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Phyllody

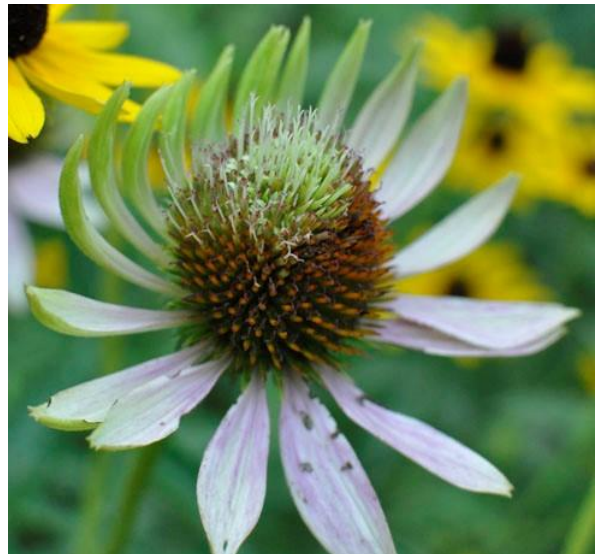
Many species of plants are susceptible to phytoplasma diseases. Phytoplasmas are specialized bacteria that invade plant phloem tissue and cause disease. Sap-sucking insects transmit phytoplasma from plant to plant. Four families of plant hoppers and two genera of psyllids, as well as leafhoppers are known to be vectors of phytoplasmas. The bacteria enter the insect's body through the stylet when



feeding on an infected plant. From there, they move through the intestine, and eventually colonize the salivary glands. When the insect feeds on an uninfected plant, the bacterium is transmitted to the plant. Phytoplasmas may also be transmitted by parasitic plants such as field dodder.

Symptoms include leaf yellowing, smaller than normal leaves, stunting, witches' broom, dieback, poor root growth, and sometimes plant death.

A very common symptom is phyllody, the production of leaf-like structures in place of flowers. Plants susceptible to phytoplasma infection include ornamentals, weeds, fruit and vegetables crops. Asters, cannas, chrysanthemums, delphiniums, flax, phlox, veronica, zinnia, gladiolus, marigolds, cosmos, coneflowers, peaches, strawberries, sugarcane, coconuts, lettuce, carrot, onion, celery, anise, broccoli, cabbage, cauliflower, celeriac, chicory, dandelion, dill, endive, escarole, white mustard, New Zealand spinach, onion, parsley, parsnip, potato, pumpkin, radish, salsify, shallot, spinach, squash, and tomato are susceptible, among others.



There is no cure for plants with phytoplasma infection. Plants with symptoms should be destroyed. Good weed control and the use of insecticides where warranted help control the insect vectors.

Bagworms

Bagworms have hatched and are actively feeding on host plants. Newly hatched bagworms can be hard to detect as they are VERY small at this time. They are further camouflaged by making a bag of the plant material they are feeding on. Bagworms are moths in the Family Psychidae. The larvae feed on 50 families of deciduous and evergreen trees and shrubs (Rhoads et al. 2009). Severe infestations can seriously damage the beauty and health of host plants, especially juniper, arborvitae, hemlock, fir, pine, and spruce species. They live in a bag made from silk that the caterpillar produces. Pieces of plant debris are incorporated into the bag for camouflage. Female bagworms are wingless and never leave the bag. Males are black to brown with clear wings and have a flexible abdomen that can be extended into the female's bag for mating. After mating, eggs develop within the female and she dies. There can be as many as 300-1000 eggs in a single bag. The eggs overwinter in the bag until spring when larvae hatch, crawl out, and spin down from the bag by a strand of silk that often acts like a parachute to carry them to new hosts. Once they land they begin making their own silk bags. Unless trees are touching or are very close to each other, the worms don't move from tree to tree. Many homeowners fail to notice them until they have matured and permanently glued themselves to a stem. At that point they have quit feeding and the damage has been done for the year. Non-chemical control is best achieved in late fall or winter because the bags can be picked off of the tree and destroyed. Be sure to remove the silk that binds the bag to the stem as it may cause girdling later. This is only effective if the number of bags is relatively low. Spring is the best time for chemical control because the larvae are small, actively feeding, and don't have the full protection of a completed bag yet. Insecticides readily available to homeowners in Arkansas are: Bacillus thuringiensis (Biotrol WP, Thuricide, Sok-Bt) dinotefuran (Green Light with Safari) malathion (various) other pyrethroids per label instructions Restricted use insecticides or those not readily available to homeowners: acephate (Orthene) acetamiprid (TriStar) azadirachtin (Azatin) Bacillus thuringiensis kurstaki (BiobitHP, DiPel, or Foray) bifenthrin (Talstar) bifenthrin + clothianidin (Aloft) bifenthrin + imidacloprid (Allectus) chlorantraniliprole

