



A New Product for Organic Apple Growers **‘Surround WP’ (made from kaolin clay)**

Surround WP is a relatively new product currently available to organic and conventional apple growers. Kaolin clay is an edible mineral that has long been used in toothpaste and as an anti-caking agent in processed foods. It has recently been introduced to agriculture as a crop protectant with promising results. In Canada, Surround WP has recently been registered for use on various pome fruits to reduce damage from a variety of pests including pear psylla, tarnished plant bug, leafrollers, leafhoppers, apple maggot, plum curculio and first generation codling moth. Additional studies are being conducted to determine Surround WP’s efficacy on other pests including blueberry maggot, cranberry fruit worm and cucumber beetles. The product has received good reviews from commercial apple growers for its ability to reduce sunscald on “fair skinned” cultivars.

Conventional spraying equipment with good mixing capacity can be used to apply the wettable powder. This treatment leaves a powdery film on the plant and fruit after the water evaporates. It is important to get full coverage on the plant to ensure that Surround WP’s protective properties are fully utilized

Surround WP’s highly reflective white coating is reported to achieve a crop protection effect by reducing egg laying and insect feeding damage. This protection may be accomplished in several different ways. The powdery film formed on the plants may prevent insects from identifying a host crop and consequently the insect does not land, feed and lay eggs. Another possibility is that the coating causes insects to deem the fruits or leaves unsuitable. If the insect does recognize the crop and lands on it, clay particles from the coating may stick to the insects causing them to become agitated, and stimulating them to move on to other more attractive plants.

Surround WP is a finely processed form of kaolin clay with particles that are smaller than the generic, or bulk kaolin clay. Unrefined bulk kaolin clay may be harmful when applied to leaves since the undesirable coating it forms interferes with the plant’s ability to absorb light for photosynthesis. The particles in Surround WP, however, are small enough to allow the wavelengths of light required for photosynthesis to pass through the film, while blocking out or reflecting some of the harmful infrared and ultraviolet radiation. This film can provide additional protection to the fruit from sunburn, and also helps to keep the plant cooler on very hot days. Other reported benefits include: reduced fruit drop and improved colour for some varieties. There appear to be no mammalian toxicity or environmental danger when Surround WP is properly used.

In dry climatic conditions, Surround WP may be quite persistent on the crop. In our Maritime growing conditions, however, growers will need to reapply the product every 7-14 days, or sooner if a heavy rainfall occurs. Subsequent applications are also required to add

coverage for new growth and compensate for wind erosion. Timing of the initial application often depends upon the pest to be controlled.

Manufacturer indicates that when tank mixing Surround WP with sulfur products, wettable sulphur products are to be chosen. Do not tank mix plain elemental sulphur with Surround WP. Check the label before tank mixing.

Under the guidance of Dr. Rob Smith, entomology research scientist, large scale orchard trials have been conducted for 3 years at the Agriculture and Agri-Food Canada, Atlantic Food & Horticulture Research Centre, Kentville, N.S. Crop protection using 3-4 sprays of 25 kg/ha of Surround WP have proven as effective as organophosphate treatments in keeping apples free of apple maggot

For typical semi-dwarf trees in full foliage, a spray volume of 1000-2000 litres per hectare is recommended. Use sufficient spray volume to obtain thorough near-drip coverage. Surround WP crop protectant is to be used in concentration of 20-50 kg per 1000 litre of water. To ensure optimal crop coverage early in the season, higher product applications rates are recommended (37.5 to 50 kg/ha). Always check label before use.

Since consumers generally look for the perfect fruit, it should be noted that the kaolin clay powdery film left on the fruit at harvest time may create a marketing problem. Fruit growers may consider washing or brushing off the residue prior to selling their produce.

Surround WP, crop protectant, is listed by the Organic Materials Review Institute (OMRI).

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