



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

SEP 23 2008

Christopher Davis  
FMC Corp. Agricultural Products Group  
1735 Market Street  
Philadelphia, PA 19103

Subject: Updated Spray Drift Language for Pyrethroid  
Agricultural Use Product as per EPA letter dated February 21,  
2008

Dear Mr. Davis:

The Agency is in receipt of your Applications for Pesticide Notification dated July 22, 2008 for the following products:

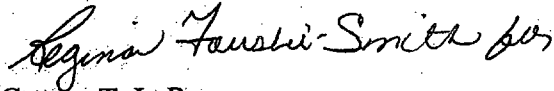
Capture 2 EC Insecticide/Miticide (EPA Reg. No. 279-3069)  
Brigade WSB Insecticide/Miticide (EPA Reg. No. 279-3108)  
Capture 2EC-CAL Insecticide/Miticide (EPA Reg. No. 279-3114)  
Double Threat CP Insecticide (EPA Reg. No. 279-3257)  
Double Threat Insecticide (EPA Reg. No. 279-3271)  
Brigade 2EC Insecticide/Miticide (EPA Reg. No. 279-3313)

Registration Division (RD) has conducted a review of this request for it applicability under PRN 98-10 and finds that the action(s) requested fall within the scope of PRN 98-10. The labels submitted with the applications has been stamped "Notification" and will be placed in our records.

Note under Buffer Zones "streams" should read "permanent streams" and "ponds" should read "natural ponds". Also, correct spelling of "greated" to "greater" under aerial applications.

If you have any questions, please call me at (703) 305-6100.

Sincerely,



George T. LaRocca  
Product Manager 13  
Insecticide Branch  
Registration Division (7505P)

Enclosure

3/32



United States  
**Environmental Protection Agency**  
 Washington, DC 20460

<input type="checkbox"/>	Registration
<input type="checkbox"/>	Amendment
<input checked="" type="checkbox"/>	Other

OPP Identifier Number

**Application for Pesticide - Section I**

1. Company/Product Number 279-3313	2. EPA Product Manager LaRocca	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Brigade 2EC Insecticide/Miticide	PM# 13	
5. Name and Address of Applicant (Include ZIP Code) FMC Corporation 1735 Market Street Philadelphia, PA 19103 <input type="checkbox"/> 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: <b>NOTIFICATION</b> EPA Reg. No. _____ Product Name <b>SEP 23 2008</b>	

**Section - II**

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

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

-Add spray drift language per Agency letter of February 21, 2008

Certification Statement:

I certify that the only changes made on the label are those necessary to comply with EPA's letter of February 21, 2008

**Section - III**

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	2. Type of Container <input type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> 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  
 Label  Container

4. Size(s) Retail Container

5. Location of Label Directions

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 Christopher Davis	Title Registration Manager	Telephone No. (Include Area Code) 215-299-6334
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**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.

2. Signature 	3. Title Registration Manager	6. Date Application Received <b>(Stamped)</b>
4. Typed Name Christopher Davis	5. Date 8/27/08	

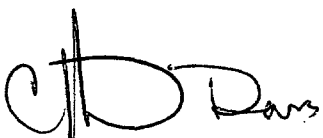
# Certification with Respect to Label Integrity

version: 9/11/02

I certify that the information (including, but not limited to, text, tables, and graphics) contained in the electronic file identified below by file name and submitted with this certification is the same information as that on the paper copies of these documents included with this submission.

PROPOSED LABEL		
EPA Registration #	Date Submitted to EPA	Electronic file name
279-3313	8/27/08	000279-03313.20080827.SprayDriftNotif.pdf

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

  
 \_\_\_\_\_  
 Signature

8/27/08  
 \_\_\_\_\_  
 Date

Christopher Davis  
 \_\_\_\_\_  
 Name (typed)

Registration Manager  
 \_\_\_\_\_  
 Title



# FMC Agricultural Products

5/32  
FMC Corporation  
1735 Market Street  
Philadelphia, PA 19103  
215.299.6000 Phone  
215.299.6468 Fax  
www.fmc.com

August 27, 2008

Mr. George LaRocca, PM-13  
United States Environmental Protection Agency  
Document Processing Desk (AMEND)(E-SUB)  
Office of Pesticide Programs (H7504P)  
Room S-4900, One Potomac Yard  
2777 South Crystal Drive  
Arlington, VA 22202

Dear Mr. LaRocca:

**Subject: Brigade® 2EC Insecticide/Miticide, EPA Reg. No. 279-3313  
Amendment to Label- Updated Spray Drift Language**

FMC is amending the label for the subject product as required under the Agency's letter of February 21, 2008: Updated Spray Drift Language for Pyrethroid Agricultural Use Products.

To support this submission and to process this request, enclosed please find the following:

- Completed Application for Pesticide (EPA Form 8570-1) form
- Two copies of the draft labeling, including one with the change hi-lited
- Completed Certification with Respect to Label Integrity form
- A Compact Disk containing the label as amended

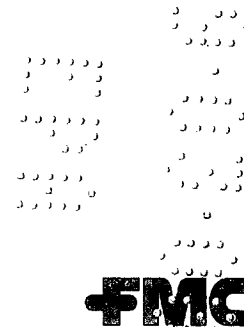
**Since this amendment is Agency initiated, it is not covered under the EPA's Fee for Service categories for label amendments, and there is no fee required.**

FMC trusts that this information is sufficient for the Agency to process this submission. If the Agency has any questions concerning this matter, please feel free to contact me at (215) 299-6334.

Sincerely,



Christopher Davis  
Registration Manager, FMC Corporation



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**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.

# BRIGADE® 2EC

## Insecticide/Miticide

EPA Reg. No. 279-3313

EPA Est. No. 279-

**Active Ingredient:**

Bifenthrin: (2 methyl[1,1'-biphenyl]-3-yl)  
methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-  
2,2-dimethyl-cyclopropanecarboxylate\*

**By Wt.**

25.1%  
74.9%  
100.0%

**Other Ingredients:\*\***

\*\*Cis isomers 97% minimum, trans isomers 3% maximum.  
\*\*Contains xylene range aromatic solvents.  
This product contains 2 pounds active ingredient per gallon.  
U.S. Patent No. 4,238,505

**NOTIFICATION**

SEP 23 2008

**ALL-WEATHER FORMULA**

**KEEP OUT OF REACH OF CHILDREN  
WARNING  
AVISO**

This label must be in the possession of the user at the time of application. 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 other panels for additional precautionary information.**

**FIRST AID**

**If Swallowed:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**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.

