November-December
Upcoming Events

**Annie’s Project**, Louisiana High School, Louisiana, November 7, 14, 28, December 5, 12, and 19
660-397-2179, knoxco@missouri.edu

**Ag Lenders**, Fiddlestiks, Hannibal, December 3
660-457-3469, schuylerco@missouri.edu

**Beef Cattle Artificial Insemination Class**, Novelty, November 6, 7, and 8
573-767-5273, lewisco@missouri.edu

**Livestock Symposium**, Kirksville Middle School, Kirksville, December 7-8
660-665-9866, adairco@missouri.edu

**Show-Me-Select Bred Heifer Sale**, F & T Livestock market, Palmyra, December 8
573-767-5273, lewisco@missouri.edu

**Missouri Cattlemen’s Convention**, Columbia, December 11-13
573-767-5273, lewisco@missouri.edu

573-767-5273, lewisco@missouri.edu
SMS Heifer Sale

The 16th Northeast MO Show-Me-Select Bred Heifer Sale will be held Saturday, December 8, 12:30 p.m. at F & T Livestock Market, Palmyra. We are presently taking consignments and expect between 290-300 head to sell. They will be mostly Angus and Angus cross heifers with several BWF, Simmental/Angus cross heifers and a few Charolais and Gelbvieh cross heifers. They will all be bred to calving ease bulls. Catalogs will be available soon.

Nitrates and Aflatoxin

As you can imagine the conversation continues this fall regarding nitrate concentrations of silage and aflatoxin levels in corn. I’ve seen a large number of feed tests over the last month as many silage pits or bags are now being opened for fall and winter feeding. Many of the tests were taken multiple times and stages of ensiling. From what I’ve observed it has taken a full 60 days of ensiling for nitrate levels to drop and stabilize. Nitrate test levels after the ensiling period seem to be all over the board which further emphasizes the need for testing. Much of the silage went into the pit at a toxic level and has dropped 30-50% in nitrate levels, however some corn was high enough when chopped that safe feeding levels still need to be adhered to, especially in cases where it’s being fed to bred animals. On a positive note, I have not seen a feed test come back where after properly ensiled, nitrate levels were too high to be safely fed. In most situations where it has to be limited, ration concentrations of silage can still displace 50% of diet dry matter intake. Below is a table put together by the University of Missouri outlining nitrate levels and recommended feeding levels. One side note, various labs may report nitrate differently, so be sure to check how they are reporting it as tolerant levels in ppm will differ depending on if it was tested as nitrate-nitrogen, or the nitrate ion.

<table>
<thead>
<tr>
<th>NO₃⁻-N ppm</th>
<th>Category</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 550</td>
<td>SAFE</td>
<td>Forage is generally safe to feed to all classes of livestock.</td>
</tr>
<tr>
<td>550 to 1,100</td>
<td>CAUTION</td>
<td>Forage with this nitrate (NO₃⁻) content can cause a problem with pregnant and young animals. Do not feed forage with nitrate levels this high in combination with non-protein nitrogen supplements, and limit forage with NO₃ levels this high to one-half of total ration.</td>
</tr>
<tr>
<td>1,100 to 3,400</td>
<td>DANGER TOXIC</td>
<td>Limit forage with this NO₃ level to one-fourth of total ration. Should supplement forage of this type with energy, minerals and vitamin A.</td>
</tr>
<tr>
<td>More than 3,400</td>
<td>EXTREMELY TOXIC</td>
<td>Forage with this NO₃ level or higher is toxic and should not be fed under any circumstance. If forage with this NO₃ concentration must be fed, it should be mixed with other feed and make up no more than 15 percent of the total ration.</td>
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Aflatoxin

Aflatoxin has been another problem many producers have had to deal with. A quick review, aflatoxin is a term generally used to refer to a group of extremely toxic chemicals produced by two molds, Aspergillus flavus and A. parasiticus. The toxins can be produced when these molds, or fungi, attack and grow on certain plants and plant products. Most of the aflatoxin problems on corn in the United States are caused by A. flavus, and the
most potent toxin produced by this mold is called aflatoxin B1. The Food and Drug Administration (FDA) has established guidelines for aflatoxins in corn used for food and feed in the United States. (table 1)

<table>
<thead>
<tr>
<th>Corn Commodity</th>
<th>Maximum acceptable level of aflatoxins</th>
</tr>
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<tbody>
<tr>
<td>Products intended for food use by humans</td>
<td>20 ppb</td>
</tr>
<tr>
<td>Feed for dairy animals or immature animals</td>
<td>20 ppb</td>
</tr>
<tr>
<td>Feed for which the intended use is not known</td>
<td>20 ppb</td>
</tr>
<tr>
<td>Feed for breeding beef cattle, breeding swine or mature poultry</td>
<td>100 ppb</td>
</tr>
<tr>
<td>Feed for finishing swine (i.e., 100 lb or more)</td>
<td>200 ppb</td>
</tr>
<tr>
<td>Feed for finishing beef cattle (i.e., feedlot cattle)</td>
<td>300 ppb</td>
</tr>
</tbody>
</table>

