1381-211 5.21.2009 1/55

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MAY 21 2009

Alice Walker, Ph.D.
Product Registrations
Winfield Solutions, LLC
3094 Country Club Road
Senatobia, MS 38668

SUBJECT: Application for Pesticide Notification (PRN 98-10)
Request General Label Changes (Comply w/ California State Regulations)
EPA Reg. No.1381 -211
Application Dated April 15, 2009

Dear Registrant:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 dated 04/15/09 for the above product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action(s) requested fall 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 call me directly at 703-305-6249 or Owen F. Beeder of my staff at 703-308-8899.

Sincerely,

Linda Arrington
Notifications & Minor Formulations Team Leader
Registration Division (7505P)
Office of Pesticide Programs

Please read instructions on reverse before completing form. Form Approved. OMB No. 2070-0060 Print Form 2/55

United States
Environmental Protection Agency
Washington, DC 20460

[ ] Registration
[ ] Amendment
[X] Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number	2. EPA Product Manager	3. Proposed Classification
1381-211		[X] None [ ] Restricted
4. Company/Product (Name) AgriSolutions Grizzly Z Insecticide	**PM#** 13	

5. Name and Address of Applicant *(Include ZIP Code)*

Winfield Solutions, LLC, c/o Alice Walker
3094 Country Club Road
Senatobia, MS 38668

[ ] *Check if this is a new address*

6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:

EPA Reg. No. NOTIFICATION

Product Name MAY 21 2009

Section - II

[ ] Amendment - Explain below.
[ ] Resubmission in response to Agency letter dated _____
[X] Notification - Explain below.
[ ] Final printed labels in response to Agency letter dated _____
[ ] "Me Too" Application.
[ ] Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Notification of label changes per PR Notice 98-10. Removal of the erroneous statements "This product is not registered by California for use on barley, buckwheat, oats and rye.", on "wild rice", on cucurbit vegetables", on "grass forage, fodder, and hay", and on "tuberous and corm vegetables", because it is registered in California for those uses.

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
[ ] Yes* [ ] No	[ ] Yes [ ] No	[ ] Yes [ ] No	[ ] Metal [ ] Plastic [ ] Glass [ ] Paper [ ] Other (Specify)
* *Certification must be submitted*	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information	4. Size(s) Retail Container	5. Location of Label Directions
[ ] Label [ ] Container		[ ] On Label [ ] On Labeling accompanying product

6. Manner in Which Label is Affixed to Product [ ] Lithograph [ ] Paper glued [ ] Stenciled [ ] Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Alice Walker, Ph.D	Registration Specialist	662-562-5995

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received (Stamped)

2. Signature	3. Title
Diana Williams for	Registration Specialist
4. Typed Name Alice Walker, Ph.D.	**5. Date** 04/15/2009

EPA Form 8570-1 (Rev. 8-94) Previous editions are obsolete. White - EPA File Copy (original) Yellow - Applicant Copy

WINFIELD™
SOLUTIONS

April 15, 2009

Document Processing Desk (NOTIF)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
Attention: Product Team 13

Subject: AgriSolutions Grizzly Z Insecticide, EPA Reg. 1381-211

Enclosed are a completed Notification form and two copies of amended labeling for the subject product. On one copy of the labeling, we have highlighted the areas from which the statement "This product is not registered by California for use on (crop)" has been removed from under the following crop directions: barley, buckwheat, oats and rye; wild rice; cucurbit vegetables; grass forage, fodder, and hay; and tuberous and corm vegetables", on pages 14, 21, 28, 30 and 46.

Use of the subject product on the above noted crops was accepted by the Agency March 10, 2008. The accepted labeling did not include any California restrictions. Final label copies, incorporating the new uses, were sent to the Agency on August 21, 2008. On that labeling, and again in a Notification submitted August 22, 2008, we inadvertently included the note that the above uses were not registered by California. By this submission we are clarifying the label record for the subject product by submitting labeling that does not carry those notes, consistent with the labeling approved by the Agency March 10. Use of the subject product on the above noted crops has been accepted by California's Department of Pesticide Regulation.

This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.

Sincerely,

Kleana Williams for

Alice Walker, Ph.D.
Registration Specialist

Enclosures

winfieldsolutionsllc.com
Mail: P.O. Box 64589 | MS 5705 | St. Paul, MN 55164-0589
Ship: 1080 County Road F West | Shoreview, MN 55126-2910
P: 800-851-8810
Winfield Solutions, LLC | A Land O'Lakes Company

HIGHLIGHTED COPY 4/55

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NOTIFICATION
MAY 21 2009

RESTRICTED USE PESTICIDE
Due to Toxicity 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.

AgriSOLUTIONS™

GRIZZLY™ Z
Insecticide

ACTIVE INGREDIENT:

Lambda-cyhalothrin [1α(*S**),3α(*Z*)]-(±)-cyano-(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate	11.4%
OTHER INGREDIENTS	88.6%
TOTAL	100.0%

GRIZZLY™ Z Insecticide contains 1 lb. of active ingredient per gal. and is a capsule suspension.

(01) 0 0784742 01641 7

KEEP OUT OF REACH OF CHILDREN

WARNING/AVISO

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.)

SEE ADDITIONAL PRECAUTIONARY STATEMENTS, COMPLETE STORAGE AND DISPOSAL, AND DIRECTIONS FOR USE IN BOOKLET.

EPA Reg. No. 1381-211 **EPA Est. No. 070989-MO-001**

0/0330/9

Distributed by
Winfield Solutions, LLC
P.O. Box 64589, St. Paul, MN 55164-0589

NET CONTENTS
1 GALLON (3.785 L)

FIRST AID	
If swallowed:	• Call a poison control center or doctor immediately for treatment advice. • Do not give **any** liquid to the person. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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.
If on skin or clothing:	• 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.
If inhaled:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
NOTE TO PHYSICIAN Contains petroleum distillate – vomiting may cause aspiration pneumonia. Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For 24-Hour Medical Emergency Assistance (Human or Animal) Call **1-877-424-7452**.	

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals

WARNING/AVISO

May be fatal if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. May cause allergic skin reactions. Avoid contact with eyes, skin, or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

Skin exposure may also result in a sensation described as a tingling, itching, burning, or prickly feeling. Onset may occur immediately to 4 hrs. after exposure and may last 2-30 hrs., without damage. Wash exposed areas once with soap and water. Relief from the skin sensation may be obtained by applying an oil-based cream.

Remove and wash contaminated clothing before reuse. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals.

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 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.

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

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 24 hours.

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

- Coveralls
- Chemical-resistant gloves, such as barrier laminate, butyl rubber, nitrile rubber, or Viton $\geq$ 14 mils
- Shoes plus socks

FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR INSECT CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with sand, earth, or synthetic absorbent. Remove to chemical waste area. DO NOT ALLOW PRODUCT TO FREEZE.

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

CONTAINER DISPOSAL: Use label language appropriate for container size and type.

Nonrefillable containers. Do not reuse or refill this container. Clean container promptly after emptying.

Nonrefillable container equal to or less than 5 gallons. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Nonrefillable container greater than 5 gallons. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 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 it back and forth several times. Turn the container over onto its other end and tip it 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. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Refillable 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 from this container into application equipment or mix tank. Fill the container about 10 percent 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. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure or accident, call CHEMTREC 1-800-424-9300.

GENERAL DIRECTIONS FOR USE

Initial and residual control are contingent upon thorough crop coverage. Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. Apply in a minimum of 2 gals./A by air or 10 gals./A by ground unless otherwise specified in this label. When foliage is dense or pest pressure is high (heavier insect or egg pressure, larger larval stages), use of higher application volumes and/or higher use rates may improve initial and residual control.

For cutworm control, GRIZZLY™ Z Insecticide may be applied before, during, or after planting. For soil incorporated applications, use higher rates for improved control.

RESISTANCE MANAGEMENT

Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state agricultural authorities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area.

