

83222-24

04-13-2010

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (H7505C)  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

EPA Reg. Number:  
83222-24

Date of Issuance:  
APR 13 2010

Term of Issuance:  
Conditional

Name of Pesticide Product:  
Bifen 2 AG Gold-CAL  
Insecticide/Miticide

NOTICE OF PESTICIDE:

☒ Registration  
☐ Reregistration

(Under FIFRA as amended)

Name and Address of Registrant (include ZIP Code):

J. Oliver Products, Inc.  
3187 Robertson Gin Road  
Hernando, MS 38632

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

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

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

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

1. You will submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.
2. You will make the following label changes before you release the product for shipment:
  - a) Revise the EPA Registration Number to read "EPA Reg. No. 83222-24."
  - b) Revise Spray Drift Requirements as follows:
    - Delete the three paragraphs following the heading **Spray Drift Requirements** starting with "All aerial and ground application equipment must be properly maintained ..." and ending with "... Use of ultra low volume (ULV) application on corn and hops is prohibited".
    - Delete "Risk of exposure to sensitive aquatic areas can be reached by avoiding applications when wind direction is toward the aquatic area" following the sub-heading **Wind Direction and Speed**.
    - Delete "Do not make aerial or ground applications to corn if heavy rainfall is imminent" under the sub-heading **Temperature Inversions**.

Signature of Approving Official:

*Richard Gebken*  
Richard Gebken Product Manager  
Insecticide Branch/Registration Division (7505P)

Date:

*April 13, 2010*

Enclosure

- Under the sub-heading **Droplet size** delete, “Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift to aquatic areas” and “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”
  - Add “**Additional Requirements for**” to the front of the sub-headings **Ground Application** and **Aerial Application**.
  - Under the sub-heading **Additional Requirements for Ground Application** delete “For ground applications,” from “For ground applications, wind speed must be measured ... etc”
- c) Add “Wear protective eyewear (goggles, face shield, or safety glasses). To the Precautionary Statements.
3. Please submit three (3) copies of your final printed labeling before releasing the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing amended labeling constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

If you have any questions regarding this action, please contact BeWanda Alexander at [www.alexander.bewanda@epa.gov](mailto:www.alexander.bewanda@epa.gov) or (703) 305-7460.

**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 the uses covered by the certified applicator's certification.

# **BIFEN 2 AG Gold-CAL**

## **INSECTICIDE/MITICIDE**

**FOR SALE AND USE ONLY IN CALIFORNIA**

[For use to control listed insects and mites on brassicas, caneberries, canola, corn, cotton, crambe, cucurbits, head lettuce, lima beans, peppers, and rapeseed.]

[<PRODUCT NAME> contains Bifenthrin, the active ingredient used in <BRAND NAME>™ or ®.]  
 [<PRODUCT NAME> is not manufactured or distributed by <BASIC REGISTRANT / BRAND HOLDER>, seller of <BRAND>™ or ®.]  
 [<BRAND>™ or ® is a trademark of <TRADEMARK HOLDER>.]

**ACTIVE INGREDIENT:****%BY WT.**

Bifenthrin: (2 methyl[1,1 -biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethyl-cyclopropanecarboxylate* . . . . .	25.1%
<b>OTHER INGREDIENTS**:</b> . . . . .	74.9%
<b>TOTAL</b> . . . . .	100.0%

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

\*\*Contains xylene range aromatic solvents.

This product contains 2 pounds active ingredient per gallon.

### **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 [side] [other] [inside label booklet] [panel] for additional precautionary statements.]

EPA Reg. No. 83222-XX

EPA Est. No. XXXXX-XX-XXX

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

Manufactured By:  
 J. Oliver Products, Inc.  
 3187 Robertson Gin Road  
 Hernando, MS 38632

**ACCEPTED**  
**with COMMENTS**  
**In EPA Letter Dated**

**APR 13 2010**

Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No.

83222-24

<b>FIRST AID</b>	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. For a medical emergency involving this product call: 1-800-222-1222.	
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give any liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>NOTE TO PHYSICIAN:</b> 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 should be avoided. This product contains a petroleum distillate; vomiting may cause aspiration pneumonia.	

**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**WARNING**

May be fatal if swallowed. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if inhaled or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

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, nitrile rubber, neoprene rubber, or viton
- 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, nitrile rubber, neoprene rubber, or viton

- shoes plus socks
- 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**

**COMBUSTIBLE:** 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 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.

