ANNOUNCEMENTS

PESTICIDE CONTINUING EDUCATION OPPORTUNITIES

June 26, Crop, Soil, & Pest Management Field School UK Spindletop Farm Lexington, KY 4 General hours Categories 1 (Ag Applicator), 10 (Demo and Research), 12 (Retail Pesticide Sales Agent) Contact: Dr. J. D. Green (859) 257-4898.

CORN

COOL SOILS FAVOR SEEDCORN MAGGOT
by Ric Bessin

Commercial producers and home gardeners often want to get their crops in the ground as soon as possible in the spring trying to get the earliest possible summer harvest. The seed corn maggot is a pest favored by early planting dates, heavy cover crops, and cool-wet weather. When stand loss or plant injury due to seed corn maggots becomes apparent, there are no effective rescue treatments available.

Crops planted early when the weather is cool and wet for long periods of time are potentially at greater risk to damaging infestations. With this insect, planting in well prepared seedbeds, planted sufficiently late for quick germination is one means for preventing injury. Where possible, heavy cover crops should be turned over early to render the field less attractive to egg laying seed corn maggot flies in the spring. Depending on the crop, insecticide treatments at planting, transplant water, or even seed treatments may be available to control these insects. After damage is observed on the crops, rescue treatments are not usually effective. Resetting or replanting of crops may be necessary if stand loss is severe. Occasionally, crops are seeded when soil temperatures are below those for optimal or rapid germination. Shallow planting will increase germination rates and aid in speeding up germination and reduce losses to seedcorn maggots. Under these conditions, higher seeding rates should be considered to offset stand loss.

FRUIT CROPS

DAMAGE TO TREE FRUITS AND SMALL FRUITS CAN BE CAUSED BY EXCESS WATER
by John Hartman

High rainfall levels in many parts of Kentucky during the past week resulted in saturated soils that may cause symptoms to appear on some fruit crops. Prolonged soil saturation and flooding reduces soil oxygen levels, causing roots to function abnormally, thus stressing plants. Dry, windy weather following flooding episodes makes plant leaves vulnerable to drying out when roots function poorly.

It has been our experience that fruit trees and berries can suffer when orchard and berry patch soils are flooded even only for a few days. Extension agents, fruit growers and homeowners can be looking for symptoms which may include:

- Marginal leaf browning or sunscald can occur particularly if warm, windy weather follows the saturated soils. At this time of year, new shoots with very succulent growth would be most vulnerable.
- Plant death caused by Phytophthora root and collar
rot occurs especially on raspberries, blueberries, blackberries, apples, and peaches and is associated with excess soil moisture.

- Chlorosis may occur on fruits such as apple, peach, and raspberry that don’t normally get chlorosis from iron deficiency but these crops could show these atypical symptoms when roots are not functioning normally.
- Edema may appear on some plants such as strawberry and blueberry.
- Red or purple coloration appears on leaves of some fruits when soils are saturated for a long time.
- Wilt is sometimes associated with Phytophthora root rot and collar rot, but excess water alone can cause wilt.
- Twig dieback involving canker-causing pathogens may be active on flood-stressed plants.

Roots in flooded or waterlogged soils often die of anoxia (oxygen deficiency). In flooded soil, plant roots and microorganisms use up the available oxygen while adding to a buildup of carbon dioxide. Under these conditions of low oxygen, some mineral elements may be reduced to toxic forms. In addition, a variety of toxic organic substances can form in the soil. The metabolism of plants is changed and adversely affects them by using energy less efficiently, producing toxic byproducts, inadequately taking up water and mineral elements, closing stomata, and depressing photosynthesis and translocation. After the soil drains, plants with killed roots may subsequently suffer drought stress and death. For many of these plants, the only functioning roots are near the soil surface, and when dry weather follows wet, those surface roots quickly dry out.

Plants enduring a flooding episode may also become abnormally susceptible to Phytophthora root rot or collar rot. Excess water promotes susceptibility of roots to this disease and aids the fungus in moving to new infection sites during its swimming phase. Growers with persistent soil saturation problems in the orchard need to improve soil drainage by installing field drainage tiles. For blueberries and raspberries, use of raised beds has been shown to be effective in reducing wet-soil associated problems.

LAWN & TURF

SOIL PH AND SPRING DEAD SPOT
by Paul Vincelli

One of the most effective ways to control spring dead spot of bermudagrass is through acidification of the soil around the bermudagrass roots. It is not known with certainty how lowering the soil pH results in less disease. It is speculated, though not known for sure, that the lower pH makes manganese more available to the turfgrass plant, which may enhance the ability of bermudagrass roots to resist infection by the fungi that cause this disease. Among the fungi known to cause spring dead spot in Kentucky are Ophiophysaerella herpotricha and Ophiophysaerella korrae.

