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Budworms on Flowering Annuals

"What happened to my flower garden in late summer," asked gardeners who planted geraniums, petunias, osteospermum, calibrachoa and flowering tobacco? "The flowers looked great in June and July and then went out of flower in late summer." Most likely, an insect known as corn earworm or tobacco budworm caused annual flowers to stop blooming in August. Often, we blame dry, hot weather, because by mid-September the plants come back into flower seeming to confirm our diagnosis. During the past few years the problem was not weather conditions, but damage caused by the tiny larval stage of the budworm!

The larvae feeds on buds and developing ovaries and the damaged buds fail to flower. As the caterpillars grow they tunnel into plant stems and feed on leaves and petals. All you will see is a small entrance hole (fig 1 & 2) surrounded by bits of sawdust. By August they become so numerous that almost every bud on the plant will be destroyed (fig 3).

Fig1 & 2 - Entrance Hole of Budworm on Osteospermum & Geraniums

Life Cycle -

The adult moth is tan or buff colored, about an inch long with wavy dark bands on the wing edges and arrives from the South on the wind. Penn State entomologist, Dennis Calvin says, "They fly when evening temperatures exceed 55^0F, with increasing activity at higher temperatures. They can be caught up in winds and storms, and deposited with the weather patterns." In 2005 the moths started to arrive in large numbers the week of July 27 - see website (http://www.pestwatch.psu.edu/) for details. Each adult female lays about 1000 eggs. Within a few days the eggs hatch into tiny caterpillars that burrow into the bud. Over the next month the caterpillars go through 5 – 6 instars. Mature larvae are striped and vary in color from greenish-yellow, reddish-brown, or even black depending on the color of food source. They are about 2 inches in length and pupate in the soil and then reemerge as adult moths and lay eggs on flower buds for the next generation.

Control –

To avoid using pesticides hand picking is the only recommended practice.

Because it is such an important pest of sweet corn, pesticides have been applied for years and the corn earworm/budworm have developed resistance to most home garden pesticides. Insecticides such as Orthene or Sevin are labeled, but may not be effective due to pesticide resistance. Synthetic pyrethroids like Talstar and Scimitar, or those with active ingredients including permethrin, esfenvalerate, cyfluthrin, and bifenthrin can be used effectively and may be found at garden centers or farm stores.

Chemical availability and labeling changes from year to year so always read and follow label instructions. The biological control treatment Bacillus thuringiensis has good effect on very small larvae. Unfortunately, the smaller larvae have the habit of tunneling inside plant tissues on geraniums and calibrachoa hiding from the effects of contact insecticides. Caterpillars on petunias are easier to control as larvae normally feed on flower petals and leaves, and do not tunnel.

Insecticidal treatments should be repeated often to disrupt the life cycle, follow label for rates and timing. If possible, alternate insecticide classes to help reduce the chances of this pest developing additional insecticidal resistance.


Fig 3

Complete loss of flowering on Calibrachoa


Fig 4

Mature Budworm Feeding on Leaves


Fig 5

Tobacco Budworm Adult


Fig 6

Corn Earworm Adult

References

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