



Using Sticky Cards to Monitor for Greenhouse Insects

Sticky cards are an important part of an Integrated Pest Management (IPM) program for greenhouse growers. They are a useful tool to alert you to the presence of certain insect pests.

Sticky cards will trap the adult stages of flying insects such as western flower thrips (WFT), whiteflies, fungus gnats, shore flies, leafminers and winged aphids. Spider mites, broad mites, mealybugs, scales, and wingless aphids do not fly so will not be caught on the sticky cards. In addition, immature stages of thrips and whiteflies are not caught on the cards. Sticky cards can often help you detect early pest infestations more effectively than will intensively plant sampling. By using sticky cards, you can keep track of insect population trends, and make more informed and timely pest management decisions. However, they are only part of an IPM program that includes visual monitoring and the use pest-infested indicator plants.



Figure 1: Use of sticky cards in a greenhouse. Photo by L. Pundt

Types of sticky cards

Most commonly, 3 x 5-inch sticky cards are used in the greenhouse. Some cards have a grid system that makes it easier to count the insects on the card. Larger sticky cards are also available and may be used in greenhouse tomatoes.

Yellow or blue colored sticky cards are commercially available. Blue cards may be more attractive to thrips (and even shore flies) and may be used to detect low thrips populations on especially susceptible crops.



Figure 2: Use blue sticky cards for thrips and yellow sticky cards for general pest monitoring. Photos by L. Pundt

Suggestions on Using Sticky Cards

- Use yellow sticky cards for general pest monitoring.
- Use at least 3 to 4 cards per 1000 sq. ft., or a minimum of one card per 1000 sq. ft. with additional cards placed near doors, vents, to detect migration of insect pests from outdoors.
- Place more cards near especially insect-prone plant species or cultivars.
- Use clothespins and stakes to attach sticky cards just above (4 to 6 inches) the crop canopy. As plants increase in height, move the sticky card upward on the stake.
- Monitor cards weekly to track trends in insect population development. With increasing temperatures and insect development, spot check cards twice a week. Inspections that are more frequent will allow quicker identification of localized infestations where spot treatments or releases of natural enemies may be beneficial.
- Change the cards weekly. Cards lose their effectiveness trapping insects as their surface becomes coated with debris. You may be able to change their cards less frequently in the winter months because of slower insect development and activity.
- There are many different insects in the world. Besides pest and beneficial insect species, you may see innocuous insects, too. If you see large numbers of insects you cannot identify, especially for longer periods, consult an Extension entomologist for help in identification.
- Storing the sticky cards in the refrigerator helps makes the cards and tape less sticky and easier to use.

Use of sticky cards with biological control agents

As more growers are using biological control programs, the use of sticky cards needs to be fine-tuned. If you are releasing biological control agents with a winged stage, reduce the number of sticky cards used. Adult parasitic wasps will be caught on the traps!

You will also want to schedule your weekly counts so that the cards are not up the evening that you are releasing the winged natural enemies. Wait one or two days before replacing the cards. Talk to your biological control supplier about the number of cards to use in your situation to gather the data needed on both pest and beneficial insect activity.

If you are using bumblebees for pollination in greenhouse tomato crops, reduce or eliminate the use of blue cards. (Bumblebees are attracted to blue cards).

Here are some additional suggestions based upon specific insect pests:

Aphids (winged)

Yellow cards will only catch winged aphids. If winged aphids are present, they may have blown in from outside during the warmer months. If winged aphids are present on sticky cards during cooler months (when aphids are not active outside), this may indicate that a significant infestation is present on plants or weeds inside the greenhouse. Focus on plant inspection for aphid detection. Winged females usually develop when there are high aphid populations present on plants or if the plants nutritional quality declines. This allows aphids to disperse to plants that are less crowded and will be an adequate food source.



Fungus gnats

Horizontal placement of cards just above the soil surface is more effective than vertical placement just above the crop canopy, especially early in the crop cycle when fungus gnats tend to be of most concern.

Thrips

Place cards just above the crop canopy to trap thrips more effectively. Placing cards at bench level tends to catch more thrips compared to card placement at hanging basket or floor levels. Card counts may be higher at the ends of the greenhouse, where the passively carried thrips tend to drop out of air circulation patterns. Under mist propagation, fewer thrips will be caught on sticky cards, as adults are less able to fly, due to the water on their fringed wings. There is also a

specific pheromone lure that can be attached to the sticky card. Tolerance levels will vary depending upon the crop, potential damage, time in the production cycle and whether tospoviruses are present. If tospoviruses are present, the threshold is as close to zero as possible.

Whiteflies

Whitefly (WF) populations tend to be aggregated and not uniformly distributed within the greenhouse. You may consider using more cards near greenhouse whitefly-favored plant hosts such as lantana, flowering maple, hibiscus, rosemary, tomato, chenille plant,

and regal geraniums or sweetpotato whitefly favored hosts such as poinsettia, gerbera daisy and hibiscus.

More on Tips on Identifying Insects on Your Sticky Cards

Use a 10x-15x hand lens to see the identifying characteristics of insects caught on the cards. (LED lighted hand lens are helpful). With practice, it becomes much easier to distinguish a shore fly from a fungus gnat or a thrips from a grain of peat moss. A hands free optivisor™ helps you see the entire card.

Identifying Some Pests on Sticky Cards in Greenhouses



See this video at <https://www.youtube.com/watch?v=ofJ8fPBqBF0> to help you train your staff on how to properly use and identify the common insects caught on sticky cards.

For more color photos, see [Identifying Some Pest and Beneficial Insects on Your Sticky Cards](#).

Data Collection and Record Keeping

Keep records of data from weekly inspections of sticky cards. Often it is helpful to develop your own Excel worksheet to collect data that is converted into weekly graphs for decision-making. Train your employee scouts and give them specific directions on how to collect the data you need to make useful decisions.

Mass Trapping with Hopper Tape

Some growers place sticky tape known as “hopper tape” in their greenhouses to “mass trap” winged insects such as adult thrips, fungus gnats, shore flies and whiteflies.



Figure 4: Use of hopper tape. Photos by L. Pundt

By Leanne Pundt, Extension Educator, UConn Extension, 2011, latest revision 2024.

References

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