

Surround[®]

Agricultural Crop Protectant

Suppressing Asian Citrus Psyllid in California Citrus

Developed in conjunction with the United States Department of Agriculture (USDA), Surround[®] Crop Protectant is an EPA-registered insecticide specially formulated with calcined kaolin to suppress insect activity.

SURROUND covers plants with a protective film, which also provides protection from sunburn and heat stress.

In California, SURROUND has been found to be effective in suppressing populations of Asian Citrus Psyllid (*Diaphorina citri kuwayama*, or ACP). This pest is the vector of Huanglongbing (HLB), or citrus greening disease.

How Does SURROUND Work to Suppress ACP in Citrus?

Previous scientific research¹ has shown SURROUND has a variety of mechanisms of action against a variety of insect pests. These include:

1. Repellency
2. Oviposition Deterrent
3. Feeding Inhibitor
4. Acute Mortality
5. Chronic Mortality
6. Impedes Grasping / Insects Fall Off
7. Restricts Movement or Infestation Process
8. Paralysis or Altered Behavior
9. Host Camouflaging

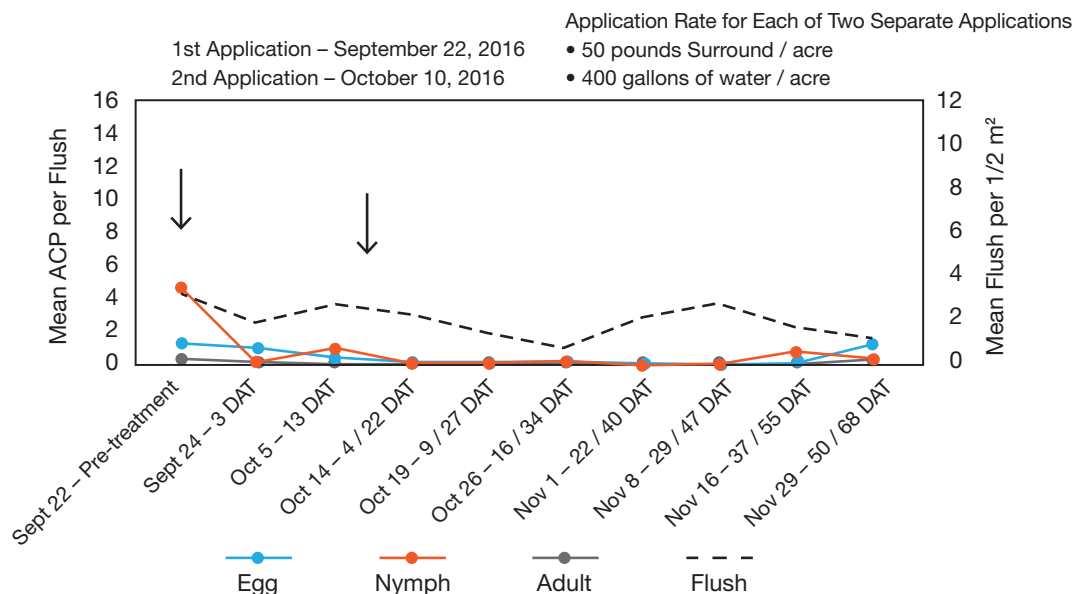
When sprayed with SURROUND, citrus trees are not acceptable hosts to ACP. This aversion to treated trees is a combination of camouflage and repellency. Research from the University of Florida² has shown SURROUND-treated leaf surfaces inhibit the ability of ACP to grasp and maneuver in order to feed. The inability of ACP to feed on SURROUND-treated leaves helps to prevent the transmission of HLB.

Recent Field Studies conducted by the University of California indicated SURROUND can suppress ACP in California citrus.

“A grower in San Diego County treated 11 orchards with different insecticides. The adults and the nymphs were sampled using tap samples and by collecting flushes. Experiments were designed to compare air versus ground double applications of Entrust[®] and single application of Actara[®] and Delegate[®]. The impact of single ground applications of Leverage[®], Exirel[®], Agri-Flex[®] and double applications of Surround[®] on ACP populations were also tested.”³

“In these limited, preliminary observations, both air and ground application of ACTARA and single ground applications of LEVERAGE or EXIREL and double applications of SURROUND significantly reduced ACP densities for 6-7 weeks. DELEGATE, ENTRUST and AGRI-FLEX were not as successful in lowering fall ACP populations in these sites.”³

Pauma Valley, California • Surround Ground Application Test Fall 2016



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Surround Applications for Citrus

SURROUND works best when used in a preventative program, applied to the tree before the pest appears or at low ACP populations. Maintain coverage in subsequent cover sprays paying particular attention to coverage of new growth. Lower rates in subsequent cover sprays may provide adequate coverage and protection.

- SURROUND is certified by OMRI and is a useful tool for Organic programs.
- Proper insecticide rotation is vital to achieve season-long control of ACP.
- SURROUND may suppress beneficial insect activity. Closely monitor and employ a typical control program for scale and mite.

SURROUND EPA LABEL RECOMMENDATION FOR CITRUS PSYLLID

Problem	Pounds/Acre	Application Instruction
Citrus Psyllid	50-75**	Suppression only* Apply every 7-14 days as infestation occurs.

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

**50 pounds per 200 gallons per acre preferred for 12-foot trees.

Tips for Improving Deposition

- Use the amount of water volume per acre to achieve near runoff coverage. Too much spray volume causes excessive run off. Too little spray volume will not allow sufficient spreading and speckling will result. Water volumes of 100-200 gallons per acre are typically adequate for citrus tree coverage.
- Apply at ground speeds around two miles per hour or slower
- Use of a spreader/sticker may help SURROUND spread more evenly.
- After drying, the foliage and fruit should have a uniform chalky white appearance. First coats may appear to be splotchy, but subsequent sprays will fill in the coverage. Often it takes two thorough sprays to establish a full coating.
- SURROUND can be tank mixed with most pesticides. When tank mixing, always add SURROUND to the tank first.
- Aerial application of SURROUND is not recommended for insect suppression, as adequate coverage of large trees is difficult to achieve.

FOOTNOTES

1. Glenn M. and Puterka GJ. (2005). Particle films: A new technology for Agriculture. Horticultural Reviews, vol. 31, pg. 1-42.
2. For more information on University of Florida research visit novasource.com
3. By permission Nastaran Tofangsazi, ACP Research Progress Report Personal Communication 2017
4. For more information on washing SURROUND off of fruit, consult the Surround Wash Guide at novasource.com.

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

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