



ANTI-TRANSPIRANT
CONTAINS NONPLANT FOOD INGREDIENT

10% Stearyl alcohol
90% Inert ingredients

General information: HAVEN™ contains long chain fatty alcohols that, when applied to crops and turf, reduce plant transpiration rates before and during periods of drought stress. Mix well before using.

KEEP OUT OF REACH OF CHILDREN

WARNING

First Aid Statement

IF SWALLOWED:	Call 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 the poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
IF IN EYES:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or if going for treatment.	

Lot number on package indicates date of manufacture

Manufactured and guaranteed by:



1540 Drew Ave., Davis, CA 95618 USA

1-877-664-4476; www.marronebioinnovations.com;
info@marronebio.com

Version: HAV_042017_CA
PN 61558

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NET CONTENT
(NET WEIGHT):

1 qt / 0.95 L
(2.12 lb / 0.96 kg)

1 gal / 3.8 L
(8.48 lb / 3.85 kg)

2.5 gal / 9.5 L
(21.20 lb / 9.62 kg)

5 gal / 18.9 L
(42.40 lb / 19.25 kg)

55 gal / 208.2 L
(466.43 lb / 211.76 kg)

Density: 8.48 lb/US gal
at 68°F



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PRECAUTIONARY STATEMENTS

WARNING: Causes eye irritation. May cause long lasting harmful effects to aquatic life. Wash all exposed areas thoroughly after handling. Avoid release to the environment if this is not the intended use. **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Clothing to prevent prolonged skin contact as needed such as long-sleeved shirt, long pants and shoes with socks.
- Gloves made of Latex or other impervious material
- Appropriate eyeglasses or chemical safety goggles

Use an appropriate respirator if irritation or other symptoms are experienced.

Wash any contamination from skin or eyes immediately. Wash hands and exposed skin before eating, drinking, smoking, after work, or using the toilet.

Directions for Use:

READ AND UNDERSTAND THE FOLLOWING DIRECTIONS BEFORE USING THIS PRODUCT

General application instructions:

HAVEN™ contains long chain fatty alcohols that reflect the heat energy falling on the leaf and thereby reduce the transpiration rates, resulting in improved crop and turf quality. Apply HAVEN™ before anticipated heat events for protection without affecting the normal gaseous exchange. Maintain coverage throughout periods of high heat.

Rate per acre is dependent upon the amount of blossoms, fruit and foliage that needs to be covered. Normally two to four applications during the growing season are needed to sufficiently protect most crops, with the first spray applied during bloom or early fruit set. Additional applications may be required under conditions of persistent high temperature, increased UV exposure, rain events, overhead irrigation or other circumstances that might deteriorate the coverage of the crop to be protected.

Compatibility: HAVEN™ is compatible with most agricultural chemicals. A jar compatibility test should be conducted to ensure compatibility.

Mixing Instructions: Fill spray tank to 50% of capacity. Turn on agitation and add amount of HAVEN™ required followed by the remainder of the water needed to complete filling.

Concentration: the concentration of HAVEN™ (amount of HAVEN™ per gallon of water) should be between 77-154 fluid ounces HAVEN™ per 100 gallons of spray solution (6 - 12 ml/liter).

Coverage: Use sufficient coverage to achieve full coverage. Do not apply to runoff. Dwarf, semi-dwarf and otherwise well-pruned trees will be easier to cover than large trees. Applications can be made to tree crops with commercial air-blast or high pressure sprayers that provide enough turbulence to coat both sides of blossoms, leaves and fruit. Best coverage is typically achieved at a tractor speed of 3 mph or less when using airblast sprayers.

Foliage dryness: Applications to wet foliage can result in inadequate coverage.

Spray methods: Air blast, high pressure hand gun, or boom sprayers provide the best coverage. Do not apply by chemigation. Do not apply in windy or gusty conditions. Calibrate spray equipment to deliver the required volume. **DO NOT APPLY THROUGH OVERHEAD IRRIGATION.**

Aerial application: HAVEN™ applied by air will reduce heat stress and sunburn damage if sufficient coverage can be achieved. When making aerial applications take all precautions to minimize or eliminate drift. **DO NOT** spray under windy or gusty conditions. Make applications no more than 10 feet above the crop canopy unless required for aircraft safety. Avoid

making applications at low humidity or increase droplet size to compensate for evaporation. Aerial application should only be used when ground application is not available.

Reducing heat stress via reducing transpiration: Under high ambient temperatures, HAVEN™ reduces canopy temperatures to reduce heat and water stress. When HAVEN™ is used, many crops have shown improved fruit color, less russetting, sunburn and cracking. See specific instructions within the relevant crop group regarding the timing and number of applications to optimize results.

Sunburn protection: Apply HAVEN™ to sunburn-prone fruit, leaves, or limb and bark surfaces **prior to** when conditions conducive to sunburn occur. When initiating sprays for sunburn protection where there have been no previous sprays, commence sprays after early fruit formation, provide thorough coverage to all fruit or other surfaces with one or two full rate applications one week apart. Depending upon the length of high heat period additional applications may be necessary at 7 to 21 day intervals.

Post-harvest removal: HAVEN™ does not leave any detectable residue on harvested fruit, nuts or vegetables and does not require any steps for removal.