TANK MIX APPLICATION

When tank mixing with any other agricultural products, **always add GRIZZLY™ Z Insecticide last.** Fill the tank with one half to two thirds volume of the mixing diluent. Make sure all other products are fully dispersed in the mixing diluent before adding the recommended rate of GRIZZLY™ Z Insecticide to the tank. Add the remainder of the mixing diluent volume. It is recommended that mixing and spray equipment have continuous agitation for best results. Follow the precautions and limitations of the most restricted product in the tank mixture.

While GRIZZLY™ Z Insecticide has good flexibility for tank mixing with other agricultural products, a jar test for physical compatibility is recommended for untried mixtures using proper ratios and mixing sequences of all ingredients to be included in the mixture.

GRIZZLY™ Z Insecticide is an aqueous based formulation. It is recommended that no type of non-emulsifiable oils be used in combination with GRIZZLY™ Z Insecticide. If adjuvants are used, use only:

- Nonionic Surfactant (NIS) containing at least 75% surface agent, or
- Non-phytotoxic Crop Oil Concentrate (COC), including once refined Vegetable Oil Concentrate (VOC),
- Methylated Sunflower Oils (MSO) containing a minimum of 17% emulsifier.

Adjuvants other than NIS or COC may be used providing the product meets the following criteria:
1. Contains only EPA exempt ingredients.
2. Is non-phytotoxic to the target crop.
3. Is compatible in mixture. (May be established through a jar test.)
4. Is supported locally for use with GRIZZLY™ Z Insecticide on the target crop through proven field trials and through university and extension recommendations.

In addition, the following may be used as diluents:
- Crop Oil Concentrate
- Methylated Sunflower Oils
- Urea-Ammonium Nitrate

It is recommended that the following not be used in combination with GRIZZLY™ Z Insecticide as diluents or adjuvants:
- Non-emulsifiable oils
- Diesel Fuel
- Straight Mineral Oil

CHEMIGATION

Sprinkler Irrigation Application

Apply GRIZZLY™ Z Insecticide at rates and timing described elsewhere in this label. As local recommendations differ, consult your local State Extension Service or other local experts for recommendations on adjuvant or diluent types, (see "TANK MIX APPLICATION") rates and mixing instructions. These recommendations should be proven, through university and extension field trials, to be effective with GRIZZLY™ Z Insecticide applied by chemigation.

Check the irrigation system to insure uniform application of water to all areas. Thorough coverage of foliage is required for good control. Good agitation in the pesticide supply tank should be maintained prior to and during the entire application period.

Apply by injecting the recommended rate of GRIZZLY™ Z Insecticide into the irrigation system using a metering device that will introduce a constant flow and by distributing the product to the target area in 0.1-0.2 acre-inch of water. In general, use the least amount of water required for proper distribution and coverage. It is recommended that the product be injected into the main irrigation line ahead of a right angle turn in the line to insure adequate dispersion or mixing in the irrigation water. Once the application is completed, flush the entire irrigation and injection system with clean water before stopping the system.

In addition to the above recommendations, if application is being made during a normal irrigation set of a stationary sprinkler, the recommended rate of GRIZZLY™ Z Insecticide for the area covered should be injected into the system only during the end of the irrigation set for sufficient time to provide adequate coverage and product distribution.

It is not recommended that GRIZZLY™ Z Insecticide be applied through an irrigation system connected to a public water system. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Use Precautions: Sprinkler Irrigation Application

A. Apply this product only through (sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move) irrigation system(s). Do not apply this product through any other type of irrigation system.

B. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.

C. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

D. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

E. 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.

F. 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 backflow.

G. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

H. 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.

I. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

J. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

K. 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.

L. Do not apply when wind speed favors drift beyond the area intended for treatment.

M. Do not apply through chemigation systems connected to public water systems.

BUFFER ZONES

Vegetative Buffer Strip

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 Lambda-cyhalothrin 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. 21 pp. 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, permanent 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, permanent 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, permanent 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.

In the State of New York, a 25 ft. vegetated, non-cropped buffer strip untraversed by drainage tiles must be maintained between a treated field and a coastal salt marsh or permanent stream that drains into a coastal salt marsh, for both aerial or ground application. For aerial applications, the 25 ft. vegetated non-cropped buffer strip for runoff protection would be part of the larger 150 ft. buffer strip (or 450 ft. buffer strip for ULV application) required for spray drift.

SPECIFIC USE DIRECTIONS

AGRICULTURAL USES

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
ALFALFA AND ALFALFA GROWN FOR SEED			
	Alfalfa Caterpillar Cutworm species Army Cutworm Green Cloverworm Looper species Velvetbean Caterpillar Webworm species Leafhopper species Threecornered Alfalfa Hopper	0.015 - 0.025	1.92 - 3.20
	Armyworm Corn Earworm Fall Armyworm[1] Western Yellow-striped Armyworm Yellow-striped Armyworm Alfalfa Weevil Bean Leaf Beetle (Adult) Blister Beetle species Clover Leaf Weevil species Clover Root Borer (Adult) Clover Root Curculio species (Adult) Clover Stem Borer (Adult) Cowpea Curculio (Adult) Cowpea Weevil (Adult) Cucumber Beetle species (Adult) Egyptian Alfalfa Weevil Grape Colaspis (Adult) Green June Beetle (Adult) Japanese Beetle (Adult) Mexican Bean Beetle Pea Weevil (Adult) Sweet Clover Weevil (Adult) Whitefringed Beetle species (Adult)	0.02 - 0.03	2.56 - 3.84

(cont. on next page)

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
ALFALFA AND ALFALFA GROWN FOR SEED *(cont.)*			
	Meadow Spittlebug Plant Bug species including Lygus species[3] Stink Bug species Alfalfa Seed Chalcid (Adult) Blue Alfalfa Aphid Cowpea Aphid Green Peach Aphid[3] Pea Aphid Spotted Alfalfa Aphid Thrips species[4] Grasshopper species	0.02 - 0.03	2.56 - 3.84
	Beet Armyworm[1,3] Blotch Leafminer[3] Spider Mites[2]	0.03	3.84

Remarks

- Apply only to fields planted to pure stands of alfalfa.
- Apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. Apply in a minimum of 2 gals. /A by air or 10 gals./A by ground. When foliage is dense and/or pest populations are high 5-10 gals./A by air or 20 gals./A by ground and higher use rates are recommended. Use higher rates for increased residual control.
- Avoid application when bees are actively foraging by applying during the early morning or during the evening hours. Be aware of bee hazard resulting from a cool evening and/or morning dew. It may be advisable to remove bee shelters during and for 2-3 days following application. Avoid direct application to bee shelters.
- Do not apply more than 0.03 lb. a.i. (0.24 pts.)/A per cutting.
- Do not apply more than 0.12 lb. a.i. (0.96 pts.)/A per season.
- Do not apply within 1 day of harvest for forage or within 7 days of harvest for hay.

[1] Use higher rates for large larvae.
[2] Suppression only.
[3] See resistance statement under **"General Directions for Use"**.
[4] Does not include Western Flower Thrips.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CANOLA			
	Cutworm species Looper species Armyworm species Diamondback Moth Flea Beetle Cabbage Seedpod Weevil Lygus Bug Grasshoppers	0.015 - 0.03	1.92 - 3.84
	Cabbage Aphid	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply a minimum of 2 gals. of water/A.
- Do not apply within 7 days of harvest.
- Do not apply more than 0.09 lb. a.i. (0.72 pt.)/A per year.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Barley* Buckwheat* Oats* Rye*	Army Cutworm Cutworm species	0.015 - 0.025	1.92 - 3.2
	Armyworm Bird Cherry-Oat Aphid[1] Cereal Leaf Beetle English Grain Aphid[1] Fall Armyworm Flea Beetle species Grasshopper species Hessian Fly[4] Orange Blossom Wheat Midge Russian Wheat Aphid[1]	0.02 - 0.03	2.56 - 3.84

(cont. on next page)

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS *(cont.)*			
Barley* Buckwheat* Oats* Rye*	Stink Bug species Yellowstriped Armyworm	0.02 - 0.03	2.56 - 3.84
	Grass Sawfly	0.025 - 0.03	3.20 - 3.84
	Chinch Bug Corn Leaf Aphid1 Greenbug[1,3] Mite species[2]	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water per acre.
- For chinch bug control, repeat applications at 3- to 5-day intervals, if needed. GRIZZLY Z™ Insecticide may only suppress heavy infestations and/or migrations.
- Greenbug is known to have many biotypes. GRIZZLY Z™ Insecticide may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.
- Do not apply within 30 days of harvest.
- Do not allow livestock to graze in treated areas or harvest treated wheat forage as feed for meat or dairy animals within 7 days after treatment. Do not feed treated straw to meat or dairy animals within 30 days after the last treatment.
- Do not apply more than 0.06 lb. a.i. (7.68 fl. oz. or 0.48 pts. of product) per acre per season.

