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Ipomoea: *Distorted Upper Growth*

Distorted up growth on plants usually denotes herbicide damage, boron deficiency or broad mites. This Alert discusses broad mite damage.

Broad mites are an occasional pest in greenhouses. The microscopic pests feed on a wide variety of plants. On a recent visit to a greenhouse, ornamental sweet potato (*Ipomoea batatas*) was noticed to be stunted and deformed (Fig. 1-3). New leaves were small and cupped downward, and some stems of some plants looked gnarled due to shortened internodes. The presence of broad mites was confirmed by the presence of eggs.

Damage

Broad mites damage plants by feeding inside buds, causing distorted growth. Early signs of broad mite damage include leaves that may be cupped downward, strappy, or crinkly. Foliage may also be smaller than normal, and stems and leaves may be russeted. Plants with extensive feeding from broad mites will look gnarled and stunted due to shortened internodes. The growing tip will eventually be killed and plants will die.

Broad mites are wingless and don't disperse far, so you may see "hot spots" where damage is concentrated. They have been reported to hitchhike on the legs of whiteflies and be carried to other areas.

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Figure 1. Distorted shoot growth due to a broad mite infestation.
Photo by Brian Whipker

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Broad mite damage may resemble that caused by thrips. However, thrips will also cause discolored feeding scars on leaves that resemble tiny scratches. Yellow sticky cards can be used to confirm the presence of thrips. It is possible to have both broad mites and thrips damage on the same plant.

Identification

Broad mite damage can be mistaken for herbicide damage or a disease problem. Early identification is key to controlling broad mites. To confirm the presence of broad mites, look for eggs, which are nearly the same size as adult females, on the undersides of young leaves. Eggs are whitish and covered with rows of bumps, which distinguishes them from the eggs of other mites. Broad mites and their eggs are only visible with a hand lens of 40x or greater.



Figure 2. Over time, the shoot can be killed by broad mites.
Photo by Brian Whipker



Figure 3. The new shoot and leaves also can become distorted and thickened. Photo by Brian Whipker

Control

Proper sanitation will help to prevent broad mites from becoming a problem. Keep houses weed free and clean thoroughly between crops. If you have a crop with broad mites, avoid working in that area and then moving to a clean crop, as you may be moving broad mites on tools and clothing.

Choosing the right pesticide is key to controlling broad mites. Not all products labeled for spider mites will be effective on broad mites. To treat broad mites, look for a product that works on Tarsonemid mites. Abamectin (Avid), chlorfenapyr (Pylon), pyridaben (Sanmite), spiromesifen (Judo), fenpyroximate (Akari) are effective. Follow up with another treatment 10 days later, when allowed by the

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pesticide label. In bio-control systems, predatory mites can be effective when released before broad mite damage is severe. Although labeled, broad-spectrum pesticides, like some pyrethroids and organophosphates, are not recommended for controlling broad mites.

Because mites are often hidden in buds, miticides that only have contact activity will not be very effective. Instead, look for products that have translaminar activity, like abamectin and chlorfenapyr. Products with translaminar activity will be translocated to the growing tip where mites are feeding, giving greater control.

The good news is that unless damage is severe, plants will grow out of it. It's best to rogue heavily infested plants when the damage is first identified and focus on treating plants that will be saleable. After treating the less severely affected plants with a miticide, then pinch back the plants down to older growth without symptoms. Allow the new growth to develop and scout the plants for any signs of new broad mites.

Broad Mite Hosts

Broad mites will feed on a wide assortment of plants. Below is a list of crops in which broad mites have been reported.

Field and Vegetable Crops:

basil, beet, beans, cantaloupe, cotton, cucumber, eggplant, mango, papaya, pepper, potato, strawberry, tea, and tomato.

Ornamental Crops:

African violet, ageratum, azalea, bacopa, begonia (non-stops), begonia (rieger), celosia, chenille,

chrysanthemum, dahlia, exacum, fuchsia, geranium, gerbera, gloxinia, ivy, jasmine, hydrangea, impatiens, lantana, marigold, peperomia, petunia, pittosporum, plectranthus, schefflera, snapdragon, verbena, and zinnia.

Reference:

Baker, J. R., ed. 1978. Insect and Related Pests of Flowers and Foliage Plants. North Carolina Agricultural Extension Service, Raleigh.



Photo by Brian Whipker