



TECH NOTE SERIES

HAVEN®

SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Haven® anti-transpirant contributes to a cooler canopy, reducing plant transpiration and blocking harmful solar radiation, which controls sunburn

It leaves no visible residue on the fruit or crop making harvesting and processing easier.

Improves yields by:

- Lowering internal leaf canopy temperatures
- Reducing transpiration
- Improving drought/heat stress tolerance and conserving moisture
- Reflecting sunlight
- Controlling sunburn

General information:

- Haven® is derived from long chain fatty alcohols (cetyl alcohol)
- Food grade

Use recommendations:

- Tree fruit, nut crops, small fruit, fruiting vegetables
- Read label for full recommendations

Application:

- Applications of 2-4 times at 7-14 day intervals
- Applications should begin at early fruit or nut set
- Rates generally 0.4%-0.8% v/v for most crops, please refer to label for crop specific rates



Haven® Anti-transpirant

Haven® is derived from plant-based compounds that reflect light and heat to maintain lower leaf temperatures while at the same time reducing water loss, resulting in less stress to the crop and higher yields and quality.

When two to four applications are sprayed on crops generally starting at fruit set, Haven® reduces sun stress and increases yields in certain apple varieties, grapes, citrus, tomatoes, corn, wheat and turf.

Field trials have also demonstrated a reduction of bitter pit in apples. Bitter pit is caused by a calcium deficiency that causes serious crop losses in certain apple varieties.

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz





TECH NOTE SERIES

HAVEN[®]

SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Haven[®] Anti-transpirant

Reduces plant transpiration

- In intense sunlight or drought, excess transpiration causes significant damage to crops
- When applied to crops, it helps preserve and protect plants from drying out

A Plant UV-B blocker

- Radiation, from wavelengths outside the photosynthetic range, such as UV-B, is particularly harmful to plant tissue and growth
- When applied to crops, applications of Haven can reduce sunburn by helping to block harmful UV-B radiation

What makes it work so well?

Haven formulation contains 20% cetyl alcohol

- Derived from long chain fatty alcohols
- Inert compounds from food-grade ingredients
- Used widely in cosmetics-safe
- Includes a designated UVB blocker
- Stable formulation
 - Formulation shows stability for > 2 years
 - Tested at high temperature and freeze-thaw with excellent results
- Relatively low use rate per hectare is a strategic advantage vs competitor products

Can Haven[®] improve yields?

- Reflects sunlight
- lowers canopy **temperatures**
- reduces **transpiration**
- improves water use **efficiency** and drought/
- heat stress **resistance**



Enhanced **plant growth**



GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz





TECH NOTE SERIES

HAVEN®

SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Where is Haven® anti-transpirant being used?

Tree fruits including: apples, avocado, pears, apricots, sweet cherries, nectarines, plums

Citrus fruits including: grapefruit, lemons, limes, mandarins, satsuma mandarins, tangelos

Nut crops including: almond, chestnut, macadamia, walnut

Small fruit including: blackberry, blueberry, boysenberry, loganberry

Grapes including: table and wine

Fruiting vegetables including: tomato, peppers, eggplant

Bulb vegetables including: garlic, leek, onions, shallot

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

Brassica and leaf vegetables including: broccoli, brussels sprouts, Chinese cabbage, cauliflower, cabbage, mustard greens, kale, celery, lettuces, parsley, spinach

Miscellaneous vegetable crops including: asparagus, strawberry

Cereal grains including: wheat, rice, oats, barley

Corn including: field corn, popcorn, sweetcorn, seed corn

Tropical crops including: guava, banana, passionfruit, papaya

Turf grass

For a productive hectare!

Use Haven® to improve the water use efficiency of your crops for a higher quality and bountiful harvest of premium produce

- Helps prevent damage from heat and water stress induced from intense sunlight and heat in canopy
- Can prevent damage from harmful radiation such as UV-B



VS



Does not leave visible deposit or residue on crop

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz





TECH NOTE SERIES

HAVEN®

SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Haven® use recommendations

Directions

- Rates of 0.4% - 0.8%
- Smaller crops use 300 - 1000 litres of water per hectare
- Tree crops like avocados, citrus or apples, water volume in the range of 750 - 2000 litres per hectare
- Applications of 2 - 4 times at 7 - 14 day intervals
- Applications should begin at early fruit or nut set
- See table for specific information for each crop

