

Audrain County News

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<http://extension.missouri.edu/audrain>

April 2019

Upcoming Events

Apr 13 – Native Plant Sale – MU Bradford Farm Columbia

10:00 a.m. to 2:00 p.m. Some items can be pre-ordered
<https://tinyurl.com/MU-Bradford-Native>

Apr 17 – Abner W Womack Missouri Agriculture Outlook Conference – MU Bradford Farm Columbia

10:00 a.m. to 3:00 p.m. – free, but must pre-register by Apr. 15th Discussions on the agricultural market outlook, policy issues, and other topics important to Missouri agriculture sponsored by the MU Food and Agriculture Policy Research Institute (FAPRI)

Apr 27 – Mid-MO Expo – Columbia Battle HS

9:00 a.m. to 3:00 p.m. – cost \$7 – if registering online, or \$10 at the door Targeting making use of backyards and small acreages. Many topics including: beekeeping, homeowner insects, backyard chicken production, organic lawn care, water and erosion, gardening, fruits, hops production, tomatoes and perennials.
Website <http://extension.missouri.edu/boone>

July 18 - 23 – Audrain 4-H Youth Fair – Mexico

Aug 8 - 18 – Missouri State Fair

Changes at MU Bradford Farm

Due to cost, the tomato festival is canceled for 2019.

Bradford is trying something new in 2019. Plans are underway for sweet corn taste testing this summer. Details will be shared as they become available.

New & Revised MU Extension Publications

Controlling Deer Damage in Missouri – Jan. 2019
<https://extension2.missouri.edu/mp685>

Farm Liability Insurance – G455 (Mar. 2019)
<https://tinyurl.com/liability-g455>

Short Hedge with Futures – G608 (Feb. 2019)
<https://tinyurl.com/short-g608>

MU Bradford Farm Research

It has been a while since sharing interpretative results on the research conducted at the MU Bradford farm. I continue participating in the farm advisory committee, but unfortunately was unable to attend the annual meeting earlier this year, but did get the research information, so will be sharing some of that in upcoming issues. The following is from research during 2018.

Temperature Inversion Findings from a Multi-state Weed Science Project

Kevin Bradley and Mandy Bish

Surface temperature inversions occur when air nearest the earth's surface is cooler than the air above it; they create a stable atmosphere that is conducive for herbicide volatilization. Previous research has been conducted since 2015 to monitor the frequency and duration of inversions across 3 distinct geographies in Missouri. However, to monitor surface temperature inversions across a broader geography, similar weather stations were established in 2018 in Arkansas, Illinois, Indiana, Missouri and Tennessee. Temperatures were measured at heights relevant to ground pesticide applications: 18", 66", and 120" above the surface.

Preliminary analysis of the data from June and July in Illinois, Indiana, Tennessee, and Missouri indicates that inversions were common and occurred across all sites on 43% of the evenings, although there were differences in the frequency of inversions between locations. Across all the 16 locations included in the project, Inversions began forming from 16:15 to 20:30 in June with an average start time of 18:34. In July, inversions began forming from 15:50 to 21:25 with an average start time of 19:02. Across all locations, inversions typically lasted 10 to 12 hours in June but were noticeably shorter at most locations in July. Similar observations were observed in data collected from three locations in Missouri from 2015 to 2017. Additional data pertaining to the effect of topography on inversions will be discussed. Preliminary results of this research support the importance of using new, low-volatile formulations of 2,4-D and dicamba to help minimize the potential impact of temperature inversions on volatilization of these active ingredients.

