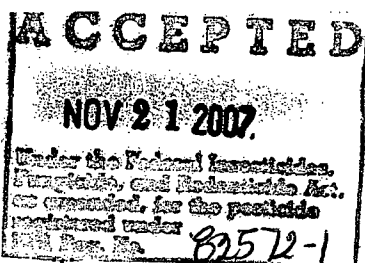


82572-1

11/21/2007

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# Quillaja Extract

A Bio-Pesticide

- For the control of Plant Parasitic Nematodes, Plant Parasitic Fungi
- For use in vineyards, orchards, field crops, and turf
- For ornamental use to control plant parasitic nematodes

**Active Ingredient:**

\*Saponins of Quillaja saponaria..... 8.60%  
 Other Ingredients.....91.40%  
 Total..... 100.00%

\*bidesmosidic derivatives of quillajic acid substituted with a trisaccharide at C-3 and an oligosaccharide in C-28

**Keep Out of Reach of Children**

**DANGER PELIGRO**

**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.)**

FIRST AID	
<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 five minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin</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 swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to by a poison control center or doctor.</li> <li>• Do not give anything to an unconscious person.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. <b>Note to Physician:</b> Probable mucosal damage may contraindicate the use of gastric lavage.</p>	

See back side for additional precautionary statements

Manufactured for:  
 Desert King Chile  
 77 Antonio Bellet, Suite 401  
 Providencia, Santiago  
 Chile

EPA Reg. No.: 82572-1  
 EPA Est. No.: XXXXX-XX-XX

Net Contents: XX Gallons

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

**DANGER:** Causes irreversible eye damage. Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using tobacco. Remove and wash contaminated clothing before reuse.

**ENVIRONMENTAL HAZARDS**

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 disposing of equipment washwater or rinsate.

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Effluent System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**Personal Protective Equipment (PPE)**

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Protective eyewear
- Chemical-resistant gloves made of any waterproof material
- Shoes and socks

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 remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Never apply material so as to contaminate eating or drinking area.
- Remove clothing immediately if product gets inside. Then wash thoroughly and put on clean clothing.

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## 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 requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulations.

### 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 the label about personal protective equipment and the 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 without protective clothing during the restricted-entry interval (REI) of 48 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:

- Chemical-resistant gloves made of any waterproof material
- Protective eyewear
- Shoes and socks

### NON - AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of the product that are not within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural and ornamental plants on farms, forests, nurseries or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

#### Application:

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems.

#### Mixing:

Quillaja Extract is a water based botanical extract. It is soluble in water. Fill tank with 300 gallons of water, then add 3 gallons of this product directly to the tank. Avoid over agitating or shaking, as foaming will occur. To reduce foaming, add an agricultural defoamer to the tank mix.

3 Gallons of Quillaja Extract in 300 Gallons of water is 10,000 ppm or a 1% Solution of Quillaja Extract in water.

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**Tank Mixing:**

Quillaja Extract is compatible with most common pesticides and can be tank mixed with fungicides, insecticides, herbicides, fertilizers or other nematocides. However, do not mix with products that will render a final pH above 8. If compatibility of this product with another product is unknown, the mixture should be tested on a small scale. Read and carefully observe the precautionary statements and all other information on all product labels used in the tank mix. This product has properties similar to wetting agents and may enhance activity of some products as a wetting agent. Not all tank mix combinations have been tested with this product.

**Compatibility:**

Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

Quillaja Extract is physically compatible with most water based pesticides and liquid fertilizers providing the pH of the final solution is below a pH of 8 and above a pH of 3. To determine physical compatibility of this product with other products, pour the recommended proportions of the products into a suitable container, mix and wait for 30 minutes. If product remains mixed, it is considered physically compatible. Apply all mixed material within 2-3 hours per application.

**Application Rates**

To control/suppress plant parasitic nematodes, apply Quillaja Extract to the full irrigated zone 1 to 6 times per season. Application should be made just prior to or during root flushes. For row crops, the irrigated zone is 30-50% of the row area. For orchards or around trees, apply from tree trunk to drip-line to spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest. For specific crop instructions, see Table 1 below.

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**Table 1**

<b>Quillaja Extract</b>			
<b>Rate per Acre</b>			
<b>CROP</b>	<b>INITIAL DOSAGE</b>	<b>SEQUENTIAL APPLICATIONS</b>	<b>COMMENT</b>
<b>Grapes</b>	1.5 – 3.0 gallons	1.0 quart	On heavily infested soils apply at least 3.0 gal/acre on the first application. Use highest rate when nematode count is severe according to common practice. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first application with sequential applications of one quart/acre every 7-14 days, for up to 8-10 weeks.
<b>Citrus</b>	1.5 – 3.0 gallons	1.0 quart	On heavily infested soils apply at least 3.0 gal/acre on the first application. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.
<b>Pome Fruit:</b> Apple, Loquat, Mayhaw, Pear, Quince  <b>Stone Fruit:</b> Apricot, Cherry, Nectarine, Peach, Plum, Prune  <b>Nut Crop:</b> Almond, cashew, macadamia, pecan, walnut	1.5 – 3.0 gallons	1.0 quart	On heavily infested soils apply at least 3.0 gal/acre on the first application. On light to moderately infested soils apply 1.5 gal/acre. For best results follow first applications with sequential applications of one quart/acre every 7-14 days, for up to 4- 6 weeks.