CROPS	RATE/per 100L	WATER RATE per hectare	COMMENTS
Tree fruit incl. apples, pears, apricots, cherries, nectarines, plums, peaches and avocados	400-800mls	1000-2000 litres	For typical semi-dwarf trees in full foliage. In pome fruit, initial application prior to fruit reaching 20mm in diameter and the onset of rapid fruit expansion. Reapply every 7-14 days or as conditions require.
Citrus fruit incl. lemons, grapefruit, limes, kumquat, mandarins, oranges, pummelo and tangelos	400-800mls	1000-2000 litres	For typical 3-4metre trees. Initial application when fruits are first developing and about 25mm in diameter. Reapply every 14-21 days or as conditions require.
Nut crops	400-800mls	1000-2000 litres	For most trees. In almonds and walnuts, initial application at full bloom. Reapply every 7-14 days or as conditions require.
Blackberries, blueberries, boysenberries, cranberries and loganberries	400-800mls	500 litres	For most small fruit crops. Initial application at full bloom and prior to sensitive periods. Reapply every 7-14 days or as conditions require.
Grapes incl. table and wine	400-800mls	500-1000 litres	For most grape crops. Apply when grapes are pea sized (6mm) Make 2nd application at veraison. If required 3rd application can be made 7-14 days later. To avoid short berry formation, do not apply during bloom.
Tomatoes, peppers and eggplant	400-800mls	500-1000 litres	For most fruiting vegetable crops. Apply at fruit set with subsequent applications every 7-14 days.
Garlic, leeks, onions and shallots	400-800mls	300-500 litres	For most bulb vegetable crops. Reapply every 7-14 days.
Cucumber, summer and winter squash, pumpkin, muskmelon and watermelon	400-800mls	300-500 litres	For most cucurbit vegetable crops. Apply shortly after bloom, reapply every 7-14 days during periods of stress.
Broccoli, brussels sprouts, Chinese cabbage, cauliflower, cabbage, kale, mustard greens, celery, parsley, leftruces and spinach	400-800mls	300-500 litres	For most brassica and leafy vegetable crops. Reapply every 7-14 days or as conditions require.
Strawberries and asparagus	400-800mls	300-500 litres	For most other miscellaneous vegetable and fruit crops. Apply to strawberries during or shortly after initial bloom. Reapply every 7-14 days or as conditions require.
Cereal grains incl. wheat, oats and barley	400-800mls	300-500 litres	For most cereal grains. Reapply at or near flag-leaf stage with optional 2nd application 2 weeks later.
Corn incl. field corn, popcorn, sweet corn and seed corn	400-800mls	ground appl. 300-400 litres aerial appl. 100-200 litres	Reapply at tassel stage with optional 2nd application 14 days later.
Tropical crops incl. guavas, papaya, bananas, passionfruit	400-800mls	1000-1500 litres	Apply at fruit set. Reapply every 7-14 days or as conditions require. Initial application to waxy surfaces may not spread sufficiently and could require reapplication.
Turf	400-800mls	20 litres per 100 square mtrs	Apply to turf grass to reduce heat stress. Make initial application prior to high temperatures. Reapply at 7-14 day intervals as long as high stress period lasts.



Apply for full coverage.

Do not apply to runoff to avoid waste and poor coverage.

Apply several days prior to predicted solar stress events.