As you can see, acceptable aflatoxin levels vary widely depending on what type of animal is being fed. Moreover, if you are a user of corn by-product feeds, i.e. gluten or ddg’s, aflatoxin levels can vary widely depending on the level of aflatoxin present in the corn used during processing. Most all plants test by-product feed continuously to monitor aflatoxin levels, and I see where plants are selling higher aflatoxin feed at a discount compared to feed that would have to be less than 20 ppb. This can be a significant advantage if you are feeding a class of cattle with higher aflatoxin toleration. It’s also important to note that the maximum acceptable levels are based off of the total diet, so if parts of the diet are aflatoxin low or free, that will help lower total aflatoxin levels. As always, if you’re just not sure, don’t hesitate to ask. We are here to help you work through it.

**Scheduling AI Breeding Barns**

Just a reminder if you are doing much AI work this fall, especially fixed time AI, you would benefit from the use of the AI breeding barns we have available in our area. We have two double cow barns and a single cow barn available for rent. Rental rates are $50 per day for the double barn and $25 per day for the single. Anyone interested in renting the double or single barn located in the Palmyra/Bowling Green area should contact Daniel Mallory, (573) 985-3911 for more information. Producers closer to the Greenley Research Center in Novelty, MO can contact me, (573) 767-5273 for more information and rent scheduling.
Missouri Land Values

Farm real estate values continue to rise in Missouri. We have all heard rumors at the local coffee shop about the latest farm sale and at what purchase price the land was bought. But what is fact and what is fiction? In Missouri, land sales prices need not be reported to any governmental or public agency. Therefore, to get reliable information about land prices, many people turn to the Extension Office. A source of information that I use is the Missouri Farm Land Values Survey. The Missouri Farm Land Values annual survey is conducted by Extension Economist Ron Plain. The survey respondents include lenders, rural appraisers, MU Extension Specialists, realtors, and other related occupations. Each year, respondents provided their opinions to questions concerning current farmland values and trends. They are asked to exclude from their answers tracts smaller than 40 acres or land being converted to development or commercial use. Below are the summarized answers to the main questions asked on the July 2012 survey.

Average Value of Land
Respondents were asked to give their estimates of land values for three classes of cropland and pasture (good, average, and poor), timberland (with valuable trees), and hunting/recreation land. The survey breaks up Missouri into regions and gives averages for each region. In this article, I will give only the average for the state.

Cropland Values per acre – Missouri Average
- Good Cropland - $3847
- Average Cropland - $2955
- Poor Cropland - $2264

Pastureland Values per acre – Missouri Average
- Good Pastureland - $2227
- Average Pastureland - $1841
- Poor Pastureland - $1480

Timber and Hunting/Recreation Values per acre – Missouri Average
- Timber Land - $1630
- Hunting/Recreation Land - $1578

This year’s survey showed cropland values increased in 17 of the 20 areas, pasture values increased in 16 areas, and non-crop/non-pasture increased in 17 areas of the state. The land values in the northeast region of Missouri were higher than the state averages. High grain and livestock prices, low interest rates, and low returns from other types of investments were primary factors in the increase in Missouri cropland values in this survey.

Who is Buying Land?
The survey showed that 68% of farmland buyers planned to farm the land themselves. This is a 2 point increase over 2011. The number planning to rent out the land remained steady at 22%, and the number planning to use for non-farm purposes declined 2 points to 10%.

Outlook
For the next 12 months, respondents expect cropland values to increase about 3%, with pasture increasing slightly at 1.6%, and other types of rural land remaining steady. Respondents felt the number of land sales would decrease due to dry weather conditions which have depleted water sources and reduced crop and pasture yields. To view the full survey, visit agEBB - http://agebb.missouri.edu/mgt/landsurv/. If you would like a printed copy, contact me at 660-397-2179 or devlink@missouri.edu.
Great Plains Growers Conference

The 17th annual conference for seasoned and beginning vegetable and fruit growers is scheduled for Jan. 10-12, 2013 at Missouri Western State University in St. Joseph, Mo. Jeff Lowenfels, author of Teaming with Microbes, is featured as this year's keynote speaker. The 2013 program will focus on a wide range of sessions for both fruit and vegetable growers. Thursday, Jan. 10 will offer all day workshops: High Tunnels, Honey Bees, Fruit, Soil and Irrigation, and Introduction to Production (Spanish). Friday and Saturday, Jan. 11-12 will feature sessions on Beginning/Advanced Organic Production, Urban Horticulture and Gardens, Tree/Small Fruits, Conventional Vegetables IPM, Cut Flowers and Beginning Beekeeping. Trade Show Fruit and Vegetable Exhibitors will have information about seeds, irrigation, equipment, chemicals and many other products. For more information go online to http://www.greatplainsgrowers.org/ or call the MU Extension Buchanan county office at 816-279-1691.

