FRUIT CROPS

PLANNING FOR APPLE FLYSPECK AND SOOTY BLOTCH MANAGEMENT

by John Hartman

Sooty blotch and flyspeck are common problems that appear in late summer in commercial and backyard Kentucky apples. Flyspeck and sooty blotch are two separate diseases caused by fungi that frequently occur together on the surface of the same fruit.

Symptoms and cause. Disease symptoms often appear when fruits are nearly full-sized during the summer. Flyspeck appears as clusters of tiny, black dots whereas sooty blotch appears as dark, sooty smudges on the surface of the fruit. The fungi that cause flyspeck (Zygophiala jamaicensis) and sooty blotch (Peltaster fructicola, Gastrumia polystigmatis, Leptodontium elatius, and others) are common inhabitants of brambles and many other woody plant hosts where they overwinter and grow.

Disease spread. Spores of sooty blotch fungi are spread during rain and the flyspeck fungus is spread as airborne ascospores which are released during rain or as airborne or waterborne conidia. Fruit infection can occur any time after petal fall but is most prevalent during mid- to late summer. Based on research we have conducted over several years, the timing of disease symptom appearance corresponds with how much leaf wetness (determined using commercial electronic leaf wetness monitoring equipment), has accumulated during the growing season. Beginning from 10 days after petal fall, leaf wetness hours caused by dew or rain added all together typically reach 200 hours sometime in July or August just as first symptoms appear. Thus, infections must be occurring sometime before the 200 wetness hours have been compiled. As a reference point, at the U.K. Horticultural Research Farm about 85 hours of leaf wetness was accumulated by the last week in May.

Both diseases are favored by temperatures between 65° to 80°F and by high relative humidity at the fruit surface. Conditions such as these are most frequent when nighttime temperatures remain near 65° to 70°F or during extended warm rainy periods. The diseases flourish in orchards subject to heavy dews or fog. Under ideal conditions, sooty blotch and flyspeck symptoms can develop within 14 days of infection, but symptom development is arrested by high temperatures and low relative humidity. Thus, the period between infection and symptom development ranges from 25 to more than 60 days. Sooty blotch and flyspeck infections not yet visible at harvest can develop during storage.

Sooty blotch and flyspeck management. A combination of annual pruning, adequate fruit thinning, orchard sanitation, and protective fungicides is the key to controlling sooty blotch and flyspeck.

- Pruning and Thinning: Pruning systems that open the tree canopy to light should also improve air movement and thereby reduce relative humidity and the time that leaves and fruit are wet. For example, research done in Massachusetts showed that summer pruning, as opposed to dormant pruning, reduced the incidence of flyspeck on apple fruit by 50 percent. Keeping the orchard mowed should also promote air movement, enhance rapid drying, and in turn, reduce summer diseases. Thinning of fruit is important to improve spray coverage and drying. Clustered fruit often have flyspeck on their inner faces even when an adequate fungicide program has been used.

- Sanitation: Removing unwanted vegetation that might be a reservoir for pathogens, particularly wild brambles,
Ants are the most frequent and persistent pests encountered around homes. At least a dozen species may be found indoors, including pavement ants, carpenter ants, odorous house ant, acrobat ant, and pharaoh ant. Besides being a nuisance, they contaminate food, build unsightly mounds on clients’ property, and cause structural damage by hollowing out wood for nesting.

At certain times of the year, ant colonies produce winged individuals which are often mistaken for termites. Winged ants have a constricted (pinched) ‘waist’ and antennae which are bent or elbowed; winged termites have a body which is not constricted in the middle and the antennae are straight. The role of the winged individuals is to mate and establish new colonies – fortunately, the success rate for accomplishing this inside a home is low. Winged ants do not feed, and can be removed with a vacuum cleaner. However, they are an indication that a nest is present within the structure which may require additional effort to eradicate.

Ant control can be very frustrating. Repeated attempts often are made to maintain ants at tolerable levels. This column will help you eliminate pestiferous ants with more success and less effort. Recommendations pertain to all of the common ant species found in Kentucky except carpenter ants, which are discussed in entomology Entfact-603 or ENT-57.

THE BATTLE PLAN

The mistake most people make when attempting to control ants is only spraying the ones they see. This approach usually fails because the ants seen foraging over exposed surfaces are only a small portion of the colony. Typically, there will be thousands of additional ants, including one or more egg-laying queens hidden somewhere in a nest. The importance of eliminating queens and other colony members within nests cannot be overstated and is the key to effective ant control.

Ants build their nests in many different locations, both inside and outside of buildings. Control of indoor-nesting ants requires a somewhat different approach than for ants nesting outdoors, because indoor nests usually are hidden or inaccessible.

**Ants Nesting Indoors** - Buildings contain many favorable nesting sites for ants. Preferred sites include spaces behind walls, cabinets, light switches and receptacles, behind window and door frames, and beneath floors. Most of these areas are hidden, making it extremely difficult to determine the precise location of the ant colony. When the location of the nest cannot be determined, or the nest is inaccessible, **insecticide baits** are the preferred solution for homeowners. The advantage in using baits is that foraging ants take the insecticide back to the nest and feed it to the queen(s) and other members of the colony. In a relatively short period of time (often within a week) the colony is destroyed.