[1]Best control is obtained before insects begin to roll leaves. Once crop has started to boot, GRIZZLY Z™ Insecticide with Zeon Technology may provide suppression only. Higher rates and increased coverage will be necessary.
[2]Suppression only.
[3]See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[4]Make applications when adults emerge.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Corn (At Plant): Field Corn Popcorn Seed Corn Sweet Corn	Wireworm species Cutworm species Seedcorn Maggot White Grub species Corn Rootworm Larvae Western Northern Southern Mexican Seedcorn Beetle Lesser Cornstalk Borer Red Imported Fire Ant[1]	0.005 lbs. a.i. per 1,000 feet of row[2]	0.66 fl. oz. per 1,000 feet of row[2]

Remarks

- **Banded Applications** – Apply at planting as a 5- to 7-inch T-band sprayed across the open seed furrow between the furrow openers and the press wheels or as a band application behind the press wheel.
- **In-Furrow Applications** – Apply into the seed furrow through spray nozzles or microtubes, behind the planter furrow openers and in front of the press wheel.
- Apply a minimum of 3 gals. finished spray/A.
- Do not harvest or graze livestock or cut treated crops for feed within 21 days of at plant application.
- Do not apply more than 0.09 lb. a.i. (0.72 pts.)/A per crop at plant.
- For field corn, popcorn, and seed corn do not apply more than 0.12 lb. a.i./A per crop from at plant and foliar applications. For sweet corn do not apply more than 0.48 lb. a.i./A per crop from at plant and foliar applications.

[1]Suppression only.

[2]Lbs. a.i. and fl. oz./A of GRIZZLY™ Z INSECTICIDE Applied at 0.66 fl. oz./1,000 ft. of Row for Various Row Spacings

Row Spacing	40"	38"	36"	34"	32"	30"
Linear Ft./A	13,068	13,756	14,520	15,374	16,335	17,424
Lbs. a.i./A	0.067	0.07	0.075	0.079	0.084	0.09
Fl. oz./A	8.6	9.1	9.6	10.1	10.8	11.5

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Corn (Foliar) Field Corn Popcorn Seed Corn	Cutworm species Western Bean Cutworm[1] Corn Earworm[1] Green Cloverworm Meadow Spittlebug	0.015 - 0.025	1.92 - 3.20
	Tobacco Budworm[1,4] European Corn Borer[1] Southwestern Corn Borer[1] Stalk Borer[1] Hop Vine Borer[1] Lesser Cornstalk Borer Armyworm[2] Fall Armyworm[2] Yellow-striped Armyworm[2] Webworm species Flea Beetle species Western Corn Rootworm Beetle (Adult) Northern Corn Rootworm Beetle (Adult) Southern Corn Rootworm Beetle (Adult) Mexican Corn Rootworm Beetle (Adult) Bean Leaf Beetle Cereal Leaf Beetle Japanese Beetle (Adult) Sap Beetle (Adult) Seedcorn Beetle Stink Bug species Grasshopper species Corn Leaf Aphid[3] Bird Cherry-Oat Aphid[3] English Grain Aphid[3]	0.02 - 0.03	2.56 - 3.84
	Mexican Rice Borer[1]	0.03	3.84
	Rice Stalk Borer[1] Sugarcane Borer[1] Beet Armyworm[4] Southern Corn Leaf Beetle[3] Chinch Bug Green Bug[3,4]		

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Remarks

- Apply as required by scouting, or locally prescribed corn growth stages, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds or other locally recommended methods.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of target location. When applying by air, apply in a minimum of 2 gals. of water/A.
- For chinch bug control, begin applications when bugs migrate from small grains or grass weeds to small corn. Direct spray to the base of corn plants. Repeat applications at 3- to 5-day intervals if needed. GRIZZLY™ Z Insecticide may only suppress heavy infestations and/or subsequent migrations.
- For control of adult corn rootworm beetles (*Diabrotica* species) as part of an aerial applied corn rootworm control program use a minimum of 3.84 fl. oz./A (0.03 lb. a.i./A).
- Do not apply within 21 days of harvest.
- Do not allow livestock to graze in treated areas or harvest treated corn forage as feed for meat or dairy animals within 1 day after last treatment. Do not feed treated corn fodder or silage to meat or dairy animals within 21 days after last treatment.
- Do not apply more than 0.12 lb. a.i. (0.96 pts.)/A per crop from at plant and foliar applications.
- Do not apply more than 0.06 lb. a.i. (0.48 pts.) after silk initiation. Do not apply more than 0.03 lb. a.i. (0.24 pts.) after corn has reached the milk stage (yellow kernels with milky fluid).

[1] For control before the larva bores into the plant stalk or ear.
[2] Use higher rates for large larvae.
[3] Suppression only.
[4] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Sweet Corn (Foliar)	Corn Earworm Armyworm[1] Fall Armyworm[1] Southern Armyworm[1] Beet Armyworm[1,3] Yellow-Striped Armyworm[1] Cutworm species Western Bean Cutworm Webworm species European Corn Borer Southwestern Corn Borer Common Cornstalk Borer Western Corn Rootworm Beetle (Adult)	0.02 - 0.03	2.56 - 3.84

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CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS *(cont.)*			
Sweet Corn (Foliar)	Northern Corn Rootworm Beetle (Adult) Southern Corn Rootworm Beetle (Adult) Mexican Corn Rootworm Beetle (Adult) Japanese Beetle (Adult) Sap Beetle (Adult) Flea Beetle species Tarnished Plant Bug Stink Bug species Chinch Bug Aster Leafhopper Grasshopper species Aphid species[2,3] Spider Mite species[2]	0.02 - 0.03	2.56 - 3.84
	Corn Silkfly (Adult)[2]	0.03	3.84

Remarks

- Apply as required by scouting, or locally prescribed corn growth stages, usually at intervals of 4 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds or other locally recommended methods and should be targeted for control before insects enter the stalk or ear.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of foliage and ears (if present). When applying by air, apply in a minimum of 2 gals. of water/A.
- For control of adult corn rootworm beetles (*Diabrotica* species) as part of an aerial applied corn rootworm control program use a minimum of 3.2 fl. oz./A (0.025 lb. a.i./A).
- Do not apply within 1 day of harvest.
- Do not allow livestock to graze in treated areas or harvest treated corn forage as feed for meat or dairy animals within 1 day after last treatment. Do not feed treated corn fodder or silage to meat or dairy animals within 21 days after last treatment.
- Do not apply more than 0.48 lb. a.i. (3.84 pts.)/A per crop from at plant and foliar applications.

[1] Use higher rates for large larvae.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Rice	True Armyworm Fall Armyworm Yellow-striped Armyworm Rice Water Weevil (Adult) Rice Stink Bug Chinch Bug Grasshopper species Leafhopper species Sharpshooter species Bird Cherry-Oat Aphid Yellow Sugarcane Aphid Green Bug Mexican Rice Borer[1] Rice Stalk Borer[1] Sugarcane Borer[1] European Corn Borer[1] Rice Seed Midge	0.025 - 0.04	3.20 - 5.12

Remarks

- Apply as required by scouting. Timing and frequency of application should be based upon insect populations reaching locally determined economic thresholds. Determine the need for repeat applications, usually at intervals of 5-7 days, by scouting.
- GRIZZLY™ Z Insecticide can be safely used when propanil products are being used for weed control.
- Apply by air or by ground equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals of water (or a total carrier volume)/A but ensure sufficient volume is used to provide adequate coverage. In addition, adding an emulsifiable crop oil (e.g., 1 pt./A) when lower aerial application volumes are used is recommended to help improve coverage, reduce evaporation, and improve efficacy.
- For control of rice water weevil in dry seeded rice, make a foliar application as indicated by scouting for the presence of adults and/or feeding scars, usually within a time-frame of 0-5 days after permanent flood establishment. Do not exceed 10 days from starting permanent flood until insecticide application unless scouting indicates weevils have not been previously present. Adults may also be treated at later stages of rice development to reduce overwintering populations.

