

Controlling Melon Aphid in Greenhouses

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Aphids are one of the insect pests frequently encountered in greenhouse crop production. Aphids damage plants by removing plant sap, excreting honeydew on the plant surfaces, transmitting disease organisms, and by reducing the aesthetic value of the plant. Although the most common aphid in the greenhouse is the green peach aphid, *Myzus persicae*, the melon aphid, *Aphis gossypii*, is also a frequent greenhouse problem as well as on various crops in the field.

The melon aphid can be very difficult to control, partly due to insecticide resistance, and its even distribution throughout the plant makes pesticide penetration to the lower portion of the canopy very important.

Horticultural oils and insecticidal soap are gaining wide acceptance in pest management programs due to their environmental and plant safety along with their effectiveness in controlling a wide range of pests. Using them in combination with traditional pesticides has shown increased activity and the potential for reducing the necessary concentration for effective control.

In a recent demonstration conducted in a woody propagation greenhouse on Long Island, several insecticides and combinations were evaluated for melon aphid control. Plots were 3 x 5 ft and replicated four times in a randomized complete block design. Two applications for each treatment were made nine days apart. Aphids were counted on 3 apical leaves of 10 plants per plot before the first application and again 2 days after both application dates. Treatments were applied using a CO₂ backpack sprayer with a #4 hollow cone nozzle. The first application took place on March 20 using a spray volume of 120 gal per acre and pressure of 45 psi. The second application took place on March 29 with a spray volume at 240 gal per acre and 60 psi. Treatments, rates, and results are presented in Table 1.

Table 1. Control at melon aphid in a commercial greenhouse, 1991

Treatment	Rate/ 100 gal	Aphids per 10 plants ¹		
		Pretreatment March 20	TRMT ¹ March 22	TRMT ² March 29
Orthene 75S	0.75 lb	39 a	31 ab	15 ab
Mavrik 2F	10 oz	45 a	34 ab	43 c
Safer Soap	2 gal	35 a	23 a	7 ab
Ultra fine oil	2 gal	52 a	44 bc	31 bc
Orthene 755 + Soap	0.75 lb 1 gal	49 a	17 a	0.5 a
Mavrik 3F + Soap	10 oz 1 gal	27 a	14 a	4.5 a
Check	unsprayed	40 a	56 c	73 d

¹Means within a column followed by the same letter not significantly different ($P=0.05$, Fisher protected LSD)

Pretreatment counts varied but were not significantly different. Control with the first application ranged from 0 to 62%. As with any pesticide application thorough coverage is essential and it was felt that the spray volume and pressure used in the first application was inadequate. When both pressure and spray volume were increased, control was improved considerably. A combination of Orthene plus soap gave the best control followed by Mavrik plus soap and soap alone. It should be noted that sampling for control took place on the tips of the plants. As previously noted melon aphid is distributed evenly throughout the plant canopy making penetration to the lower canopy necessary for efficient control. Results indicate two applications may be beneficial in obtaining satisfactory control.