Ant baits are easy to use. Most homeowner formulations come pre-packaged with the insecticide and food attractant confined within a plastic, child-resistant station. Three of the more effective containerized bait products which can be purchased in most grocery, hardware and discount stores are Combat Quick Kill® and Combat SuperBait® for ants, and Raid Ant Bait Plus with Mettastop®. Place the baits next to wherever ants are seen, preferably beside ant “trails” – invisible odor trails that worker ants follow between food and the nest. Do not spray other insecticides or cleaning agents around the bait stations as this will keep ants from feeding on the bait. Initially, you should see an increase in the number of ants around the bait station. Do not spray them. This indicates that the ants are feeding on the bait and transporting the insecticide back to the nest. A nt activity around the bait station should subside in a few days as the number of ants in the colony declines. Continue to place other baits wherever ants are seen.
Ants are rather finicky in their food preferences and may alter them throughout the year. This is especially true of the odorous house ant, a small blackish ant found on the inside and outside of structures. Odorous house ants have become the most common and difficult ant species to control throughout Kentucky and much of the Midwest. The colonies are large and fragmented with several satellite nests living on both the inside and outside of the building. The ant is small, blackish and tends to form distinct trails along floors, counter tops, sidewalks, foundation walls, etc. This particular ant is VERY DIFFICULT to control, particularly by homeowners. In general, the better baits to try are the sweet baits mentioned above. When odorous house ants are the culprit, many householders will be better off calling a professional, although they, too, are being challenged in their attempts to manage this ant.

Difficult or persistent ant problems are often best managed by a professional pest control firm.

**Ants Nesting Outdoors** - Ants noticed inside the home may actually be nesting outdoors in the yard. Trace the ants back to the point where they are entering from outside, such as around a window sill, beneath an exterior door, or where the exterior siding meets the foundation wall. When tracing ant trails outdoors or indoors, pay particular attention to seams and edges created by mortar joints, foundation/siding interface, baseboards, carpet tack strips, etc., as ants usually prefer to trail along “lines” and edges. Nests often will be located in the ground, where they may be marked by a mound or anthill. Other times, the nest will be concealed under stones, mulch, landscaping timbers, pavement, or beneath the grass adjacent to the foundation wall. Some kinds of ants prefer to nest underneath siding or behind wood trim that has been moisture damaged. While it takes patience to locate a nest outdoors, results will be more rapid and permanent than if you spray only where ants are seen. One way to entice ants to reveal the location of their outdoor or indoor nest(s) is to place small dabs of honey or maple syrup next to where ants are observed. After the ants have fed, they soon will head back to the nest.

When a below-ground nest is discovered, the colony can often be eliminated by thoroughly spraying or drenching the nest location with a liquid insecticide such as Sevin or a pyrethroid product such as Spectracide Bug Stop®, Ortho Home Defense System®, or Bayer Advanced Lawn & Garden Multi-Insect Killer®. Large colonies will require greater amounts of liquid to move the insecticide throughout the network of underground galleries within the nest. Using a bucket to apply the diluted insecticide is an effective method. Follow label directions for treating ant mounds, paying attention to precautions for mixing and application.

Another effective and convenient way to control outdoor and indoor-nesting ants is the granular bait product, Combat® Outdoor Ant Killing Granules. Sprinkle the bait in small quantities beside outdoor ant mounds, along pavement cracks, and other areas where ants are nesting or trailing.

Ant entry into homes can be reduced by caulking around doors (especially along bottom outside edge of thresholds), windows, and openings where pipes and wires enter the building. Chronic ant problems can further be reduced by spraying one of the above-mentioned liquid insecticide formulations around the outside perimeter of the building. Pay particular attention to likely points of entry, such as around doors and where utility pipes and wires enter from the outside. Also consider applying a 3- to 6-foot swath along the ground adjacent to the foundation, and a 2- to 3-foot band up the foundation wall.

Broadcast spraying or applying conventional (non-bait) insecticide granules (e.g., diazinon or Dursban) to the yard seldom, if ever, solves an indoor ant problem. In Kentucky, such applications are a waste of money, effort, and a potential polluter of streams, lakes, and municipal water systems. They also eliminate beneficial ants which may be important allies in suppressing other pests on your property.

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**DIAGNOSTIC LAB HIGHLIGHTS**

by Julie Beale and Paul Bachi

Samples diagnosed during the past week have included take all on wheat; frost injury on corn; frost injury, chemical injury, Pythium root rot and target spot on tobacco; Rhizoctonia stem rot on cauliflower; black rot on grape; fire blight on pear (and apple); cedar-apple rust on apple; leaf curl on peach.

On ornamentals we have seen Botrytis blight on verbena; red thread on fescue turf; rosette disease on rose; Septoria leaf spot on birch; and spot anthracnose on dogwood.
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Black Cutworm ........................................ 1
True armyworm ....................................... 4
Corn earworm ........................................... 1
European corn borer ................................... 5
Southwestern corn borer .............................. 12

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.