

Insect/Disease Information

VEGETABLES

Spider Mites



Heat+arid conditions = spider mites.

Heat+aridness+dust = more spider mites.

A complete generation from egg to adult may take as few as 7 days in these conditions, which shows you how quickly their numbers can build. Spider mite injury has been found on melon plants, raspberries, eggplant, beans, and more. They suck the chlorophyll from plant cells, causing stippling on the leaf surface. Severe infestations result in leaf burn, leaf distortion, and reduced yields.

Ideally, you should search for spider mites early in the season, around early to mid July (even earlier if the site is dusty). Spider mites are much easier to deal with when populations are small. If you suspect spider mites now, examine the undersides of several leaves. You will need a 20x (or more) hand lens (loupe). You should be able to see adult mites, eggs, and webbing. Leaves will also appear dirty from the spider mite excrement.

Keep in mind that some pesticides, such as pyrethroids and carbaryl, can actually increase spider mites by killing predators, and by increasing the reproductive rate of the mites. Instead, choose treatments that are targeted toward this pest. Manage dust build-up on leaves, water plants down regularly.

Treatment: (commercial) Kelthane, Aldicarb, Acramite; (residential) neem oil, horticultural oil, insecticidal soap, malathion

Powdery Mildew on Cucurbits



Cucurbit powdery mildew is showing up on vine crops, especially where plants are crowded or running together. This foliar disease first appears as small circular lesions located randomly on the leaf surface or on petioles. As the infection continues, leaves turn yellow and become distorted. Fruit are usually not directly affected, but yield and flavor can be reduced. This disease thrives in humid and shady environments under moderate temperatures (up to 80 degrees F). Free water is not necessary and can actually inhibit germination, as can hot temperatures.

Scout for the disease by looking on mature leaves in the middle of the field for the white, powdery lesions. In general, if you find one lesion per 50 older leaves, begin a regular, 7-14-day protectant fungicide program. Fungicide applications are most effective when applied before the disease has become established.

When planting next spring, check seed labels for resistance. There are some pumpkin and melon varieties that are at least partially resistant. Also, rotate the location of your cucurbit crops each year. The fungus overwinters on plant debris left in the soil.

Insect/Disease Activity continued from previous page

Treatment: potassium bicarbonate (Kaligreen, Armicarb), horticultural oil, sulfur (Safer Garden Fungicide), *Bacillus subtilis* (Serenade) (Do not use oil or sulfur within two weeks of each other, and do not spray when temperatures are over 90 F.)

Cucumber Beetles



The western striped and western spotted cucumber beetles occur in Utah, and feed on leaves and fruit rinds. They are both in their second generation now, actively feeding on watermelon, cantaloupe, zucchini, winter squash, pumpkin, and cucumber. The riper these vegetables become, the more attractive they are to feeding.

You can monitor for cucumber beetles by examining all plant parts including undersides of leaves, at least once/week. If a treatment is warranted, thorough coverage of foliage and fruit is important. Where populations are high, adults can easily reinfest an area after treatment. Re-check plants 5 days later to determine if another application is warranted.

Treatment: acetamiprid (Assail, Ortho Max), spinosad (Conserve, Entrust, Success, Bonide, FertiLome, Monterey), pyrethrin (Ace Flower and Vegetable Insect Spray), imidacloprid (Admire), carbaryl (Sevin, Bayer Advanced), indoxacarb (Avaunt), kaolin clay (Surround), synthetic pyrethroids (many)”

Beet Armyworm in Many Vegetables

Beet armyworm does not overwinter in northern Utah, but adults are blown from Arizona every year late summer, as our trapping program has found. A few larvae have been found on vegetables in northern Utah.

Although it is primarily a pest of field crops such as alfalfa, it is also attracted to lettuce crops, cabbage, beans, peppers, tomatoes, spinach, onions, and more. Young fall plantings are especially vulnerable.



A single female moth can lay up to 600 eggs, in random clusters of 80 on the undersides of leaves. Larvae are green to black in color on the back, paler underneath, and with a broad stripe down each side and a dark head. They feed on leaves, starting at the upper portion of the plant and near the buds. Older larvae can feed on the fruit of peppers. They are very mobile, and often move from plant to plant. Plants should be monitored for this pest during August and September.

Treatment: Materials used for other lepidopteran pests (imported cabbageworm, for example) will work on beet armyworm. Target them while they are less than 1/2-inch in size for best success. Bt and spinosad are excellent options.

Grasshoppers



Grasshoppers have been bad in central and north-central Utah for the past three years in range and crop lands. In areas where grasshoppers were treated for the last two years, the numbers are down, but we have had reports of untreated gardens severely infested this year in other locations.

Grasshoppers have voracious appetites and feed on just about everything, from grasses to ornamental plants to vegetables and fruits. They overwinter as eggs which are laid in undis-

Insect/Disease Activity continued from previous page

turbed soil in September and October. If you have a large infestation in your area, plan on treating **next spring**. Talk to your neighbors about treating their property, too.



One of the best options is to use a bait product with a grasshopper pathogen soon after egg hatch (late May to early June). NoLo or Semaspore bait is available at most garden center/farm stores, and contains *Nosema locustae* in a bran shell. Another bran bait is available that contains carbaryl (EcoBran, Lily Miller Bait, and others). Baits should be used when grasshoppers are small, and spread evenly throughout the infested site, and grasshoppers will consume the bait as they forage. Re-apply following rainfall or irrigation.

Insecticides are not as effective as baits, and treatments applied after grasshoppers have reached maturity are also not effective.

BERRY CROPS

Grape Leafhopper



Grape leafhopper is a sporadic pest in Utah, but can increase to high numbers in some areas. There are several generations per season, and their numbers are the highest at this time of year. They feed on cell contents, leaving behind a distinctive stippled appearance to the leaves. When predators moderate population levels and damage is occurring to a few leaves only, and control is not necessary.

When leafhopper populations are high enough to cause the leaves to turn yellow and drop prematurely, fruit can become sunburned and ripening is delayed. Small black drops of excrement mars the appearance of table grapes and plants may become stunted after repeated years of heavy feeding.

Treatment: (commercial) imidacloprid (Provado), acetamiprid (Assail), pyrethrin (Pyrenone), methomyl (Lannate), oil (residential) oil, insecticidal soap, kaolin clay (Surround), pyrethrin (Lilly Miller RTU, Pyganic), carbaryl (Bayer Advanced Complete), Malathion

Precautionary Statement: Utah State University Extension and its employees are not responsible for the use, misuse, or damage caused by application or misapplication of products or information mentioned in this document. All pesticides are labeled with ingredients, instructions, and risks. The pesticide applicator is legally responsible for proper use. USU makes no endorsement of the products listed herein.

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