**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.

**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. Contains petroleum distillate - vomiting may cause aspiration pneumonia.

**For Emergency Assistance Call (800) 331-3148.**

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

**Net Contents:**

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## PRECAUTIONARY STATEMENTS

### Hazards to Humans (and Domestic Animals)

#### Warning

May be fatal if swallowed. Harmful if inhaled or absorbed through skin. Causes moderate eye irritation. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes or clothing.

**Personal Protective Equipment:** Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selection chart.

**Handlers who may be exposed to the dilute through application or other tasks must wear:** long-sleeved shirt and long pants, chemical resistant gloves, such as Barrier Laminate or Nitrile Rubber or Neoprene Rubber or Viton, and shoes plus socks.

**Handlers who may be exposed to the concentrate through mixing, loading, application or other tasks must wear:** long-sleeved shirt and long pants, chemical-resistant gloves, such as Barrier Laminate or Nitrile Rubber or Neoprene Rubber or Viton, shoes plus socks, and protective eyewear. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

#### Users should:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

### 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.

### Physical/Chemical Hazards

Do not use or store near heat or open flame.

### DIRECTIONS FOR USE

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

**Resistance.** 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.

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. 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 or Nitrile Rubber or Neoprene Rubber or Viton, and Shoes plus socks.

### STORAGE AND DISPOSAL

#### Pesticide Storage

Do not freeze. Do not store below 40° F. If crystals are observed, warm material to above 60° F by placing container in warm location. Shake or roll container periodically to redissolve solids. Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do

not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal. In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: 1-(800)-331-3148. To confine spill: If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. 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 Disposal

Metal or Plastic Container: Non-refillable container. Do not reuse or refill this container. **Triple rinse** as follows: Empty the contents into application equipment or a mix tank and drain for 10 seconds after flow begins to drip. Fill 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 the flow begins to drip. Repeat this procedure two more times. **Then offer for recycling, if available or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill.**

**Returnable/Refillable Sealed Container:** Refill this container with pesticide only. Do not reuse this container for any other purpose. **Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.** 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.

### Chemigation Use Directions

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 systems. Do not apply this product through any other type of irrigation system. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.

For LEPA irrigation a minimum of 0.75 inch of water per acre is recommended. Where non-emulsified oils are used as the diluent, 1 to 2 pints per acre is recommended.

Results from utilizing chemigation have been variable and depend upon the set up and calibration of equipment. Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water. Contact your State Agricultural Extension Service specialists, equipment manufacturers or other experts for consultation on the suitability of the equipment set up to obtain effective control of the target insect pests.

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. Failure to cease application during a mechanical stoppage may result in undesirable residues to adjacent areas.

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.

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

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

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. 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.

Do not apply when wind speed favors drift beyond the area intended for treatment. Brigade® 2 EC insecticide/miticide should be applied continuously for the duration of the water application. Brigade 2 EC should be diluted in sufficient volume to ensure accurate application over the area to be treated. When using chemigation, a minimum of 0.5 inch per acre of irrigation water is recommended. Agitation generally is not required when a suitable diluent is used. A diluent test should be conducted to ensure that phase separation will not occur during dilution and application. Failure to achieve a uniform dilution throughout the time of application may result in undesirable residues or less than desirable control.

### Rotational Crops

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-Mixture

Brigade 2 EC Insecticide/Miticide 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. Test for compatibility of products before mixing.

## 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 zeta-cypermethrin 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, 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, 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, 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.

**Application Instructions**

Rate of application is variable according to pest pressure, timing of sprays, and field scouting. Use lower rates under light to moderate infestations; higher rates under heavy insect pressure and for mite control. Arid climates generally require higher rates.

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.

**Spray Drift Precautions**

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers.

**OBSERVE THE FOLLOWING PRECAUTIONS WHEN SPRAYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES; RESERVOIRS; RIVERS; PERMANENT STREAMS, MARSHES OR NATURAL PONDS; ESTUARIES AND COMMERCIAL FISH FARM PONDS.**

Do not apply by ground equipment within 25 feet, or by air within 150 feet of lakes; reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries, and commercial fish farm pond. Increase the buffer zone to 450 feet when ultra low volume (ULV) application is made in cotton. Use of ultra low volume (ULV) application on corn and hops is prohibited.

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

Use the largest droplet size consistent with good pest control. Formation of very small droplets may be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.

Spray should be released at the lowest height consistent with pest control and flight safety. Applications more than 10 feet above the crop canopy should be avoided.

Make aerial or ground applications when the wind velocity favors on target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 15 mph. Avoid applications when wind gusts approach 15 mph.

Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area.

Do not cultivate within 10 feet of the aquatic area so as to allow growth of a vegetative filter strip.

Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift to aquatic areas. Avoid spraying during conditions of low humidity and/or high temperature.

Do not make aerial or ground applications during temperature inversions. Do not make aerial or ground applications to corn if heavy rainfall is imminent. 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.

**California Closed System**

Special Equipment: The registration of Brigade 2EC in California requires that the product be used in closed systems that meet the criteria for closed systems as established by the California Department of Food and Agriculture. The criteria and a list of the closed systems meeting the criteria are available through the California Department of Food and Agriculture.

**COTTON**

PEST	DOSAGE	
	LB A/A	FL OZ/A
European Corn Borer Soybean (Banded) Thrips Tobacco Thrips	0.02-0.10	1.3-6.4
Boll Weevil Bollworm Cabbage Looper Cotton Aphid Cotton Fleahopper Cotton Leafperforator Cutworms Fall Armyworm Plant Bugs Saltmarsh Caterpillar Southern Garden Leafhopper Stink Bugs Tobacco Budworm Whitefly Yellow Striped Armyworm	0.04-0.10	2.6-6.4
Beet Armyworm Carmine Spider Mite Lygus Spp. Pink Bollworm Twospotted Spider Mite	0.06-0.10	3.8-6.4

**RESTRICTIONS—Cotton**

Do not apply more than 0.5 pounds active per acre per season in all states except in California. For California do not apply more than 0.3 pounds active per acre per season.