There are two ways to lower soil pH around turfgrass roots: ammonium-based fertilizers and flowers of sulfur. Of the two, the less risky way is to use only ammonium sulfate or ammonium chloride as your nitrogen source. This approach may take several years to result in reduced disease, but in time, ammonium fertilizers acidify the rhizosphere, which is the soil around the root itself. Ammonium fertilizers can cause temporary injury to foliage when applied in hot weather, so it is a good idea to wash the fertilizer off leaves when applied when temperatures are expected to exceed 80°F.

A more heavy-handed approach is to apply 1-2 lb/1000 sq ft of flowers of sulfur to those areas with spring dead spot injury. Map or photograph the treated areas and monitor treated areas for symptoms and pH. Check the soil pH in the top inch or less; the target pH should be 5.2-5.3. Give the treatment a year or two before re-applying sulfur. The hazard with using sulfur to lower pH is that one might over-apply it, end up with highly acidic soil, and have slow spring green-up, or in a worst-case scenario, greater sensitivity to winterkill. Our experience in Kentucky, however, is that it takes a pH down in the low to mid-4’s to get into winter kill problems. Nevertheless, be very careful with sulfur. Treat only those areas with symptoms; don't be in a hurry and over-apply it.

No matter what your control strategy with spring dead spot, it takes integrating numerous control practices and an expectation that you may always have some disease. It isn’t a disease that can be easily controlled in high-pressure sites, but you should be able to keep it to tolerable levels.

SHADE TREES & ORNAMENTALS

COMMON OAK MOTH CATERPILLAR ATTACKING WHITE OAKS
by Lee Townsend

White oaks in several locations in the state are being fed upon heavily by the common oak moth caterpillar. This caterpillar wears camouflage on its back and moves like an inchworm. The body is brown with tan to black blotches on its sides; its back is checkered with diamond-shaped markings and slanted lines. Many are about 1-1/4 inches long now so they are nearly full-grown and will stop feeding soon. There is only one generation each year with
the caterpillars active from May to June. Common oak caterpillars seem to be able to feed on many kinds of oaks but prefer white oaks. In many cases, trees can be severely or completely defoliated. While a single defoliation should not adversely affect established, healthy trees, previous droughts or other stresses can increase the impact of this damage. In general, an insecticide application is neither practical nor recommended, cultural measures to promote tree health are more likely to be beneficial.

HOUSEHOLD

REDUCING POTENTIAL MOSQUITO BREEDING SITES- ORNAMENTAL POOLS AND LANDSCAPE FISH PONDS
by Lee Townsend

Our experiences with mosquitoes and West Nile Virus last year increased our awareness of and concern about these important insects and the serious public health threat some species can pose. Mosquitoes will be back this summer and many people are already wondering about steps to take for mosquito reduction in some particular situations, such as ornamental pools and landscape fish ponds. These are potential breeding sites but they don’t have to be. Here are some things to consider for mosquito management.

Check the pond regularly for mosquito larvae and pupae
It is easy to check ponds for mosquito larvae and pupae. Kneel down by the edge and watch the water carefully for the distinctive wriggling mosquito larvae and tumbling mosquito pupae. They must come to the surface regularly to breathe so just get comfortable and watch for a while. They are most likely to be found in warm shallow areas of the pool. Weekly checks will help you to know if mosquitoes are thriving and you need to implement control measures.

Stock your pond with goldfish or koi
Healthy and hungry top-feeding fish can help to control mosquito larvae and pupae. Smaller goldfish or koi, if hungry enough, will generally eat mosquito larvae and pupae. If you notice wriggling mosquito larvae, stop feeding your fish for a few days and see if the larvae disappear. Do not overfeed your fish. Hungry fish make better mosquito predators and you will not have left over food to encourage algae growth. Also, manage aquatic plants, as explained below, to keep them from providing hiding places for mosquitoes.

Keep landscape plants trimmed away from pond edge
Ground cover plants or other landscaping plants that touch the surface of the water can provide a base for algae growth and shelter for mosquito larva. Keep surrounding plants trimmed away from the water surface so this will not be a problem.

Remove excess organic material from pond
Periodically remove organic matter such as leaves, fruit, and dropped flowers or buds that fall into the water. Large ponds may be able to absorb a lot of material but excess amounts, or a rapid influx, can quickly cause a pond to go “bad”. Excessive organic matter can require more oxygen than the pond has available for decomposition. The anaerobic bacteria that grow in this situation discolor the water and give it a foul odor. Most mosquito larvae do well in stagnant water because they feed on the microorganisms.

Thin or remove excessive aquatic plants
Aquatic plants that are in contact with the surface of the water may shelter mosquito larvae from fish or other predators. Thin or remove plants so that fish can swim around and through the vegetation. Thin leaved plants provide excellent shelter for larvae.