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, nitrile rubber, neoprene rubber, or viton
- Shoes plus socks

#### **STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE AND SPILL PROCEDURES:** Keep out of reach of children and animals. Store in original containers only, in a cool, dry place and avoid excess heat. Do not freeze. Do not store below 40°F. Carefully open containers.

If crystals are observed, warm material to above 60°F by placing container in warm location. Shake or roll container periodically to redissolve solids.

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.

**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:** Triple rinse ( or equivalent) then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities. Do not cut or weld metal containers.

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

### **SPECIAL EQUIPMENT**

In the State of California this product must 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.

### **ROTATIONAL CROPS**

Crops for which bifenthrin tolerances exist may be rotated at anytime. All other crops may be rotated 30 days following the final application of bifenthrin. Straw may not be used for food or feed.

### **TANK MIXTURES**

Bifen 2 AG Gold-CAL may be applied in tank-mixtures with other products approved for use on cotton. Observe all restrictions and precautions which appear on the labels of these products.

### **APPLICATIONS INSTRUCTIONS**

Application rates will vary according to pest pressure, timing of sprays, and field scouting. Use lower rates under light to moderate infestations and higher rates under heavy insect pressure and for mite control. Arid climates generally require higher rates.

### **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 manufacturer's, 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 area.

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 function 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.

Bifen 2 AG Gold-CAL should be applied continuously for the duration of the water application. Bifen 2 AG Gold-CAL 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.

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

For guidance, refer to the following publication for information on constructing and maintaining effective buffers:

- Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 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**

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 ponds. 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.

### **Wind Direction and Speed**

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

Only apply this product if the wind direction favors on-target deposition.

Do not apply when wind velocity exceeds 15 mph.

### **Temperature Inversions**

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.

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

### **Droplet size**

Use only medium or coarse spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. Low humidity and high temperatures increase the evaporation rate of spray droplets and therefore the likelihood of increased spray drift to aquatic areas. In condition of low humidity and high temperature, applicators should use a coarser droplet size.

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.

### **Ground Application**

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.

### **Aerial Application**

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 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.

**CROP USE INSTRUCTIONS****BRASSICA CROPS**

Apply as directed using the rates in the table below.

CROP	PEST/RATE	APPLICATION INSTRUCTIONS
Head and Stem Brassica Vegetables including: Broccoli, Chinese Broccoli (gai lon, White flowering broccoli), Brussels sprouts, Cauliflower, Cavalo broccoli, Kohlrabi, Cabbage, Chinese Cabbage (napa),	<b>PESTS:</b> Cutworms, Corn Earworm, Saltmarsh Caterpillar, Flea Beetles, Imported Cabbageworm, Cucumber Beetles, Whitefly, Armyworms, Loopers, Crickets, Diamondback Moth	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 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.
	<b>RATE:</b> 2.1 to 6.4 fl. oz./acre (0.033 to 0.1 lb. ai/acre)	
	<b>PESTS:</b> <i>Lygus</i> spp.	
	<b>RATE:</b> 5.12 to 6.4 fl. oz./acre (0.08 to 0.1 lb. ai/acre)	
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"><li>• Do not apply more than 0.5 lb. active ingredient (1 quart) per acre per season.</li><li>• Do not make more than 5 applications after bloom.</li><li>• Do not make applications less than 7 days apart.</li><li>• Do not apply within 7 days of harvest.</li></ul>		

**CANEBERRIES**

Apply as directed using the rates in the table below.

CROP	PEST/RATE	APPLICATION INSTRUCTIONS
Caneberries including:  Blackberries, Bingleberries, Dewberries, Lowberries, Marionberries, Olallieberries, Youngberries, Loganberries, Raspberries	<b>PESTS:</b> Leafrollers, Orange Tortrix, Root Weevils	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).
	<b>RATE:</b> 3.2 to 6.4 fl. oz./acre (0.05 to 0.1 lb. ai/acre)	One application may be made pre-bloom and a second application may be made post bloom.
	<b>PEST:</b> Spider Mites  <b>RATE:</b> 6.4 fl. oz./acre (0.1 lb. ai/acre)	
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"><li>• Do not apply within 3 days of harvest.</li><li>• Do not exceed 0.2 lb ai per acre per season.</li><li>• Do not apply within 4 days of harvest for caneberries that are hand-harvested.</li></ul>		

**CANOLA, CRAMBE, RAPESEED**

Apply as directed at a rate of 2.1 to 2.6 fl. oz. (0.033 to 0.04 lb. ai) per acre.