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- For control of rice water weevil in water seeded rice, make the first foliar application after pinpoint flood as indicated by scouting for the presence of adults and/or feeding scars usually when rice has emerged 0.5 inch above the waterline. Under conditions of prolonged migration into the field, start field scouting for rice water weevil adults and/or feeding scars 3-5 days after the initial treatment and, if needed, apply a second application within 7-10 days of the first application. Adults may also be treated at later stages of rice development to reduce overwintering populations.
- California: In addition to above directions for control of rice water weevil in water seeded rice GRIZZLY™ Z Insecticide may be applied at the 1-3 leaf growth stage, with the majority at the 2-leaf growth stage. Adults are vulnerable on levees and in the water. Larvae are vulnerable while feeding on the leaf prior to entering the soil. Monitor for adults, based upon field history and density of population. Monitor field edges and levee areas for adults. Treat in the following manner: a) spray the inside perimeter of the field, or b) spray the entire field.
- Green bug is known to have many biotypes. GRIZZLY™ Z Insecticide may only provide suppression. If satisfactory control is not achieved with the first application of GRIZZLY™ Z Insecticide, a resistant biotype may be present. Use alternate chemistry for control.
- Do not release flood water within 7 days of an application.
- Do not apply more than 0.12 lb. a.i. (0.96 pts.)/A per season.
- Do not apply more than 0.04 lb. a.i. (0.32 pts.)/A within 21 to 27 days of harvest.
- Do not apply within 21 days of harvest.
- Do not use treated rice fields for the aquaculture of edible fish and crustacea.
- Do not apply as an ultra-low volume (ULV) spray.

[1]For control before the larvae bores into the plant stalk.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Wild Rice	Bird Cherry-Oat Aphid Chinch Bug Fall Armyworm Grasshopper species Green Bug Leafhopper species Rice Stink Bug Riceworm Rice Water Weevil (Adult) Sharpshooter species True Armyworm Yellow Sugarcane Aphid Yellowstriped Armyworm	0.025 - 0.04	3.20 - 5.12

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CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS *(cont.)*			
Wild Rice	European Corn Borer[1] Mexican Rice Borer[1] Rice Seed Midge[1] Rice Stalk Borer[1] Sugarcane Borer[1]	0.03 - 0.04	3.84 - 5.12

Remarks

- Apply as required by scouting. Timing and frequency of application should be based upon insect populations reaching locally determined economic thresholds. Determine the need for repeat applications, usually at intervals of 5-7 days, by scouting.
- GRIZZLY™ Z Insecticide can be safely used when propanil products are being used for weed control.
- Apply by air or by ground equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water (or a total carrier volume) per acre but ensure sufficient volume is used to provide adequate coverage. In addition, adding an emulsifiable crop oil (e.g., 1 pt. per acre) when lower aerial application volumes are used is recommended to help improve coverage, reduce evaporation, and improve efficacy.
- For control of rice water weevil in dry seeded rice, make a foliar application as indicated by scouting for the presence of adults and/or feeding scars, usually within a time-frame of 1-5 days after permanent flood establishment. Do not exceed 10 days from starting permanent flood until insecticide application unless scouting indicates weevils have not been previously present. Adults may also be treated at later stages of rice development to reduce overwintering populations.
- For control of rice water weevil in water seeded rice, make the first foliar application after pinpoint flood as indicated by scouting for the presence of adults and/or feeding scars usually when rice has emerged 0.5 inch above the waterline. Under conditions of prolonged migration into the field, start field scouting for rice water weevil adults and/or feeding scars 3-5 days after the initial treatment and, if needed, apply a second application within 7-10 days of the first application. Adults may also be treated at later stages of rice development to reduce overwintering populations.
- California: In addition to above directions for control of rice water weevil in water seeded rice, GRIZZLY Z™ Insecticide with Zeon Technology may be applied at the 1- to 3-leaf growth stage, with the majority at the 2-leaf growth stage. Adults are vulnerable on levees and in the water. Larvae are vulnerable while feeding on the leaf prior to entering the soil. Monitor for adults, based upon field history and density of population. Monitor field edges and levee areas for adults. Treat in the following manner: a) spray the inside perimeter of the field, or b) spray the entire field.

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- Greenbug is known to have many biotypes. GRIZZLY Z™ Insecticide may only provide suppression. If satisfactory control is not achieved with the first application of GRIZZLY Z™ Insecticide, a resistant biotype may be present. Use alternate chemistry for control.
- For control of stem borers, scout fields, when rice growth is near panicle differentiation, for early symptoms of damaging populations exhibited as discoloration (orange-tan) around the junction of the leaf sheath and leaf blade which is caused by feeding of young larvae within the sheath. Applications must be made before larvae bore into rice stems. Make the first application at panicle differentiation to 2-inch panicle for partial control. Make the second application at boot to heading for maximum control. All rice varieties are susceptible to stem borer damage, but Cocodrie and Priscilla are particularly susceptible.
- Mixers/loaders supporting aerial applications to wild rice at a rate of 0.04 lb. a.i. per acre, and treating 1,200 acres (or more) per day must wear dust-mist respirator.
- Do not release flood water within 7 days of an application.
- Do not apply more than 0.12 lb. a.i. (15.36 fl. oz. or 0.96 pt. of product) per acre per season.
- Do not apply more than 0.04 lb. a.i. (5.12 fl. oz. or 0.32 pt. of product) per acre within 21 to 27 days of harvest.
- Do not apply within 21 days of harvest.
- Do not use treated rice fields for the aquaculture of edible fish and crustacea.
- Do not apply as an ultra-low volume (ULV) spray.

[1]For control before the larvae bores into the plant stalk.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Sorghum (Grain)	Cutworm species Sorghum Midge	0.015 - 0.02	1.92 - 2.56
	Armyworm Beet Armyworm[3] Fall Armyworm[1] Yellow-striped Armyworm[1] Corn Earworm Webworm species European Corn Borer[2] Southwestern Corn Borer[2] Lesser Cornstalk Borer[2] Flea Beetle species Stink Bug species Grasshopper species	0.02 - 0.03	2.56 - 3.84

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CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS *(cont.)*			
Sorghum (Grain)	Mexican Rice Borer[2] Rice Stalk Borer[2] Sugarcane Borer[2] Chinch Bug	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of target location. When applying by air, apply in a minimum of 2 gals. of water/A.
- For sorghum midge control, begin applications when 25% of the sorghum heads have emerged and are in tip bloom. Repeat applications at 5-day intervals if needed.
- For chinch bug control, begin applications when bugs migrate from small grains or grass weeds to small sorghum. Direct spray to the base of sorghum plants. Repeat applications at 3- to 5-day intervals if needed. GRIZZLY™ Z Insecticide may only suppress heavy infestations and/or subsequent migrations.
- Do not apply more than 0.08 lb. a.i. (0.64 pts.)/A per season.
- Do not apply more than 0.06 lb. a.i. (0.48 pts.)/A per season after crop emergence.
- Do not apply more than 0.02 lb. a.i. (0.16 pts.)/A per season once crop is in soft dough stage.
- Do not apply within 30 days of harvest.

