

## **TREE FRUIT: POME FRUITS: PEAR AND APPLE - [CODLING MOTH (1ST GENERATION ONLY), ETC.]**

### General Information

#### GENERAL INFORMATION

Surround WP crop protectant forms a barrier film, which acts as a broad spectrum agricultural crop protectant for controlling damage from various insect and disease pests, a growth enhancer, and as a protectant against sunburn and heat stress.

Surround WP crop protectant forms a mineral-based particle film intended for protection of agricultural crops, plants in nurseries, and greenhouses. When Surround WP is applied to plants, a dry white film results. Many pests are listed as suppressed, which means that full control often is not achieved, and supplemental methods often are needed to enhance the level of control. Thorough, uniform, and consistent coverage is essential throughout the infestation or stress period.

Pre-harvest intervals (PHI): Surround WP may be applied up to the day of harvest.

For fresh market crops that will not be washed or for field packed crops where a residual white film is not desired, make applications early-season only. White residue at harvest may be minimized if applications to smooth skin crops like apples stop when the fruit is approximately 1/4 of its expected size.

Plant Response Precautions: Surround WP keeps plant surfaces cooler and an advance or delay in maturity may result. Pome and stone fruit may have maturity delays of 3 to 7 days, especially in cool regions.

DO NOT apply Surround WP crop protectant through any type of irrigation system.

Surround WP is not generally affected by most other insecticides, miticides, and fungicides. However, to ensure compatibility, test tank mixes before use. When mixing with other products, make up a small batch and observe slurry and film characteristics. Curdling, precipitation, spray beading and/or excessive run-off leading to lack of film formation, or changes in viscosity are signs of incompatibility. Add tank mix pesticides after the Surround WP powder has been added. Use of anti-foaming agents can interfere with proper coverage. Oil tank mixes can temporarily

reduce the whiteness of the film. Use adequate water on oversprays of products that require absorption into the plant to ensure wetting of the Surround WP film.

Tank mixing with other white mineral particulate products such as diatomaceous earth, or other sunburn materials, such as those containing wax, latex or polymer based materials, can lead to postharvest washoff problems. Applications of Surround WP over such products or oversprays of such products over Surround WP can also impair post harvest wash off.

Concentration (the amount of Surround WP per 100 gallons of water): The best concentration of Surround WP is between 25 to 50 lbs Surround WP per 100 gallons, but concentrations of up to 100 lbs per 100 gallons are allowed for specific crop uses.

## GENERAL INFORMATION

Rates: Rate is dependent on the amount of foliage that needs to be covered.

Coverage: Use sufficient spray volume to obtain thorough near-drip coverage. Two or more applications are desirable for complete coverage. For optimal performance as an insecticide, applications must coat all portions of plant that are to be protected, including both sides of the leaves. Apply an additional spray if coverage is insufficient. Spreading on waxy plant surfaces is usually better when the plant surface is warm.

Dwarf, semi-dwarf, and otherwise well-pruned trees will be easier to cover than large trees. Optimum efficacy often is more difficult to achieve in large trees due to increased difficulty achieving thorough coverage.

Applications to tree crops can be made with commercial air blast or high-pressure sprayers that provide enough air turbulence to coat both sides of the leaves, bark, and fruit. The best coverage is achieved at a tractor speed of less than 3 mph when using airblast sprayers. Plant Color Change: Plant surfaces will typically turn a hazy white color after drying. Additional treatments will turn the plant surfaces a deeper white. This is normal, and indicates appropriate film formation.

Foliage Dryness: Applications to dripping wet foliage can provide inadequate coverage.

Under Hot, Dry Conditions: Best results are obtained with nozzles that produce a

fine spray when using Surround WP crop protectant under normal temperature and humidity conditions. Under very hot and dry conditions, increase volume of water and droplet size to improve deposition.

**Spray Methods:** Air blast, high-pressure handgun, or boom sprayers provide the best results. DO NOT apply by chemigation. Observe specific crop label instructions for directions regarding spray volume. Do not spray under windy or gusty conditions. Calibrate spray equipment per equipment manufacturer to deliver the required volume. At given concentrations, the flow rate of suspended Surround WP is similar to water. Strainers, preferably no finer than 40 mesh, in the spray system and behind each nozzle per normal practice help to reduce nozzle clogging.

When the dry foliage has lost its white appearance or when gently rubbing the treated area with a dark piece of cloth does not leave a white residue on the cloth, reapplication is necessary. Heavy rainfall, new growth, and wind erosion will affect film quality. Reapply to re-establish coverage after heavy rain as soon as the foliage is dry. However, reapplication often is not necessary if all target surfaces remain thoroughly coated and insect pressure is light. Excessively thick coatings can provide poor performance.

