Fall Armyworms

There have been several reports of fall armyworms in the southern Missouri. Farmers should be scouting pastures and hayfields to determine if fall armyworms are present. Scouting should be done in the early morning or late evening as these are the times when fall armyworms are most active. Reports so far indicate that fall armyworms have only infested bermudagrass and alfalfa but farmers should also scout other crops, especially if newly seeded, as armyworms have a host range of over 60 different plants.

Fall armyworm larvae colors range from light green or tan to almost completely black or gray. They are easily identified by a white inverted “Y” shape on the head, stipes running the length of the body, and the presence of 4 black dots in a square pattern on the last abdominal section.

If fall armyworms are found, the best and most economical control option is to harvest the forage to minimize damage and remove the food source. Grazing or harvesting for hay can both reduce populations of fall armyworms.

If harvest is not an option, insecticide treatments may be warranted. If 3 or more larvae are found per square foot, then the economic threshold has been reached and a spray application is justified. This may vary slightly depending on the value of the crop.

Jamie Gundel, Agronomy Specialists, University of Missouri Extension, Alton, MO
Heifer Pregnancy Rates Down

An untimely heat wave is the likely culprit of reduced pregnancy rates observed in many groups of heifers bred this past spring. Temperatures began to rise the end of May and remained elevated throughout the month of June, with temperatures several degrees higher than the historical average. The hot temperatures coincided with spring breeding for February/March calves.

The embryo is very vulnerable to stress up to about day 45 when it becomes fully attached to the uterus. Some late embryonic loss can occur especially when cattle are under added stress—hot weather. The first 3 days after A.I. or bull service are particularly important for embryo survival because the embryo is still in the oviduct and temperatures cannot be regulated until it migrates to the uterus. A higher instance of early embryo death might have caused lower than usual A.I. pregnancy rates this season because of the heat.

There are 3 scenarios which I think could have led to the reduced pregnancy rates.

♦ A.I. occurred during hot weather and the early embryos did not survive
♦ Lower than usual A.I. rates meant the bulls had more animals to breed and they didn’t have the capacity to cover all the animals
♦ Bulls were turned out in the hot weather and either didn’t perform or the early embryos did not survive the heat

The average A.I. pregnancy rate of Show-Me-Select heifers was 62%; which is right on target with expectations. A.I rates on individual farms ranged from 30% - 80% and a few achieving 100% A.I. conception when they bred only a few head. I think the more troubling number is that after a 90-day breeding season an average of 15-20% of the heifers remained open. Heifers are still young enough at this point they have time to put on some weight and be marketed before they reach 30 months of age.

There is not much to be done when hot weather strikes during breeding. Work heifers early in the morning, provide shade, and practice low-stress handling techniques. Breeding off heat detection can be difficult when the weather is too hot because animals tend not to move around as much and do not show signs of standing estrus. Heat detection is a vital part of getting more animals pregnant. Since fewer animals are seen in heat, fewer animals can be inseminated. In this case, fixed-time A.I. protocols that synchronize ovulation would be the best choice because of the lack of necessity for heat detection. Using embryo transfer during times of heat stress can also increase pregnancy rates. High quality, fresh embryos have been proven to increase pregnancy rates over A.I. in heat stressed cows (Putney et al., 1989).

A note for whoever is thawing the semen: make sure you can find some shade; the UV rays can kill the sperm cells. Also, keep the thaw bath at the proper temperature, 95°.

Erin Larimore, Livestock Specialist, University of Missouri Extension, Jackson, MO
On August 29, Mike Milam, Agronomy Specialist in Dunklin County, found kudzu bug on kudzu in northern Dunklin county. This is the first report of the invasive pest in Southeast Missouri. Three more adults were found in a different location in the north end of the county later in the week.

Kudzu bug, once established in an area, can migrate to soybean fields with areas located nearest to kudzu being at highest risk. When temperatures warm, the adults emerge from overwintering sites to mate, lay egg masses, and develop through 5 nymphal stages before moving into soybean as adults within 6-8 weeks. This time of year kudzu bug migration into soybean is not a threat. July may mark the time to scout for the pest in Missouri on flowering soybean.

Information for Soybean Growers from the University of Georgia—Center for Invasive Species tells us the Kudzu bug taps the veins of plants to reach the phloem, using piercing sucking mouthparts. Injury to plants results from nutrient and moisture loss, rather than a direct loss of biomass from removal of plant tissue. On soybeans, the adults and older nymphs feed on stems with smaller nymphs feeding on leaf veins. In 2011, yield losses of up to 47% were recorded in Georgia on untreated beans on a research station near Midville; only two kudzu bugs were found at this location the previous fall.