[1] Use higher rates for large larvae.
[2] For control before the larva bores into the plant stalk.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CEREAL GRAINS			
Wheat Wheat Hay Triticale	Cutworm species Army Cutworm	0.015 - 0.025	1.92 - 3.20
	Armyworm Fall Armyworm Yellow-striped Armyworm Flea Beetle species Cereal Leaf Beetle Stink Bug species English Grain Aphid[1] Russian Wheat Aphid[1] Bird Cherry-Oat Aphid[1] Grasshopper species Hessian Fly[4] Orange Blossom Wheat Midge	0.02 - 0.03	2.56 - 3.84
	Grass Sawfly	0.025 - 0.03	3.20 - 3.84
	Chinch Bug Greenbug[1,3] Corn Leaf Aphid[2] Mite species[2]	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- For chinch bug control, repeat applications at 3- to 5-day intervals if needed. GRIZZLY™ Z Insecticide may only suppress heavy infestations and/or migrations.
- Greenbug is known to have many biotypes. GRIZZLY™ Z Insecticide may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.
- **Do not** apply within 30 days of harvest.
- **Do not** allow livestock to graze in treated areas or harvest treated wheat forage as feed for meat or dairy animals within 7 days after treatment. **Do not** feed treated straw to meat or dairy animals within 30 days after the last treatment.
- **Do not** apply more than 0.06 lb. a.i. (0.48 pts.)/A per season.

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[1] Best control is obtained before insects begin to roll leaves. Once wheat has started to boot, GRIZZLY™ Z Insecticide may provide suppression only. Higher rates and increased coverage will be necessary.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[4] Make applications when adults emerge.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
COLE CROPS (Head and Stem Brassica)			
Broccoli Brussels Sprouts Cabbage Cavalo Broccoli Cauliflower Chinese Broccoli (gai lon) Chinese Cabbage (napa) Chinese Mustard Cabbage (gai choy) Kohlrabi	Alfalfa Looper Cabbage Looper Imported Cabbageworm Southern Cabbageworm Cutworm species Cabbage Webworm	0.015 - 0.025	1.92 - 3.20
	Diamondback Moth[3] Armyworm Beet Armyworm[1,3] Fall Armyworm[1] Yellow-striped Armyworm Corn Earworm Flea Beetle species Japanese Beetle (Adult) Vegetable Weevil (Adult) Grasshopper species Leafhopper species Plant Bug species including Lygus species[3] Stink Bug species Meadow Spittlebug Aphid species[2,3] Whitefly species[2,3] Thrips species[2] Spider Mite species[2]	0.02 - 0.03	2.56 - 3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.

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- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- **Do not** apply within 1 day of harvest.
- **Do not** apply more than 0.24 lb. a.i. (1.92 pts.)/A per season.

[1] For control of first and second instar only.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
COTTON			
	Cutworm species Tobacco Thrips Soybean Thrips	0.015 - 0.02	1.92 - 2.56
	Lygus Bug species[3] Pink Bollworm Cabbage Looper Cotton Leafperforator Saltmarsh Caterpillar Cotton Leafworm Cotton Fleahopper	0.02 - 0.03	2.56 - 3.84
	Cotton Bollworm Tobacco Budworm[3] Boll Weevil Fall Armyworm Beet Armyworm[1,3] European Corn Borer Brown Stink Bug Green Stink Bug Southern Green Stink Bug Twospotted Spider Mite[2] Cotton Aphid[2,3] Bandedwing Whitefly[2,3] Sweetpotato Whitefly[2,3]	0.025 - 0.04	3.20 - 5.12

Remarks

- Apply as required by scouting, usually at intervals of 5-7 days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage.

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- Applications may also be made with equipment adapted and calibrated for ULV sprays. GRIZZLY™ Z Insecticide may be mixed with once-refined vegetable oil and applied in a minimum of at least one qt. of finished spray/A.
- Under light bollworm/budworm infestation levels, 0.02 lb. a.i./A may be applied in conjunction with intense field monitoring.
- For boll weevil control spray on a 3- to 5-day schedule.
- When applied according to label directions for control of cotton bollworm and tobacco budworm, GRIZZLY™ Z Insecticide also provides ovicidal control of unhatched Heliothine species eggs.
- **Do not** apply within 21 days of harvest.
- **Do not** graze livestock in treated areas.
- **Do not** apply more than 1.6 pts. (0.2 lb. a.i.)/A per season.
- **Do not** make more than a total of 10 synthetic pyrethroid applications (of one product or combination of products) to a cotton crop in one growing season. Synthetic pyrethroid products include Ammo® Insecticide, Asana® XL Insecticide, Baythroid® Emulsifiable Pyrethroid Insecticide, Capture® Insecticide/Miticide, Danitol® 2.4 EC Spray Insecticide/Miticide, Decis® Insecticide, Fury™ Insecticide, Karate® Insecticide, Karate® Insecticide with Zeon™ Technology, Mustang® Insecticide, Scout X-TRA® Insecticide, GRIZZLY™ Z Insecticide, Warrior® Insecticide and Warrior Insecticide with Zeon™ Technology.

[1] For control of first and second instar only.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CUCURBIT VEGETABLES*			
Chayote (fruit) Chinese Waxgourd (Chinese preserving melon) Citron Melon Cucumber Gherkin Gourd (edible) *Lagenaria* species – includes: hyotan, cucuzza *Luffa acutangula, L. cylindrical* – 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, snake melon Pumpkin Squash, summer *(Cucurbita pepo var. melopepo)* – includes: crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini	Armyworm species[1] Blister Beetle species Cabbage Looper Corn Earworm Cricket species Cucumber Beetle species (adults) Cutworm species Flea Beetle species Grasshopper species June Beetle species Leaffooted Bug Leafhopper species Lygus Bug species[1] Melonworm Pickleworm Plant Bug species Rindworm species complex Saltmarsh Caterpillar Squash Beetle Squash Bug species Squash Vine Borer species Stink Bug species Thrips species[1,2] Tobacco Budworm[1] Webworm species	0.02 - 0.03	2.56 - 3.84
Squash, winter *(Cucurbita maxima; C. moschata)* – includes: butternut squash, calabaza, hubbard squash *(C. mixta; C. pepo)* – includes: acorn squash, spaghetti squash Watermelon – includes: hybrids and/or varieties of *Citrulius lanatus*	Aphid species[1] Leafminer species[1,3] Spider Mite species[3] Whitefly species[1,3]	0.03	3.84

(cont. on next page)

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of all plant parts. When applying by air, apply in a minimum of 2 gals. total solution per acre. When applying by ground, a minimum of 10 gals. total solution per acre is recommended.
- Use higher application volumes and/or rates when foliage is dense, pest populations are high, larvae are large, weather conditions are adverse and/or as plant size increases. Use higher rates for longer residual.
- Insects that bore or tunnel into leaves, vines, stems or fruit must be controlled before penetration. Only exposed insects (larvae and/or adults) can be controlled with foliar applications of GRIZZLY Z™ Insecticide.
- **Do not** apply more than 0.18 lb. a.i. (23 fl. oz. or 1.44 pts. of product) per acre per season. **Do not** apply within 1 day of harvest.

[1] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[2] Does not include Western Flower Thrips.
[3] Suppression only.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
GRASS FORAGE, FODDER AND HAY*			
Pasture and Rangeland Grass, Grass Grown for Hay or Silage and Grass Grown for Seed	Army Cutworm Cutworm species Essex Skipper Range Caterpillar Striped Grass Looper	0.015 - 0.025	1.92 - 3.20
	Beet Armyworm Billbug species[3] Bird Cherry-Oat Aphid[1] Black Grass Bug Black Turfgrass Beetle (adult) Blue Stem Midge Cereal Leaf Beetle Chinch Bug Crane Fly species Cricket species English Grain Aphid[1] Fall Armyworm	0.02 - 0.03	2.56 - 3.84

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CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
GRASS FORAGE, FODDER AND HAY* *(cont.)*			
Pasture and Rangeland Grass, Grass Grown for Hay or Silage and Grass Grown for Seed	Flea Beetle species Grass Mealybug Grass Sawfly (adult) Grasshopper species Green June Beetle (adult) Greenbug[1,2] Japanese Beetle (adult) Katydid species Leafhopper species Mite species[3] Russian Wheat Aphid[1] Southern Armyworm Spittlebug species Stink Bug species Sugarcane Aphid Thrips species Tick species True Armyworm Webworm species Yellowstriped Armyworm		

Remarks

- Apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. total solution per acre. When applying by ground, a minimum of 7 gals. total solution is recommended.
- Use higher application volumes and rates when foliage is dense, pest populations are high, larvae are large and/or weather conditions are adverse. Use higher rates for longer residual.
- For chinch bug control, GRIZZLY Z™ Insecticide may only suppress heavy infestations and/or migrations. In this situation, a second application using an alternative chemistry may be needed.
- Greenbug is known to have many biotypes. GRIZZLY™ Z Insecticide may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.
- Pasture and rangeland grass may be used for grazing or cut for forage 0 days after application. **Do not** cut grass to be dried and harvested for hay until 7 days after the last application.