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Quillaja Extract Rate per Acre			
CROP	INITIAL DOSAGE	SEQUENTIAL APPLICATIONS	COMMENT
<b>Strawberry</b>	1.5 – 3.0 gallons	1.0 quart	Apply 3 to 7 days preplant into the planting zone. If applying with ground equipment apply centered on the top of the row on pre-wetted soil at a dilution between 10,000 (1%) to 5,000 (½%) parts per million (PPM) or between 1 and a maximum of 2 gallons per 200 gallons of water and follow with water to assure penetration of the product at least 2-4 inches deep into the soil. On low to moderate infested soils apply 1.5 gallons per acre at planting followed by sequential applications of 1 quart/acre every week for 4-6 weeks.
<b>Fruiting Vegetables:</b> eggplant, peppers, tomatillo, tomato  <b>Cucurbit Vegetables:</b> cucumber, gherkin, edible gourd, melon, pumpkin, squash, watermelon  <b>Leafy Vegetables:</b> celery, endive, lettuce, purslane, spinach, swiss chard  <b>Cole Crops:</b> broccoli, cabbage, kale, kohlrabi, mustard greens, mustard spinach, rape greens	3.0 gallons	1.0 quart	Apply 1 to 7 days prior to planting to area to be planted. Follow up with sequential applications of 1 quart/acre every week for 4 - 6 weeks.

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<b>Quillaja Extract Rate per Acre</b>			
<b>CROP</b>	<b>INITIAL DOSAGE</b>	<b>SEQUENTIAL APPLICATIONS</b>	<b>COMMENT</b>
<b>Bulb Vegetable:</b> garlic, leek, onion, shallot	3.0 gallons	1.0 quart	Apply prior to planting to row area to be planted. Not for control of Foliar Nematodes. Follow up with sequential applications of 1 quart/acre every week for 4 - 6 weeks.
<b>Root and Tuber Vegetables:</b> arrowroot, artichoke, beet, burdock, canna, carrot, ginger, gingseng, horseradish, potato, radish, turnip, yam	3.0 gallons	1.0 quart	Apply prior to planting to row area to be planted. Follow up with sequential applications of 1 quart/acre every week for 4 - 6 weeks.
<b>Ornamentals Bulbs</b>	3.0 gallons	None	Apply prior to planting.

For control/suppression of pathogenic fungi, apply as described below in Table 2

**Table 2**

<b>QUILLAJA EXTRACT Rate Per Acre</b>			
<b>Crop</b>	<b>Pathogen</b>	<b>Dosage</b>	<b>Comment</b>
<b>Grapes</b>	Powdery Mildew,	1 - 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infection. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application. You may tank mix with Sterol Inhibitor type fungicides.
<b>Strawberry</b>	Powdery Mildew	1 - 4 pts	Apply as a foliar spray in 50 to 100 gallons water per acre every 7 to 10 days depending on severity of infection. Do not tank mix with sulfur products. May cause leaf burn if sulfur is present. Do not apply within 7 days of a sulfur application.

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QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Pathogen	Dosage	Comment
Avocado	Root Rot, <i>Phytophthora cinnamoni</i>	2 - 4 Qts	Apply 1 to 6 times per season into the full irrigated root zone. Apply in early Spring and Fall prior to root flush when soil temperatures are optimum for root infection. For best results apply every 7 days, for up to 6 weeks. If applying with a ground sprayer apply to the entire root zone area directly under the tree.

Under good growing conditions, absent of plant parasitic nematodes or plant parastic fungi, Quillaja Extract is beneficial to plant growth and yield as described below in table 3.

Table 3

QUILLAJA EXTRACT			
Rate Per Acre			
Crop	Benefit	Dosage	Comment
Grapes	Increased Fruit yield and root development	1 - 2 qts	Apply at root flush followed by 2 - 4 applications at 7 - 14 day intervals.
Citrus	Increased Root Development	1 - 2 gallons	Apply 1-2 gallons/acre at root flush followed by 2 quarts/acre every 14 days for 4-6 weeks.
Strawberry	Increased Root Development	2 - 4 pts	Apply every 14 days for 8 - 10 weeks.

### Application Methods

Quillaja Extract may be applied using ground equipment with a band sprayer, soil fertilizer shanks, injected through drip irrigation or through above ground sprinkler systems. This product should be applied after soil is irrigated to field capacity.

