MONITORING FOR SPOTTED WING DROSOPHILA: AN INSECT PEST OF BERRIES AND OTHER FRUITS

A Spotted Wing Drosophila (SWD) is a small vinegar or "fruit" fly that is about 2-3 mm in length. For the past two years, it has been a problem in several areas of the U.S., including the Midwest. The Spotted Wing Drosophila (SWD) (pronounced Dros-o-fill-ah) has caused economic damage to berries, grapes and soft-fleshed fruits, such as peaches. The SWD is also able to attack some vegetables, including tomatoes and peppers. Unlike most other vinegar flies that lay eggs on damaged or fermenting fruits, SWD females can cut into healthy fruit. They do this by using their serrated (saw-toothed) ovipositor (organ for depositing eggs) to inject eggs under the skin of the fruit. The adult SWD lives for about two weeks; during this time, each female can lay more than 300 eggs. The larvae hatch and feed inside the fruits, causing them to rot. This insect reproduces so quickly that a few adults can become thousands of flies in just a few months.

It is very important that farmers learn how to monitor for this invasive pest. A simple trap can help you determine whether the SWD is present. The most effective and economical trap can be prepared using a clear plastic cup with a fitted lid. Bait this trap with a mixture of water, dry active yeast and sugar. Make small holes in the sides of the trap that allow the flies to enter. A small yellow sticky card can be placed inside the cup. In that way, flies that are attracted by the bait will enter the trap and be retained by the card. This allows for easier fly identification, which is the purpose of this trap. For small acreage (or in a high tunnel), researchers suggest setting one trap for plots up to one acre. However, for larger farms, a minimum of three traps per five acres should be used. These monitoring traps need to be placed inside the vegetation, in the shade. It is also a good idea to put a trap in adjacent woods, where activity can occur earlier if there are plants bearing wild berries. Set traps just before the fruit starts to ripen. Check traps and replace yeast and sugar bait each week.

Because this pest is so new to Missouri, there has been no research on insecticidal treatments to manage SWD and therefore recommendations are based on findings from other states. Before you spray, confirm that you have SWD in your area by hanging out traps or checking fruit. Sprays must be timed to kill adults before they lay eggs, as sprays will not control larvae already in the fruit. Always read product labels to make sure pesticides are registered for use on the fruit or berry you are treating.

(Continued on page 2)
For home-owners: The insecticide Spinosad (e.g., Monterey Garden Insect Spray) is effective and has the least negative environmental effects of currently available products. Some spinosad products are sold to be applied with a hose-end sprayer, but a compressed-air sprayer will give more reliable coverage. Fertilome® Borer, Bagworm, Tent caterpillar and Leafminer spray (spinosad 0.5%) and Green Light® (spinosad 0.5%) are also labeled for use in bushberries and caneberries against fruit flies. The organophosphate insecticide malathion is widely available and will also control SWD, but malathion is very toxic to bees and natural enemies of other pests in the garden so care must be taken to keep the application on the target plant and avoid drift and runoff. Improper application also can result in injury to cherry trees. Because of the potential negative impact of malathion in the garden, use it only where you are certain you will have a SWD infestation, either because you had a problem last year or from trapping and positively identifying insects this season as SWD. If you would like more information, contact me and I will send you what information I have.

Source: Dr. Jaime Piñero, Lincoln University, Jefferson City, MO

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**KEEPING THE APPLE CRUNCH... STORAGE AND BUYING TIPS**

In the bag...if you buy apples in a plastic bag, which helps retain the juiciness of the apples, leave them there and store the bag in the crisper drawer of your refrigerator. Cool air between 32-40 degrees F. prevents apples from losing their crunch and spoilage. Apples ripen ten times faster at room temperature than when refrigerated. Cool air helps prevent decay and helps maintain quality, juiciness, and crispness. One bad apple undetected can spoil the bunch. That’s why it’s important to sort and use apples with defects immediately. Only perfect apples, free of bruise and decay, should be kept for later use.

How cool is too cool...apples store best at 32-40 degrees F. and can be ruined if frozen. For this reason, don't store them too near your freezer compartment. If you’re storing apples in your cellar or garage, protect them with a blanket or cardboard box when the temperature drops below freezing.

Cheaper by the bushel...generally, large quantity buying (half or full bushels) is more economical than buying only a few—assuming you have a suitable place to store the extra apples. Although the refrigerator is the ideal storage place, you can keep apples in a cool cellar, garage, or porch if you so choose. For best results, line the container with plastic to prevent moisture loss.