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Grass grown for seed: Straw and mature seed (seed screenings) may be used as feed 7 days after the last application. Regrowth of grass grown for seed may be used for grazing, cut for forage or cut to be dried and harvested for hay.

- **Do not** apply more than 0.03 lb. a.i. (3.84 fl. oz. or 0.24 pt. of product) per acre per cutting for pastures, rangeland and grasses grown for seed. A minimum re-treatment intervals (RTI) of 30 days is required for pastures and rangeland receiving 0.03 lb. a.i./A which have not been cut between applications.
- **Do not** apply more than 0.09 lb. a.i. (11.52 fl. oz. or 0.72 pt. of product) per acre per season.

[1] Best control is obtained before insects begin to roll leaves.
[2] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[3] Suppression only.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
FRUITING VEGETABLES			
Eggplant Ground cherry Pepino	Cabbage Looper Cutworm species Hornworm species	0.015 - 0.025	1.92 - 3.20
Peppers (bell and nonbell) Tomatillo Tomato	Tomato Fruitworm Tobacco Budworm[3] Tomato Pinworm Beet Armyworm[1,3] Southern Armyworm[1] Yellow-striped Armyworm[1] Fall Armyworm[1] European Corn Borer[4] Leafminer species[2] Colorado Potato Beetle[3] Flea Beetle species	0.02 - 0.03	2.56 - 3.84
	Grasshopper species Leafhopper species Aphid species[2,3] Whitefly species[2,3] Meadow Spittlebug Stink Bug species Plant Bug species Stalk Borer[4] Blister Beetle species Japanese Beetle (Adult)	0.02 - 0.03	2.56 - 3.84

(cont. on next page)

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
FRUITING VEGETABLES *(cont.)*			
Eggplant Ground cherry Pepino Peppers (bell and nonbell) Tomatillo Tomato	Pepper Weevil (Adult)[2] Vegetable Weevil (Adult) Tomato Psyllid[2,3] Spider Mite species[2] Thrips[5] Cucumber Beetle species (Adult)		

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- **Do not** apply within 5 days of harvest.
- **Do not** apply more than 0.36 lb. a.i. (2.88 pts.)/A per season.

[1] For control of first and second instar only.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[4] For control before the larva bores into the plant stalk or fruit.
[5] Does not include Western Flower Thrips.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
LEGUME VEGETABLES (Beans and Peas)			
Edible Podded (Only) *Canavalia gladiata* – sword bean *Canavalia ensiformis* – jackbean	Cutworm species Green Cloverworm Imported Cabbageworm Saltmarsh Caterpillar Velvetleaf Caterpillar Mexican Bean Beetle	0.015 - 0.025	1.92 - 3.20
Glycine max – Soybean (immature seed) **Edible Podded, Succulent Shelled or Dried Shelled** *Phaseolus* species – includes: field, kidney, lima, navy, pinto, runner, snap, tepary and wax beans *Vigna* species – includes: adzuki, asparagus, moth, mung, rice, urd and yardlong beans, black-eyed pea, catjang, Chinese longbean, cowpea, Crowder pea, and Southern pea *Pisum* species – includes: dwarf, edible-pod, English, field, garden, green, snow and sugar snap peas *Cajanus cajan* – Pigeon pea **Succulent Shelled or Dried Shelled** *Vicia faba.* – broadbean (favabean)	Corn Earworm Painted Lady Butterfly (Larva) European Corn Borer Looper Species Western Bean Cutworm Tobacco Budworm[4] Armyworm[2] Fall Armyworm[2] Yellow-striped Armyworm[2] Western Yellow-striped Armyworm[2] Bean Leafskeletonizer Webworm species Leaftier species Alfalfa Caterpillar Stalk Borer[1] Cucumber Beetle species (Adult) Corn Rootworm Beetle species (Adult) Flea Beetle species (Adult) Curculio and Weevil species[1] (foliage and pod feeding adults and larvae) Blister Beetle species Bean Leaf Beetle Japanese Beetle (Adult) Leafhopper species Flea Hopper species Three-cornered Alfalfa Hopper Meadow Spittlebug Stink Bug species Plant Bug species including Lygus species[4] Grasshopper species Thrips species[4,5] Aphid species[4]	0.02 - 0.03	2.56 - 3.84

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CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
LEGUME VEGETABLES (Beans and Peas) *(cont.)*			
Dried Shelled (Only) *Lupinus* species – includes: grain, sweet, white and sweet white lupines *Cicer arietimum* – chickpea (garbanzo bean) *Cyamopsis tetragonoloba* – guar *Lablab pupureus* – Lablab bean (hyacinth bean) *Lens esculata* – Lentils	Beet Armyworm[3,4] Soybean Looper[3,4] Lesser Cornstalk Borer[3] Leafminer species[3,4] Whitefly species[3,4] Spider Mite species[3]	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- For edible podded and succulent shelled legume vegetables, **do not** apply within 7 days of harvest.
- For dried shelled legume vegetables, **do not** apply within 21 days of harvest.
- **Do not** apply more than 0.12 lb .a.i. (0.96 pts.)/A per season.
- For succulent and dried shelled peas and beans, **do not** graze livestock in treated areas or harvest vines for forage or hay.

[1] For control before the larva bores into the plant stalk or pods.
[2] Use higher rates for large larvae.
[3] For suppression only.
[4] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[5] Does not include Western Flower Thrips.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
LEGUME VEGETABLES (Soybeans)			
Soybean	Corn Earworm Velvetbean Caterpillar Green Cloverworm Cabbage Looper Painted Lady (Thistle) Caterpillar Saltmarsh Caterpillar Woollybear Caterpillar Cutworm species Bean Leaf Beetle Mexican Bean Beetle Western Corn Rootworm Beetle (Adult) Northern Corn Rootworm Beetle (Adult) Southern Corn Rootworm Beetle (Adult) Mexican Corn Rootworm Beetle (Adult) Three-Cornered Alfalfa Hopper Potato Leafhopper Thrips species[5] Soybean Aphid[4]	0.015 - 0.025	1.92 - 3.20
	Armyworm[1] Fall Armyworm[1] Yellow-striped Armyworm[1] Tobacco Budworm[3] Webworm species European Corn Borer Silverspotted Skipper Japanese Beetle (Adult) Blister Beetle species Stink Bug species Plant Bug species Grasshopper species	0.025 - 0.03	3.20 - 3.84
	Beet Armyworm[2,3] Soybean Looper[2,3] Lesser Cornstalk Borer[2] Spider Mite species[2]	0.03	3.84

(cont. on next page)

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- **Do not** graze or harvest treated soybean forage, straw or hay for livestock feed.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- For control of adult corn rootworm beetles (*Diabrotica* species) as part of an aerial applied corn rootworm control program use a minimum of 2.56 fl. oz./A (0.02 lb. a.i./A).
- **Do not** apply within 30 days of harvest. **Do not** apply more than 0.06 lb. a.i. (0.48 pts.)/A per season.