(Acelepryn) fluvalinate (Mavrik) indoxacarb (Provaunt) novaluron (Pedestal) spinetoram + sulfoxaflor (XXpire) spinosad (Conserve SC).

Bagworms- Family Psychidae



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Bagworms- Family Psychidae



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Magister Registered for Use in Arkansas for Broad Mite Infestations in Blackberry

by Aaron Cato - June 5, 2020

Looking for additional control options for broad mite? Provided here is information about a new effective product for broad mite control in blackberry and other caneberry crops.

Broad mite is a relatively new pest in Arkansas Blackberry and it is beginning to be an almost yearly issue for many growers. Unlike mite species such as the two-spotted spider mite, broad mite is microscopic and generally goes unnoticed until damage on new growth and reproductive structures is observed. Broad mite numbers often build very rapidly and work by Dr. Donn Johnson has indicated that reaching 5 mites per leaf can lead to significant losses. The main risk of yield loss is to late crops coming from primocane fruiting varieties.

Management of broad mite is often complicated by a few factors. First, there was previously only one labeled miticide that was effective at controlling this pest in field environments, Agri-Mek. This is not a very sustainable system and could lead to selection of resistance due to a lack of alternatives for rotation. Second, only two applications of Agri-Mek are allowed in one growing season. This can be problematic considering that we've observed damaging populations from June-October, and because populations have sometimes been observed to slowly bounce back after an initial application. Last, the preharvest interval of Agri-Mek is seven days and broad mite infestations often need to be managed during primocane harvest.

Recently Magister was registered for use in caneberry crops to control broad mite. Dr. Donn Johnson previously researched the efficacy of this product and found it to be comparable to Agri-Mek. This is good news as this allows diversity in control options and gives growers the ability to rotate products and lower the risk of resistance in this system. Only one application of Magister is allowed per season at 32-36 oz/A. This product also has a 7-day preharvest interval, so miticides that can be used easily during harvest are still not available.

Additional effective control options are always going to benefit the grower, and I think this is a great example of that ringing true. Growers that deal with serious infestations often have reservations about spraying too early with only two applications of Agri-Mek available for the entire growing season. Even one additional product with one use will help to ease this headache.

Bermuda grass lawn care - June – August

Bermuda grass should be mowed every 5 to 7 days and less often when the lawn is drought stressed. Water early in the morning to wet the soil to a depth of 4 to 6 inches. Probe with a screwdriver to determine moisture depth. Bermudagrass needs a weekly application of 1 to 1.25 inches of water to retain its color during summer. It needs even less to survive and can go several weeks without supplemental irrigation. On sandy soils, it requires more frequent watering: for example, 0.5 inch of water every third day. It is often necessary to irrigate an area for three to five hours to apply 1 inch of water with most homeowner irrigation systems. (It takes 620 gallons of water to apply 1 inch of water per thousand square feet.) Because clay soils accept water slowly, irrigate these areas until runoff occurs; wait one half hour until the water has been absorbed, and then continue irrigating until the desired depth or amount is obtained. A dark, bluish gray color, foot-printing and wilted, folded or curled leaves indicate that it is time to water.

Thatch needs to be removed every two to three years through core aeration or dethatching. Cultivation during the early summer is preferred because moisture is usually not limiting and growth is optimum for recovery.

