

# Biotan®



For use in organic production  
Organic Materials Review Institute (OMRI) Listed  
Control of Plant Parasitic Nematodes in  
Vineyards, Orchards, and Field Crops

**Nematicide for use on Root and Tuber Vegetables** (Crop Group 1),  
**Tree Nuts** (Crop Group 14), **Citrus Fruits** (Crop Group 10), **Berries  
and Small Fruits** (Crop Group 13-07), **Tomatoes** (Crop Subgroup  
8-10A), **Cucurbit Vegetables** (Crop Group 9)

**Active Ingredient:**

Extract of *Caesalpinia spinosa*\* ..... 99.9 %

**Other Ingredients:** ..... 0.1 %

**Total:** ..... 100.0 %

\*Contains total phenolic content at 20.0% gallic acid equivalent (GAE)

## KEEP OUT OF REACH OF CHILDREN

For information on this pesticide product (including general health concerns or pesticide incidents), call the National Pesticide Information Center at 1-800-858-7378, Monday through Friday, 8:00 AM to 12:00 PM Pacific Time. In the event of a medical emergency, call your poison control center at 1-800-222-1222.

**EPA Reg. No. 95220-2    EPA Est. No.: 95701-PER-001**

**Manufactured For:**



10120 Dutch Iris Drive  
Bakersfield, CA 93311

**Net Contents:**

5.3 Gallons (20 Liters)

Batch Number: \_\_\_\_\_

Biotan is a registered trademark  
of Ag Chem Resources, LLC.  
ver.5.19.2023



# Biotan®

## PRECAUTIONARY STATEMENTS

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Shoes plus socks

Follow the manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

### User Safety Recommendations

Users should:

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

Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

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

### Environmental Hazards

For Terrestrial Uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high-water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash water or restate.





## DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the State or Tribal 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 green houses, 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), notification to workers, and restricted-entry interval (REI). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours. For early entry into treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear:

- Coveralls
- Shoes plus socks
- Chemical resistant gloves (made of any waterproof material)

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

## Product Information

For control of nematodes on Root and Tuber Vegetables (Crop Group 1), Tree Nuts (Crop Group 14), Citrus Fruits (Crop Group 10), Berries and Small Fruits (Crop Group 13-07), Tomatoes (Crop Subgroup 8-10A), Cucurbit Vegetables (Crop Group 9).

Biotan is a contact nematicide that acts directly by modifying the cuticle of the nematode in different stages, causing a systemic imbalance in the body of the nematode.

Biotan has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations, is not feasible. Prior to treating entire crop, test a small portion of the crop for sensitivity.

## Application Instructions

Before applying Biotan, shake or stir the container well. As applications are made directly to soil to target nematodes, ensure that applications are uniform on the soil to ensure that the product gets into the root zone. Apply directly to moist soil with no standing water via soil drench, ground spray, or chemigation. Fields should not be irrigated for 72 hours following application.

Addition of an approved soil wetting agent at the manufacturer's mix rate may enhance penetration of product to the root zone.

Under heavy pest populations, use the higher label rates, shorten the application interval, and/or apply in tank mixture with another product that has activity on the target pest.

Refer to the Application Rates and Timing details for specific application instructions.

**Chemigation Use Directions:** To minimize movement of the product past the root zone and optimize contact of applied product with nematode zone, apply Biotan by injecting into the irrigation system application tank at the end (last 25%) of the irrigation cycle or the day after a normal irrigation cycle to a volume of water that is equivalent to 25% of a full irrigation cycle. Do not irrigate to the point of standing water.

1. Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues, may cause product to lose effectiveness or strength.

2. Determine the treatment rates as indicated in the Application Rates and Timing details and make proper dilutions.
3. Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. Utilize agitation to keep solution in suspension.

## **General Requirements**

1. Apply this product only through sprinkler, including solid set or hand move; or drip (trickle) irrigation systems (e.g. micro-emitter). Do not apply this product through any other type of irrigation system.
2. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
3. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.
4. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label-prescribed safety devices for public water systems are in place.
5. 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.

## **Specific Requirements for Chemigation Systems Connected to Public Water Systems**

1. Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regular serves an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
4. The pesticide injection pipeline must 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.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

## **Specific Requirements for Sprinkler Chemigation**

1. The system must contain a functional check valve, vacuum relief valve, and low- pressure drain, appropriately located on the irrigation pipeline, to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve, to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve, located on the intake side of the injection pump and connected to the system interlock, to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides, and capable of being fitted with a system interlock.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

## **Specific Requirements for Drip (Trickle) Chemigation**

1. The system must contain a functional check valve, vacuum relief valve, and low- pressure drain, appropriately located on the irrigation pipeline, to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve, to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve, located on the intake side of the injection pump and connected to the system interlock, to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides, and capable of being fitted with a system interlock.