Do not apply within 14 days of harvest.

Do not graze livestock in treated areas or cut treated crops for feed.

Do not make more than 10 synthetic pyrethroid applications (of one product or combination of products) to a cotton crop in one growing season. Synthetic pyrethroid products include Ambush®, Ammo®, Asana® XL, Baythroid®, Brigade®, Capture®, Danitol®, Karate®, Mustang®, and Scout X-TRA®.

**REMARKS—Cotton**

Brigade 2 EC may be applied in water or refined vegetable oil (soybean/cottonseed).

**Application in Water:** Apply in a minimum of 5 gallons per acre with ground equipment or 1 gallon per acre by aircraft. When applying by air, 1 quart of emulsified oil may be substituted for one quart of water in the finished spray.

**ULV Application:** Apply the recommended rate of Brigade 2 EC in refined vegetable oil in a minimum of 1 quart of finished spray per acre with aircraft calibrated to give adequate coverage.

**To Control Boll Weevil:** Apply Brigade 2 EC at an interval of 3 to 4 days until pest numbers are reduced to acceptable levels.

**To Control Mites and Aphids:** Apply when pests first appear. Repeat as necessary to maintain control. Higher rates will be required once a damaging threshold is established.

**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (AT PLANT USE)**

PEST	DOSAGE		REMARKS
Corn Rootworm Larvae Northern Southern Western	0.0046 pound active per 1,000 linear feet of row	0.30 fluid ounces per 1,000 linear feet of row	Apply as a 5 to 7 inch T-band treatment over an open seed furrow. Position the spray nozzle behind the planter shoe, in front of the press wheel centered over the row. Use the table below to determine the Brigade 2EC needs per acre. Apply in a minimum of 3 gallons of finished spray per acre.
Army Cutworm Cutworm Species Grubs Seed Corn Beetle Seed Corn Maggot True Armyworm or Armyworm Species Wireworm	0.0023 to 0.0046 pound active per 1,000 linear feet of row	0.15 to 0.30 fluid ounces per 1,000 linear feet of row	<p>Mix Brigade 2EC with water or fertilizer in the following manner. Fill the spray tank approximately one-half full with water or liquid fertilizer, add the proper amount of Brigade 2EC, then add the rest of the water or fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform spray mixture.</p> <p>Applications of Brigade 2EC alone or in recommended tank mixtures, in conjunction with in furrow pop-up fertilizers may be used. A jar compatibility test should be performed with appropriate ratio of Brigade 2EC and fertilizer to ensure mixture will stay in solution. Constant agitation should be maintained during mixing and application.</p> <p>Do not apply to soil where there is greater than 30% cover of crop residue remaining.</p> <p>Do not apply within 30 days of harvest Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment. Do not apply more than 0.1 pound active per acre per season as an at plant application.</p>

Row Spacings (inches)	40	38	36	30
Brigade 2EC (pounds ai per acre)	0.060	0.064	0.069	0.080
Brigade 2EC (formulated ounces per acre)	3.9	4.1	4.4	5.12

**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (PRE & PPI)**

Pest	Dosage		Remarks
Black Cutworm White Grub Wireworm Seedcorn Maggot Armyworm spp. Stalkborer	0.047 to 0.062 LB AI/A Pre-Plant Incorporated (PPI)	3 to 4 FL OZ/A Pre-Plant Incorporated (PPI)	The 3- 4oz/A rate must be applied as PPI and can be tankmixed and applied with PPI herbicides. Incorporation of Brigade 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.
Black Cutworm Armyworm spp. Stalkborer	0.040 LB AI/A Pre-Emergence (PRE)	2.56 FL OZ/A Pre-Emergence (PRE)	The 2.56 oz/A rate may be applied PRE and can be tankmixed and applied with PRE herbicides.

**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (FOLIAR USE)**

PEST	DOSAGE	
	LB AI/A	FL OZ/A
Aphids Army Cutworm Beet Armyworm Cereal Leaf Beetle Chinch Bug Common Stalk Borer Corn Earworm Corn Rootworm Adults Cucumber Beetle Adult Cutworm Species European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Greenbug Japanese Beetle Adult Sap Beetle	0.033-0.10	2.1-6.4

Southern Armyworm Southern Corn Leaf Beetle Southwestern Corn Borer Stinkbugs Tarnished Plant Bug True Armyworm or Armyworm Species Webworms Western Bean Cutworm Yellowstriped Armyworm		
Banks Grass Mite Carminé Mite Twospotted Spider Mite	0.08-0.10	5.12-6.4

**RESTRICTIONS—Corn**

Do not apply more than 0.3 pound active per acre per season including pre & ppi, at plant, plus foliar applications.  
 Do not apply within 30 days of harvest.  
 Do not graze livestock in treated areas or cut treated crops for feed within 30 days of the last application.  
 Use of ultra low volume (ULV) application on corn is prohibited.  
 Do not make aerial or ground applications to corn if heavy rainfall is imminent.  
 Use of Brigade 2EC on corn is prohibited in all coastal counties.

**REMARKS—Corn**

**General:** Apply in a minimum of 2-5 gallons of finished spray per acre by aircraft or in a minimum of 10 gallons per acre with ground equipment. To improve control by aircraft, use 5 gallons of finished spray per acre particularly when initial populations are heavier than normal. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  
**To control ear-attacking pests:** Apply Brigade 2 EC just before silking and repeat as necessary to maintain control.  
**Southwestern Corn Borer, European Corn Borer:** Make application for corn borer control with initial application at or shortly before egg hatch.  
**For control of other insect pests:** Apply when pests first appear and repeat as necessary.  
**For Control of Mites:** Apply for Banks Grass Mite control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant.  
 For Twospotted Spider Mite and Carmine Mite control, apply when colonies first form prior to leaf damage or discoloration and before widespread mite dispersal throughout the canopy.  
 Higher rates will be necessary for heavier initial populations and corn under heat or drought stress. Field experience with dimethoate at 0.5 lb. active per acre in tank mixture has demonstrated good control under these conditions.  
**For mite control in Texas, New Mexico, Oklahoma, Arizona:** Apply in a minimum of 5 gallons of finished spray per acre by aircraft or in a minimum of 10 gallons per acre with ground equipment.