Trim or prune landscaping plants
All ponds need some sunlight. Prune landscaping shrubs or trees to thin the shade cover and provide some light to reach the pond. Depending upon your choice of aquatic plants, you may need more or less direct sun to reach your pond. Check with your nursery or garden books for specific plant requirements.

Avoid contamination of your pond
Avoid contamination from fertilizers, pesticides, herbicides or muddy runoff. If your yard is to be treated for pest control, protect your pond by covering or not treating that part of the yard. Fertilizers can cause algae to grow rapidly in your pond. Many pesticides and herbicides used for yard pests can be very toxic to fish. If you are refilling or adding large amounts of water to your pond, consider whether there are chlorine or chloramines added to the new water. Check with a local pet store that sells fish or your nursery for advice on neutralizing these compounds (generally you can add water to your pond in small amounts - less than 10% of the volume - without problem).

Mosquito control products
Mosquito Dunks, which contain a biological insecticide, can be placed in ponds to control mosquito larvae. They do not affect eggs or pupae but will kill larvae. The product does not provide fast results and is most effective against small larvae.

(Note: Adapted from information available from the Alameda County (CA) Mosquito Abatement District)
INSECT TRAP COUNTS

TRAP FOR GOOD DECISIONS
by Ric Bessin

Pheromone traps have been very effective in terms of monitoring and assessing some insect pests in field crops, fruits and vegetables, as well as improving timing of pesticide applications for some high value crops. Pheromone traps are used in Kentucky to monitor European corn borer, southwestern corn borer, fall armyworm, black cutworm, and beet armyworm in field crops and codling moth, oriental fruit moth, San Jose scale, leafrollers, peachtree borer, lesser peachtree borer, grape berry moth, grape root borer in fruit, and cabbage looper, beet armyworm, European corn borer, corn earworm (aka tomato fruitworm), fall armyworm and diamondback moth in vegetable crops. To monitor for European corn borer, fall armyworm, black cutworm, and corn earworm, the Texas style cone trap is used. Bucket traps are used to monitor southwestern corn borer. Various types of sticky traps are use to monitor the other pests.

Unbaited sticky traps are use to monitor some field and greenhouse pests. Varoius types of yellow sticky cards are used to monitor corn rootworm beetles, cucumber beetles, aphids, thrips, whiteflies, and shore flies. Black electrical tape is used to monitor for San Jose scale crawlers when the attached to scaffold limbs with the sticky side facing outward.

Trapping is an easy and effective way to monitor insect population to determine the size of the population and the timing of specific events (eg. mating, egg laying, crawler movement, etc.). However, in order for these traps to be effective, there are a few guidelines that need to be followed very carefully. If these guidelines are not followed, then the traps may not be functioning.

**Trap placement:** In fruit trees, hang traps in the southeastern quadrate of the tree, five to six feet off the ground. Avoid hanging traps in border rows. Hang San Jose scale traps in a fruit trees know to have scale. Attach the trap to a scaffold limb with an active scale infestation. In field crops and vegetables, place traps outside of the field so that they will not get in the way of equipment. European corn borer traps work effectively when placed in standing weeds with the entrance to the trap just BELOW the height of the weeds.

**Monitoring traps:** Monitor traps twice a week at a bare minimum for fruit tree pests early in the season (before first cover) then weekly thereafter. Monitor traps for field crop and vegetable pests weekly.

**Recording trap information:** With some insect pests we are looking for a particular threshold number before we initiate some management action, such as the fifth moth captured in the spring. With others we study captures over time to look for trends, such as peak moth flight. Either way, you need to maintain records and sometimes graph the information understand the data.

**Storing lures:** Store extra lures in the freezer. They can be stored from one season to the next this way. You may keep them in the refrigerator, but they need to be used this season.

**Changing lures:** Lures need to be changed every four weeks (Except for the codling moth long life lures which last eight weeks). I find it useful to change the lures on the first of every month. Always use fresh lures. Change gloves when handling lures for different species to prevent cross-contamination. Minute traces of one pheromone contaminating the another lure may render it completely ineffective. Do not dispose of used lures within the field, this may lower your trap catches.

**Cleaning traps:** Remove moths captured in the trap at each visit, wipe them on a cloth and dispose of them outside the field. Liners in sticky traps will need to be changed regularly to maintain trap effectiveness.

Failure to follow these guidelines can cause serious problems and lead to poor decisions. If the traps are not functioning properly, few moths will be captured even though they may be present in large numbers.

UKREC, Princeton KY

May 2 - 9
Black Cutworm .................................. 1
True Armyworm ................................ 18
European corn borer ............................. 24
Southwestern corn borer ........................ 1
Corn earworm .................................. 16

NOTE: Trade names are used to simplify the information presented in this newsletter. No endorsement by the Cooperative Extension Service is intended, nor is criticism implied of similar products that are not named.