

# Surround®

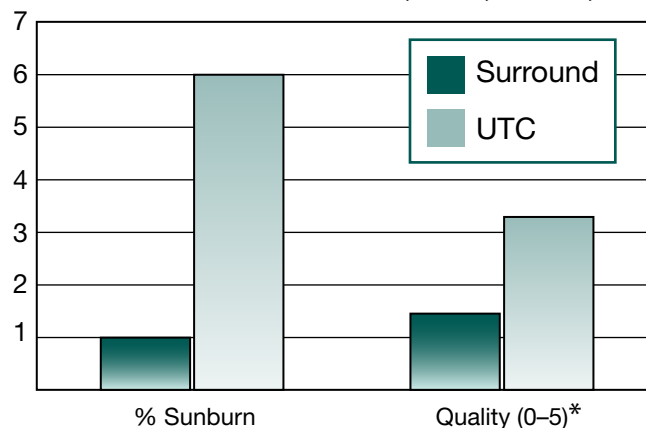
Crop Protectant

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

Surround is a well-known tool for reducing sunburn damage in walnuts. It also can significantly reduce heat stress which can inflict financial losses that frequently go unseen by growers. Surround is specially formulated to reflect harmful infrared and ultraviolet radiation away from plant surfaces while allowing the penetration of beneficial Photosynthetically Active Radiation (PAR). Surround-treated trees are typically several degrees cooler than untreated trees, and a cooler tree leads to: 1) reduced heat stress, 2) increased photosynthesis and improved plant vigor, and 3) potentially higher yields. And, Surround does not block leaf stomata so gases (O<sub>2</sub> and CO<sub>2</sub>) and water vapor continue to move in and out of the plant, maintaining the plant's natural photosynthetic and cooling processes.

Surround reduced sunburn damage 83% and significantly increased walnut kernel quality.

**Surround Effects on Sunburned Walnuts and Quality in 'Payne' Walnuts**  
D Hicks, D Hulst; California, 2004



**Application Timing:** June 15, 29;  
July 13, 27  
**Rate:** 35 lb/A in 100 gpa by handgun

\*Quality evaluated on 0-5 scale:  
0= white kernel, high quality  
5= black/shriveled kernel, poor quality



A protective film of Surround reduces the temperature of sun-exposed walnuts.

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Customer Service:  
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## RECOMMENDATIONS FOR WALNUTS

**Volume:** For 20-foot trees use 200 gallons per acre. Large trees require up to 300 gallons per acre.

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

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

- 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.

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 and 6,156,327.

#### CONDITIONS OF SALE – LIMITED WARRANTY AND LIMITATIONS OF LIABILITY AND REMEDIES

Failure to strictly follow label directions may cause injury to crops, animals, man or the environment. Tessenderlo Kerley, Inc. (TKI) warrants that the product conforms to the chemical description on the label and is reasonably fit for the purpose referred to in the directions for use when properly applied in normal weather conditions. TKI makes no other warranty or representation of any kind, express or implied, concerning the product, including no implied warranty of merchantability or fitness for any particular purpose. The exclusive remedy against TKI for any cause of action relating to the handling or use of the product is a claim for actual out-of-pocket damages, and in no event shall TKI be liable for special, indirect, incidental or consequential damages or expense of any nature, including, but not limited to, loss of profits or income, whether or not based on the negligence of TKI, breach of warranty, strict liability in tort, or any other cause of action. TKI and the seller offer the product, and the buyer and users accept it, subject to the foregoing conditions of sale and limitations of warranty, liability and remedies.

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