

Detect and Treat Whiteflies Early

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Growers need to reduce whiteflies to a tolerable level on their poinsettias before bract coloration. In the last issue, I discussed the importance of detecting whiteflies **early** in the crop production cycle. Start with a clean greenhouse. When the cuttings first arrive, use a 10x-15x hand lens to look for the whitefly nymphs on the underside of the leaves. Separate cuttings or prefinished plants by source, to determine which supplier has the most whitefly-free cuttings.

After inspecting and planting the rooted cuttings, begin monitoring. It is easier to inspect small plants with few leaves for the whitefly nymphs and adults than larger plants with more leaves. The more open plant canopy of small plants also allows thorough spray coverage to the underside of the leaves.

Yellow sticky cards can be placed in the house shortly before the cuttings or prefinished plants arrive. Count and replace cards weekly. If possible, check cards twice a week. Look at trends in whitefly population levels to determine if treatment is needed. Sticky cards may help locate "hot spots." However, there may be adults on the sticky cards but few adults on the plants. This suggests that adults may have entered from outside or another source. Growers should try to locate the source of whitefly.

Cards may be placed either horizontally or vertically just above the crop canopy. If growers are using *Encarsia formosa* for biological control of the greenhouse whitefly, horizontal placement of the sticky cards will attract fewer parasites to the cards. Horizontal placement of the cards is also more effective in monitoring for fungus gnats. Place cards in nearby crops and outside the greenhouse. Pay atten-

tion to high numbers of thrips on cards. Thrips feeding may cause leaf deformations on poinsettia.

Foliar inspections will add to the information gained from the sticky card counts. If possible, inspect 10 to 20 plants per 1,000 square feet of growing area. Randomly walk through the crop to inspect plants. Pay particular attention to "hot spots" every week. Inspect plants in the middle of the bench where spray coverage may be less thorough. When finding whiteflies, mark the infested plants. Use these plants as "indicators" to track whitefly population development, so that treatments may be timed toward the most susceptible life stages. Counts should be taken before and after spraying to determine the effectiveness of the treatments.

Certain life stages of the whitefly are more susceptible to insecticides. Whitefly eggs are tolerant to most pesticides. Older crawlers and pupae are tolerant toward most of the currently registered materials.

Young crawlers and adults are the most vulnerable to insecticides. Timing sprays toward the more vulnerable young crawlers will be more effective. In one study, complete spray coverage killed 98% of the young first- and second-stage crawlers, but only 10 to 50% of the fourth-stage nymphs and pupae were killed. Sprays used to control adults may be more effective in the morning. Most of the adults have just emerged and haven't yet coated their bodies with wax.

The different whitefly lifestages can be found on different portions of a poinsettia plant. Eggs and adults tend to be found on the upper portion. Crawlers tend to be found in the middle canopy, and fourth instars tend to be found on the lower leaves. Most of the whiteflies will be found on the lowermost leaves when the plants are regularly sprayed. Growers may then be able to remove the lowermost leaves to help manage whitefly populations as the plant matures. If multiple lifestages of whiteflies are present, ie., adults laying eggs, or pupae and emerging adults, insecticide mixtures are most effective. Insecticide mixtures should be used with caution, as the risk of phytotoxicity is increased, compared to using an insecticide alone. When selecting insecticides, rotate among the different classes of materials to avoid the buildup of resistant populations.

Early detection and treatment will help in your battle against whiteflies.

NOTE: We are planning a series of twilight meetings on poinsettias on September 21 and September 28. Topics to be covered include detection and monitoring of key pests; plant nutrition and growth regulators; and spray application and technique. Meetings will be held at different locations. Details will follow.

References

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