

Shortstop® 2SC

PLANT GROWTH REGULATOR FOR TREES

ACTIVE INGREDIENT:

Paclobutrazol ((±)-(R*, R*)-β-[(4-Chlorophenyl)methyl]-α-(1,1-dimethylethyl)-IH-1, 2, 4-triazole-1-ethanol).....22.3%

OTHER INGREDIENTS:.....77.7%

TOTAL.....100.0

Shortstop® 2SC contains 2 lbs. active ingredient per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

See The Label Booklet For First Aid, Precautionary Statements, and Directions For Use

EPA Reg. No. 62097-34-82866 EPA Est. No. 39578-TX-001

Net Contents: 1 Gallon (3.78L)

Manufactured for:
Greenleaf Chemical LLC
Henderson, NV 89052, USA

SST/US/1G/16

SHAKE WELL BEFORE EACH USE

FIRST AID

If on skin or clothing:	<ul style="list-style-type: none">Take off contaminated clothing.Rinse skin immediately with plenty of water for 15-20 minutes.Call a poison control center or doctor for treatment advice.
If inhaled:	<ul style="list-style-type: none">Move person to fresh airIf person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.Call a poison control center or doctor for further treatment advice.
If swallowed:	<ul style="list-style-type: none">Call a poison control center or doctor immediately for treatment advice.Have person sip a glass of water if able to swallow.Do not induce vomiting unless told to do so by a poison control center or doctor.Do not give anything to an unconscious person.

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 the National Poison Control Hotline at 1-800-222-1222 for emergency medical treatment information 24 hours a day, seven days a week.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Harmful if absorbed through skin, inhaled, or swallowed. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Wear long sleeved shirt and long pants, socks, shoes, and gloves. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT

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 A on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof or chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride, or viton
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Wash PPE after each day's use.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately, if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

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 by cleaning of equipment or disposal of equipment washwaters or rinsate.

PHYSICAL OR 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. 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. Read all label directions carefully before use.

Failure to follow directions and precautions on this label may result in plant injury or poor growth control.

GENERAL INFORMATION

Shortstop® 2SC is a systemic, xylem mobile plant growth regulator for use on trees that slows vegetative growth by inhibiting gibberellin biosynthesis. Shortstop® 2SC reduces the above ground vegetative growth and changes specific morphological characteristics of the tree. Slowed vegetative growth reduces the volume of woody growth that must be removed from trees when trimming occurs and may extend the trimming cycle. Shortstop® 2SC is most effective when applied to the soil near the base of the tree either by soil injection or with basal soil drench.

TREES

Shortstop® 2SC is a xylem mobile tree growth regulator that slows vegetative growth by inhibiting gibberellin biosynthesis. Shortstop® 2SC reduces vegetative growth thereby reducing the volume of woody growth that must be removed from trees when trimming occurs and may extend the trimming cycle. Trees treated with Shortstop® 2SC will exhibit shorter internodes, a reduction in the diameter of the main stem, thicker leaf cuticle and an increase in fine root growth of some species. Initial effects of Shortstop® 2SC may be observed as greening of the foliage, without phytotoxicity. Shortstop® 2SC is equally effective when applied as a basal soil drench or by soil injection. Shortstop® 2SC can be used on listed trees found in areas such as utility rights-of-way, urban environments, residential areas and other non-crop areas.

Symptoms of Growth Regulation

Activity of Shortstop® 2SC occurs following root uptake and xylem translocation throughout the tree canopy. Shortstop® 2SC demonstrates little or no phloem mobility. Symptoms of growth regulation may not be visible for up to 18 months following application of Shortstop® 2SC. At the time when normal vegetative growth extension should occur, trees treated with Shortstop® 2SC will exhibit shortened internodes which may be somewhat thickened. Smaller leaf size and enhanced flowering may also be observed in some species.

GENERAL PRECAUTIONS

- Apply at recommended labeled rates and always follow safety procedures.
 - Do not treat sugar maple trees or any other trees that are or could be tapped for sugar.
 - Do not treat nut or fruit trees that will be harvested within one year.
 - Trees not used for food production that are not specifically listed on this label may be treated if all other label directions are followed.
 - Do not treat trees which are severely stressed due to moisture, temperature, low soil fertility, or exhibit mechanical or chemical injury.
 - Do not reapply Shortstop® 2SC until symptoms from previous applications begin to subside or within 3 years of the last application, whichever comes first.
 - Basal drench and soil injection application of Shortstop® 2SC may result in localized, temporary discoloration of turfgrass immediately adjacent to the treatment site.
 - Do not use basal drench applications on slopes or other areas where Shortstop® 2SC or treated soil may be washed away from the base of the tree by rainfall or irrigation.
 - Treatment of trees bordered by shrubs and/or herbaceous ornamentals may result in these plants being affected if their roots extend into the treatment zone.
- Chemigation:** Do not apply this product through any type of irrigation system.