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz



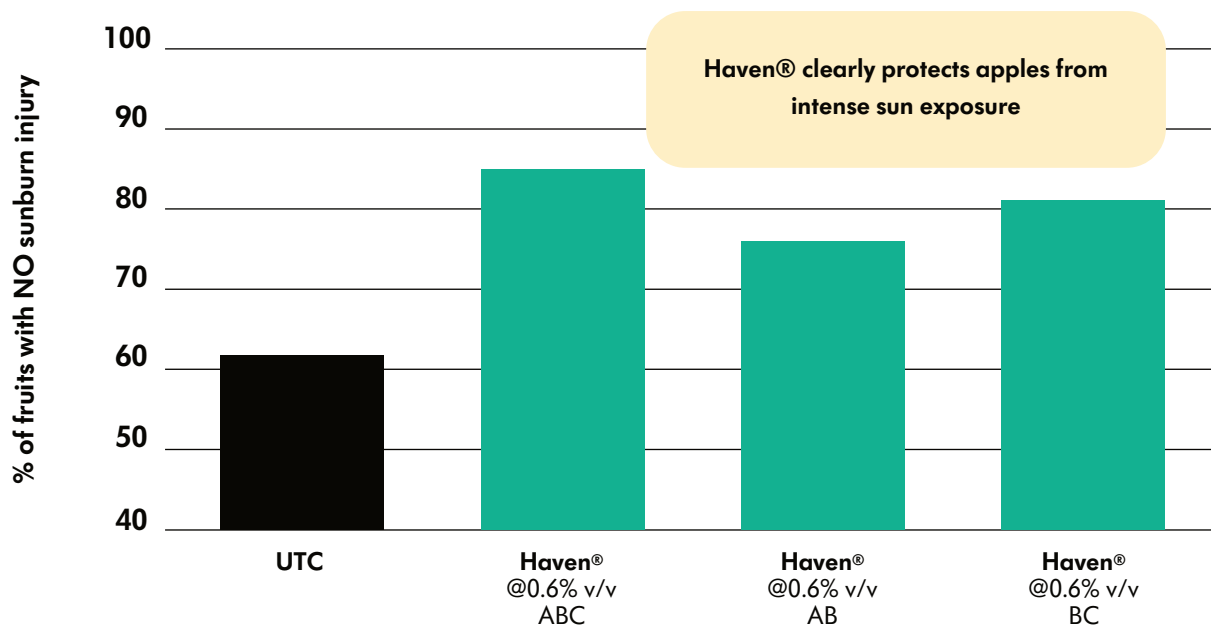


TECH NOTE SERIES

HAVEN®

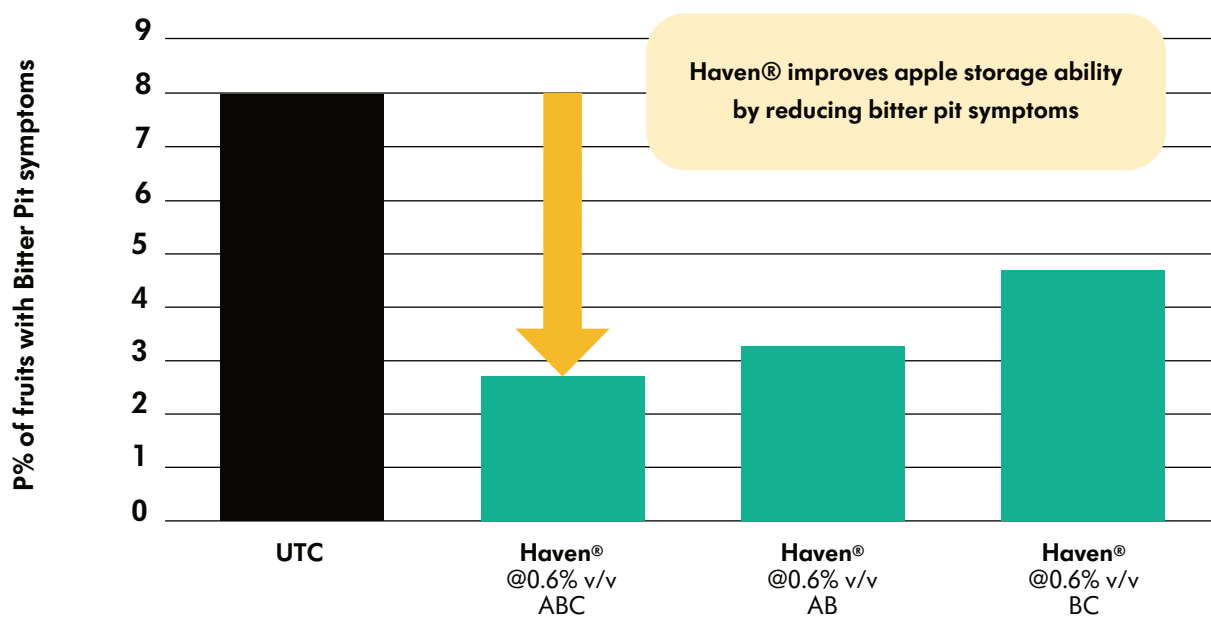
SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Haven® anti-transpirant to protect apples from sunburn



ABC = 1st, 3rd and 5th covers: 14/6, 11/7, 8/8 AB = 1st and 3rd covers: 14/6, 8/8 BC = 3rd and 5th covers: 14/6, 8/8

Haven® anti-transpirant to protect apples from bitter pit incidence



ABC = 1st, 3rd and 5th covers: 14/6, 11/7, 8/8 AB = 1st and 3rd covers: 14/6, 8/8 BC = 3rd and 5th covers: 14/6, 8/8