**For use on the following crops for control of nematodes such as: citrus, dagger, lesion, reniform, ring, root knot, sheath, spiral, and stunt.**

Crop	Application Rates and Timing
<p><b>Root and Tuber Vegetables (Crop Group 1)</b> such as Arracacha; Arrowroot; Artichoke, Chinese; Artichoke, Jerusalem; Beet, garden; Beet, sugar; Burdock, edible; Canna, edible; Carrot; Cassava, bitter and sweet; Celeriac (celery root); Chayote (root); Chervil, turnip-rooted; Chicory; Chufa; Dasheen (taro); Ginger; Ginseng; Horseradish; Leren; Parsley, turnip-rooted; Parsnip; Potato; Radish; Radish, oriental (daikon); Rutabaga; Salsify (oyster plant); Salsify, black; Salsify, Spanish; Skirret; Sweet potato; Tanier (cocoyam); Turmeric; Turnip; Yam bean (jicama, manioc pea); Yam, true</p>	<p>Apply 4.2 – 5.3 gal/acre (40 – 50 L/ha) in a single application to achieve a concentration of 1.5% - 2% Biotan in a single application.</p> <p>Repeat applications as necessary, generally 30 – 60 days.</p>
<p><b>Tree Nuts (Crop Group 14)</b>, such as African nut-tree; almond; beechnut; Brazil nut; Brazilian pine; bunya; bur oak; butternut; Cajou nut; candlenut; cashew; chestnut; chinquapin; coconut; coquito nut; dika nut; ginkgo; Guiana chestnut; hazelnut (filbert); heartnut; hickory nut; Japanese horse-chestnut; macadamia nut; mongongo nut; monkey-pot; monkey puzzle nut; Okari nut; Pachira nut; peach palm nut; pecan; pequi; Pili nut; pine nut; pistachio; Sapucaia nut; tropical almond; walnut, black; walnut, English; yellowhorn; cultivars, varieties, and/or hybrids of these</p>	<p>Alternatively, for certain agronomic conditions, as a way of layering Biotan into soil, apply 4.2 - 5.3 gal/acre (40 - 50 L/ha) over two applications, which is equivalent to 2.1 – 2.7 gal/a (20 – 25 L/ha), generally separated by 10 – 15 days.</p>
<p><b>Citrus Fruits (Crop Group 10)</b>, such as Australian desert lime; Australian finger lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; Mount White lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliolate orange; uniq fruit; cultivars, varieties, and/or hybrids of these</p>	<p>Applications can be made starting close to the time of planting and up to 2 weeks prior to harvest.</p>
<p><b>Tomatoes (Crop subgroup 8-10A)</b>, such as Bush tomato; cocona; currant tomato; garden huckleberry; goji berry; groundcherry; naranjilla; sunberry; tomatillo; tomato; tree tomato; cultivars, varieties, and/or hybrids of these</p>	



Crop	Application Rates and Timing
<p><b>Cucurbit Vegetables (Crop Group 9)</b>, such as Chayote (fruit); Chinese waxgourd (Chinese preserving melon); citron melon; cucumber; gherkin; gourd, edible (includes hyotan, cucuzza, hechima, Chinese okra); Momordica spp (includes balsam apple, balsam pear, bittermelon, Chinese cucumber); muskmelon (includes true canteloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon); pumpkin; squash, summer (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); squash, winter (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); watermelon</p>	<p>Apply 4.2 – 5.3 gal/ acre (40 – 50 L/ha) in a single application to achieve a concentration of 1.5% - 2% Biotan in a single application.</p> <p>Repeat applications as necessary, generally 30 – 60 days.</p> <p>Alternatively, for certain agronomic conditions, as a way of layering Biotan into soil, apply 4.2 - 5.3 gal/acre (40 - 50 L/ha) over two applications, which is equivalent to 2.1 – 2.7 gal/a (20 – 25 L/ha), generally separated by 10 – 15 days.</p>
<p><b>Berries and Small Fruits (Crop Group 13-07)</b>, such as Amur river grape, Aronia berry, Bayberry, Bearberry, Bilberry, Blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, and cultivars, varieties and/or hybrids of these), Blueberry, Buffalo currant, Buffaloberry, Che, Chilean guava, Chokeycherry, Cloudberry, Cranberry, Currant, Elderberry, European barberry, Gooseberry, Grape, Highbush cranberry, Honeysuckle, edible, Huckleberry, Jostaberry, Juneberry (Saskatoon berry), Kiwifruit, Lingonberry, Maypop, Mountain pepper berry, Mulberry, Muntries, Native currant, Partridgeberry, Phalsa, Pincherry, Raspberry, Riberry, Salal, Schisandra berry, Sea buckthorn, Serviceberry, Strawberry, Wild raspberry, Cultivars, varieties, and/or hybrids of these.</p>	<p>Applications can be made starting close to the time of planting and up to 2 weeks prior to harvest.</p>

## Storage and Disposal

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

**Pesticide Storage:** Store unopened original container in a cool, dry area away from light.

**Pesticide Disposal:** To avoid waste, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

**Container Handling:** **For nonrefillable containers:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container  $\frac{1}{4}$  full with water. Replace and tighten enclosures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration.

**For refillable containers:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure 2 more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill, or by incineration.

## **IMPORTANT: READ BEFORE USE**

Read the entire Directions for Use, Conditions, Disclaimer of Warranties, and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Ag Chem Resources, LLC. All such risks shall be assumed by the user or buyer.

**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Ag Chem Resources, LLC makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Ag Chem Resources, LLC is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Ag Chem Resources, LLC disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.

**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Ag Chem Resources, LLC's election, the replacement of product.

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