PEST	APPLICATION INSTRUCTIONS
Aphids, Cutworms, Diamondback Moth, Loopers, Other Lepidopterous Larvae, Lygus Bugs, Flea Beetle, Flea Hopper, Grasshoppers, Plant Bugs, Stink Bugs, Seedpod Weevil, Thrips, Whitefly, Armyworms	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 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.
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 0.08 lb. active ingredient (5.12 ounces) per acre per season.</li> <li>• Do not make applications less than 14 days apart.</li> <li>• Do not apply within 35 days of harvest.</li> </ul>	

**COTTON**

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
European Corn Borer, Soybean (Banded) Thrips, Tobacco Thrips	1.3-6.4 fl. oz./acre  (0.02-0.10 lb. ai/acre)	Bifen 2 AG Gold-CAL may be applied in water or refined vegetable oil (soybean/cottonseed).  <b>Application in Water:</b> 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.
Boll Weevil, Bollworm, Cabbage Looper, Cotton Aphid, Cotton Fleahopper, Cotton Leafperforator, Cutworms, Fall Armyworm, <i>Lygus</i> spp. Plant Bugs, Saltmarsh Caterpillar, Southern Garden Leafhopper, Stink Bugs, Tobacco Budworm, Whitefly, Yellowstriped Armyworm	2.6-6.4 fl. oz./acre  (0.04-0.10 lb. ai/acre)	<b>To Control Boll Weevil:</b> Apply Bifen 2 AG Gold-CAL at an interval of 3 to 4 days until pest numbers are reduced to acceptable levels.  <b>To Control Mites and Aphids:</b> Apply when pests first appear. Repeat as necessary to maintain control but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section. Higher rates will be required once a damaging threshold is established.
Beet Armyworm, Carmine Spider Mite, Pink Bollworm, Twospotted Spider Mite	3.8-6.4 fl. oz./acre  (0.06-0.10 lb. ai/acre)	
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 0.3 pound active ingredient per acre per season.</li> <li>• Do not make more than 3 applications per growing season.</li> <li>• Do not apply within 14 days of harvest.</li> <li>• Do not graze livestock in treated areas or cut treated crops for feed.</li> <li>• Do not make more than 10 synthetic pyrethroid applications (of one product or combinations or products) to a cotton crop in one growing season.</li> </ul>		

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

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
Corn Rootworm Larvae (Western)	0.30 fl. oz. (.0046 lb. ai) 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 Bifen 2 AG Gold-CAL 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, Wireworms	0.15 to 0.30 fl. oz. (.0023 to .0046 lb. ai) per 1,000 linear feet of row	<p>Mix Bifen 2 AG Gold-CAL 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 Bifen 2 AG Gold-CAL, 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 Bifen 2 AG Gold-CAL 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 the appropriate ratio of Bifen 2 AG Gold-CAL and fertilizer to ensure mixture will stay in solution. Constant agitation should be maintained during mixing and application.</p>

**RESTRICTIONS:**

- 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.

Row spacings (inches)	40	38	36	30
Bifen 2 AG Gold-CAL (pounds ai per acre)	0.060	0.064	0.069	0.080
Bifen 2 AG Gold-CAL (formulated product ounces per acre)	3.9	4.1	4.4	5.12