Source: [http://plantsci.missouri.edu/apple/storage.htm](http://plantsci.missouri.edu/apple/storage.htm)

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**MISSOURI APPLE HISTORY**

Several fruits such as pears, grapes and apples are ready for harvest in September in Missouri. Many varieties of apples are grown in this state. There is an apple for every taste and every use. Some taste tart, some taste mild, some hold their shape during baking, while others cook down into sauce rapidly. About 46% of the apples grown are Jonathan, 32% Red Delicious, 10% are Golden Delicious, 5% are Gala apples, and the other 7% are other cultivars such as Rome, Empire, Fuji, Winesap, and Paula Red.

By 1900, Missouri was the center of activity for growing apples in the U.S. as production shifted from the eastern states to the Midwest. Apples were transported in wooden barrels by rail cars and boats to destinations Sioux City, Minneapolis, Detroit, Buffalo, Philadelphia, Baltimore, Birmingham, Mobile, New Orleans, Galveston, as well as European ports.

In 1904, there were 25 million apple trees planted in Missouri that produced a crop worth $30 million (worth about 501 million in today’s dollars). Census figures of 1913 reported nearly 15,000 apple growers with most of them producing their crop on less than 10 acres of land.

In the 1920’s and 30’s many insects and diseases invaded Missouri orchards. Without effective control measures to combat these pests, apple production declined. The Great Armistice Day freeze (November 1940), in which there was an unseasonably warm fall followed by a rapid drop in temperature, killed thousands of trees not only in Missouri, but also in Iowa, Nebraska, Kansas, and Illinois. After the freeze, apple production moved westward to states with less erratic climatic conditions and lower pest populations.

Source: [http://plantsci.missouri.edu/apple/facts.htm](http://plantsci.missouri.edu/apple/facts.htm); [http://plantsci.missouri.edu/apple/history.htm](http://plantsci.missouri.edu/apple/history.htm)
Hello gardeners! School has started and fall is almost here. Some of you may not know that in March I became Co-County Program Director for Adair County. That means more responsibilities and work in addition to my horticulture work. I have to cut back on some horticulture programming to carry out these additional job responsibilities. I will still be doing Garden n’ Grow, Master Gardener training, Missouri Grown (working with producers and local foods), but I will have to cut back on the smaller garden programs I have done in the past.

The Kirksville area has not seen significant rainfall in nearly seven weeks. The grass is brown, plants are wilting, and trees and shrubs are turning color and dropping leaves. Be sure to water your trees, shrubs and perennial plants if you want them to survive this drought. Many evergreen trees and shrubs such as spruces and arborvitae died last year as a result of the drought and not being watered. On the other hand, my home county (Texas) in southern Missouri received 16 inches of rain in just a few days. My dad came to visit during that time and go fishing because it was too wet for him to do anything back home.

Native plants are doing very well right now. They seem to be one of the few perennial plants that are doing well. Black-eyed Susans, New England asters, liatris and other native plants in our extension garden are thriving on no water. If you want plants for a hot, dry area you need to consider natives. Native plants are hardy, drought tolerant and they attract pollinators. There are beneficial insects and butterflies on the native plants.

A lot of tomatoes are still green on the plants. They just don’t want to ripen very quickly, but surely they will at some point. Squash plants, some lilacs and zinnias now have powdery mildew. The heavy dew we received in late July and early August caused it show up on vine crops and some ornamental plants. At this point in the season, I don’t think it’s worth spraying or worrying about. Most people are getting tired of harvesting cucumbers and zucchini by now.

Since the last newsletter I have received information on a new, invasive pest to Missouri, the Spotted Wing Drosophila. See the article on the front page for more information. My eggplant is still doing very well. I still do not have flea beetles. If you remember from last month, I mentioned that I grow them in a large cattle mineral container. I plan to grow them this way next year. Spider mites have invaded. They like hot, dry weather and are on a lot of different plants right now. Their damage appears as yellow stippling on the leaves. You may also see some webbing on the backsides of the leaves. At this point in the growing season, I don’t do anything about them. You could try to spray them off or use an insecticidal soap.