**Overhead Irrigation and Overhead Cooling:** Overhead irrigation is not preferred. DO NOT use with overhead cooling.

**Aerial Application:** Surround WP applied by air will reduce heat stress and sunburn damage if sufficient coverage can be achieved and maintained. Aerial applications often are not effective for controlling insects or diseases.

It is best when using aerial applications to take all precautions needed to minimize or eliminate drift, e.g., DO NOT spray under windy or gusty conditions. It is best to make applications not more than ten feet above the top of the largest plant unless a greater height is required for aircraft safety. It is best when making applications at low relative humidity to increase droplet size to compensate for evaporation.

**Non-Target Surfaces:** DO NOT spray where the resulting visible white film will be undesirable or cannot be washed off, such as porous wood, masonry, asphalt, and other valuable goods.

**Growth Enhancer, Sunburn and Heat Stress Protectant**

When applied at given rates and frequencies, benefits such as increased plant vigor and

improved yields typically occur on many crops. Under high ambient temperatures,

Surround WP reduces canopy temperature and, therefore, can help to reduce heat and

water stress. When Surround WP is used, many fruits have shown improved fruit color,

soluble solids, smoothness, and size with less russet, dropping, sunburn, and cracking.

**Sunburn Suppression:** Apply to sunburn-prone fruit, leaf, or limb and trunk bark surfaces 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 to 21 days. Good coverage on typical semi-dwarf 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. However, if allowed (see specific crop group directions), up to 100 lbs/100 gallons are allowed when spray frequencies need to be reduced. Make subsequent applications at half to full rates if even coverage is maintained throughout the high heat period. Under windy conditions, Surround WP can be rubbed off by leaf movement making reapplication necessary.

**Aerial Application:** Aerial applications for sunburn and heat stress reduction are best made at concentrations of no more than 1 lb of Surround WP per 1 gallon of water. Use no less than 10 gallons per acre, but on trees 20 or more gallons per acre are preferred. Repeat applications 3 to 4 times per above intervals or as necessary to establish and maintain even coverage on fruit surfaces throughout the high heat period.

**Packing and Processing:**

Washing is required unless only early season applications are made and the film

weathers off before harvest. Most residues wash off with packing line brushing and forced water sprays. An approved washing detergent is typically helpful if used in the packing line and/or wash tank. Perform a pre-harvest washing trial to determine if a washing detergent is necessary. Waxing further improves fruit appearance.

For fresh market apples that will not be waxed, such as apples for organic markets or specific export markets that DO NOT accept waxed apples or for washed crops where traces of white residue are not acceptable: Unless washing facilities are adequate, cease applications enough in advance of harvest to allow residue to weather off completely. For 'Red Delicious' and 'Braeburn' apple varieties DO NOT apply any later than two months prior to harvest.

### Limitations, Restrictions, and Exceptions

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Volume: Apply to near-drip. DO NOT apply to run-off to avoid waste and poor coverage. For typical semi-dwarf trees in full foliage, it is recommended to use 100 to 200 gallons per acre. Adjust volume per Tree Row Volume to achieve near-drip for larger or smaller trees.

- Suppression only. Apply at biofix or first detection. Continue applications every 7 days to keep fruit completely covered during egg lay period.

### Note:

- If complete control is needed, consider using supplemental controls.

### Horticultural Benefits

- Surround WP often enhances fruit quality if applications start at petal fall and are continued until mid to late season. Applications at petal fall can sometimes disrupt leaf miner parasitism, requiring control measures. Many pear cultivars, particularly Comice and Anjou varieties, have shown improved fruit color, smoothness, and size with less russet when Surround WP is used. Some apple cultivars have shown less bitter pit and corking in season-long programs.

### Diseases

- Surround WP sometimes can enhance the efficacy of wettable sulfur and/or lime-sulfur against scab, powdery mildew, sooty blotch, and flyspeck.

Non-waxed Fresh Apples and Pears (also, "Packing and Processing section")

- For fresh market apples and pears that will not be waxed, such as fruit for organic markets or specific export markets that DO NOT accept waxed fruit: It is best that Surround WP not be applied any later than two months prior to harvest as slight traces of white sometimes can still be visible after washing. This especially applies to 'Red Delicious' and 'Braeburn' cultivars.

Method

[Spray](#)

Rates

[field\\_rates 0](#)

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Restricted Entry Interval

4 hours

Timings

[At biofix](#)

[First detection](#)