CROP GROUPS

Tree Fruit including pome and stone fruit such as apple, crab apple, loquat, pear, quince and apricot, sweet or tart cherry, nectarine, plum, peach, plumcot and prune:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For typical semi-dwarf trees in full foliage, 75 - 150 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75-115 fluid ounces per 100 gallons).

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - In pome fruit the initial application should be made prior to fruit reaching ¾ inch diameter and the onset of rapid fruit expansion.
 - Reapplication should be made every 7-14 days or as conditions require.
-

Citrus Fruit including grapefruit, lemon, lime, kumquat, mandarin, oranges, pummelo, Satsuma mandarin and tangelos:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For typical 12-foot trees, 100 - 200 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.9% - 1.2% v/v. (115 - 150 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - The initial application should be made when fruits are first developing and about 1 inch in diameter.
 - Reapplication should be made every 14 - 21 days or as conditions require.
-

Nut Crops including almond, beech nut, Brazil nut, butternut, cashew, chestnut, filbert, hickory nut, macadamia nut, pecan, walnut and pistachio:

Volume - apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most nut trees, 100 - 200 gallons per acre is recommended.

Concentration - dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - In almonds and walnuts, the initial application should be made at full bloom.
 - Reapplication should be made every 7-14 days or as conditions require.
-

Small Fruit including blackberry, blueberry, boysenberry, cranberry, elderberry, and loganberry:

Volume - apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most small fruit crops, 50 gallons per acre is recommended.

Concentration - dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons).

Timing:

- HAVEN™ should be applied at bloom and prior to sensitive periods.
 - Reapplication should be made every 7-14 days or as conditions require.
-

Grapes including raisin, table and wine:

Volume - apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most grapes crops, 50-100 gallons per acre is recommended.

Concentration - dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Apply when grapes are pea size (0.25 inch or 6 mm). Make a second application at veraison. If needed a third application can be made 7-14 days later.
 - To avoid short berry formation, DO NOT apply HAVEN™ during bloom.
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Fruiting vegetables including tomato, pepper and eggplant:

Volume - apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most fruiting vegetable crops, 30 - 50 gallons per acre is recommended.

Concentration - dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied at fruit set with subsequent applications every 7-14 days.
-

Bulb vegetables including garlic, leek, onions and shallot:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most bulb vegetable crops, 30 - 50 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Reapplication should be made every 7-14 days or as conditions require.
-

Cucurbit vegetables including cucumber, summer and winter squash, pumpkin, muskmelon and watermelon:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most cucurbit vegetable crops, 30 - 50 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied at or shortly after bloom with subsequent applications every 7-14 days during periods of predicted solar stress.
-

Brassica and leaf vegetable including broccoli, brussels sprouts, Chinese cabbages, cauliflower, cabbage, mustard greens, kale, kohlrabi, arugula, celery, lettuces, parsley and spinach:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most brassica and leafy vegetable crops, 30 - 50 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Reapplication should be made every 7-14 days or as conditions require.
-

Other miscellaneous vegetables crops including asparagus and strawberry:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most vegetable crops, 30 - 50 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Application to strawberries should begin during or shortly after initial bloom.
 - Reapplication should be made every 7-14 days or as conditions require.
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Cereal grains including wheat, rice, oats, and barley:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For most cereal grains, 30 - 50 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Reapplication should be made at or near flag-leaf stage with an optional second application 14 days later.
-

Corn including field corn, popcorn, sweet corn and seed corn:

Volume:

- Apply for full coverage. Do not apply to runoff to avoid waste and poor coverage.
- For ground applications, 30 - 40 gallons per acre is recommended.
- For aerial applications, 10 - 20 gallons per acre is recommended.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Reapplication should be made at tassel stage with an optional second application 14 days later.
-

Tropical Crops including coffee, avocado, guava, banana, mango, passion fruit, star fruit, papaya and pineapple:

Volume – apply for full coverage. Do not apply to runoff to avoid waste and poor coverage. For pineapple, 30 - 50 gallons per acre is recommended. For coffee, avocado, guava, banana, mango, passion fruit, star fruit and papaya, 100 - 150 gallons per acre is recommended

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- HAVEN™ should be applied several days prior to predicted solar stress events.
 - Apply at fruit set. Reapplication should be made every 7-14 days or as conditions require. Initial application to waxy surfaces such as mango fruit may not spread sufficiently and will require re-application.
-

Turf:

Volume – apply HAVEN™ to turfgrass to reduce heat stress in 2 gallons of water per 1000 sq. ft.

Concentration – dilute HAVEN™ in water at a rate of 0.6% to 0.9% v/v. (75 - 115 fluid ounces per 100 gallons)

Timing:

- Make initial application prior to period of high temperatures and reapply at 7-14 day intervals as long as high stress period lasts.
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STORAGE AND DISPOSAL

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

Storage: Store in a cool, dry place. Avoid freezing. Use within 2 years of date of manufacture.

Disposal: To avoid wastes, 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

Container Disposal: Non-refillable 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 ¼ 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. Do not burn unless allowed by state and local ordinances.

Marrone Bio Innovations WARRANTY

To the extent permitted by applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. The user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date: January 20, 2017

US Patents No.

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