Assessed after 52 days @ 1° C

Note: Trial results have been generated in the USA

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz



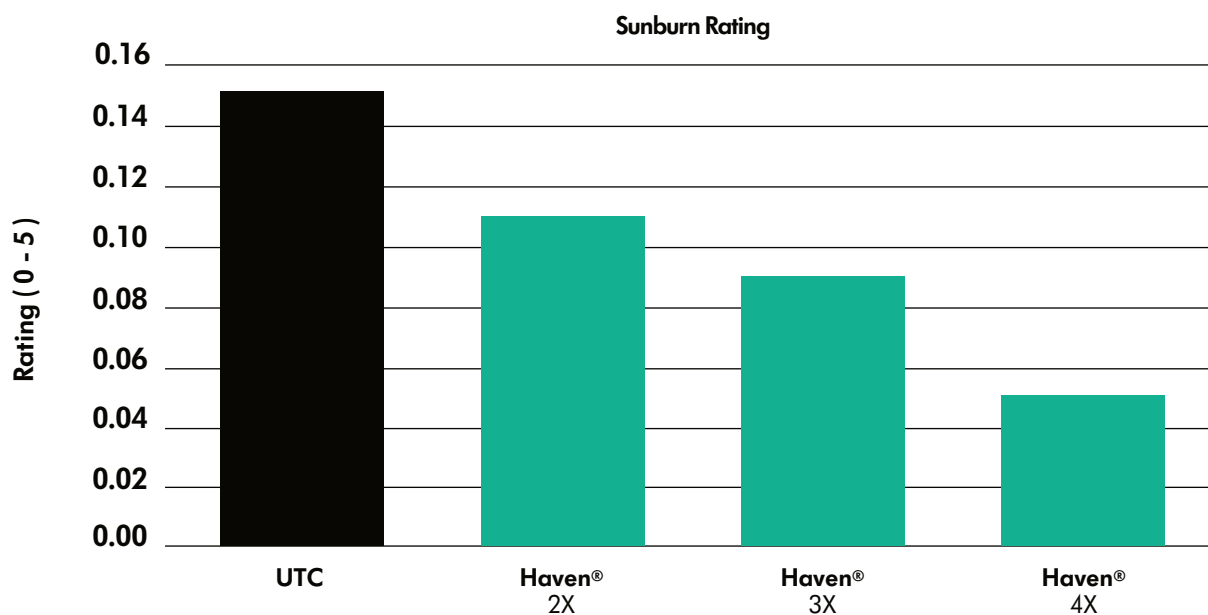


TECH NOTE SERIES

HAVEN®

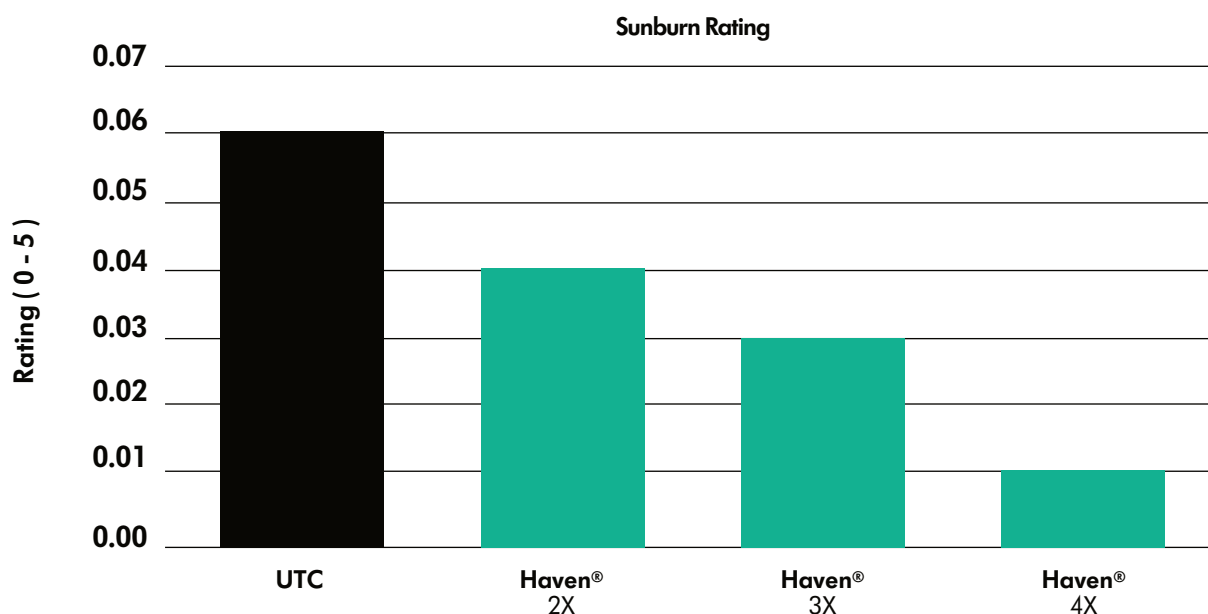
SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Gala apple protection



Weekly treatment at 0.6% v/v in 1000 litres/hectare, starting in mid-summer. Two, three and four treatments vs untreated control.

Golden Delicious apple protection



Weekly treatment at 0.6% v/v in 1000 litres/hectare, starting in mid-summer. Two, three and four treatments vs untreated control.