Apply postemergence herbicides as needed to control summer broadleaf weeds such as spurge, knotweed and lespedeza. For postemergence crabgrass control, apply a product containing quinclorac. Make two applications 14 days apart. Use SedgeHammer® (halosulfuron) for sedge control. Apply post emergence herbicides only when weeds are present, the lawn is actively growing and not suffering from drought. To improve annual bluegrass control, apply a preemergence herbicide on August 15 and water in immediately.

Replant large bare areas using sod or plugs planted on 6 or 12 inch centers. Applying a preemergence herbicide that does not interfere with root growth after plugging helps prevent weed encroachment.

Common bermudagrass can be seeded at 0.5 to 1 pound per thousand square feet. Seeding in spring or

early summer will enhance the winter hardiness of bermudagrass seedlings.

Common Problems with Sweet Corn

Corn earworms are a problem in sweet corn every year. Early plantings are not badly infested, but later harvests will usually have severe earworm damage unless timely control measures are followed. Corn earworm moths deposit eggs on the developing silks or on the leaves near the ear. The tiny caterpillars follow the silk down into the ear, where they feed on the tip. Once the worm is inside the protective husk covering, there is no effective control. A suggested insecticide must be applied before the worms enter the silk channel. For good control in heavy infestations, make several applications two to three days apart from the time silks appear until they turn brown. To restrict worm infestation, tighten the tip of the husk with a rubber band or clothespin after the silk appears or insert mineral oil (one-half medicine dropper full) in the silk tube to decrease damage. European corn borers damage stalks, tassels and ears. As their name suggests, corn borers bore into the plant. The stalks break off when damage becomes severe. Corn borers may also bore into the cob and be found after cooking. Apply a suggested insecticide at five-day intervals, beginning with eggs hatching in mid-May. Spraying applications for corn earworms will adequately control the corn borers. Flea beetles often attack early in the spring as the corn plants emerge through the soil. They can be quite damaging in large numbers and may also carry Stewart's bacterial wilt disease. A suggested insecticide must be applied early to control flea beetles. Stewart's wilt is a bacterial disease spread by the flea beetle. This disease causes yellow streaks in the leaves, stunted growth and death of young plants of susceptible varieties. The disease generally is not severe after cold weather or when resistant varieties are planted.

Smut is caused by a fungus that invades the kernels. It develops as a swollen black pustule (gall) in the ear and sometimes infects the tassel. Some sweet corn

varieties are more tolerant of smut than others. Smut occurs most frequently on white varieties and is often severe when kernels are extremely dry and during tasseling. Remove and destroy smut galls while they are moist and firm. Do not discard these galls in or near the garden. Place in the garbage or burn them. The smut is not poisonous, and in certain areas, it is cultivated and eaten as one would use a mushroom. Break off the infected part of the ear. The remainder is suitable for eating.

Frequently Asked Questions:

Q. How long does it take sweet corn to develop from the first appearance of silk to harvest?

A. About five days are required for complete pollination after the first silk appears. Harvesting begins approximately 20 to 24 days after first silking.

Q. The germination of some varieties is low. How can I get a better stand?

A. The sweet corn seeds are shrunken, especially the super-sweet types, and do not germinate as well as smooth seeds. Do not plant too early in the spring, wait until the soil is warm, about 65 degrees F. Sow the seed more thickly, and thin if necessary. A fungicide seed treatment may also be helpful.

Q. Why didn't my sweet corn ears fill out to the tips?

A. Several conditions can cause poor kernel development at the tip of the ear: dry or cool, wet weather during silking and pollination; planting too close; poor fertilization, especially lack of potassium; and poor natural pollination. These conditions may be overcome by watering in dry weather, planting at recommended spacing (9 to 12 inches apart in the row), proper fertilization and planting short rows in blocks of two or more for self-pollination.

Q. What is the best way to grow early corn?

A. Choose an early maturing normal sugary (su) variety, plant early and shallow (about 1 1/2 inches deep) and cover the row with clear polyethylene film. Remove the film, or cut slits, and carefully pull the plants through before the weather becomes too hot.

Floating row covers can also be used effectively for early corn production.