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

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
Aphids, Beet Armyworm, Chinch Bug, Corn Earworm, Corn Rootworm Adult, Cucumber Beetle Adults, Cutworm Species, Fall Armyworm, Flea Beetle, Grasshoppers, Greenbug, Japanese Beetle Adult, Leafhoppers, Stinkbugs, Thrips, True Armyworm, or Armyworm Species, Webworms, Yellowstriped Armyworm	2.1 to 6.4 fl. oz. (0.033 to 0.10 lb. ai) per acre	<p>Apply in a minimum of 2 to 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 to 2 quarts of emulsified oil may be substituted for 1 to 2 quarts of water in the finished spray.</p> <p>Thorough coverage is essential to achieve control.</p> <p><b>To Control Ear-Attacking Pests:</b> Apply Bifen 2 AG Gold-CAL just before silking and repeat as necessary to maintain control but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p> <p><b>For Control Of Other Insect Pests:</b> Apply when pests first appear and repeat as necessary.</p> <p>Apply for <b>Banks Grass Mite</b> control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant.</p> <p>For <b>Twospotted Spider Mite</b> and <b>Carmine Mite</b> 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.</p>
Banks Grass Mite, Carmine Mite, Twospotted Spider Mite	5.12 to 6.4 fl. oz. (0.08- 0.10 lb. ai) per acre	
<b>Restrictions:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 0.2 pound active ingredient per acre per season</li> <li>• Do not apply within 30 days of harvest.</li> <li>• Do not graze livestock in treated areas or cut treated crops for feed within 30 days of the last application.</li> <li>• Use of ultra low volume (ULV) application on corn is prohibited.</li> <li>• Do not make aerial or ground applications to corn if heavy rainfall is imminent.</li> <li>• Use of Bifen 2 AG Gold-CAL is prohibited in all coastal counties.</li> </ul>		

**SWEET CORN GROWN FOR SEED (AT PLANT USE)**

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS			
Corn Rootworm Larvae (Western)	0.30 fl. oz. (.0046 lb. ai) 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 Bifen 2 AG Gold-CAL needs per acre. Apply in a minimum of 3 gallons of finished spray per acre.			
Cutworm Species, Grubs, Seed Corn Maggot, True Armyworm, or Armyworm species, Wireworms	0.15 to 0.30 fl. oz. (.0023 to .0046 lb. ai) per 1,000 linear feet of row	<p>Mix Bifen 2 AG Gold-CAL 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 Bifen 2 AG Gold-CAL , 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 Bifen 2 AG Gold-CAL 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 Bifen 2 AG Gold-CAL and fertilizer to ensure mixture will stay in solution. Constant agitation should be maintained during mixing and application.</p>			
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"><li>• Do not apply to soil where there is greater than 30% cover of crop residue remaining.</li><li>• Do not apply within 30 days of harvest.</li><li>• Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment.</li><li>• Do not apply more than 0.1 pound active per acre per season as an at-plant application.</li><li>• Use of Bifen 2 AG Gold-CAL is prohibited in all coastal counties.</li></ul>					
<b>Row spacings (inches)</b>		<b>40</b>	<b>38</b>	<b>36</b>	<b>30</b>
Bifen 2 AG Gold-CAL (pounds per acre)		0.060	0.064	0.069	0.080
Bifen 2 AG Gold-CAL (formulated product ounces per acre)		3.9	4.1	4.4	5.12



**SWEET CORN GROWN FOR SEED (FOLIAR USE)**

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
Aphids, Army Cutworm, Beet Armyworm, Chinch Bug, Corn Earworm, Corn Rootworm Adults, Cucumber Beetle Adult, Cutworm Species, Fall Armyworm, Flea Beetle, Grasshoppers, Greenbugs, Leafhoppers, Stinkbugs, Thrips, True Armyworm or Armyworm Species, Webworms, Yellowstriped Armyworm	2.1 to 6.4 fl. oz. (0.033-0.10 lb. ai) per acre	<p>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.</p> <p>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.</p> <p>Thorough coverage is essential to achieve control.</p> <p><b>To Control Ear-Attacking Pests:</b> Apply Bifen 2 AG Gold-CAL when silking begins and repeat as necessary to maintain control but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p> <p><b>For Control Of Other Insect Pests:</b> Apply when pests first appear and repeat as necessary but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p>
Banks Grass Mite, Carmine Mite, Twospotted Spider Mite	5.12 to 6.4 fl. oz. (0.08-0.10 lb. ai) per acre	<p>Apply for <b>Banks Grass Mite</b> control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant.</p> <p><b>For Twospotted Spider Mite and Carmine Mite</b> control, apply when colonies first form prior to leaf damage or discoloration and before widespread mite dispersal throughout the canopy.</p> <p>Higher rates will be necessary for heavier initial populations and corn under heat or drought stress.</p>
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"> <li>• Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated product) per acre per season.</li> <li>• Do not apply within one day of harvest.</li> <li>• Do not apply within 18 days of harvest for sweet corn that is hand-harvested.</li> <li>• Do not graze livestock in treated areas or cut treated crops for feed within 1 day of last application.</li> <li>• Use of ultra low volume (ULV) application on corn is prohibited.</li> <li>• Do not make aerial or ground applications to corn if heavy rainfall is imminent.</li> <li>• Use of Bifen 2 AG Gold-CAL is prohibited in all coastal counties.</li> </ul>		

**CUCURBITS**

Apply as directed using the rates in the table below.