Note: Trial results have been generated in the USA

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz



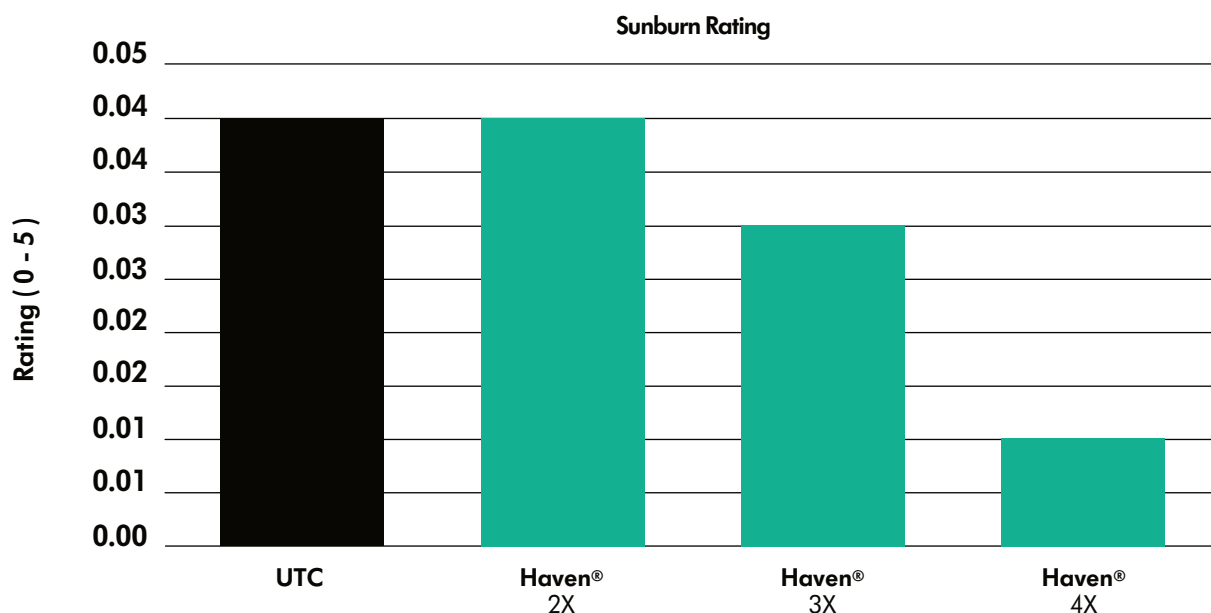


TECH NOTE SERIES

HAVEN®

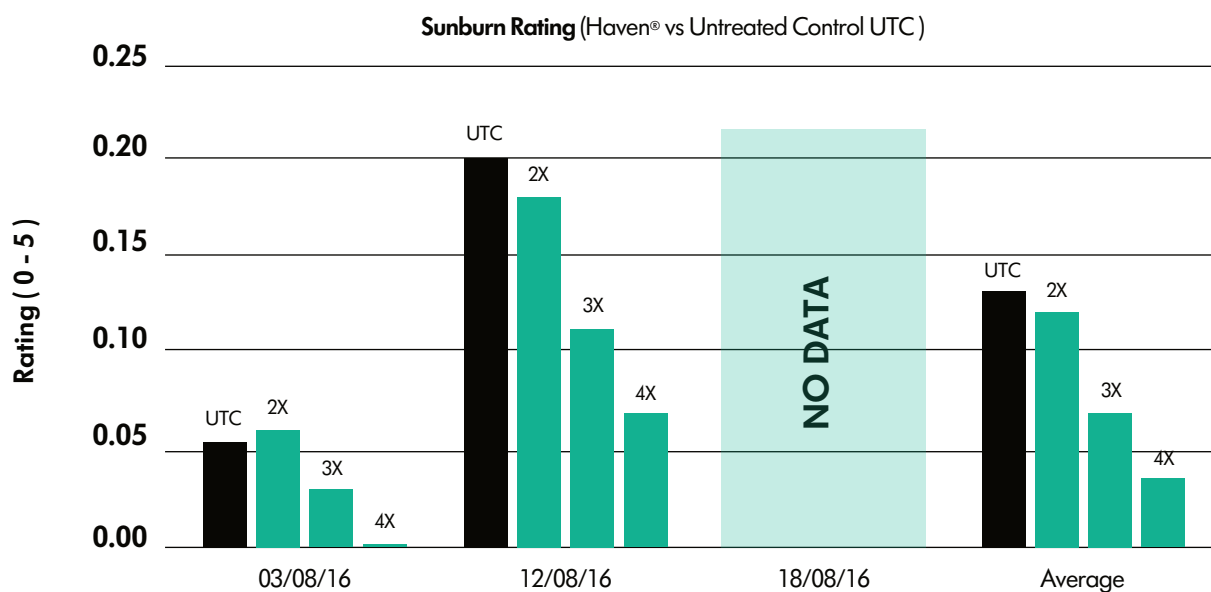
SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Granny Smith apple protection



Weekly treatment at 0.6% v/v in 1000 litres/hectare, starting in mid-summer. Two, three and four treatments vs untreated control.

Honeycrisp apple protection



Weekly treatment at 0.6% v/v in 1000 litres/hectare, starting in mid-summer. Two, three and four treatments vs untreated control.