When scouting look for thresholds of 25 nymphs (immature kudzu bugs) per 25 sweeps. Kudzu bugs can be scouted using a 15-inch diameter sweep net. Kudzu bug populations can be extremely high, especially on field edges. This suggested threshold is based on 2011 field trials where a single properly timed insecticide application preserved soybean yield. In the majority of trials conducted in Georgia, nymphs usually appear at about the R-2 to R-3 growth stage.


Cooler fall temperatures signal emergence of kudzu bug adults from their preferred plant hosts in search of sites to spend the winter months. This is also a good way to monitor for populations that are beginning to take hold in Missouri.
The era of big stockyards in the United States began with the opening of the Chicago Union Stock Yards on Christmas Day 1865. The marketing strategies represented a welcomed new beginning to a nation torn by civil war and ready for healing. Most markets operated in big cities at locations collectively called “the stockyards.” The stockyards generally referred to the entire area in a city where all participants in the process, including the stockyard company, meat-packing facilities, commission agents and dealers, and railroad officials, came together to do business. A president of the Wichita Union Stock Yards once described the stockyards as a “hotel for livestock.” “For instance, we rent ‘em a room-a pen; if they want to eat, we feed them. We furnish branding service as a hotel furnishes a manicure; we have a veterinarian on duty, offering a complete service, just like a hotel employs a house physician.” Here is a brief history of four major “livestock hotels” in Missouri.

St. Louis - During the Civil War about the only St. Louis industry that did not suffer was the growing meat-packing trade. Once the war ended a stock receiving and shipping center was built in St. Louis. However, there was no railroad bridge crossing the Mississippi to the city on the west bank. Producers on the west side of the river would have had to put their cattle on a ferry in order to reach the market. Due to railroad access, the developers chose land to the east on the Illinois side of the river. This 400 acre site was called the St. Louis National Stockyards and was made possible with the investment of $1 million. The complex included $150,000 Allerton House Hotel (later called National Hotel), restaurant, warehouses, a fertilizer plant, and 5,000 pens paved with white oak planks. The stockyards opened on November 19, 1873. During the first full year of operation in 1874 the stockyards received 234,002 cattle and calves, 498,840 hogs, 41,407 sheep, and 2,235 horses and mules. By the 1930s, St. Louis ranked second among the top terminal livestock markets in the country. However, after World War II market declines and shifts of sales to country auctions and feedlots made livestock receipts shrink. In 1972, the yards shrunk to 100 acres with plans of a 640-acre industrial park to occupy the remaining property. The barn still handled 2 million animals per year.

Kansas City - During the mid-1860s five acres were mapped off for livestock trading and 11 animal pens were built but that number was quickly tripled. In 1871 officials organized the first independent stockyards company called the Kansas Stockyards Company, with the new facility constructed on 26 acres. The name was changed to Kansas City Stock Yards Company in 1876. On June 1, 1903 a huge flood ruined the exchange building and washed out a large portion of the yard. A new exchange building (the tallest in the world) was built in 1911. A fire on October 16, 1917, leveled more than half the yard area, killing 11,000 cattle and 6,000 hogs. After the rebuilding and
expansion, the yards covered over 200 acres and had become the largest stocker and feeder market in the world. Another fire in 1950 and a devastating flood in 1951 damaged the market extensively. A new ultramodern auction pavilion was opened on March 5, 1970, seating 500 people. However, livestock receipts at the stockyards declined to 400,000 during the 1980s. The owners auctioned their equipment and held their last sale of 150 cattle in September 1991. A 120-year-old “grand old terminal market” shut down.

St. Joseph - St. Joseph began in 1843 at the site of an old trading post. Citizens organized the St. Joseph Union Stock Yards during the 1870’s with only 24,616 animals going through during the first year. However, by 1880 the yard recorded the arrival of 20,592 cattle, 102,150 hogs, and 5,990 sheep. With these numbers they quickly out grew the facility. The St. Joseph Stock Yards Company opened in December 1887 on 413 acres. The St. Joseph market averaged 500,000 animals per year in the 1920s and 1930s. By 1935 St. Joseph was ranked as the 8th largest cattle market in the country. During World War II receipts increased considerably, however, following the war receipts began a slow decline. St. Joseph remains one of two stockyards still owned by Canal Capital, a giant stockyard holding company.

Joplin - During the early 1930s, 42 businessmen in Joplin pooled their money and built a stockyard to create more economic activity in their community. They were hoping to attract cattle from Oklahoma, Kansas, and Arkansas. On the opening day, August 31, 1931, they indeed had cattle from all three states. The Joplin Stock Yards built a new facility on U.S. Highway 66 and U.S. Highway 71, making it accessible to the Missouri Pacific Railroad and five other rail lines. When the facility opened, it immediately became the 3rd largest livestock market in Missouri with a capacity of 9,000 animals of all types. During the first five years of business they handled over 1 million animals and paid over $15 million to area farmers, even during the midst of the Great Depression. In 1946 gross sales totaled $10,385,550. The stockyards received 72,658 cattle, 43,605 hogs, 25,859 sheep, and 2,933 horses and mules. In July 1995, Joplin closed its outdated facility and built new yards 15 miles away in Carthage. In 2001, the Joplin Regional Stockyards handled 498,000 animals, making it the nation’s 2nd largest auction market.

