located near the soil surface where the insecticide is most concentrated. Control of larger, more damaging, nymphs later in the year may require both higher application rates and more frequent applications to maintain acceptable control. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.

<sup>11</sup>**Ticks (Including ticks that may transmit Lyme Disease and Rocky Mountain Spotted fever):** Do not make spot applications. Treat the entire area where exposure to ticks may occur. Use higher spray volumes when treating areas with dense ground cover or heavy leaf litter. Ticks may be reintroduced from surrounding areas on host animals. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed activity. Repeat application must be limited to no more than once per seven days.

**Deer ticks (*Ixodes sp.*)** have a complicated life cycle that ranges over a two year period and involves four life stages. Applications should be made in the late fall and/or early spring to control adult ticks that are usually located on brush or grass above the soil surface and in mid to late spring to control larvae and nymphs that reside in the soil and leaf litter.

**American dog ticks** may be a considerable nuisance in suburban settings, particularly where homes are built on land that was previously field or forest. These ticks commonly congregate along paths or roadways where humans are likely to be encountered. Applications should be made as necessary from mid-spring to early fall to control American dog tick larvae, nymphs and adults.

## SOYBEANS

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Rootworm larvae	6.8 - 8.5	0.39 - 0.49	0.08 - 0.1
Wireworm	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
Grape colaspis			
Grubs			
Root maggot			
Seedcorn maggot			
Army cutworm			
Cutworm species			
True armyworm			
Armyworm species			
Seed corn beetle			
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

### Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.



**SOYBEANS (PPI & PRE)**

For PPI treatments, the 4 - 5.3 fluid oz/A rate must be used. F4120-1 can be tank mixed and applied with PPI herbicides. Incorporation of F4120-1 should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.

For PRE treatments, the 3.4 fluid oz/A rate may be applied and can be tank mixed and applied with PRE herbicides.

PEST	USE RATES	
	Fluid oz/acre	Pound bifenthrin/acre
Black Cutworm White Grub Wireworm Seedcorn Maggot Armyworm species Seed corn beetle	4 to 5.3 Pre-Plant Incorporated (PPI)	0.047 to 0.062 Pre-Plant Incorporated (PPI)
Black Cutworm Armyworm species Stalkborer Seed corn beetle	3.4 Pre-Emergence (PRE)	0.04 Pre-Emergence (PRE)
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora	3.4 to 5.3 (PPI and PRE)	0.04 to 0.062 (PPI and PRE)

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as PPI or PRE application. Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## SPINACH

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grubs Root maggot Seedcorn maggot Army cutworm Cutworm species True armyworm Armyworm species	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

### Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.4 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## SUCCULENT PEAS AND BEANS

Pea (Pisum species): Dwarf pea, Edible-pod pea, English pea, Garden pea, Green pea, Snow pea, Sugar snap pea, Pigeon pea; Bean (Phaseolus species): Broadbean (succulent), Lima bean (green), Runner bean, Snap bean, Wax bean; Bean, Vigna species): Asparagus bean, Blackeyed pea, Chinese longbean, Cowpea, Moth bean, Southern pea, Yardlong bean, Jackbean, Soybean (immature seed), Sword bean

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast over the soil surface for control of Army cutworm, Cutworm species, True armyworm, or Armyworm species

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grape colaspis Grubs Root maggot Seedcorn maggot Army cutworm Cutworm species True armyworm Armyworm species	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights , and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

**TOBACCO (PRE-TRANSPLANT and AT-TRANSPLANT)**

When applied as directed, F4120-1 will provide control of the pests listed in the table below.

**Pre-transplant soil applications:**

Use of suitable equipment to incorporate into top 4" of the soil is required to control below ground pests.

**At-transplant water treatment application:**

Apply 5.3 to 8.5 fluid ounces F4120-1 per acre (0.0625 to 0.1 lb bifenthrin active ingredient/A) in a water treatment application volume of 10 to 200 gal/A.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Cutworm species Flea beetle larvae White grubs Wireworm Mole cricket Armyworm species Stalkborer	3.4 – 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.2 pound bifenthrin active ingredient per acre per season.  
May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.  
Do not apply later than lay-by.

## TOMATOES

When applied as directed, F4120-1 will provide control of the pests listed in the table below. Apply as a 5 to 7 inch band over the row on the soil surface, a 5 to 7 inch band over the open furrow (T-band), or in-furrow with the seed. Apply broadcast to the soil surface for control of Army cutworm, Cutworm species, True armyworm, Armyworm species or Stalkborer.

