



**ENGELHARD**

# Surround®

Crop protectant

## Plant Surface Protection to reduce post-harvest heat stress in sweet cherries

Research shows that heat stress on cherry trees during the post-harvest period of mid to late summer can cause lower yields the following season. Engelhard Surround® crop protectant is proven to keep plant surfaces cooler. Cooler plants are less susceptible to heat stress damage and therefore can have better plant vigor and be less likely to develop abnormalities the next year.

## Surround represents a breakthrough opportunity for Plant Surface Protection

Applied before heat events in the post-harvest period, and maintained throughout the hot season as part of a planned protection program, Surround covers plant surfaces with a protective film—a layer of specially engineered kaolin particles that reflect harmful infrared and ultraviolet radiation. Surround reflects the sun's heat without inhibiting photosynthesis or transpiration.

## Heat stress and abnormalities in sweet cherries

University of California (UC) studies show that post-harvest heat stress can affect the quality of the following year's cherry crop.<sup>1</sup> Cooling the tree from mid-May through September can reduce the incidence of deep suture, spurs and doubles. When average daily air temperatures exceed 77°F (typically, this means daily highs in the 90's), abnormalities occur in bud wood development. Long exposures to high temperatures directly increase the incidence of spurs and doubles.

## Proven to keep plants as much as 10°F cooler

Since 2000, post-harvest applications of Surround WP by growers in the United States and elsewhere have delivered heat-reducing plant surface protection. In local and international trials in a variety of tree fruit orchards, consistent coverage with the Surround protective particle film has proven to reduce leaf temperatures by as much as 10°F, resulting in increased net photosynthesis and plant vigor.



*Surround® can keep leaves as much as 10°F cooler.*

### Another benefit – reduced scaffold sunburn

Heat on bark surfaces is the major cause of scaffold sunburn. Surround applications that keep the leaves cooler also offer long-lasting protection of exposed cherry bark. Seasonal applications of Surround help to reduce IR absorption by dark cherry bark. Bark sunburn is known to increase the incidence of secondary pests like the Pacific flatheaded borer in cherry trees.



*When applied to cherry trees, Surround® creates a white particle film on bark that provides long-lasting protection from scaffold sunburn.*

### Sophisticated science

The advanced particle film technology behind Surround crop protectant was co-developed by the U.S. Department of Agriculture and Engelhard Corporation, the world leader in surface and materials science. Based on kaolin—a naturally occurring, inert white mineral used in food and toothpaste—Surround particles are engineered to reflect the sun's heat and radiation. The convenient WP formulation provides:

- Easy mixability in water
- Good coverage capacity
- Tank-mixability with other inputs

### Strategic application timing = effective protection

For best results, follow all label directions. To cool canopy temperatures, keep foliage covered, building multiple layers. A visual inspection of film deposition and coverage is essential to fine-tune spray coverage.

Make the initial application within 2 weeks after harvest. Where summer pruning is practiced, apply immediately following pruning, ahead of a damaging heat event.

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### Recommended application rates

- Apply Surround WP at 25 lbs. to 50 lbs. per acre in sufficient water for complete coverage. (50 lbs./acre is recommended for mature trees.)
- Make first application with a spreader for improved coverage.
- Subsequent applications may be necessary for thorough coverage.
- Reapply as needed to maintain protective coating during periods of highest forecast temperatures. (25 lbs./acre may be adequate after initial application.)

Surround WP can be tank-mixed with insecticide and nutrient sprays.

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

<sup>1</sup> University of California, Division of Agriculture and Natural Resources; "Cherry Crinkle-Leaf and Deep Suture Disorders;" 1999 publication 8007.

### From the world leader in surface and materials science

Surround is made by Engelhard Corporation, the Fortune 500 leader in surface and materials science. Together with our customers, we affect the world by cleaning the air we breathe, producing the fuels that power our cars and heat our homes, and bringing vibrant colors to life.

No wonder companies turn to Engelhard to change the nature of their products. They get results that change their markets and our world.

**ENGELHARD**

Change the nature of things.

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EC-8385 4/05