Winter Mulch

Mulches provide many benefits to plants. Benefits vary with the material used, the type of soil, the kind of plant and the cultural practices used. Mulches also may be used to make landscapes more attractive and usable, reduce winter injury, and to reduce the amount of maintenance work during the growing season. Plants that most need mulching are evergreen shrubs and young evergreen trees, especially the broad-leaved types. Mulches help prevent winter drying of these plants. Winter drying causes foliage to become scorched and discolored over winter and may cause the plant to die. Drying develops when foliage loses moisture faster than it can be taken up by the roots from a dry or frozen soil. Plants that should almost always be mulched are azalea, boxwood, Chinese and Japanese hollies, Japanese andromeda and rhododendron. Exotic evergreens and those planted north of their best zone of adaptation should be kept well mulched year-round. For these plants coarse mulches should be used: wood chips, bark products, shavings, chopped corn cobs, pine needles, hedge trimmings or partially finished coarse compost. Mulches should be renewed in early winter. A layer 2 to 4 inches deep is adequate in most cases but can be more or less, depending upon site, soil, climatic zone and the plant itself. The mulched area should be at least as broad as the plant itself and preferably broader since most woody plants have root systems that reach beyond the spread of the branches. Among garden bulbs, lilies benefit more from mulching than any other group. Two to 3 inches of wood shavings, straw, chopped hay or other lightweight material serve to lower the temperature of the soil in summer, conserve moisture and give winter protection to the more tender species. Most other bulbs are sufficiently winter hardy but benefit from mulching for other reasons. Small, shallow-planted bulbs can be heaved out of the soil by alternate freezing and thawing. This effect can be largely prevented by light mulching. Mulches generally improve the appearance of flowering bulbs growing in a bed of otherwise barren soil. They offer a background for viewing the new spring growth and also reduce the spattering of plants with mud during rainstorms. For more information and tips on using mulch go online to www.extension.missouri.edu and search for mulch, or visit your county MU Extension office and ask for a copy of guide G6960. For more information on these articles, or other horticulture topics, contact Max Glover at (573) 633-2640 or gloverm@missouri.edu.
Herbicide Carryover

Following a drought, herbicide carryover to the following crop is always a concern. After a herbicide is applied to a crop, it is broken down by one of many processes, chemical and microbial breakdown being the most common. Both of these processes are slowed under drought conditions. Soil microbes which degrade herbicides are not active in very dry soils, making carryover possible. One method of chemical breakdown of herbicides is hydrolysis, the process through which the chemical structure of the herbicide is changed by exposure to water. Breakdown, regardless of method, usually results in the inactivation of the herbicide. If a sufficient amount of herbicide residue carries over into the next crop year, significant damage to the subsequent rotation-al crop may result. Because of this, it is important to determine what, if any, possible herbicide remains in drought-affected fields. The persistence (and likelihood of carryover) varies greatly between herbicides. In general, herbicide carryover is more likely when the application was later in the season, or at a high concentration than typical.

The herbicide label of compounds used in the 2012 cropping year will provide information on the suggested interval between herbicide application and planting of specific crops. Additional information on the label will indicate if the likelihood of carryover is greater under specific environmental conditions. Rotational restriction data is also available in the 2011 Missouri Pest Management Guide, which is available for purchase through local extension offices.

Producers can test for carryover, and this best done once soil temperatures reach a temperature of 50 degrees F or lower. At temperatures below 50 degrees F, additional herbicide breakdown will be minimal, and test results should indicate levels approximate to those which will be present at next year’s planting time. Testing can be done in two ways: a laboratory analysis, or a bioassay. Laboratory analyses can be costly. The following steps are involved in performing a bioassay:

1. Sample soil from a three inch profile in no-till soil and a six inch profile in a conventional soil (or soil tilled since last year’s crop).
2. Take samples from a representative area of the field (much like sampling for nutrient and pH analysis).
3. Place the soil sample in a milk jug (top removed and small holes in the bottom for drainage) and place in a well lit window. Be sure to collect a soil sample from another area that is thought to not have a carryover issue. This will serve as a control.
4. Plant six to eight soybeans of the variety to be planted in 2013 year at a 1 inch depth (do not plant too many seeds or you could dilute the effects of the carryover herbicide, so symptomology is more difficult to visualize). As an alternative, one could plant several seeds of a more sensitive crop such as oats.
5. Wait 8-20 days; water the soil as needed to allow for crop growth. If triazine injury occurs, the older leaves will turn yellow or chlorotic at the edge, and symptoms move progressively in to the center of the leaf. Sometimes this also can appear as speckling.
6. Compare the symptoms of soybeans in the suspected and control containers to be sure that injury is not due to some disease or other factor.