Lawn grass in northern Missouri is suffering from drought stress. At this time do not apply fertilizer. The grass should green up if and when we get rain this fall. You can fertilize your lawn at the end of the month if it has received adequate moisture, or you could wait and apply a winterizer in November. If we receive adequate moisture in September, you should reseed any bare spots in your yard. Fall is the best time to reseed a lawn. Fall is also a good time to transplant perennials and plant trees and shrubs. As we get later in the summer and into fall you may notice the inner needles turning brown on white pines. This is normal fall needle shed.

Our four chickens started laying eggs on August 10 at five months old. We are gathering 3-4 eggs a day. Our boys love to go out and check the chickens. Now that school has started they go out as soon as they get home from school, and they go out many times during the day on the weekend to see if they have laid any eggs. We feed them overripe cucumbers, zucchini, watermelon and cantaloupe rinds, and just about anything from the garden or that is plant based. We feed them insects and worms when we can find some. The yolks of their eggs are bright orange.

As we go through fall, preserve enough food to get you through the winter. Most of your garden produce can be preserved one way or another. If you don’t have a garden, go to your local farmers’ market and purchase some produce to put away in the freezer or can. Winter squash and pumpkins are nearly ready for harvest and can be used soups and stews and other fall dishes.

Until next month, happy gardening and preserving!
GARDENING TIPS FOR SEPTEMBER

ORNAMENTALS
- Plant evergreens now.
- Take cuttings of annuals to have vigorous plants for over-wintering.
- Plant spring bulbs except for tulips as soon as they are available. Keep tulips in a cool, dark place and plant in late October.
- Divide perennials, especially spring bloomers. Enrich the soil with peat moss or compost before replanting.
- Divide peonies now. Replant in a sunny site and avoid planting deeply.
- Lift gladiolus when their leaves yellow. Cure in an airy place until dry before husking.
- Begin forcing poinsettias to bloom at the end of the month. Place plants in a cool, dark room or closet from 5 p.m. until 8 a.m. for about 8 weeks or until top leaves turn red.

VEGETABLES
- Sowing seeds of radish, lettuce, spinach, and other greens in a cold frame will prolong fall harvests.
- Pinch out the top of brussel sprout plants to plump out the developing sprouts.
- Keep broccoli picked regularly to encourage additional production of side shoots.

FRUIT
- Pick pears before they are fully mature. Store in a cool, dark basement to ripen. Discard any spoiled or fallen fruits.
- Paw paws ripen in the woods now.
- Check peach tree trunks to just below the soil line for gummy masses caused by borers. Probe holes with thin wire to puncture borers.

TURFGRASS
- Begin fall seeding or sodding of cool season grasses. Seedbeds should be raked, de-thatched, core-aerified, fertilized, and seeded. Keep newly planted lawn areas moist, but do not wet.
- If soils become dry, established lawns should be watered thoroughly to a depth of 4-6 inches.
- Cool season lawns are best fertilized in fall. Make up to 3 applications between now and December. Do not exceed rates recommended by fertilizer manufacturer.
- It is not uncommon to see puff balls in lawn areas at this time.
- Newly seeded lawns should not be cut until they are at least 2-3 inches tall.

MISCELLANEOUS
- Fall is a good time to add manure, compost, or leaf mold to garden soils for increasing organic matter content.
- Monitor plants for spider mite activity. Reduce numbers by hosing off with a forceful spray of water.
- Seasonal loss of inner needles on conifers is normal at this time. It may be especially noticeable on pines.

-Missouri Botanical Garden-

UPCOMING EVENTS

September 3-November 12: Master Gardener Training, Mexico. Tuesdays 6-9 pm, Audrain 4-H Center. Call 573-581-3231 for info. and to register.

September 6: Clark County Lady Landowner Workshop, 9:30-3:00, St. Paul’s United Church of Christ, Kahoka. Morning sessions and afternoon garden tour. Lunch provided. Call the Clark County Extension Office to register at 660-727-3339.

September 13: Knox/Scotland Lady Landowner Workshop, Location TBD. Lunch provided. For info. and to register contact Schuyler Co. Extension at 660-457-3469.


September 24: Linn/Sullivan Lady Landowner Workshop, Browning Community Center, lunch provided. For info. and to register contact Putnam County Extension office at 660-947-2705.


October 5: Field day at Russ Heindselman’s, LaGrange. Tours and sessions on bluebirds, fish, pecans, gardening and much more. At this time I do not have the time, directions or cost.

December 6 & 7: Missouri Livestock Symposium, Kirksville.