Note: Trial results have been generated in the USA

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz



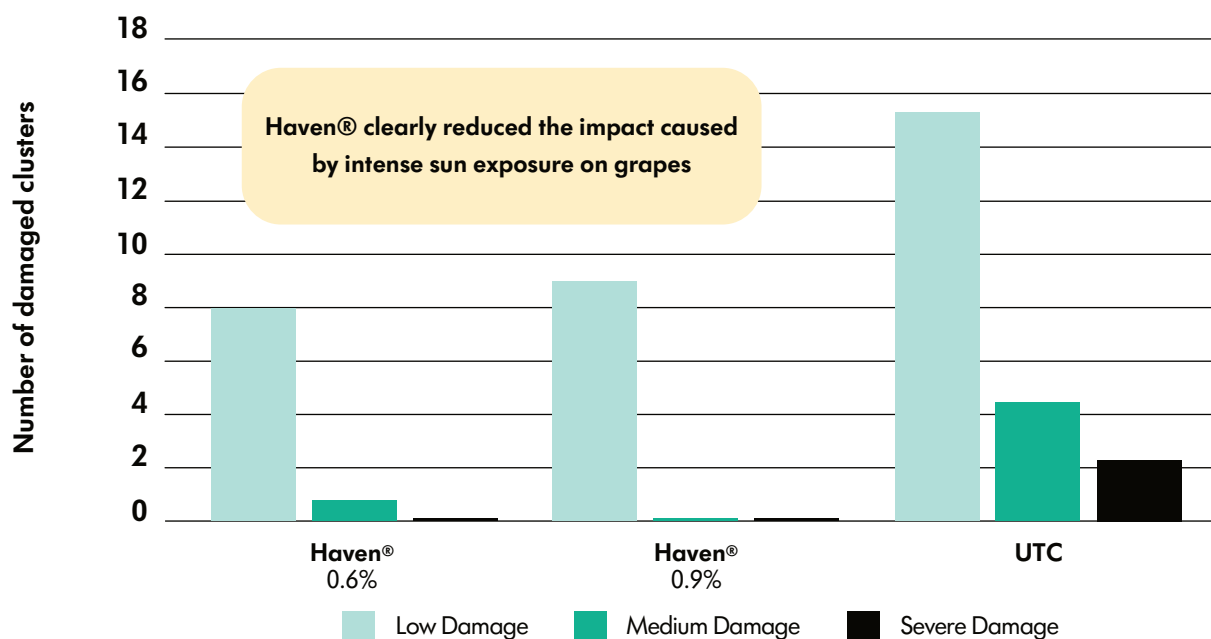


TECH NOTE SERIES

HAVEN®

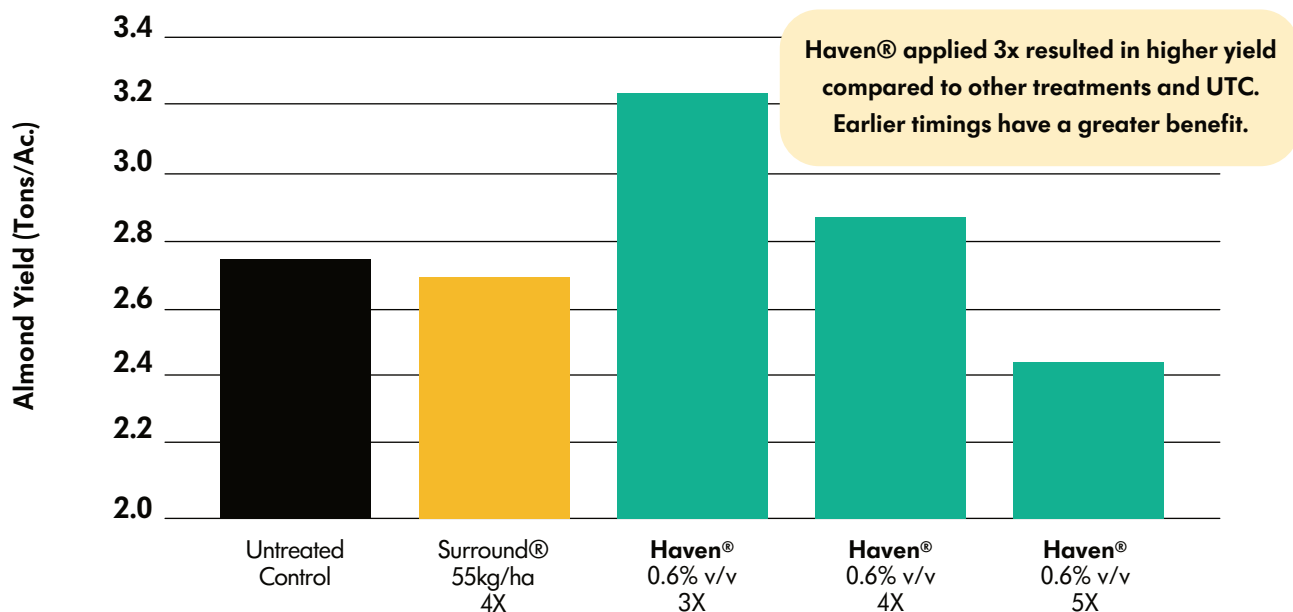
SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Grapevine protection from sunburn



