INSECT PESTS

Mexican bean beetle (*Epilachna varivestis*):

The Mexican bean beetle (MBB) is one of the most troublesome insect pests of beans. Here in Virginia I have learned to look for their emergence usually around the first week of June. At that time I begin scouting the crops looking for adults or larvae. Timely and frequent scouting is key to controlling this insect. MBB is easily controlled by a small parasitic wasp (*Pediobius foveolatus*) native to India, now raised in insectaries for control of MBB. Pedio wasps are introduced as soon as MBB larvae are spotted. If properly released, they control MBB the entire season. The Pedio wasp makes its entire living on MBB and can detect it from at least a mile, based on experiences with my own releases. Unfortunately it doesn't usually overwinter, though it did overwinter one year in Virginia. I order MBB from an insectary as soon as a dozen or so larvae are spotted on the plants. The locations of MBB are also flagged so that they can be released near the hot spots. The MBB can reproduce faster than the Pedio wasp when temperatures are cool, but by mid June and later, the temperatures are high enough for the wasp to significantly overtake the MBB. The only time I have not had good success was during one cool summer when the Pedio wasps were released later than they should have been. When the wasp (about the size of a pin head) parasitizes the MBB it lays its eggs in the larvae. Shortly thereafter the larvae become immobile and turn brown. When I see these on the underside of the leaves I know that the infestation will soon be under control. Of course no attempt should be made at this point to control the MBB larvae, but you can control the adults: larvae should be left alone because they may be parasitized. Depending on the source, the Pedio wasp costs about $20 per 1,000 wasps plus FedEx delivery. Some insectaries sell the mummies, the brown parasitized larvae of MBB. These are placed around the plants for later emergence of the adult wasps. I seem to get better control using the adult wasps. Adult wasps should be released either early in the morning, or at about dusk. In either instance, the foliage should be dry. The key to the success of this approach is early detection of MBB and timely release of the Pedio wasp.

The Mexican bean beetle can be controlled with pyrethrum and rotenone; however, I no longer use these natural pest controls on beans. Pyrethrum and rotenone are regulated materials for certified organic production: check with your certifier for specific regulations.

Bean weevil (*Acanthoscelides obtectus*):

Bean weevils lay their eggs on bean seed, producing larvae which develop and emerge through a small hole in the seed. Bean weevils can quickly destroy a batch of stored seed if the seed has not been inspected for a while. Beans can become infested in the field so it is important to harvest and process the seed promptly. Threshed seed should be bagged and stored promptly. For organic control see Seed Treatment for Bean Weevils above.

DISEASES

There are a large number of diseases that affect beans, though their prevalence is related to location (certain areas of the country), climate, weather, and types of insect vectors. Many of the disease problems can be controlled or reduced by practicing a three-year crop rotation. Only the diseases which are more serious in the Mid-Atlantic and southeastern U.S. are covered here.

Anthracnose (caused by the seed-borne fungus *Colletotrichum lindemuthianum*):

This disease may be common and widespread in the eastern and southern U.S., especially during periods of cool, humid, rainy weather which favors disease development. The plant can be attacked at any stage of growth and the disease spores are carried by wind, soil-splash from rain, gardening tools, and farm implements. The disease is characterized by black sunken lesions up to ½" in diameter (with diffuse margins) on the stems, pods, and cotyledons. Leaf veins on the under side of the leaf may turn black. During wet weather the spots may be covered with a salmon-colored ooze. The fungus overwinters in bean seed and residues of diseased plants. For this reason, proper cleanup of the gardens or field, and prompt composting of crops residues is important after harvest.