**SWEET CORN (GRAIN AND SILAGE) SWEET CORN GROWN FOR SEED (AT PLANT USE)**

PEST	DOSAGE		REMARKS
Corn Rootworm Larvae Northern Southern Western	0.0046 pound active per 1,000 linear feet of row	0.30 fluid ounces per 1,000 linear feet of row	Apply as a 5 to 7 inch T-band treatment over an open seed furrow. Position the spray nozzle behind the planter shoe, in front of the press wheel centered over the row. Use the table below to determine the Brigade 2EC needs per acre. Apply in a minimum of 3 gallons of finished spray per acre.  Mix Brigade 2EC with water or fertilizer in the following manner.

Army Cutworm Cutworm Species Grubs Seed Corn Beetle Seed Corn Maggot True Armyworm or Armyworm Species Wireworm	0.0023 to 0.0046 pound active per 1,000 linear feet of row	0.15 to 0.30 fluid ounces per 1,000 linear feet of row	Fill the spray tank approximately one-half full with water or liquid fertilizer, add the proper amount of Brigade 2EC, then add the rest of the water or fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform spray mixture.  Applications of Brigade 2EC alone or in recommended tank mixtures, in conjunction with in furrow pop-up fertilizers may be used. A jar compatibility test should be performed with appropriate ratio of Brigade 2EC and fertilizer to ensure mixture will stay in solution. Constant agitation should be maintained during mixing and application.  Do not apply to soil where there is greater than 30% cover of crop residue remaining. Do not apply within 30 days of harvest. Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment. Do not apply more than 0.1 pound active per acre per season as an at plant application.
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Row Spacings (inches)	40	38	36	30
Brigade 2EC (pounds ai per acre)	0.060	0.064	0.069	0.080
Brigade 2EC (formulated ounces per acre)	3.9	4.1	4.4	5.12

**SWEET CORN (GRAIN AND SILAGE) SWEET CORN GROWN FOR SEED (FOLIAR USE)**

PEST	DOSAGE	
	LB AI/A	FL OZ/A
Aphids Army Cutworm Beet Armyworm Cereal Leaf Beetle Chinch Bug Common Stalk Borer Corn Earworm Corn Rootworm Adults Cucumber Beetle Adult Cutworm Species European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Greenbug Japanese Beetle Adult Sap Beetle Southern Armyworm Southern Corn Leaf Beetle Southwestern Corn Borer Stinkbugs Tarnished Plant Bug True Armyworm or Armyworm Species Webworms Western Bean Cutworm Yellowstriped Armyworm	0.033-0.10	2.1-6.4
Banks Grass Mite Carmine Mite Twospotted Spider Mite	0.08-0.10	5.12-6.4

**RESTRICTIONS—Sweet Corn**

- Do not apply more than 0.2 pounds active ingredient (12.8 ounces formulated) per acre per season.
- Do not apply within one day of harvest.
- Do not graze livestock in treated areas or cut treated crops for feed within 1 day of the last application.
- Use of ultra low volume (ULV) application on corn is prohibited.
- Do not make aerial or ground applications to corn if heavy rainfall is imminent.
- Use of Brigade 2EC is prohibited in all coastal counties.

**REMARKS—Sweet Corn**

**General:** Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.

**To control ear-attacking pests:** Apply Brigade® 2EC when silking begins and repeat as necessary to maintain control.

**Southwestern Corn Borer, European Corn Borer:** Make 2 applications for corn borer control with the initial application at or shortly before egg hatch.

**For control of other insect pests:** Apply when pests first appear and repeat as necessary.

**For Control of Mites:**

Apply for Banks Grass Mite control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant.

For Twospotted Spider Mite and Carmine Mite control, apply when colonies first form prior to leaf damage or discoloration and before widespread mite dispersal throughout the canopy.

Higher rates will be necessary for heavier initial populations and corn under heat or drought stress.

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**SUCCULENT PEAS AND BEANS**

CROP	PEST	DOSAGE		REMARKS
		LB/A/A	FLOZ/A	
Pea ( <i>Pisum</i> spp.): Dwarf pea, Edible-pod pea, English pea, Garden pea, Green pea, Snow pea, Sugar snap pea Pigeon pea Bean ( <i>Phaseolus</i> spp.): Broadbean (succulent) Lima bean (green) Runner bean, Snap bean, Wax bean Bean ( <i>Vigna</i> spp.): Asparagus bean, Blackeyed pea Chinese longbean, Cowpea, Moth bean, Southern pea Yardlong bean Jackbean Soybean (immature seed) Sword bean	Flea Beetle Aster Leafhopper Leafhoppers	0.025 - 0.10	1.6 - 6.4	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not apply more than 0.2 lb. active ingredient (12.8 ounces formulated) per acre per season.  Do not apply within 3 days of harvest.
	Aphids Beet Armyworm Fall Armyworm Southern Armyworm Yellowstriped Armyworm Bean Leaf Beetle Cucumber Beetles Japanese beetle Adult Sap Beetle Plant Bug Stink Bugs Tarnished Plant Bug Alfalfa Caterpillar Cloverworm European Corn Borer Cutworms Western Bean Cutworm Corn Earworm Loopers Corn Rootworm Adult Thrips Webworms Pea Weevil Pea Leaf Weevil Whitefly Grasshoppers	0.033 - 0.10	2.1 - 6.4	
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp	0.08 - 0.10	5.12 - 6.4	

**BRASSICAS**

CROP	PEST	DOSAGE		REMARKS
		LB/A/A	FLOZ/A	
Head and Stem Brassica Vegetables including: Broccoli Chinese Broccoli (gailon, white flowering broccoli) Brussels Sprouts Cauliflower Cavalo broccolo Kohlrabi Cabbage Chinese Cabbage (napa) Chinese Mustard Cabbage (gai choy)	Cutworms Corn Earworm Tobacco Budworm Saltmarsh Caterpillar Leafhoppers Flea Beetles Imported Cabbageworm Cucumber Beetles Aphids Whitefly Armyworms Loopers Stink Bugs Crickets Ground Beetles Thrips Wireworm (adults) Diamondback Moth	0.033 - 0.10	2.1 - 6.4	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not apply more than 0.5 lb. active ingredient (1 quart) per acre per season.  Do not make more than 5 applications after bloom.  Do not make applications less than 7 days apart.
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp.	0.08 - 0.10	5.12 - 6.4	



**CANOLA, CRAMBE, RAPESEED**

CROP	PEST	DOSAGE		REMARKS
		LB/A/A	FLOZ/A	
Canola Crambe Rapeseed	Aphids Cutworms Diamondback Moth Loopers Other Lepidopterous Larvae Flea Beetle Flea Hopper Grasshopper Plant Bug Stink Bugs Seedpod Weevil Thrips Whitefly Armyworms	0.033 - 0.04	2.1 - 2.6	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not apply more than 0.08 lb active ingredient (5.12 ounces) per acre per season.  Do not make applications less than 14 days apart.  Do not apply within 35 days of harvest.