Note: Study conducted in Chili, 2015

Almond plant health



Note: Trial results have been generated in the USA

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz



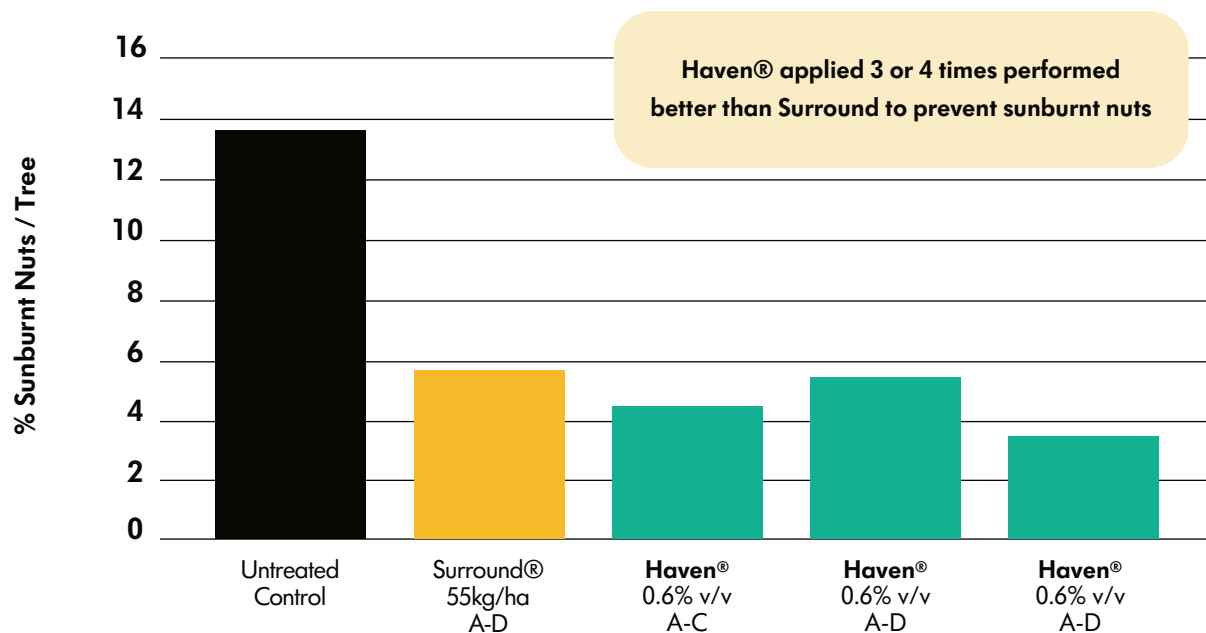


TECH NOTE SERIES

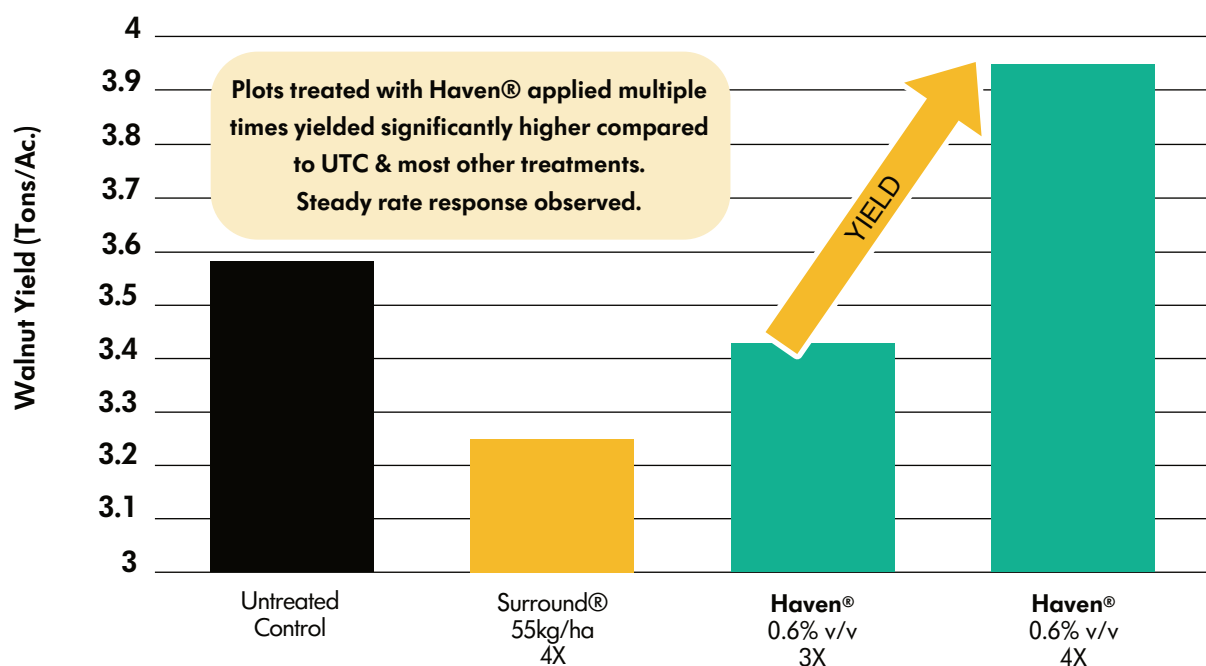
HAVEN®

SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Walnut plant health



Walnut plant health



Note: Trial results have been generated in the USA

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz



