



"Your Outdoor Source"

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2442 State Route 27 – North Brunswick, NJ 08902 – (732) 297-1244 – Open Seven Days

## Insect Identification and Control in the Home Garden

Seed corn maggots, potato leafhoppers, Mexican bean beetles, aphids, and mites are the most common insects to attack beans (see illustrations, back page). Adequate plant populations can usually be achieved by doubling the seeding rate, then thinning the plants to the desired population. Also, commercial plant covers can be used as a physical barrier to exclude insects, to promote earlier yields, and to provide protection from wind and light frost. Several types of lightweight, spunbonded fabrics, commonly called floating row covers, are economical and work well as an insect [barrier](#). Plant covers increase the temperature by 5°C and humidity by 25 percent inside the cover. They may remain on the plants until first harvest because beans are self-pollinated (beans don't need insects for pollination).

### Seedcorn Maggots

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Seedcorn maggots invade vine crops, beans, and sweet corn. Maggots pupate inside a dark brown capsule-like puparium that resembles a grain of wheat. Seed corn maggot puparia can be found in soil throughout the year, and they overwinter in these puparia. The adult flies emerge from puparia during late April and early May. The adults are brownish-gray flies that closely resemble common houseflies except that they are about half the size. Tiny, white, elongated eggs are deposited among debris and around plant stems near the soil surface. Eggs hatch in a few days and the maggots work their way into the soil in search of food. Maggots are dirty white with a yellowish tinge, legless, cylindrical, and tapered; full-grown maggots reach 1/5- to 1/4-inch in length. Maggots feed in the seed or on the underground parts of seedlings. Damaged seed may germinate, but there may not be enough food reserves left in the seed for the plant to survive. The time required to grow from egg to adult is between 3 to 4 weeks. There are 3 to 5 generations each year. Populations tend to decline during dry months of the summer.

**Control** : Seedcorn maggots tend to cause greater losses during cool, wet years, and in fields with an abundance of decaying organic matter, such as manure or a recently plowed cover crop. Incorporate organic matter well before planting. Any cultural practice that will speed up germination, plant emergence, and early plant growth will help reduce crop losses from maggots - this allows the plant to "outgrow" the feeding damage. Planting in warm soils significantly helps plant outgrow maggot injury. If significant damage occurs, replant those areas of the field. Look to see if the maggots are still present. If maggots are small (<3/8 inch), then wait 7-10 days for those maggots to begin to pupate before replanting.

Most chemically treated seed is designed to help prevent damage during seed storage. Additional treatments applied at planting are effective but typically are for commercial use. Sprays applied to soil after damage is seen are not effective. Consult the most recent Commercial Vegetable Production Recommendations (available at your County Extension Office) for specific control measures. Follow directions on the labels according to plant type when applying insecticides.



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### **Leafhoppers**

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The potato leafhopper overwinters to the south. Migrants arrive during the spring and early summer, and develop 3 to 4 generations, often on alfalfa and other hosts. Adults and nymphs have a yellow-green to lime-green color and a characteristic 'side-ways' walk. Adults are spindle-shaped with tapered wings, and reach 1/8th inch in length. Nymphs are wingless. Eggs are deposited within the plant. After hatching, nymphs undergo five instars before becoming adults. Both nymphs and adults feed using the lacerate-and-flush style of probing in and around vascular tissue, which disrupts the transport of fluids within the plant. This damage interacts with other stresses, such as drought. Feeding results in symptoms called "hopperburn". In beans, hopperburn appears a curling of the leaves, stunting, yellowing, reduced root systems, and reduced yields and quality. Greatest damage comes from feeding on young plants.

**Control** : Successive plantings usually provide some plantings that escape damage. Infestations that occur close to harvest can be tolerated. Insecticides labeled for leafhopper controls are effective against reduce nymph and adult populations; repeat applications are needed to control nymphs that emerge from eggs, and re-invading adults. Consult the most recent Commercial Vegetable Production Recommendations (available at your County Extension Office) for specific control measures. Follow directions on the labels according to plant type when applying insecticides.

### **Mexican Bean Beetle**

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Adults are round-to-oval hard-bodied insects, about 1/3rd inch in length, yellow to coppery brown, with 16 black spots. Females lay clusters of yellow eggs on the undersides of leaves. Hatching larvae are yellow, cylindrical but tapered towards the rear, with branched spines. Pupae are also yellow, and are on the undersides of leaves. These beetles remove leaf tissue between the veins, resulting in a skeleton-like appearance.

**Control** : Hand-removal can be effective in home gardens. Treat if defoliation exceeds 20 percent during prebloom, or 10 percent during podding and there is a potential for further defoliation. These levels of defoliation may result in earlier maturity of the crop. Consult the most recent Commercial Vegetable Production Recommendations (available at your County Extension Office) for specific control measures. Follow directions on the labels according to plant type when applying insecticides.

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### **Aphids**

Several species of aphids infest beans: pea aphid and bean aphid are common. Aphids are soft-bodied insects, round to oblong, about 1/8th inch long, that extract plant sap. Both winged and wingless forms can be present. Colonies develop on undersides of leaves or on plant terminals. Direct damage by aphids is assumed to be minimal until populations build to high levels, but they transmit the bean common mosaic virus. In home gardens, remove plants that show signs of virus infection. Aphids are often controlled by natural parasites and predators which rely on these slow-moving insects as a host resource. High populations can be reduced with insecticides labeled for aphid control.

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### **Spider Mites**

Spider mites are tiny, eight-legged animals most closely related to spiders. They appear as specks on the undersides of leaves. Mites rarely cause significant damage to beans in home gardens. They require large populations to cause serious damage, but their populations build up very quickly when temperatures are hot (>80F). Dry weather (<50% RH) also is correlated to mite build-up. They can complete development in only 5-7 days under these conditions, which is 2 to 3 times faster than many of our other vegetable pests. Often mites move in from nearby crops or weeds, and initial densities are high near field edges. Mites pierce the epidermal cells of plants and extract plant sap. Damage appears as leaves that are stippled, yellowing, and dirty. Leaves may dry and drop. There may be webbing between leaves or on the lower surfaces of the leaves. Removing damaged leaves may slow the spread of mites in a planting. Spot-treat with a chemical labeled for mites when white stippling along veins on underside of leaves is first noticed and 20 mites per leaflet are present.

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### **Warning**

Pesticides are poisonous. Read and follow directions and safety precautions on labels. Handle carefully and store in original labeled containers out of the reach of children, pets, and livestock. Dispose of empty containers right away, in a safe manner and place. Do not contaminate forage, streams, or ponds.

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