COMPATIBILITY

Conduct a compatibility test when you plan to mix Shortstop® 2SC with other products. To determine the physical compatibility of Shortstop® 2SC with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to approximately one quart of water with agitation. Add dry formulations first, then flowables, and then emulsifiable concentrates last. After thorough mixing, allow this mixture to stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding products to the spray tank. Follow the more restrictive labeling requirements of any tank mix partner. Do not tank mix with products whose label prohibits tank mixing. Treat a small test plot if new combinations of products are being used for the first time.

USE DIRECTIONS

Application Timing

Applications can be made throughout the year, weather permitting, except when soil is either saturated with water or frozen.

Note: Shortstop® 2SC is absorbed by plant roots and translocated to the growing tissues in response to evaporative water loss (transpiration). If applications of Shortstop® 2SC are made after fall leaf drop, uptake will not occur until development of new leaves in the spring and resumption of transpiration.

Mixing Directions

Mix 10.7 fl oz (317 mL) of Shortstop® 2SC with water to make one gallon of diluted mixture. One gallon of Shortstop® 2SC will make 12 gallons of diluted mixture. To improve the handling characteristics of the diluted mixture, add a suspension aid, such as a nonionic or organosilicone surfactant.

Follow all label directions and precautions on the product label of the suspension aid.

Application Methods

Apply Shortstop® 2SC either as a basal drench or by soil injection. Only trees that are well established in their final location should be treated with Shortstop® 2SC. Do not treat trees less than 4 inches in diameter at breast height.

Diameter at breast height, or DBH, is a standard method of expressing the diameter of the trunk of a standing tree. Tree trunks are measured at the height of an adult's breast, which is generally defined as a height of 4.9 feet (1.5 meters) above ground.

Trunk diameter (the distance through the center of the trunk from one side to the other) can be determined precisely by using a caliper, or by using a measuring tape to determine the circumference (linear distance around the surface of the tree). The trunk diameter can then be calculated by dividing the circumference of the trunk by 3.142. Example: 25" circumference / 3.142 = 8" diameter.

Basal Drench

Shortstop® 2SC may be applied to the soil as a basal drench to reduce above ground vegetative growth. Apply the required dose of diluted mixture of Shortstop® 2SC based on the tree size (Diameter at Breast Height; DBH) and species as shown in the tables below.

A diluted mixture of Shortstop® 2SC may be carefully applied to the surface of the soil around the base of the trunk, provided a controlled flow i.e. no run-off, will occur. If there is potential for surface run-off or if irrigation or rainfall might result in the movement of surface applied product to reach non-target plants, apply the Shortstop® 2SC mixture to the bottom of a shallow furrow, 2" to 5" deep, around the base of the tree trunk (Figure 1). Apply the diluted mixture of Shortstop® 2SC as close as possible to the point of contact between the soil and the base of the trunk. After applying Shortstop® 2SC, refill the furrow with untreated soil.

Soil Injection

Inject the diluted mixture of Shortstop® 2SC into the root zone, approximately 6 inches deep. Use soil injection equipment capable of delivery at 100 to 200 psi. Orient injection orifices to release the diluted product horizontally at the point of injection. Divide the required dose evenly among injection sites spaced as uniformly as possible around the tree trunk. Position the injection sites to release Shortstop® 2SC diluted mixture as close as possible to the point of contact between soil and unthickened bark beneath the soil so that the active ingredient may be readily absorbed by the tree (Figure 2). Locate injection sites next to buttress roots (Figure 2). For trees less than 6 inches DBH, use at least 4 evenly spaced injection sites per tree.