**CUCURBITS**

CROP	PEST	DOSAGE		REMARKS
		LB/A/A	FLOZ/A	
Chayote (fruit) Chinese waxgourd (Chinese preserving melon) Citron melon Cucumber Gherkin Gourd, edible (includes hyotan, cucuzza) ( <i>Luffa</i> spp.) (includes hechima, Chinese okra) ( <i>Momordica</i> spp.) (includes balsam apple, balsam pear, bitter melon, Chinese cucumber) Muskmelon (hybrids and/or cultivars of <i>Cucumis melo</i> ) (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 ( <i>Cucurbita</i> spp.) Squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini) Squash, winter (includes butternut squash, calabaza, hubbard squash) ( <i>C. mixta</i> ; <i>C. pepo</i> ) includes acorn squash, spaghetti squash) Watermelon (includes hybrids and/or varieties of <i>Citrullus</i> spp.).	Aphids Cutworms Cabbage Looper Leafhoppers Cucumber Beetles Squash Bugs Melonworm Pickleworm Plant Bug Stink Bugs Rindworm Squash Vine Borer Armyworms Corn Earworm Tobacco Budworm Grasshopper	0.04 - 0.10	2.6 - 6.4	Apply in a minimum of 5 gallons of finished spray per acre by air or in a minimum of 20 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not apply more than 0.3 lb active ingredient (19.2 ounces formulated) per acre per season.  Do not make more than two applications after bloom.
	Whitefly Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp.	0.08 - 0.10	5.12 - 6.4	Do not make applications less than 7 days apart.  Do not apply within 3 days of harvest.

**LETTUCE, HEAD**

PEST	DOSAGE		REMARKS
	LB/A/A	FLOZ/A	
Aphids Armyworms Corn earworm Cucumber Beetles Cutworms Diamondback Moth Flea Beetles Imported Cabbageworm Leafhoppers Loopers Salt Marsh Caterpillar Stink bug Spp. Tobacco Budworm Whitefly	0.033 - 0.10	2.1 - 6.4	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not make applications less than 7 days apart.  A maximum of 0.5 lb. active ingredient may be applied per acre per season.  Do not apply within 7 days of harvest.

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Lygus Spp. Carmine Mite Two Spotted Spider Mite	0.08 - 0.10	5.12 - 6.4	
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**CANEBERRIES**

CROP	PEST	DOSAGE		REMARKS
		LB/A/A	FLOZ/A	
Caneberries Including: Blackberries Bingleberries Dewberries Lowberries Marionberries Ollieberries Youngberries Loganberries Raspberries	Leafrollers Orange Tortrix Root Weevils	0.05 - 0.10	3.2 - 6.4	Apply by air or ground equipment using sufficient water to obtain full coverage of foliage. (minimum of 10 gallons per acre by air and 50 gallons per acre by ground).  One application may be made pre-bloom and a second application may be made post bloom.  For Crown Borer, apply 0.1 lb ai/a post harvest (fall) or pre-bloom (spring), as a drench application directed at the crown of plants in a minimum of 200 gallons water/ acre. Greater efficacy is observed at higher water gallonages (up to 400 gallons/a) or in an application prior to a significant rainfall event. Do not make both pre-bloom foliar and pre-bloom drench applications.  Do not apply within 3 days of harvest.  Do not exceed 0.2 lb ai per acre per season.
	Raspberry Crown Borer Spider Mites	0.10	6.4	

**ARTICHOKE**

PEST	DOSAGE		REMARKS
	LB/A/A	FLOZ/A	
Cribrate Weevil Artichoke Plume Moth	0.10	6.4	Apply when pest population reaches damaging threshold and repeat as necessary to maintain control, but not more often than 15 day intervals.  <b>Application by ground:</b> Apply a full cover spray in a minimum of 75 gallons of finished spray per acre.  <b>Application by air:</b> Apply specified dosage in a minimum of 10 gallons per acre.  Do not exceed 0.5 lb ai per acre per season. A 5-day preharvest interval must be observed.

**HOPS**

PEST	DOSAGE		REMARKS
	LB/AI/A	FLOZ/A	
Aphids Armyworms Cutworms Leafrollers Loopers	0.06 - 0.10	3.8 - 6.4	Do not exceed 0.1 lb ai per acre per application.  Do not exceed 0.3 lb ai per acre per season.  A spray interval of 21 days between applications must be maintained.
Root Weevils	0.05 - 0.10	3.2 - 6.4	A 14 day pre-harvest interval must be observed.
Twospotted spider mite	0.10	6.4	<b>Application by ground:</b> For best results, full coverage is essential. Early season recommend 100-150 gallons of spray per acre. Late season recommend 200-250 gallons of spray per acre.  For Root Weevil control, make a directed spray to the base of the plant. Spray up the vine 3 feet and the soil surface 1.5 to 2 feet on either side of the plant.  <b>Application by air for late season control of twospotted spider mites:</b> Apply no less than 6.4 oz. (0.1 lb ai) per application in a minimum of 10 gallons per acre.  Use of ultra low volume (ULV) application on hops is prohibited.