CROP	PEST/RATE	APPLICATION INSTRUCTIONS
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 or <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.).	<p><b>PESTS:</b></p> Aphids, Armyworms, Cabbage Looper, Corn Earworm, Cucumber Beetles, Cutworms, Grasshoppers, Leafhoppers, Melonworms, Pickleworms, Plant Bugs, Rindworms, Squash Bugs, Squash Vine Borer, Stink Bugs, Tobacco Budworm, <p><b>RATE:</b>            2.6 to 6.4 fl. oz. (0.04 to 0.1 lb. ai) per acre</p> <p><b>PESTS:</b></p> Whitefly, Banks Grass Mite, Twospotted spider Mite, Carmine Mite, <i>Lygus</i> spp. <p><b>RATE:</b>            5.12 to 6.4 fl. oz. (0.08 to 0.1 lb. ai) per acre</p>	<p>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.</p> <p>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.</p> <p>Thorough coverage is essential to achieve control.</p>
<p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not apply more than 0.3 lb. active ingredient (19.2 ounces formulated product) per acre per season.</li> <li>• Do not make more than two applications after bloom.</li> <li>• Do not make applications less than 7 days apart.</li> <li>• Do not apply within 3 days of harvest.</li> </ul>		

**LETTUCE, HEAD**

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
Aphids, Armyworms, Cabbage Maggot, Corn Earworm, Cucumber Beetles, Cutworms, Diamondback Moth, Flea Beetle, Grasshopper, Imported Cabbageworm, Leafhoppers, Loopers, Salt marsh Caterpillar, Stink Bug spp., Thrips, Tobacco Budworm, Whitefly	2.1 to 6.4 fl. oz. (0.033 to 0.10 lb. ai) per acre	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 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.
Lygus spp., Carmine Mite, Twospotted Spider Mite	5.12 to 6.4 fl. oz. (0.08 to 0.10 lb. ai) per acre	
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"> <li>• Do not make applications less than 7 days apart.</li> <li>• A maximum of 0.5 lb. active ingredient may be applied per acre per season.</li> <li>• Do not apply within 7 days of harvest.</li> </ul>		

**LIMA BEAN (GREEN)**

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
Flea Beetle, Leafhoppers	1.6 to 6.4 fl. oz. (0.025 to 0.10 lb. ai) per acre	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.
Plant Bug, Stink Bugs, Corn Earworm, Loopers, Whitefly	2.1 to 6.4 fl. oz. (0.033 to 0.10 lb. ai) per acre	
Banks Grass Mite, Twospotted Spider Mite, Carmine Mite, Lygus spp.	5.12 to 6.4 fl. oz. (0.08 to 0.10 lb. ai) per acre	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.		
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"><li>• Do not apply more than 0.2 lb. active ingredient (12.8 ounces formulated product) per acre per season.</li><li>• Do not apply within 3 days of harvest.</li></ul>		

**PEPPERS, BELL AND NON-BELL**

Apply as directed using the rates in the table below.

PEST	RATE	APPLICATION INSTRUCTIONS
Aphids, Armyworms, Corn Earworm, Cucumber Beetle, Cutworms, Flea Beetle, Leafhoppers, Leafminers, Loopers, Pepper Weevil, Stink Bug spp., Tobacco Budworm, Thrips, Whitefly	2.1 to 6.4 fl. oz. (0.033 to 0.1lb. ai) per acre	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.
Lygus spp., Broad Mite, Carmine Mite, Twospotted Spider Mite	5.12 to 6.4 fl. oz. (0.08 to 0.10 lb. ai) per acre	
<b>RESTRICTIONS:</b> <ul style="list-style-type: none"><li>• Do not make applications less than 7 days apart.</li><li>• Do not apply more than 0.20 pound active ingredient per acre per season.</li><li>• Do not apply within 7 days of harvest.</li></ul>		

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