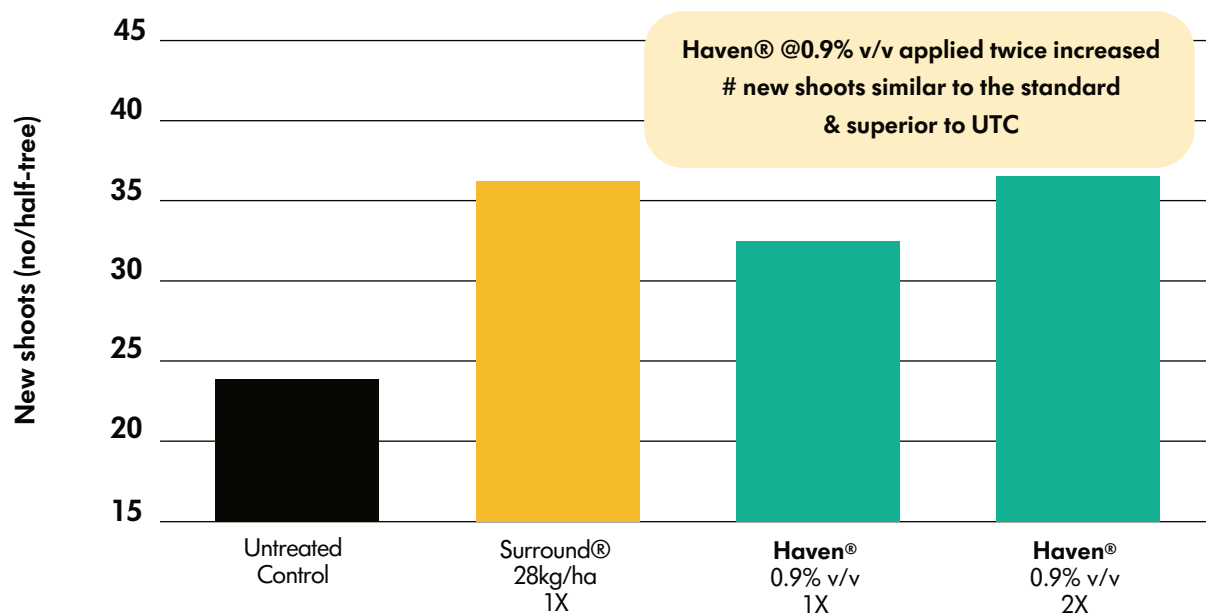


TECH NOTE SERIES

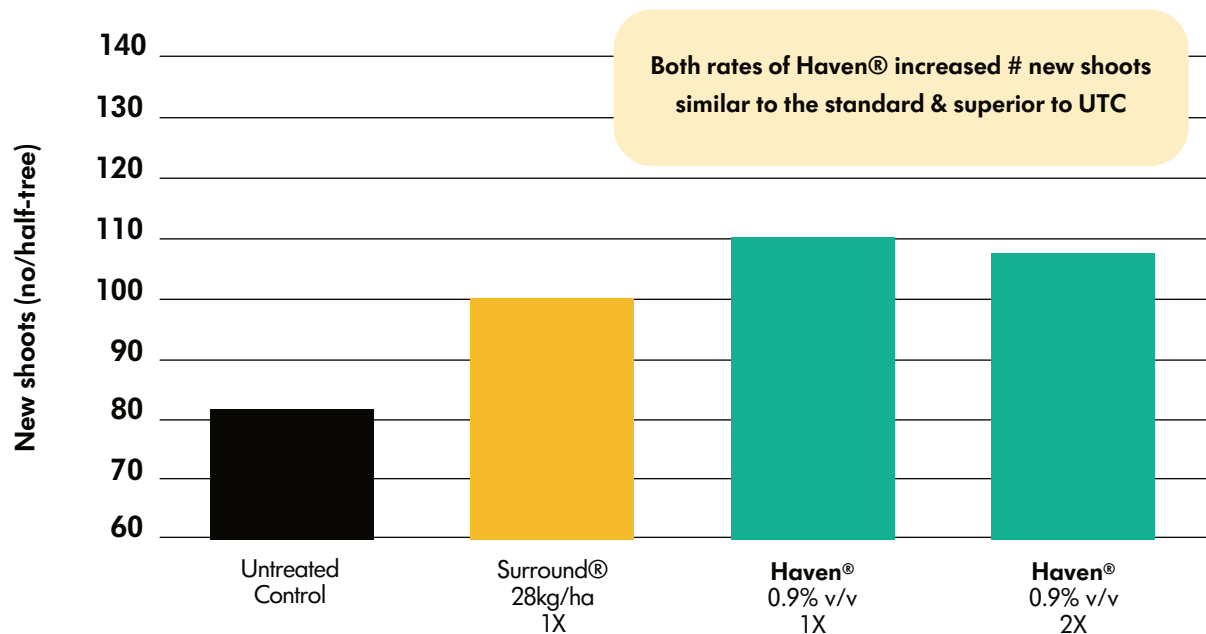
HAVEN®

SUN SCREEN ANTI-TRANSPIRANT STRESS ALLEVIATOR

Citrus plant health



Citrus plant health



Note: Trial results have been generated in the USA

GROSAFE CHEMICALS LTD
20 Jean Batten Drive, Mt Maunganui, 3116
PO Box 14 450, Tauranga 3143, New Zealand

ph: +64 7 572 2662
freephone: 0800 220002
email: info@grosafe.co.nz
www.grosafe.co.nz

