Minute Pirate Bugs - Tiny Takers

Minute pirate bugs, order *Hemiptera*, family *Anthocoridae*, are tiny takers. Adults are tiny - 1/8” long, with immatures being even smaller. Using their piercing sucking mouthparts, they take body fluids from insect eggs, spider mites and small insects such as aphids, thrips and leaffoppers.

**DESCRIPTION**

There are two species that are commercially available. *Orius tristicolor*, commonly called the minute pirate bug, is found in western states. The insidious flower bug, *Orius insidiosus*, is commonly found in field crops in the eastern United States. The adult is black with white areas on the wings (see photo). Wingless nymphs are brown or orange in color and may have noticeably red eyes. Both stages are predaceous. When prey is not available, they feed on pollen and plant sap, hence the name. This feeding does not significantly damage plants.

**LIFE CYCLE**

These bugs work best between 70 °F and 90 °F. They go into diapause (suspend growth development) when daylight is shorter than 14 hours. Eggs are laid individually in leaf stems or veins and are difficult to see. It takes anywhere from 9 - 25 days to get from the egg to adult stage depending on food source and temperature. The nymphs go through five stages. With each stage they increase in size and begin to look more like adults. Females are capable of laying between 80 and 100 eggs. Adults live for three to four weeks so under favorable conditions there are two to three generations per year.

**PESTS ATTACKED**

As far as vegetable pests go, minute pirate bugs prey on corn earworm and corn borer eggs, corn leaf aphids, potato aphids and potato leaffopper nymphs. They are good predators because they are very active and effectively search out prey even at low densities. In Canada and Europe, minute pirate bugs successfully control spider mites in greenhouses. They may attack beneficial mites as well and so should not be used in conjunction with them.

**EFFICACY**

Research in Illinois, using field corn in tassel, tested the insidious flower bug for its effectiveness against European corn borer and corn earworm eggs. In a 48-hour period, the flower bug destroyed up to 53% of total corn borer eggs. To mimic what occurs naturally, corn borer eggs were pinned onto leaves near the ear and the ear husk. The flower bug preyed mainly on egg masses attached to upper and lower leaf surfaces as opposed to the husk. Increasing percentages of corn borer eggs died as the number of flower bug predators per treatment increased.

In the corn earworm treatments, up to 74% of the total eggs were destroyed in the 48-hour period. To simulate natural conditions, the corn earworm eggs were placed on the tassels, silks and upper side of upper leaves. In the treatment with 12 predators and the eggs on silk, 100% mortality occurred. Almost 94% of the eggs on the leaves were killed. The predators did not get up to the tassels however. Since earworms only occasionally lay eggs on tassels this is not a big concern. Most corn earworm eggs are laid on the silks which flower bugs are attracted to.
Indoors, both adults and nymphs can each consume up to 30 mites per day. They may kill more eggs and insects than they eat by their probing. In the Illinois study, the researcher had trouble determining whether an egg had actually been fed on or had just been punctured and as a result dried out.

PRACTICAL CONSIDERATIONS

Based on what we now know of the insidious flower bug, what can be done to maintain its population? Use of friendly pesticides such as Bts, applied only when and where needed, will conserve the existing population of flower bugs. Because these insects feed on plant sap when prey is not available, systemic insecticides should be avoided.

What can we do to increase the population of flower bugs? Mixed plantings that provide flowers throughout spring and summer will mean food for these bugs whenever pests are not available. Let weeds such as wild carrot, mustard and ragweed come into flower in the hedgerows surrounding the fields where you want to promote beneficials. Alfalfa and buckwheat planted nearby also provide a flower source.

Following is a list of sources if you want to add to the native population. They are shipped as adults or nymphs in a carrier such as rice hulls. Green Methods recommends releasing them 1000-2000 per acre.

SOURCES:

IPM Laboratories
Locke, NY 13092-0300
lpmlabs.com
315-497-2063

The Green Spot
93 Priest Rd.
Nottingham, NH 03290-6204
www.greenmethods.com
603-942-8925

Arico Organics
10831 N. Mavinee Dr. Ste. 185
Oro Valley, AZ 85737-9531
www.arbico-organics.com
800-827-2847

Tip Top Bio-Control
P.O. Box 7614, Westlake Village, CA 91359
www.tiptopbio.com
800-555-0004

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REFERENCES:


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