Investigations of the Effects of Soil pH on the Volatility of Dicamba Formulations

Eric Oseland, Mandy Bish, Kevin Bradley*

An evaluation of application parameters surrounding dicamba applications has suggested low soil pH may increase the volatility potential of dicamba formulations. Two identical field experiments were conducted in Columbia, Missouri in 2018 to determine if low soil pH increases the volatility of various dicamba formulations. The experiments were designed as a factorial in a randomized complete block. Non-dicamba tolerant soybeans were planted and plastic low- tunnels were utilized to cover two rows of soybeans for a length of six meters in each plot. Soil pH was adjusted using aluminum sulfate and hydrolyzed lime resulting in soil pHw values of 4.3, 5.5, 6.8, 7.7, and 8.3. Applications of dicamba were applied to greenhouse flats filled with 4.5 kg of pH-adjusted soil. Applications were made at a location geographically separate from the field trial and flats were transported by open vehicle to the field where they were placed in the center of each

low tunnel between the soybean rows. Dicamba formulations used in the experiment included the diglycolamine (DGA; Clarity), N,N-Bis-(3-Aminopropyl) Methylamine (BAPMA; Engenia), diglycolamine with VaporGrip (DGA with VaporGrip; Xtendimax), and choline salt (experimental Corteva formulation). Each flat was treated with 1.12 kg ae ha⁻¹ of dicamba. A non-treated control was included for each soil pH. At 72 hours after trial establishment, the experiment was terminated and all soil and tunnels were removed from the field site. At 14 days after trial termination, visual soybean injury estimates were determined using the scale previously established by Behrens and Lueschen (1979). Data was analyzed using the PROC GLIMMIX procedure in SAS. In both experiments, soybean injury as a result of dicamba vapor movement increased in severity as soil pH levels decreased. Treatments including dicamba DGA with VaporGrip and the BAPMA formulations damaged soybean at similar levels as the DGA dicamba formulation when the soil pH was 4.3 and 5.3. The DGA with VaporGrip and BAPMA formulations also resulted in higher overall soybean injury when compared to the choline salt across all soil pH treatments. The choline salt and non-treated control resulted in similar levels of soybean injury at soil pH levels of 6.5, 7.7, and 8.3. The results of these experiments suggest that acidic soil pH conditions may contribute to the potential for an application of dicamba to move off-target. Further examination of the effect soil pH has on dicamba volatility and validation of the results of these field studies will take place in 2019 in a controlled environment.

2019 Area Grazing Schools

May 3-4	Pike Co. (St. Clements)	636-528-4877 ext. 3
May 15-16	Monroe Co. (Madison)	660-327-4117 ext. 3
Sept. 9-10	Boone Co. (Columbia)	573-875-5540 ext. 3



Happy
Easter





Ag Connection

Your local link to MU for ag extension and research information

<http://agebb.missouri.edu/agconnection>

For more information
please contact your
MU Extension Center:

Adair
(660) 665-9866

Audrain
(573) 581-3231

Boone
(573) 445-9792

Callaway
(573) 642-0755

Chariton
(660) 288-3239

Clark
(660) 727-3339

Howard
(660) 248-2272

Knox
(660) 397-2179

Lewis
(573) 767-5273

Linn
(660) 895-5123

Macon
(660) 385-2173

Marion
(573) 769-2177

Monroe
(660) 327-4158

Pike
(573) 324-5464

Putnam
(660) 947-2705

Osage
(573) 897-3648

Ralls
(573) 985-3911

Randolph
(660) 269-9656

Schuyler
(660) 457-3469

Scotland
(660) 465-7255

Shelby
(573) 633-2640

Sullivan
(660) 265-4541

African Swine Flu

Pork producers should be aware of an emerging swine disease. African swine fever (ASF) affects members of the pig family, including domestic and feral swine. ASF is endemic in Africa, but is currently of concern due to its recent arrival in countries previously free of the disease. In August 2018, China reported their first ASF outbreak in domestic swine. Currently there are 111 premises in China and 11 in Vietnam with over 40,000 animals had been depopulated to control the outbreaks. Concerns about the impact on the pork industry of this disease runs high globally. “We do not have ASF in the United States at this time, but if it were to come here, rapid detection is our best chance for eradicating the disease,” says Dr. Corinne Bromfield, MU Extension swine veterinarian.

