

# Surround<sup>®</sup>

Agricultural Crop Protectant



## First-Year UC Study Investigates Surround<sup>®</sup> Crop Protectant Benefits in Pistachios

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A multi-faceted, multi-year study of the use of Surround Crop protectant on almonds in Madera County has led researchers to delve deeper into the potential benefits Surround may offer in the area of overall plant health and suppressing insect activity in pistachios.

### Background and Study Design

This study was undertaken to examine if Surround could reduce heat stress in pistachio. The effect of Surround sprays on tree water potential (mid day leaf stem water potential), and yield were also studied. As a function of yield, the question of whether Surround could reduce early splits, non-splits, insect damage and payable yield was also examined.

A bearing pistachio orchard in eastern Madera County was used. Five replications of five trees per plot were sprayed with three applications (June, July, August) of Surround at 25 lbs/100 gallons water and compared to control trees that did not receive Surround. Leaf stem water potentials were taken at several intervals throughout the season and yields were examined at harvest. Subsamples were obtained from each replication for grade out analysis.

### Results:

- In 2008, the Surround-treated Pistachio trees had numerically greater yield compared to the non-treated trees.
- The Surround-treated trees had significantly less insect damage when compared to the non-treated control trees.
- Water stress evaluations were made using mid-day leaf stem water potential (SWP) measurement performed several times in July and August. The Surround-treated trees usually had less stress when compared to the non-treated control trees, but on only one occasion did the Surround-treated trees have significantly less stress than the non-treated control trees.
- The pistachio results are from the first year of a two year study. In a similar multi-year study with almonds, no significant differences in yield were observed in the first year of Surround applications, however, significant yield increases were observed in subsequent years.
- Surround adheres more efficiently to the pistachio leaf when compared to almond and it is possible fewer than three sprays may achieve adequate coverage on pistachio.

For a copy of this report and specific nut product information sheets, e-mail us at [info-novasource@tkinet.com](mailto:info-novasource@tkinet.com).

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## RECOMMENDATIONS FOR NUT CROPS

**Volume:** Apply to near-drip, not to excessive run-off. For 20-foot trees, it is best to use 200 gallons per acre. Large trees like walnut and pecan can require up to 300 gallons per acre.

**Concentration:** Use 25 to 50 lbs Surround WP per 100 gallons of water.

**For Tree Nuts,** such as almond, beech nut, Brazil nut, butternut, chestnut, cashew, filbert, hickory nut, macadamia nut, pecan, walnut and pistachio.

Problem	Lbs/Acre	Application Instruction
Sunburn and heat stress	50-75	Apply to sunburn-prone trees before conditions leading to sunburn occur. Provide thorough coverage 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. Good coverage on small to medium size trees is best achieved at rates of 75 lbs in 100 to 200 gallons per acre to achieve near-drip coverage. Make subsequent applications at half to full rates to maintain even coverage throughout the high heat period.

### Application Tips

- Avoid foliage run-off. Apply the spray volume that will achieve near-drip.
- Best results usually achieved at 50 lbs per 100 gallons.
- Surfactants may improve spreading.
- Consult the specimen label for instructions on aerial application.
- See Surround spray guide for more information on effective application techniques.

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

The use of Surround® WP in agricultural crop protection applications is covered by US Patents 6,027,740; 6,069,112; 6,110,867, 6,156,327, 6,464,995 and 6,877,275.

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