The era of big stockyards in the United States began with the opening of the Chicago Union Stock Yards on Christmas Day 1865. The development of modern methods of slaughtering and freezing meat, as well as better transportation and communication technology has caused the abandonment of the century-old system. Producers are now able to market their cattle directly to feedlots and no longer need large stockyards to market their cattle. Even though auctioneers have said their last “sold” at many of the original stockyards, smaller livestock hotels remain around the country still housing guests.

Heather Conrow, Livestock Specialist, University of Missouri Extension, Fulton, MO.
Apple Identification

Especially in the fall when the fruit is ready to harvest and the flavors motivate us to do more, apples are interesting to those who like to grow. Identification can be important for insuring the best growth environment for the fruit but it can also be allusive for those who search for answers.

Once it is decided that proper identification is needed or desired then it is important to learn the date the tree blooms, the date the fruit becomes mature and then the color of the fruit inside as well as the skin outside. History of the location of the tree can also be important. Pictures are ideal and very useful for all of these facts.

Some of the oldest American apples have been identified from the 1600’s. Even with an average tree age in a home orchard of 40 years, that is a long time to remember a variety name. For this reason, apple identification can be a challenge. If you are lucky enough to know someone who has worked at the practice then use that source for help. Having a source is a luxury that is unavailable to most. In this case you might try using some good ID websites to narrow down the possibilities.

Start close to home by looking through a list of varieties that do well in Missouri by written description at Apple Cultivars and Their Uses, Guide6022. Once the options are narrowed down, search each name to compare looks.

http://www.applesearch.org/ is a site dedicated to the search for lost heritage apples on east coast. They have identified over 1000 varieties.

http://bighorsecreekfarm.com/master-variety-list/ Has a list of apple varieties with descriptions of each.

http://www.orangepippin.com/apples Is an excellent list of varieties by alphabet with description

http://www.applename.com/ - This website will help you identify apple varieties. If you have an unknown apple variety that you want to identify you can compare the key features you see on it with dozens of attributes and variety characteristics listed on this website.

http://www.newenglandapples.org/ apples/ - New England Apple Society lists more than 120 varieties that are grown in New England.

Varieties that have proven to be elusive to identify may be found at http://www.fruitid.com/#main. This site is not based in the U.S. but could provide help with heirloom varieties.


Arkansas Black is a local favorite. Large, late blooming apple with unique dark red skin. Very crisp flesh. Flavor improves with age. Will keep many months. Excellent variety for cider or for fresh eating through the winter. The fruit retains high quality even with warm nights. This variety was developed in Arkansas in the mid 1800s.
Farming for Sustainability
Lincoln University Field Day
at the George Washington Carver Farm

Thursday, September 8, 2016
3:30 – 7:00 PM
3804 Bald Hill Road, Jefferson City, MO 65101
Trolleys for the guided tours will leave at 4:00 & 5:00 pm

Come and taste farm-fresh tomatoes, cucumbers, peppers, crayfish, and edible native plants

A cost FREE event!
Researchers and Extension Educators will showcase projects on production and management of vegetables, livestock, agronomic crops, native plants, aquaculture, small ruminants, cover crops, agronomic values of biochar and compost, integrated management of pests and diseases.
Future Meetings & Events -

**Ripley County Fair** - September 07-10, 2016 at the Ripley County Fairgrounds. Contact Regina or Sam at 573-996-2148 for more information.

**Southeast District Fair** - September 10-17, 2016 @ the fairgrounds / Arena Park, Cape Girardeau, MO www.semofair.com. For information call 573-334-9250.

**Stoddard County Fair** - September 20-24, 2016 Contact Kevin Holman at 573-820-2618 for more information.

**Butler County Fair** - September 26 to October 1, 2016. For more information on fair entries contact the Butler County Extension Center at 573-686-8064. For information on fair events contact the Fair Board President Jack Altman at 573-718-0588.

**East Perry Community Fair** - September 23-24, 2016 Fair Grounds in Altenburg, MO. Contact Fred Eggers for more information at 573-824-5322.


Contributions to this publication are made by University of Missouri agriculture food and natural resource specialists. If you would like to receive this publication please send an email with request to: denklers@missouri.edu

**Commodities and markets** - http://extension.missouri.edu/scott/crop-budgets.aspx

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