The impact of ASF can have serious animal health, economic, and international trade consequences. The disease is a threat to global food security and is a reportable disease with the World Organization for Animal Health (OIE) as well as the U.S. Department of Agriculture (USDA). If the U.S. were to have confirmed cases, a ban on the import and export of pigs and pork products to and from many different countries would occur with significant negative economic impact. For successful eradication, quarantine and depopulation of affected herds will be required to stop the further spread of the virus. Past outbreaks have taken this approach, depopulating hundreds of thousands of swine. Failure to quarantine and depopulate can contribute to a prolonged outbreak and epidemic.

Transmission of ASF virus (ASFV) can occur by direct and indirect contact with infected animals, their body fluids or tissues. The transmission of ASF from country to country has been linked to the feeding of swill or garbage containing ASFV-infected pork products. Indirect contamination via surfaces or fomites – contaminated inanimate objects – such as clothing, equipment, vehicles, or feed is also possible.

There is no evidence that ASFV infects humans. No human cases of ASF have been reported. There is no public health or food safety concern. Dr. Bromfield states, “ASF virus can contaminate pork products and remain in pork for a long time; however, it does not infect humans who eat the contaminated pork.”

The incubation period of ASF is 5 to 21 days following direct contact with infected pigs, but may be less than 5 days after exposure to infected ticks. Sudden death with lesions may be the first sign of an infection in a herd. High fever, anorexia, lethargy, weakness, and recumbency are other signs. Pigs may also have diarrhea, constipation, and/or signs of abdominal pain. Abortions may be the first signs of an outbreak. Respiratory signs including dyspnea, nasal and conjunctival discharges and neurological signs have also been reported. Death often occurs within 7 to 10 days. Any unusual sickness with or without mortality should be reported to a veterinarian.

A quick response is vital for containing outbreaks in ASFV-free regions, including the U.S. Veterinarians who encounter or suspect ASF should follow the national and/or local guidelines for disease reporting. In the U.S., state or federal veterinary authorities should be informed immediately. Animals suspected with ASF should be isolated, and the farm (including people, feed, and equipment) should be quarantined until definitive diagnosis is determined.

No treatment or vaccine currently exists for ASF. Treatment should not be attempted for pigs suspected with ASF. Instead, response will be directed by appropriate animal health authorities. Producers should euthanize for welfare but should not mass depopulate unless directed by appropriate authorities. Confirmed cases and in-contact animals should be euthanized upon recommendation, and measures taken to protect other pigs in the area. This may entail complete herd depopulation combined with animal movement restrictions.

ASF is a highly contagious and reportable disease. Once suspected or detected, efforts to control the spread of the disease and identify the source of the virus must be taken. Strict quarantine must be imposed if ASF is suspected. The entire herd should be quarantined immediately until authorities are notified and a diagnosis is confirmed. Movement restrictions may be imposed while investigation, diagnosis, and determination of the source of the virus are in progress.

Bromfield suggests pork producers should review farm biosecurity practices now and check with feed suppliers on the origin of feed supplies and what biosecurity measures are employed. Producers should also apply for and confirm Premise Identification Number (PIN) and should prepare a site specific Secure Pork Supply Plan.

Source: *Heather Conrow, livestock specialist*



Planting the Cool-Season Vegetable Garden

Planting a cool season vegetable garden is a great way to start spring gardening season. First, prepare the soil as soon as it can be worked. It is workable when a handful of firm soil crumbles in your hand when gently pressed. Apply recommended nutrients at this time according to soil test results. Phosphorus is especially important, as cool soils tend to limit its' availability to early planted vegetables.

Plant perennial vegetables like asparagus and rhubarb at the edge of a garden since they will be there multiple years. Purchase one-year-old asparagus crowns or

seedlings from a garden center, local nursery or through mail order catalogs. Asparagus plants are male or female. Male plants produce larger spears. Many of the Jersey all-male varieties perform well in Missouri, including 'Jersey Giant,' 'Jersey Knight' and 'Jersey Supreme.' Plant asparagus in a sunny, well-drained location. Add several inches of aged compost or organic matter to the planting bed. The optimal pH for asparagus is 6.5 to 7.0. Healthy, one-year-old asparagus crowns should be planted 4 - 6 inches deep in a furrow and spaced 12-18 inches apart.

