

# IMPROVE OLIVE YIELDS BY REDUCING SUNBURN AND HEAT STRESS

**Surround®**  
Agricultural Crop Protectant

## Protect Your Olive Crop From the Damage Caused by Sunburn and Heat Stress

Olive trees are well adapted to hot, dry conditions. However, too much heat can result in lower yields. Leaves wilt and photosynthesis is reduced as the olive tree shuts down critical functions in response to heat stress. Extreme heat during critical growing periods can lead to excessive fruit drop, shriveling and reduced fruit size and numbers. When applied to olive trees before and during periods of high temperatures, Surround® Agricultural Crop Protectant reduces heat stress by reflecting away infrared (IR) rays, thus maintaining the trees at a cooler temperature which has the added benefit of increasing photosynthesis thereby increasing productivity.

### The Technology Behind SURROUND Agricultural Crop Protectant

SURROUND is made from a highly refined kaolin clay. When applied to olive trees, SURROUND forms a reflective film that protects the tree from the harmful effects of heat and intense solar radiation. The SURROUND particle film positively modifies a plant's microclimate, significantly improving crop quality and yield potential.

### Heat Stress Relief = Fruit Drop Reduction

Heat stress in olives manifests as low leaf turgor (leaf wilt) — a sign that the plant's cells are not growing or functioning at optimal levels. Low leaf turgor is an indication of likely reduced photosynthesis. Starved for nutrients, fruits do not reach their full potential. In extreme cases, they will drop from the tree.

### Increased Vigor = Improved Quality

Managing heat increases the overall vigor of the plant. Vigorously growing trees produce bigger, heavier olives with greater average lengths and diameters, resulting in better yields of high-quality olives.



The increase in leaf turgor between the leaf from a Surround-treated tree (right) and the leaf from an untreated tree (left).



SURROUND has been demonstrated not to affect the quality of table olives or olive oil.



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## Recommendations for Olives

| Problem                 | Pounds/Acre | Application Instruction   |
|-------------------------|-------------|---|
| Sunburn and heat stress | 25-50       | Apply to sunburn-prone trees before conditions leading to sunburn occur. If initiating sprays for sunburn suppression, where there have been no prior sprays, provide thorough coverage of all fruit or other plant surfaces prior to sunburn-causing conditions with one to two full-rate applications 7 days apart. Depending upon the length of the high heat period, three to four applications in total often are needed with subsequent applications every 7-21 days. Good coverage on small trees is best achieved with the initial one to two sprays, at 50 lbs in 100 to 200 gallons per acre to achieve near-drip coverage on the fruit or other plant surfaces. Make subsequent applications at half to full rates to maintain coverage throughout the high heat period. |

### Application Tips

- Apply SURROUND to near-drip. Avoid foliage run-off.
- Change travel direction on alternate applications to achieve best coverage.
- SURROUND can be tank mixed with most pesticides. When tank-mixing, always add SURROUND to the tank first. A pre-mix tank is suggested for sprayers without mechanical agitation.

### Aerial Application

- Use 25-35 lbs of SURROUND in 25-35 gallons of water per acre.
- SURROUND may be applied using standard aerial application nozzles.
- Make applications not more than 10 feet above the top of the largest tree unless a greater height is required for aircraft safety.
- When spraying at low relative humidity, increase droplet size to compensate for evaporation.

### Post-Harvest

Traces of SURROUND may remain on treated olives after harvest, and have been demonstrated not to affect the quality of table olives or olive oil.



Olive trees treated with SURROUND have produced bigger olives (top left) than olives harvested from untreated trees (bottom right).

**Important: Always read the label before buying and follow label instructions when using this product.**

The use of Surround® in agricultural crop protection may be covered by patents held by Tessenderlo Kerley, Inc. For more information, visit [novasource.com](http://novasource.com).

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