[1] Use higher rates for large larvae.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[4] Use lower rates for early season applications and/or lighter populations.
[5] Does not include Western Flower Thrips.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
LETTUCE (Head and Leaf)			
	Alfalfa Looper Cabbage Looper Imported Cabbageworm Cutworm species Saltmarsh Caterpillar Green Cloverworm	0.015 - 0.025	1.92 - 3.20
	Diamondback Moth[3] Armyworm Beet Armyworm[1,3] Fall Armyworm[1] Southern Armyworm Corn Earworm Tobacco Budworm[3] European Corn Borer Flea Beetle species Japanese Beetle (Adult) Vegetable Weevil (Adult) Grasshopper species Leafhopper species Plant Bug species including Lygus species[3] Stink Bug species Meadow Spittlebug Aphid species[2,3] Whitefly species[2,3] Spider Mite species[2]	0.02 - 0.03	2.56 - 3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- **Do not** apply within 1 day of harvest.
- **Do not** apply more than 0.3 lb. a.i. (2.4 pts.)/A per season.

[1] For control of first and second instar only.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
ONION (Bulb) and GARLIC			
	Cutworm species Seedcorn Maggot (Adult) Onion Maggot (Adult) Leafminer species (Adult)	0.015 - 0.025	1.92 - 3.20
	Armyworm species[1] Onion Thrips[3] Tobacco Thrips[3] Western Flower Thrips[2,3] Flower Thrips[2,3] Aphid species[2] Plant Bug species Stink Bug species	0.02 - 0.03	2.56 - 3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Use the higher label rates as thrips population increases and avoid rescue situations.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- For thrips control by aerial application, the addition of 1% COC v/v, 1/4% NIS v/v or a silicone adjuvant (follow manufacturers use directions) may enhance the deposition of the spray and increase plant coverage.
- **Do not** apply within 14 days of harvest. **Do not** apply more than 0.24 lb. a.i. (1.92 pts.)/A per season.

[1] For control of the first and second instar only.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
PEANUTS			
	Cutworm species Green Cloverworm Velvetbean Caterpillar Rednecked Peanut Worm Potato Leafhopper Three Cornered Alfalfa Hopper	0.015 - 0.025	1.92 - 3.20
	Corn Earworm Fall Armyworm[1] Bean Leaf Beetle Southern Corn Rootworm (Adult) Vegetable Weevil Whitefringed Beetle (Adult) Stink Bug species Tobacco Thrips Grasshopper species	0.02 - 0.03	2.56 - 3.84
	Aphid species[2] Beet Armyworm[2,3] Lesser Cornstalk Borer[2] Soybean Looper[2,3] Spider Mite species[2]	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.12 lb. a.i. (0.96 pts.)/A per season.

[1] Use higher rates for large larvae.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
POME FRUITS			
Apple Crabapple Loquat Mayhaw Oriental Pear Pear Quince	Leafroller species Omnivorous Leafroller Codling Moth Orange Tortrix Tufted Apple Budworm Oriental Fruit Moth Lesser Appleworm Green Fruitworm Tent Caterpillar species Webworm species Tentiform Leaf Miner species Apple Maggot (Adult) Cherry Fruit Fly species (Adult) Pear Sawfly Stink Bug species Leafhopper species Plum Curculio Japanese Beetle Tree Borer species Plant Bug species Periodical Cicada Apple Aphid Rosy Apple Aphid Spirea Aphid[1] Pear Psylla[1] San Jose Scale (fruit infestations only)	0.02 - 0.04	2.56 - 5.12

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds and IPM recommendations.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply in a minimum of 5 gals. of water/per acre, but use higher volumes as appropriate for thorough coverage.
- **Do not** apply within 21 days of harvest.
- **Do not** apply more than 0.2 lb. a.i. (1.6 pts.)/A per year. **Do not** apply more than 0.16 lb. a.i. (1.28 pts.)/A per year post-bloom.

[1]Suppression only

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
STONE FRUITS			
Apricot Sweet and Tart Cherry Nectarine Peach Plum Chickasaw Plum Damson Plum Japanese Plum Plumcot Prune	Leafroller species Peach Twig Borer Oriental Fruit Moth Peachtree Borer species Green Fruitworm Tent Caterpillar species Codling Moth American Plum Borer Apple Maggot (Adult) Cherry Fruit Fly species (Adult) Pear Sawfly Plum Curculio Rose Chafer Japanese Beetle June Beetle Plant Bug species Stink Bug species Leafhopper species Thrips species Periodical Cicada Black Cherry Aphid	0.02 - 0.04	2.56 - 5.12

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold and IPM recommendations.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply a minimum of 5 gals. of water/per acre, but use higher volumes as appropriate for thorough coverage.
- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.2 lb. a.i. (1.6 pts.)/A per year. **Do not** apply more than 0.16 lb. a.i. (1.28 pts.)/A per year post-bloom.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
SUGARCANE			
	Mexican Rice Borer[1] Sugarcane Borer[1] Rice Stalk Borer[1] Sugarcane Beetle (Adult)[2] Sugarcane Aphid[3] Yellow Sugarcane Aphid[3] West Indian Cranefly Pygmy Mole Cricket	0.025 - 0.04	3.20 - 5.12

Remarks

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply a minimum of 2 gals. of water/A.
- **Do not** apply within 21 days of harvest.
- **Do not** apply more than 0.16 lb. a.i. (1.28 pts.)/A per season.

[1] For control before the larva bores into the plant stalk.
[2] Suppression only of beetles active above ground.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
SUNFLOWER			
	Sunflower Beetle Cutworm species	0.015 - 0.025	1.92 - 3.20
	Sunflower Moth Banded Sunflower Moth Fall Armyworm[1] Woollybear Caterpillar Spotted Cabbage Looper Painted Lady (Thistle) Caterpillar Seed Weevil (Adult) Stem Weevil (Adult) Head-Clipper Weevil (Adult) Japanese Beetle (Adult) Sunflower Maggot (Adult) Leafhopper species Meadow Spittlebug Stink Bug species Grasshopper species	0.02 - 0.03	2.56 - 3.84
	Beet Armyworm[2,3] Spider Mite species[2]	0.03	3.84

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water to obtain full coverage of sunflower heads and/or foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- **Do not** apply within 45 days of harvest.
- **Do not** apply more than 0.12 lb. a.i. (0.96 pts.)/A per season. **Do not** apply more than 0.09 lb. a.i. (0.72 pts.)/A per season after bloom initiation.
- **Do not** apply as an ultra-low volume (ULV) spray.

[1] Use higher rates for large larvae.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
TOBACCO			
	Tobacco Hornworm Tomato Hornworm Cabbage Looper Corn Earworm Cutworm species Tobacco Budworm[2] Salt Marsh Caterpillar Armyworm species[1] Webworm species Potato Tuberworm Tobacco Flea Beetle (Adult) Cucumber Beetle species (Adult) Blister Beetle species Vegetable Weevil (Adult) Japanese Beetle (Adult) Grasshopper species Tree Cricket species Katydid species Plant Bug species[3] Stinkbug species Tobacco Thrips species[2] Tobacco Aphid species[2,3]	0.015 - 0.03	1.92 - 3.84

Remarks

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. When applying by air, apply in a minimum of 2 gals. of water/A.
- **Do not** apply within 40 days of harvest.
- **Do not** apply more than 0.09 lb. a.i. (0.72 pts.)/A per year.