Q. Should garden corn be planted in several short rows rather than in one or two long rows?

A. Yes. Corn is a wind-pollinated plant. Planting corn in blocks rather than in long rows makes it easier for the plants to pollinate one another during tasseling.

Q. Should the suckers, or side shoots, which emerge near the ground level on sweet corn be removed?

A. It is not necessary, but modern cultivars of sweet corn have been developed to have a minimum number of tillers.

Q. How long does it take for most sweet corn varieties to produce edible ears?

A. Most sweet corn varieties will mature between 65 to 90 days after seeding. Maturity rate varies from season to season depending on temperatures.

Q. Why are ears of corn underdeveloped at the tip end?

A. This condition may be caused by nutrient deficiency, cool temperatures during ear maturity and low moisture. Corn is pollinated by windborne pollen from the male flowers or tassels at the top of the plant to the female flowers or silks about midway up the stalks. Each kernel develops from an individually



pollinated silk. Kernels which develop near the middle and base when conditions occur, such as those mentioned above, are pollinated first and will take precedence over those pollinated last. This often results in failure of the kernels near the tip to develop properly or in irregular kernel development.

Q. Is there a best time of day to harvest sweet corn?

A. Harvesting during early morning is recommended to ensure the sugar will be at its highest level if the corn is mature but not overripe. Cool the corn quickly to prevent loss of sugar.

Q. How often should sweet corn be fertilized to produce high yields of good quality corn?

A. Fertilize sweet corn lightly before planting. It should be fertilized again when the plants are approximately 4 inches tall and when they are 8 to 10 inches tall. Approximately 1/4 pound of complete fertilizer for every 10 feet of garden row is sufficient.

Q. This year my sweet corn produced yellow and white kernels on the same cob. What is wrong?

A. This could be caused by the bicolored varieties, such as Honey and Cream. New varieties, such as those with a super sweet character, produce white and yellow kernels on the same cob.

Q. What is meant by advertisements in catalogs referring to "Super Sweet" varieties of sweet corn?

A. Newly developed "Super Sweet" hybrid varieties may contain up to 40 percent more sugar than some standard varieties. Super Sweet hybrids carry a gene (sh2) which results in high sugar content. The super-sweet character is lost if the corn is pollinated by ordinary sweet corn or field corn, so plant the super sweet hybrids away from any other types of corn. Another type is the SE or sugar enhanced sweet corn.

Q. What is the difference between roasting ears and sweet corn?

A. Roasting ears is field corn harvested at an immature stage. Field corn is preferred by some because the ears are larger and the corn is not as chewy.

Q. My sweet corn produced normally. However, as the ear formed, the tip of it became covered with a large, white mass that grew until it broke open and exposed a black, powdery mass.

A. This is corn ear smut, a type of fungus carried in the seed. To avoid this, use only high-quality seed from a reputable source. There is no chemical control for this disease, only genetic resistance.

Q. My sweet corn grew for a while and then had a mosaic appearance. The corn did not develop properly. The ears that formed were poorly filled. A. This is maize dwarf mosaic virus. It overwinters in johnsongrass around a garden. To control the problem, remove the johnsongrass, and follow a good insect control program. Some varieties are more resistant to this disease than others.

Q. The centers of my corn plants are full of little green insects. What do I do about them? A. Corn leaf aphids infest the sworl of young corn plants. The plants will tolerate large numbers of these aphids. If plants begin to wilt or die, spray with malathion. Use as directed on the label.

Q. Are there any earworm-resistant varieties of sweet corn available? A. No. Some varieties are less bothered by corn earworms than others, but none are truly resistant. Sweet corn varieties which have a tight shuck near the silk end are less bothered by earworms than those with loose, open ends.

Q. I planted corn in my garden this fall and it turned out beautifully, but the corn ear worms ate more corn than I did. What can I do to prevent this? A. Spray or dust the ear silks with Sevin (carbaryl) to prevent adult insects from entering and laying eggs. Begin dusting and spraying at an early stage and repeat every two days. A drop of mineral oil on the silks is recommended to prevent earworm damage.

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