**Ground application:** Apply with a band or broadcast type sprayer, such as flat-fan or hollow cone nozzle tip system, on the surface of the area to be treated. After application has been made it will be necessary to water with either drip, above ground sprinklers or reduced amount of furrow irrigation. Do not over irrigate following application of this product. Do not use flood irrigation to apply this product into the ground. Over irrigation will move the desired concentration of the product too quickly past the targeted root zone.



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For ground sprayer application in orchards or around trees, begin application next to the tree trunk and spray at least 50% of soil area or the area under the canopy of the tree, whichever is greatest.

**Shank Injection.** Apply by shank injection to areas where roots are present. Use a sufficient number of injectors to cover area to be treated. If Shank application is applied at the root zone, minimal irrigation is required to assure that product covers root zone.

**Chemigation applications:**

Apply Quillaja Extract through low pressure irrigation equipment (Including drip, mini-sprinklers, micro-jet sprinklers and strip tubing). Do not apply this product through any other type of irrigation system.

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 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 material that are compatible with pesticide and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the areas intended for treatment

A pesticide supply tank is not necessary since this product is 100% water soluble. If a pesticide supply tank is used, dilute the product with just enough water to assure an application concentration at the end of the irrigation line

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between 5,000 and 10,000 ppm which corresponds to 0.5% and 1% respectively. Final dilution of product should be between 1 and 2 gallons of product for every 200 gallons of irrigation water used. Normally use between 1 and a maximum of 2 gallons per 200 gallons of irrigation water.

Do not allow air in the line prior to injecting Quillaja Extract or density of Quillaja Extract will cause swelling of the line due to foam and prevent uptake of material. If a pesticide supply tank is used, add Quillaja Extract after water at least half full in the tank to prevent excessive foaming. Agitation should be minimized in the supply tank (shut off paddle agitation if possible to prevent foaming). Quillaja Extract foam is very water soluble, will form a true solution should not be a concern for settling in the tank. Maintain the system's operating pressure low enough to prevent fogging and/or misting during applications. Inject Quillaja Extract into the irrigation system after the filter(s). In Low Volume (Drip Irrigation), begin normal irrigation and make sure all emitters are working properly. For best results, inject into the irrigation line in the last quarter of the irrigation time at a rate that assures a concentration between 5,000 and 10,000 ppm at the emitter. As a general rule, do not apply more than 200 gallons of water per 1 gallon of this product.

Continue irrigation until all the lines are flushed and then maintain irrigation for enough time to assure this product has penetrated down into the targeted root zone (at least 30 minutes). Do not over irrigate after applying. If excessive watering occurs immediately following application, this product may move down past the desired root zone due to its high water solubility. Do not irrigate following application of this products for at least 24 hours.

If applied in heavy rainfall areas, avoid application during rain or when rain is forecasted within the next 24 hours that may exceed movement of this product past targeted root zone. Pest injury to the crop or lack of effectiveness in growth response may result from uneven distribution of this product during application. Consider the high solubility of this product when choosing a method of application and timing.

It is highly recommended that the soil be wetted first with irrigation system to wet the soil profile and eliminate any dry areas under the irrigated area down to two feet of soil, thereafter Quillaja Extract should be applied during the last few hours of the irrigation, followed with enough clean out water run through the system to remove Quillaja Extract. There generally will be some level of foam at the base of the wetted area until it dissolves (usually within 30 minutes after application, depending on temperatures and amount of water following application.

Lack of effectiveness of Quillaja Extract or Crop Injury can result from non-uniform distribution of treated water.

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.

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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.

If you have any questions about calibration of this product, you should contact State Extension Service specialists, equipment manufacturers, chemigation experts or the Distributor of this product.

Posting is not necessary following application of this product when the label is accurately followed.

**Non-Agricultural uses: Turfgrasses**

Crop	Pest	Dosage Quillaja Extract
TURFGRASSES For use on golf courses and sod farms	<i>Anguina pacifica</i> nematode only	9.0 fl oz./1000 sq.ft. or 3.0 Gallons/Acre

Apply specified dosage in a minimum of 3-7 Gallons of water per 1000 sq.ft. (approximately 150-300 Gallons per Acre) with a pressure nozzle tip applicator sufficient to penetrate into the lower part of the turf leaves where *Anguina pacifica* nematode galls are formed.

Quillaja Extract is water soluble and does not require additional water application through Sprinkler following application. Repeat application of Quillaja Extract every 5-10 days following first application. Additional applications to break the life cycle of the nematode should be repeated 2- 4 times within 60 days to significantly reduce this pest problem in one season.

Do not water turf or sod for at least 12 hours following application of Quillaja Extract.

Do not exceed a concentration of 1.5 % solution of Quillaja Extract in any application.

Do not apply Quillaja Extract with any other product before testing for physical and chemical compatibility.

Do not cause excessive agitation of material to avoid foaming of Quillaja Extract.

Do not apply Quillaja Extract through sprinklers or any other irrigation system that exceed the desired concentration of 1-1.25% solution of Quillaja Extract product in water.

## LIMITED WARRANTY

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Desert King Chile warrants that this product conforms to the chemical description on the label and is reasonable fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.