[1] For control of first and second instars only.
[2] Suppression only.
[3] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
TREE NUTS			
Almond Beech Nut Brazil Nut Butternut Cashew Chestnut Chinquapin Filbert (Hazelnut) Hickory Nut Macadamia Nut (Bush Nut) Walnut, Black Walnut, English (Persian)	Leafroller species Navel Orangeworm Codling Moth Filbertworm Peach Twig Borer Walnut Husk Fly species (Adult) Ants Plant Bug species Stink Bug species Chinch Bug Leaffooted Bug Walnut Aphid	0.02 - 0.04	2.56 - 5.12
Pecan	Hickory Shuckworm Pecan Casebearer species Pecan Weevil Pecan Aphid species Pecan Spittlebug Stink Bug species Pecan Phylloxera species	0.02 - 0.04	2.56 - 5.12

Remarks

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply in a minimum of 5 gals. of water/per acre, but use higher rates as appropriate for thorough coverage.
- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.16 lb. a.i. (1.28 pts.)/A per year. **Do not** apply more than 0.12 lb. a.i. (0.96 pts.)/A per year post-bloom.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
TUBEROUS AND CORM VEGETABLES* (Potato, Sweet Potato, Yams and Related)			
Arracacha Arrowroot Artichoke (Chinese and Jerusalem only) Canna (edible) Cassava (bitter and sweet)	Cutworm species Leafhopper species Saltmarsh Caterpillar Sweet Potato Hornworm Woollybear Caterpillar species	0.015 - 0.025	1.92 - 3.20
Chayote (root) Chufa Dasheen Ginger Leren Potato Sweet Potato Tanier Turmeric Yam (bean and true)	Aphid species[1] Armyworm species[1] Blister Beetle species Colorado Potato Beetle[1] Corn Earworm Cricket species Cucumber Beetle species (adult) European Corn Borer Flea Beetle species (adult) Grasshopper species Looper species[1] Lygus Bug species[1] Plant Bug species Potato Psyllid Potato Tuberworm Stink Bug species Sweet Potato Leaf Beetle (adult) Sweet Potato Vine Borer Thrips species[1,2] Tortoise Beetle species Webworm species Weevil species (adult)	0.02 - 0.03	2.56 - 3.84
	Leafminer species[1,3] Whitefly species[1,3] Spider Mite species[3]	0.03	3.84

(cont. on next page)

Remarks

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or air equipment using sufficient water and application methods to obtain full coverage of all plant parts. When applying by air, apply in a minimum of 2 gals. total solution per acre. When applying by ground, a minimum of 10 gals. total solution per acre is recommended.
- Use higher application volumes and/or rates when foliage is dense, pest populations are high, larvae are large, weather conditions are adverse and/or as plant size increases. Use higher rates for longer residual.
- Insects that bore or tunnel into leaves, vines, stems, tubers or corms must be controlled before penetration. Only exposed insects (larvae and/or adults) can be controlled with foliar applications of GRIZZLY Z™ Insecticide.
- **Do not** apply more than 0.12 lb. a.i. (15.36 fl. oz. or 0.96 pt. of product) per acre per season.
- **Do not** apply within 7 days of harvest.

[1] See resistance statement under **"GENERAL DIRECTIONS FOR USE"**.
[2] Does not include Western Flower Thrips.
[3] Suppression only.

NON-AGRICULTURAL USES

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CONIFER and DECIDUOUS TREES			
Plantations and Nurseries	Pine Tip Moth species Spruce Budworm Bagworm Tent Caterpillar species Leafroller species Gypsy Moth Webworm species Tussock Moth species Birch Leafminer Pine Sawfly species Sawfly species Pine Chafer Japanese Beetle May Beetle species June Beetle species Pine Colaspis Beetle European Elm Bark Beetle Leaf Beetle species Elm Leaf Beetle Pales Weevil Pine Weevil species Black Pine Weevil Pine Conelet Bug Spittlebug species Pine Leaf Chermid Balsam Woolly Aphid Balsam Twig Aphid Poplar Aphid species Pine Tortoise Scale Pine Needle Scale Mealybug species[1]	0.02 - 0.04	2.56 - 5.12

Remarks

- To control exposed foliage, flower, cone, seed and bark feeding insects, apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground equipment using sufficient water to obtain full coverage of target site. When applying by air, apply a minimum of 2 gals. of water/A.
- **Do not** apply more than 0.24 lb. a.i. (1.92 pts.)/A per year.

[1]Suppression only.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
CONIFER and DECIDUOUS TREES			
Seed Orchards	Coneworm species Seed Bug species Thrips species	See Remarks	See Remarks

Remarks

- For high volume sprayers, dilute 5.12 fl. oz. per 100 gals. of water and apply 5-10 gals. of finished spray per tree.
- For low volume sprayers, dilute 20 fl. oz. per 100 gals. of water and apply 100 gals. of finished spray/A.
- For aerial applications, apply 15 fl. oz./A in a minimum of 10 gals. finish spray/A.
- **Do not** apply more than 0.5 lb. a.i. (4 pts.)/A per year.

CROP	TARGET PESTS	RATE	
		lb. a.i./A	fl. oz./A
NON-CROPLAND (Excluding Public Land)			
	See Crop Outlets on this GRIZZLY™ Z INSECTICIDE label for target pest and rates.	See Crop Outlets	See Crop Outlets

Remarks

- Spray non-cropland adjacent to agricultural areas to control migratory insects, which may threaten crops.
- Follow **"GENERAL USE DIRECTIONS"**, rates and spray recommendations found elsewhere in this label for the adjacent crop outlet and target pests.
- Use highest labeled rates for dense/large foliage, high insect populations and larger larval stages.
- Repeat as necessary to maintain control.
- **Do not** exceed 0.2 lb. a.i. (1.6 pts.)/A per year.
- **Do not** graze livestock in treated areas.

Rate Conversion Chart

lb. a.i./A	fl. oz./A	pts./A	Treated Acres/gal.
0.015	1.92	0.12	66
0.02	2.56	0.16	50
0.025	3.20	0.20	40
0.03	3.84	0.24	33
0.04	5.12	0.32	25

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— NOTES —

—NOTES—

55/15

RESTRICTED USE PESTICIDE
Due to Toxicity 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.

AgriSOLUTIONS

GRIZZLY™ Z
Insecticide

ACTIVE INGREDIENT:
Lambda-cyhalothrin [1α(*S**),3α(*Z*)]-(±)-cyano-(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate 11.4%
OTHER INGREDIENTS 88.6%
TOTAL 100.0%

GRIZZLY™ Z Insecticide contains 1 lb. of active ingredient per gal. and is a capsule suspension.

(01) 0 0784742 01641 7

PULL HERE TO OPEN

NOTIFICATION
MAY 21 2009

KEEP OUT OF REACH OF CHILDREN
WARNING/AVISO

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.)

SEE ADDITIONAL PRECAUTIONARY STATEMENTS, COMPLETE STORAGE AND DISPOSAL, AND DIRECTIONS FOR USE IN BOOKLET.

EPA Reg. No. 1381-211 **EPA Est. No. 070989-MO-001**

0/0330/9

Distributed by
Winfield Solutions, LLC
P.O. Box 64589, St. Paul, MN 55164-0589

NET CONTENTS
1 GALLON (3.785 L)

PF-32645-2

PROOF
THIS PROOF IS TO BE CHECKED FOR ACCURACY

Please review and approve **Text, Spelling, Copy Placement, Size, Shape, Colors, Unwind,** and **Dieline.**

Authorized signature accepts responsibility for accuracy of all copy, color break and artwork. Cimarron Label is not liable for any discrepancies subsequently identified.

PLEASE NOTE: Due to color variance between printers/monitors, the colors represented by this proof cannot be deemed accurate. Please refer to a color matching system such as the Pantone Matching System for a truer representation of spot colors. *THIS PROOF IS NOT ACCURATE FOR COLOR-MATCH.*

WE CANNOT PROCESS THIS ORDER WITHOUT AN AUTHORIZED SIGNATURE

☐ ***ARTWORK IS APPROVED*** ☐ ***REVISED PROOF NEEDED***

Signed _____

Date _____

Please Return To: _____

cimarron LABEL
4201 North Westport Avenue, Sioux Falls, South Dakota 57107
Phone: (605) 978-0451 • Fax: (605) 978-0463

Please indicate the correct unwind position

Unwind Positions

	Head-Off	Foot-Off	Right-Off	Left-Off
Wound Outside	1 ☐	2 ☐	3 ☐	4 ☒
Wound Inside	5 ☐	6 ☐	7 ☐	8 ☐

PROOF DATE: 3/31/2009
CUSTOMER: OMNIUM
JOB NUMBER: 40547
LABEL SIZE: 4.75" x 5.0"
LEAFLET FLAT SIZE: 4.5" x 8.0"
LEAFLET FOLDED SIZE: 4.5" x 4.0"
LABEL COLORS: BLACK
PATTERN VARNISH
LEAFLET "IN" COLORS: BLACK
LEAFLET "OUT" COLORS: BLACK PMS 286

dieline does not print