PEST	USE RATES		
	Fluid oz/acre	Fluid oz/1000 Linear ft.	Pound bifenthrin/acre
Wireworm Grubs Root maggot Flea beetle larvae Army cutworm Cutworm species True armyworm Armyworm species Stalkborer	3.4 - 8.5	0.2 - 0.49	0.04 - 0.1
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora			

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

### Restrictions:

Do not apply more than 0.1 pound bifenthrin active ingredient per acre per season as an at-plant application.  
Do not apply more than 0.32 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

## TUBEROUS AND CORM VEGETABLES (AT-PLANT)

Potato, Sweet potato, Arracacha, Arrowroot, Chinese artichoke, Jerusalem artichoke, Edible canna, Cassava (bitter and sweet), Chayote (root), Chufa, Dasheen (taro), Ginger, Leren, Tanier, Turmer, Yam bean, True yam

When applied as directed, F4120-1 will provide control of the pests listed in the table below. F4120-1 may be applied as a soil incorporated broadcast, directed bed spray or a T-band spray into the planting furrow for the control of wireworms, rootworms, sweet potato flea beetle and white grubs. Apply F4120-1 at the rate of 0.15 to 0.3 pounds bifenthrin active ingredient (12.75 to 25.5 fluid ounces formulated) per acre in a minimum of 10 gallons per acre of spray.

PEST	USE RATES	
	Fluid oz/acre	Pound bifenthrin/acre
Wireworms Grape colaspis White grub Sweet potato flea beetle Rootworms	12.75 - 25.5	0.15 - 0.3
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora		

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.3 pound bifenthrin active ingredient per acre per season as an at-plant application. Do not apply more than 0.5 pound bifenthrin active ingredient per acre per season including at-plant plus foliar applications of other bifenthrin products.

**TUBEROUS AND CORM VEGETABLES (LAY-BY)**

Potato, Sweet potato, Arracacha, Arrowroot, Chinese artichoke, Jerusalem artichoke, Edible canna, Cassava (bitter and sweet), Chayote (root), Chufa, Dasheen (taro), Ginger, Leren, Tanier, Turmer, Yam bean, True yam

When applied as directed, F4120-1 will provide control of the pests listed in the table below. F4120-1 may be applied as one or more soil directed and incorporated treatments at cultivation or lay-by for the control of wireworms, rootworms and white grubs. Apply F4120-1 to the drill area and incorporate by cultivation equipment set to throw soil towards the drill area. Apply F4120-1 at a rate of 0.15 to 0.3 pound bifenthrin active ingredient (12.75 to 25.5 fluid ounces formulated) per acre in a minimum of 10 gallons per acre of spray.

PEST	USE RATES	
	Fluid oz/acre	Pound bifenthrin/acre
Wireworms Grape colaspis White grub Rootworms	12.75 - 25.5	0.15 - 0.3
*Suppression of "Damping off," seedling blights, and root or crown diseases caused by Pythium, Rhizoctonia, Fusarium, or Phytophthora		

\* Use highest application rate for better disease management, however, under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, mix F4120-1 with other fungicides for improved performance.

**Restrictions:**

Do not apply more than 0.5 pound bifenthrin active ingredient per acre per season including soil plus foliar applications of other bifenthrin products.

**STORAGE AND DISPOSAL**

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

**Pesticide Storage**

If storing this product below freezing, user should shake or roll the container to ensure proper product consistency. Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Store at less than 95°F. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call CHEMTREC (Transportation and Spills): (800)-424-9300. To confine spill, dike surrounding area or absorb with sand, cat litter or commercial clay. Place damaged package in a holding container. Identify contents.

**Pesticide Disposal**

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

**Container Handling**

**U-Turn® Container:** Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

**Metal or Plastic Container: Non-refillable container (in sizes 5 gallons or less):** Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank and drain for 10 seconds after flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds, pour rinsate into application

equipment or mix tank or store rinsate for later use or disposal. Drain for 10 seconds after flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Do not cut or weld metal containers.

**Non-refillable container (in sizes greater than 5 gallons):** Do not reuse or refill this container. Triple rinse or pressure rinse. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Turn the container over onto its other end and tip back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**Returnable/Refillable Containers (if other than U-Turn Container):** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

## Conditions of Sale and Limitation of Warranty and Liability:

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

**Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. To the extent consistent with applicable law, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.**

To the extent consistent with applicable law, FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

This Conditions of Sale and Limitation of Warranty and Liability may not be amended by any oral or written agreement.

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