**PEARS**

PEST	DOSAGE		REMARKS
	LB/AI/A	FLOZ/A	
Aphids Codling Moth Cutworms Green Fruitworm Leafhoppers Leafminers Leafrollers Lygus spp. Plant Bugs Plum Curculio San Jose Scale (Crawlers) Stink Bugs Tarnished Plant Bugs	0.04 to 0.20	2.6 to 12.8	<b>Application by ground:</b> Apply as a dilute (minimum of 200 gallons of finished spray per acre) or concentrate (minimum of 50 gallons of finished spray per acre) spray in sufficient water to provide thorough coverage.  <b>Application by air:</b> Apply the specified dosage in a minimum of 10 gallons per acre by air.  Do not apply more than 0.5 pound active per acre per season with no more than 0.45 pound active per acre applied after petal fall.  Apply as necessary to maintain control using a minimum of 30 day spray interval.  Apply up to 14 days prior to harvest.
Twospotted Spider Mite Yellow Mite	0.06 - 0.20	3.8 to 12.8	Do not graze livestock in treated orchards or cut treated cover crops for feed.
European Red Mite	0.08 - 0.20	5.12 to 12.8	

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**CITRUS\*** (1 day phi)

Insects Controlled	Rate of Application	Method of Application
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> )	16 - 32 fluid ounces (0.25 - 0.50 pound active) per acre	<p>Apply Brigade 2EC by ground equipment to bare soil beneath citrus trees. Brigade 2EC 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.</p> <p>Brigade 2EC 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 Brigade 2EC as they attempt to burrow into the root zone. Disturbance of the soil beneath trees should be minimized.</p> <p>Timing of Brigade 2EC 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 Brigade 2EC 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 2-3 weeks following adult emergence. It is critical to have the Brigade 2EC soil barrier in place prior to drop of the neonates.</p> <p>Brigade 2EC is one of several effective tools in an integrated pest management program for Citrus Root Weevils. Application of Brigade 2EC 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.</p> <p><b>Additional Instructions:</b>            Apply to individual citrus resets, when not in solid planted rows, using hand-gun or shielded sprayer.</p> <p>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.</p> <p>If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring, 32 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, 16 fluid ounces formulated product can be applied early season and 16 fluid ounces formulated product can be applied later in the season.</p>
Fire ants ( <i>Solenopsis spp.</i> ) Asian cockroach ( <i>Blattella asahinae</i> )	6.4 - 16 fluid ounces (0.1 - 0.25 pound active) per acre.	
<p>Do not apply through irrigation systems.</p> <p>Do not allow any application of Brigade 2EC to contact fruit or foliage.</p> <p>Do not apply more than a total of 32 fluid ounces of formulated product (0.5 lb. a.i.) per acre per year.</p> <p>Apply the specified dosage in a minimum of 40 gallons of finished spray per acre.</p> <p>Ground application only. Do not apply by air.</p>		

\* This use is not permitted in California unless allowed by an approved supplemental label.

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**Spinach (40 day phi)**

Insects Controlled	Rate of Application	Method of Application
Colorado Potato Beetle Tomato Pinworm Tomato Hornworm Armyworms Corn earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Pepper Weevil Thrips Whitefly	2.1 to 6.4 ounces (0.033 to 0.10 pound active) per acre	<p>For control of whiteflies apply foliar treatments of Brigade® insecticide by ground or air at rates of up to 0.4 pt. (0.1 lb active) per acre at minimum 7- day intervals up to a maximum of 4 applications. Do not apply within 40 days of harvest.</p> <p>For control of fire ants apply Brigade® insecticide to the soil (at planting) or as a foliar treatment by ground or air at rates of up to 0.4 pt. (0.1 lb active) per acre at minimum 7-day intervals up to a maximum of 4 applications. Do not apply within 40 days of harvest.</p> <p>Apply the specified dosage in 5-50 gallons of finished spray per acre by air or 10-50 gallons finished spray per acre by ground.</p>
Broad Mite Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp. Fire Ants	5.12 to 6.4 ounces (0.08 to 0.10 pound active) per acre	
Do not make applications less than 7 days apart. Do not apply more than 0.4 pounds active ingredient per acre per season.		

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**GRAPES\***

PEST	DOSAGE		REMARKS
	LB/A/A	FLOZ/A	
Cutworms Eastern grape leafhopper Grape berry moth Japanese beetles adults Lady Beetle (Scymnus) Variegated leafhopper Western grape leafhopper	0.05 - 0.10	3.2 - 6.4	Apply in a minimum of 10 gallons of finished spray by air or in a minimum of 25 gallons of finished spray with ground equipment.  When applying by air, 1 to 2 quarts of emulsified oil may be substituted for 1 to 2 quarts of water in the finished spray.  Thorough coverage is essential to achieve control.
Black vine weevil Glassywinged sharpshooter Twospotted spider mite	0.10	6.4	When pest pressure is moderate to severe, use higher rate.  Do not apply more than 0.10 lb ai per acre per season.  Do not apply within 30 days of harvest.

\* This use is not permitted in California unless allowed by an approved supplemental label.

**OKRA\***

PEST	DOSAGE		REMARKS
	LBS A/A	FL OZ/A	
Armyworms Corn earworm Cucumber Beetles Cutworms European Corn Borer Flea Beetles Leafminers Loopers Thrips Whitefly Aphids Japanese Beetle (Adult), Stink bugs	0.033 to 0.10	2.1 to 6.4	Apply using sufficient water to obtain uniform coverage. Apply as needed. Apply with ground equipment using a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft.  Do not make applications less than 7 days apart.  Do not apply more than 0.20 pound active ingredient per acre per season.
Lygus-Spp. Broad Mite Carmine Mite Two Spotted Spider Mite	0.08 to 0.10	5.12 to 6.4	Do not apply within 7 days of harvest.

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**CILANTRO\*, CORIANDER\***

PEST	DOSAGE		REMARKS
	LBS A/A	FL OZ/A	
Spotted Cucumber Beetle Beet Armyworm Cabbage Looper Aphids Whitefly Flea beetle Thrips Leafminer Cutworm Grasshoppers Saltmarsh caterpillar	0.033 to 0.10	2.1 to 6.4	Apply using sufficient water to obtain uniform coverage. Apply as needed. Apply with ground equipment using a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft.  Do not make applications less than 7 days apart.  Do not apply more than 0.50 pound active ingredient per acre per season.
Two Spotted Spider Mite	0.08 to 0.10	5.12 to 6.4	Do not apply within 3 days of harvest.

