



CALIFORNIA DEPARTMENT OF  
FOOD & AGRICULTURE

Karen Ross, Secretary

DATE: October 10, 2018  
TO: All County Agricultural Commissioners  
FROM: Plant Health and Pest Prevention Services  
SUBJECT: **PEST EXCLUSION ADVISORY NO. 34-2018**  
Citrus Post-Harvest Treatment Option for Growers

This is a follow-up to Pest Exclusion Advisory No. 02-2018 regarding New Citrus Post-Harvest Treatment Option for Growers. The standard operating procedures for the post-harvest treatment process have been revised and vetted by the Department of Pesticide Regulation and are attached to this advisory. Once implemented, this post-harvest treatment process will be a third option, in addition to the field cleaning and “spray and harvest” options, for growers to conduct within the Asian citrus psyllid bulk citrus regional quarantine zone of origin prior to shipping citrus fruit to another regional quarantine zone for packing or processing.

A conference call with the counties will be held on Monday, October 15, 2018 to further discuss this post-harvest treatment option and the process for facilities to become approved to apply this treatment. If county pesticide use enforcement deputies are available, their expertise and input is welcome on this call.

Date: **Monday, October 15, 2018**

Time: **2:00 p.m.**

Phone Number: (877) 601-5411

Participant Code: 27247835

For questions regarding this advisory, please contact Keith Okasaki at [keith.okasaki@cdfa.ca.gov](mailto:keith.okasaki@cdfa.ca.gov) or (916) 654-0312.



# **Post-harvest direct spray to oranges and mandarins in baskets/bins on trucks for control of Asian citrus psyllid**

## *Advisory - Standard Operating Procedure*

### **Post-Harvest Use**

Applications shall be completed prior to leaving the ACP regional quarantine zone of origin.

For each 48-bin trailer load of oranges or mandarins to be treated, prepare aqueous spray solution comprised of 1.9 pints of pesticide containing 6.0% Pyrethrin, Piperonyl Butoxide 60.0% and a polysiloxane surfactant in 288 gallons of water. (*See Material Requirements, below*). Thoroughly mix the emulsion in the spray tank and treat, using sprayers at a high-pressure. Direct spray for maximum coverage of the bins/baskets. It is important to spray between the containers.

- Prepare aqueous spray solution as described above ensuring sufficient mixing - mechanical mixer is recommended. ***Follow label directions for the 6.0% Pyrethrin, Piperonyl Butoxide 60.0% pesticide and polysiloxane surfactant.***
- Position 48-bin trailer load within the enclosure  $\leq 754 \text{ m}^3$  (26,600  $\text{ft}^3$ ), minimizing the distance between the load and any wall. Remove the tractor.
- If load is tarped (for transport per CDFA requirement), ensure the tarp has been removed from the trailer load, which allows for the spray to more efficiently contact and coat each fruit.
- Arrange the high-pressure spray fans alternately along the sides of the load (3 per side, left, right, left...), positioned ~ 3 to 4 feet from the side-edge of the trailer, with each directed toward the center of the lateral face of each of the six 8-bin cubes comprising the load.
- Ensure the legs of the top two bins and the lips of the bottom two bins (*i.e.*, innermost edges of the 4-bin lateral face of the 8-bin cube) are centered on the shaft of the fan. The fans must be elevated to accomplish this. (*See photo below*)
- Link hoses connecting the fans to the pump and reservoir.
- Turn on the fans, and then the pump. Confirm function.
- Visually inspect spray streams to ensure proper positioning of the fans, as well as proper operation of the spray nozzles.
- ALL APPLICATORS MUST EXIT THE ENCLOSURE. Seal the enclosure.
- Dispense required 290 gallons of spray solution per 48-bin trailer load. Turn off pump.
- Retrieve trailer load, applying a tarp if necessary.

## **Personal Protective Equipment**

Follow label directions for the 6.0% Pyrethrin, Piperonyl Butoxide 60.0% pesticide and polysiloxane surfactant.

## **Material Requirements per 48-bin trailer load**

### ***Enclosed space:***

- $\leq 754 \text{ m}^3$  (26,600  $\text{ft}^3$ ) of space per 48-bin trailer load.
  - o  $510 \text{ m}^3$  (18,000  $\text{ft}^3$ ) recommended (20w x 60l x 15 h)

### ***Chemicals (Do NOT exceed expiration date):***

- 1,100 L (288 gal) deionized/softened water
- 6.0% Pyrethrin, Piperonyl Butoxide 60.0% pesticide at the rate of 1 part with 1,200 parts water (1 pint per 150 gallons or 1 teaspoon per 12.5 pints water).
- Polysiloxane surfactant in spray solution at recommended rate (*i.e.*, 2 quarts per 100 gallons).

### ***Hardware:***

- The high-pressure spray system directly on fruits in bins on the back of trucks in the field
  - o Reservoir ( $\geq 300$  gallon capacity)
  - o Pump (electric- or gas-powered) with **minimum capability of discharging 180 gallon per hour at 1,000 psi.**
  - o Minimum of 6 industrial-scale air circulating fans:  $\geq 1$  horsepower,  $\geq 24$ "- diameter fan blade,  $\geq 8,000$  cfm airflow.
  - o Manifold to direct discharge through each of 12 hollow-cone spray nozzles at 15 gal per h per tip @ 1000 psi.
  - o A pair of spray nozzles mounted to each fan, each terminating  $\sim 6$ " from the leading edge and 3" from the outer-tip of the fan blades, on opposing sides of the fan, with sprays oriented inward at  $45^\circ$ .

### **Products used in the efficacy study:**

- Spray nozzle tips:  $\frac{1}{4}$ "-TN-3 (body inlet connection diameter – nozzle tip type - capacity size) (Spraying Systems Co., Wheaton, IL; 800-95-SPRAY).
- High-pressure spray system: Valley Packline Solutions (Reedley, CA; 559-638-7821)

- Tent: ShelterTech SP Series, ([HTTPS://WWW.FARMBUILDINGS.COM/SPSERIES-SHELTER](https://www.farmbuildings.com/spseries-shelter)), (Lakewood, WA; 1-800-423-1727).

***Compulsory testing (completed prior to treatment):***

- Fill the reservoir with ca. 300 gallons of water.
- Link hoses connecting the fans to the pump and reservoir.
- Turn on the fans, and then the pump. Confirm function.
- Visually inspect spray emitted from fans to ensure proper operation of spray nozzles.
- Calibrate the delivery of 290 gallons (per 48-bin trailer load). During spray application, note the reduction in volume of water through time. Every 15 min, the system described above should dispense 45 gallons (*i.e.*, 1.6 h required for total application).

**Systems can dispense the required 290 gallons at a greater rate, which serves to shorten treatment time.**

- Confirm that the enclosed space to be sprayed is free from cracks, crevices, openings, drafts, and structural gaps large enough to disrupt spray formation. Confirm ventilation system, if present, is properly sealed.

***Contacts:***

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*The arrow indicates the target for the high-pressure direct spray; center the shaft of the fan in-line with the legs of the top two bins and the lips of the bottom two bins (i.e., innermost edges of the 4-bin lateral face of the 8-bin cube).*