Attracting Beneficial Insects to Your Farm

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Earlier this fall Carolyn Saft, Suwannee County Extension Agent and I were preparing to teach a workshop on “attracting beneficial insects to your farm”. I wanted to collect samples of these insects for farmers to see and learn to identify. What happened next made a major impact on me! I searched several areas here on our farm at the North Florida Research and Education Center – Suwannee Valley. Most areas on the farm are kept clean and mowed and provided little hope for finding many beneficial insects. However, I found two small areas that were “gold mines” for discovering several species of “good bugs”. The first site was a planting of both native and introduced landscape plants and flowers. The native flowering plants like butterfly weed, frost weed, Rudbeckia, salvia (tropical sage), and swamp sunflower all had lots of good bugs. In addition, a popular non-native, crepe myrtle, was also loaded with good bugs. The second good collection site was a fall watermelon planting used for insect research purposes. One of the research trial requirements was “no insecticide sprays” to allow the silverleaf whitefly to build natural populations so Dr. Susan Webb, UF/IFAS Entomology Specialist could observe their feeding patterns. Well, as you can imagine, the whitefly populations did very well. But also, other beneficials such as lacewing, lady beetles, and big eyed bugs were very easy to find.

So the impact on me was the realization that we could do a lot more to attract beneficial insects to our farm. Here are a few key points to consider when trying to attract beneficials (from “Habitats for Beneficial Insects”, Cornell University, http://www.nysaes.cornell.edu/pp/resourceguide/appendix/appendix_b.php and “Natural Enemies and Biological Control”, UF/IFAS, http://edis.ifas.ufl.edu/in120). Any organism that feeds on another organism is a natural enemy. Insects that are natural enemies of pests are called beneficial insects. Other arthropods such as spiders and certain mites
also are beneficial. There are two main types of beneficial arthropods, predators and parasitoids. Predators, such as ladybugs and spiders, will attack several different kinds of insects, and will consume several types of prey throughout their life cycle. Parasitoids are wasps or flies that lay their eggs on or inside other arthropods; they are also called parasites. The egg hatches and the immature parasitoid feeds on the victim, called a host, eventually killing it. Each developing parasitoid kills only one host in the course of its life cycle, but parasitoids are more specific in the insects they attack than are predators.

Plant diversity in an agricultural setting generally adds stability to a system and helps encourage the presence of beneficial insects. There are different options for providing plant diversity depending on whether the main crops are annuals or perennials. Generally, crop diversity can be achieved over a period of time or in a area of a field using crop mixtures, crop rotations, border crops or windbreaks, or plants known to be attractive to beneficial insects. Landscape diversity will generally favor populations of beneficial insects while lack of diversity will generally increase insect pest outbreaks. Adding plant complexity to a system can be achieved by providing sites which beneficial insects may use to obtain nectar or pollen, survive on alternative insect pest species, find habitats in which to increase their numbers and/or as sites in which to overwinter.

Flowering plants may provide nectar that can increase the life span of a beneficial species and number of eggs it can produce. Such flowering plants can be used as part of the farm’s saleable crops as well as provide needed landscape diversification. In choosing which plants to use to add diversity, a good rule of thumb would be to avoid plants in the same family as the cash crop being grown since they may also serve as hosts for insects and diseases. Weeds may also play a significant role in adding plant diversity. Flowering weeds in the families Compositae (daisy), Labiatae (mint), and Umbelliferae (dill, Queen Anne’s Lace) are often cited in the literature as being able to support stable populations of natural enemies. Multiple blooming sunflower varieties are also excellent for attracting beneficial insects.

We are in the process of developing a plan here at the North Florida Research and Education Center – Suwannee Valley farm to incorporate some of these practices to encourage more beneficial insects in the future and use the farm to teach others these valuable IPM principles.