\* This use is not permitted in California unless allowed by an approved supplemental label.

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**DRIED BEANS AND PEAS\***

CROP	PEST	DOSAGE		REMARKS
		LBS AI/A	FL OZ/A	
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 (Pisicum) Field pea Pigeon pea	Flea Beetle Aster Leafhopper Leafhoppers	0.025 to 0.10	1.6 to 6.4	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment.  When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not apply more than 0.2 lb. active ingredient (12.8 ounces formulated) to peas, or 0.3 active ingredient (19.2 ounces formulated) to beans per acre per season.  Do not apply within 14 days of harvest.  Do not make applications less than 7 days apart.
	Aphids Beet Armyworm Fall Armyworm Southern Armyworm Yellowstriped Armyworm Bean Leaf Beetle Cucumber Beetles Japanese beetle Adult Sap Beetle Plant Bug Stink Bugs Tarnished Plant Bug Alfalfa Caterpillar Cloverworm European Corn Borer Cutworms Western Bean Cutworm Corn Earworm Loopers Corn Rootworm Adult Thrips Webworms Pea Weevil Pea Leaf Weevil Whitefly Imported cabbageworm Saltmarsh caterpillar Tobacco budworm Leafminer Grasshoppers Mexican Bean Beetle	0.033 to 0.10	2.1 to 6.4	
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Lygus Spp	0.08 to 0.10	5.12 to 6.4	

\* This use is not permitted in California unless allowed by an approved supplemental label.

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**LEAFY BRASSICAS\*, TURNIP GREENS\***

CROP	PEST	DOSAGE		REMARKS
		LBS AI/A	FL OZ/A	
Broccoli Raab Bok Choy Collards Kale Mizuna Mustard Greens Mustard Spinach Rape Greens Turnip Greens	Cutworms Corn Earworm Tobacco Budworm Saltmarsh Caterpillar Leafhoppers Flea Beetles Imported Cabbageworm Cucumber Beetles Aphids Whitefly Armyworms Loopers Stink Bugs Crickets Ground Beetles Thrips Wireworm (adults) Diamondback Moth Japanese Beetle (adult) Grasshoppers Aphids	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not apply more than 0.4 lb. active ingredient per acre per season.  Do not make applications less than 7 days apart.  Do not apply within 7 days of harvest
	Banks Grass Mite Twospotted Spider Mite Carmine Mite Pacific Spider Mite Lygus Spp.	0.08 to 0.10	5.12 to 6.4	

\* This use is not permitted in California unless allowed by an approved supplemental label.





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**TOBACCO\***

CROP	PEST	DOSAGE		REMARKS
		LBS ai/A	FL OZ/A	
Tobacco	Cutworm spp. Tobacco Flea Beetle (larvae) White Grubs Wireworms Mole Crickets Armyworm spp. Stalkborers	0.0625 - 0.10	4.0 - 6.4	<p><b>Pre-transplant soil applications:</b> Apply 0.0625- 0.1 lb ai/A in a minimum of 10 gal/A to control soil pests. Use of suitable equipment to incorporate into top 4" of the soil is required to control below ground pests.</p> <p><b>At-transplant water treatment application:</b> Apply 0.0625- 0.1 lb ai/A in a water treatment application volume of 10-200 gal/A.</p>
	Aphid spp. Armyworm spp. Flea Beetle (Adults) Chinch Bugs Stink Bugs Japanese Beetles Grasshoppers Cutworm spp. Tarnished Plant Bugs Green Bugs Thrips Whiteflies Tobacco budworm Tobacco hornworm Saltmarsh caterpillar Cucumber beetle	0.04- 0.10	2.56 - 6.4	<p><b>Foliar applications:</b> Apply 0.04- 0.10 lb ai/A per foliar application up to, and including, layby in a minimum of 10 gal/A. Do not make more than 2 foliar applications per season.</p>
	Spider mites Lygus spp.	0.1	6.4	
<p>Do not apply more than 0.2 lb ai/A per season.</p> <p>Do not apply later than layby.</p> <p>May be tank mixed with Command, Spartan and other herbicides approved for tobacco use.</p>				

\* This use is not permitted in California unless allowed by an approved supplemental label.

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**SOYBEANS\***

PEST	DOSAGE		REMARKS
	LBS AI/A	FL OZ/A	
Alfalfa Caterpillar Aphids Aster Leafhopper Bean Leaf Beetle Beet Armyworm* Cloverworm Corn Earworm Corn Rootworm Adult Cucumber Beetles Cutworms European Corn Borer Fall Armyworm Flea Beetle Grasshoppers Imported cabbageworm Japanese beetle Adult Leafhoppers Leafminer Loopers Mexican Bean Beetle Adult Pea Leaf Weevil Pea Weevil Plant Bug Saltmarsh caterpillar Sap Beetle Southern Armyworm Stink Bugs Tarnished Plant Bug Thrips Tobacco budworm* Webworms Western Bean Cutworm Whitefly Yellowstriped Armyworm	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallon per acre by aircraft at a minimum of 30 days intervals.  Do not apply more than 0.3 lb ai per acre per season.  Do not apply within 18 days of harvest  * Pyrethroid resistance is common for Beet Armyworm and Tobacco Budworm. Please consult your local or state agricultural authority to determine if resistance pest populations are in your area. If so refer the the resistance management statement in the DIRECTION FOR USE section of this label.
Lygus Species Whitefly Two Spotted Spider Mite	0.08 to 0.10	5.12 to 6.4	