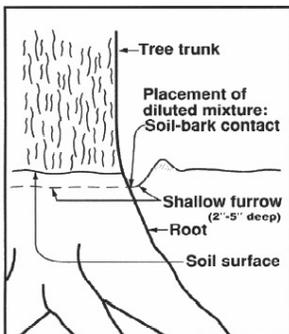


Figure 1. Placement of Shortstop® 2SC as basal drench

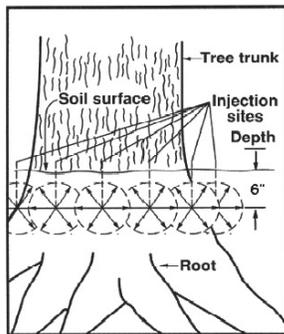


Figure 2. Placement of Shortstop® 2SC as a soil injected treatment

Application Rate

Application Rate Ranges for Diluted Mixture of Shortstop® 2SC for Treatment of Various Tree Species ¹		
1.7 to 3.4 fl oz (50 to 100 mL) (1 to 2 grams active ingredient) per inch DBH*	3.4 to 5.1 fl oz (100 to 150 mL) (2 to 3 grams active ingredient) per inch DBH*	5.1 to 6.8 fl oz (150 to 200 mL) (3 to 4 grams active ingredient) per inch DBH*
Australian Pine Dogwood Redbud Sweetgum	Basswood Linden Beech Locust, Honey Boxelder Maple Buckeye Mountain Ash Catalpa Olive, Russian Elm(s) Sassafras Hickory Walnut Horse Chestnut	Alder Locust, Black Ash Magnolia Aspen Mulberry Birch Oak Bradford, Pear Pines Cedar, Red Poplar Cherry, Black Redwood Cottonwood Sycamore Eucalyptus Willow Hackberry

1 For acidic soils (low pH), soils with high organic matter content or soils with high clay content, use the higher rate, not to exceed 4 grams active ingredient per inch DBH.

* DBH = tree diameter at breast height

Amount of Shortstop® 2SC Diluted Mixture Required for Specified Application Rates and Tree Sizes				
Diameter of Tree at Breast Height (DBH*) (inches)	1.7 fl oz (50 mL) per inch DBH*	3.4 fl oz (100 mL) per inch DBH*	5.1 fl oz (150 mL) per inch DBH*	6.8 fl oz (200 mL) per inch DBH*
	Total fl oz (mL) diluted mixture required			
4	6.8 (200)	13.6 (400)	20.4 (600)	27.2 (800)
5	8.5 (250)	17.0 (500)	25.5 (750)	34.0 (1000)
6	10.2 (300)	20.4 (600)	30.6 (900)	40.8 (1200)
7	11.9 (350)	23.8 (700)	35.7 (1050)	47.6 (1400)
8	13.6 (400)	27.2 (800)	40.8 (1200)	54.4 (1600)
9	15.3 (450)	30.6 (900)	45.9 (1350)	61.2 (1800)
10	17.0 (500)	34.0 (1000)	51.0 (1500)	68.0 (2000)
12	20.4 (600)	40.8 (1200)	61.2 (1800)	81.6 (2400)
14	23.8 (700)	47.6 (1400)	71.4 (2100)	95.2 (2800)
16	27.2 (800)	54.4 (1600)	81.6 (2400)	108.8 (3200)
18	30.6 (900)	61.2 (1800)	91.8 (2700)	122.4 (3600)
20	34.0 (1000)	68.0 (2000)	102.0 (3000)	136.0 (4000)
22	37.4 (1100)	74.8 (2200)	112.2 (3300)	149.6 (4400)
24	40.8 (1200)	81.6 (2400)	122.4 (3600)	163.2 (4800)
26	44.2 (1300)	88.4 (2600)	132.6 (3900)	176.8 (5200)
28	47.6 (1400)	95.2 (2800)	142.8 (4200)	190.4 (5600)
30	51.0 (1500)	102.0 (3000)	153.0 (4500)	204.0 (6000)
32	54.4 (1600)	108.8 (3200)	163.2 (4800)	217.6 (6400)
34	57.8 (1700)	115.6 (3400)	173.4 (5100)	231.2 (6800)
36	61.2 (1800)	122.4 (3600)	183.6 (5400)	244.8 (7200)

*DBH = tree diameter at breast height

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal. Open dumping is prohibited. Do not reuse empty container.

PESTICIDE STORAGE: Keep container closed when not in use. Do not store near food or feed. Protect from freezing. In case of spill or leak on floor or paved surfaces, soak up with sand, earth or synthetic absorbent. Remove to chemical waste area.

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 at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING: 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 and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

WARRANTY DISCLAIMER AND LIMITATION OF LIABILITY

Greenleaf Chemical LLC ("GREENLEAF") warrants that this Product conforms to the specifications on this label. To the extent consistent with applicable law, GREENLEAF makes no other warranties and disclaims all other warranties, express or implied, including but not limited to warranties of merchantability and fitness for a particular purpose. No agent of GREENLEAF or any other person is authorized to make any representation or warranty beyond those contained herein.

It is impossible to eliminate all risks associated with this Product. Plant injury, lack of performance, or other unintended consequences may result because of factors such as abnormal weather conditions, use of the Product other than in strict accordance with this label's instructions, presence of other materials, the manner of application or other factors, all of which are beyond the control of GREENLEAF or the seller. To the extent consistent with applicable law, all such risks shall be assumed by the Buyer.

To the extent consistent with applicable law: 1) GREENLEAF disclaims any liability whatsoever for special, incidental or consequential damages resulting from the handling or use of this Product and 2) GREENLEAF's liability under this label shall be limited to the amount of the purchase price or, at the election of GREENLEAF, the free replacement of the Product.

Shortstop® 2SC is a trademark of Greenleaf Chemical LLC