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### FRUITING VEGETABLES

CROP	PEST	DOSAGE		REMARKS
		LBS AI/A	FL OZ/A	
Eggplant Pepper (Bell & Non-Bell) Groundcherry Pepino	Armyworms Including: Beet Armyworm, Fall Armyworm, Southern Yellowstriped Armyworm Cabbage Looper Colorado Potato Beetle Corn Earworm Cucumber Beetle Cutworms European Corn Borer Flea Beetle Leafminers Loopers Pepper weevil Plant Bug Stink Bug Thrips Tomato Hornworm Tomato Pinworm Vegetable Leafminer Whitefly	0.033-0.10	2.1-6.4	Apply in a minimum of 2 gallons of finished spray per acre by air or in a minimum of 10 gallons per acre with ground equipment. When applying by air, 1-2 quarts of emulsified oil may be substituted for 1-2 quarts of water in the finished spray. Thorough coverage is essential to achieve control.  Do not make applications less than 7 days apart.  Do not apply more than 0.2 lb active ingredient (12.8 ounces formulated) per acre per season.  Do not apply within 7 days of harvest
	Banks Grass Mite Broad Mite Carmine Mite Lygus Species Pacific Spider Mite Two Spotted Spider Mite Twospotted Spider Mite	0.08-0.10	5.12-6.4	
Tomato Tomatillo	Aphids Armyworms Including: Beet Armyworm, Fall Armyworm, Southern Yellowstriped Armyworm Bean Leaf Beetle Cabbageworm Carmine Mite Cloverworm Corn earworm Corn Rootworm Cucumber Beetles Cutworms Diamondback Moth European Corn Borer Flea Beetles Flea Hopper Grasshopper Japanese Beetle (Adult) Leafhoppers Loopers Lygus Species Melonworm Pea Weevil Pea Leaf Weevil Pickleworm Plant Bug Rindworm Salt Marsh Caterpillar Sap Beetle Seedpod Weevil Squash Bugs Stink bug Species Tobacco Budworm Tarnished Plant Bug Thrips Whitefly	0.033-0.08	2.1-5.2	Apply the specified dosage in 5 to 50 gallons of finished spray per acre by air or 10 to 50 gallons of finished spray per acre by ground. Apply in water.  Thorough coverage is essential to achieve control.  Do not make applications less than 10 days apart.  A maximum of 4 applications may be applied per season.  Do not apply within 1 day of harvest.
	Two Spotted Spider Mite	0.08-0.10	5.12-6.4	

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**PEANUT\***

CROP	PEST	DOSAGE		REMARKS
		LBS AI/A	FL OZ/A	
Peanut	Beet armyworm Corn earworm Cutworm Species Fall armyworm Grasshoppers Green cloverworm Leafhoppers Lesser cornstalk borer Loopers Rednecked peanut worm Southern armyworm Southern corn rootworm Stink bugs Threecornered alfalfa hopper Velvetbean caterpillar Yellowstriped armyworm	0.033-0.1	2.1-6.4	Apply in a minimum of 10 gallons per acre with ground equipment or 2 gallon per acre by aircraft at a minimum of 14 days intervals.  Do not apply more than 0.5 lb ai per acre per season.  Do not apply within 14 days of harvest  Do not feed green immature plants and peanut hay to livestock.
	Aphids Spider mites Thrips Whitefly	0.08-0.1	5.12-6.4	

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**ROOT CROPS (Except Sugar Beets)\***

CROP	PEST	DOSAGE		REMARKS
		LBS AI/A	FL OZ/A	
Burdock, edible Carrot Celeriac Chervil, turnip rooted Chicory Ginseng Horseradish Parsley, turnip rooted Parsnip Radish Radish, oriental Rutabaga Salsify Salsify, black Salsify, Spanish Skirret Turnip	Aphids Beet armyworm Celery leaf tier Corn earworm Cross-striped cabbageworm Cutworms Diamondback moth European corn borer Fall armyworm Fire Ants Flea Beetles Green cloverworm Hornworms Imported cabbageworm Loopers Southern armyworm Spider mites Tobacco budworm Velvetbean caterpillar Whitefly Yellowstriped armyworm	0.08-0.10	5.12-6.4	Apply foliar treatments in at least 25 gallons per acre.  Apply no more than once every 7 days.  Do not apply more than 0.5 lb ai per acre per season.  Do not apply within 21 days of harvest
Garden Beet	Aphids Fire Ants Flea Beetles Lepidopterous larvae Spider mites Whitefly	0.08-0.10	5.12-6.4	Apply foliar treatments in at least 25 gallons per acre.  Apply no more than once every 7 days.  Do not apply more than 0.4 lb ai per acre per season.  Do not apply within 1 day of harvest

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**MAYHAW\***

CROP	PEST	DOSAGE		REMARKS
		LB/AI/A	FLOZ/A	
Mayhaw	Plum Curculio	0.08-0.1	5.12-6.4	Apply foliar treatments in at least 28 gallons per acre. Apply no more than once every 7 days. Do not apply more than 0.2 lb ai per acre per season. Do not apply within 30 days of harvest

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**SOD FARMS\***

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.

For low water volume usage, less than 2 gallons/1000 square feet, addition of a non-ionic or silicone based surfactant (0.25% by volume) is recommended. Irrigation to treated area within a few hours following application can improve efficacy to sub-surface pests such as, but not limited to, 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, Brigade 2EC may be applied at up to 0.32 fl. 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.	Lbs a.i./acre
Armyworms <sub>1</sub> Cutworms <sub>1</sub> Sod Webworm <sub>1</sub>	2.2- 3.5	0.05 - 0.08	0.03- 0.05
Annual Bluegrass Weevil (Hyperodes) (Adult) <sub>2</sub> Banks Grass Mite <sub>6</sub> Billbugs (Adult) <sub>3</sub> Black Turfgrass Ataenius (Adult) <sub>4</sub> Crickets Earwigs Fleas (Adult) Grasshoppers Mealybugs Mites <sub>6</sub>	3.5- 7.0	0.08 - 0.16	0.05- 0.11
Ants Chinch Bugs <sub>5</sub> Fleas (Larvae) <sub>7</sub> Imported Fire Ants <sub>8</sub> Japanese Beetle (Adult) Mole Cricket (Adult) <sub>9</sub> Mole Cricket (Nymph) <sub>10</sub> Ticks <sub>11</sub>	7.0- 14.0	0.16- 0.32	0.11- 0.21

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.

**Spray Drift Precautions (For turf uses)**

Do not apply when wind conditions favor downwind drift to nearby water bodies.

Do not apply when wind velocity exceeds 10 miles per hour.

Avoid application when wind gusts approach 10 mph.

Apply using nozzles that provide the largest droplet size compatible with adequate coverage.

**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 0.32 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 0.32 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 0.10 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 eliminate 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 0.32 fluid oz. per 1,000 square feet. Mounds should be treated by diluting 0.05 fluid oz of Brigade 2EC 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 should 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.

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**Dealers Should Sell in Original Packages Only.**

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