Rhubarb roots should be planted with the crown buds two inches below the ground in spring as soon as the ground can be worked. The plant requires well-drained soil, rich in organic matter. Consider planting rhubarb in a raised bed in areas where there is poor drainage. Harvest rhubarb during the second year of planting for about a week and for eight to 10 weeks in the third year and thereafter. During the heat of summer, mulch plants with a two-inch-thick layer of organic mulch, such as compost, straw, or shredded bark. Crown rot is typically an issue in soil with poor drainage. This disease damages terminal buds, which results in spindly, weak stems. The cure is to dig out and burn infected plants. Do not replant rhubarb in areas where crown rot has damaged plants before. Leaf spots can also attack plants, with the worst being red leaf, or *Ramularia*, which can ruin the stems.

The first week of April is the best time to plant cool-season vegetables in northern Missouri. Root crops that can be planted include radishes, beets, carrots, turnips, rutabagas, and parsnips. These require well-drained soil with plenty of organic matter. Prepare a fine seedbed and plant these seeds as soon as the ground can be worked in the spring. They should be thinned to the correct spacing when plants are two to three inches tall.

Some annual leafy, cool-season vegetables that should be planted early include broccoli, cauliflower, kohlrabi, spinach, lettuce, cabbage, mustard greens, collards, Swiss chard, and Brussels sprouts. Plant by direct seeding or by using transplants. Other annual cool-season vegetables include onions, potatoes, and peas. Cool-season vegetables are able to withstand a light frost and temperatures near 28 degrees Fahrenheit. Be prepared to cover them if temperatures fall into the mid 20s.

For information see MU guide 6021 Vegetable Planting Calendar <http://extension.missouri.edu/audrain/documents/Ag/G6201-Veg.pdf> or contact your local extension center.

Source: *Jennifer Schutter, horticulture specialist*



Nitrogen Fertilizer Application Timing in Corn and Missouri Strip Trial

Missouri corn producers apply nitrogen (N) fertilizers to their field at different times of the year, ranging from fall to spring or topdressing during crop growing season. There are some pros and cons of different N application timings.

Some corn producers apply N fertilizer to their field during fall. While there is an increased risk of N loss from the soil, producers often choose this option to reduce workload in the spring. Anhydrous ammonia is the only source of N that should be applied in the fall. A nitrogen stabilizer, such as N-serve, should be used with fall applied anhydrous ammonia. This slows the conversion of ammonia to nitrate reducing the risk of N loss. It is recommended that not more than 50 percent of total corn acres should receive N application in the fall, to limit the number of acres at risk.

Spring N application prior to crop planting is a common practice in Missouri. However, there is a high risk of N loss in early spring, especially when the soil is wet and dry fertilizers are used. At early vegetative growth stages, nutrient uptake is limited (low) and does not peak until later in the season. When applying N more than two weeks prior to planting, it is recommended to use anhydrous ammonia with a stabilizer. If urea is being broadcasted and left on the surface for an extended period it should be treated with Agrotain to reduce volatilization. There is also potentially a high risk of N loss from late May to early June. Missouri typically has high rainfall during this period resulting in several days of saturated fields. Prolonged periods of warm and saturated soil leads to rapid N loss through denitrification. This risk is particularly high in poorly drained soil especially where water pools. Application of N fertilizer with a stabilizer can help to minimize this loss.

The best management practices for N fertilizer in corn is to apply just prior to when nutrient requirement is the highest. Nitrogen uptake peaks in corn between vegetative growth stages V9 to prior to tassel, when plants are about hip-high to just before tasseling in corn. Topdressing N fertilizer during peak crop growth stage increases N use efficiency and minimizes the risk of N loss. However, there is some risk of relying solely on in-season nitrogen application. Topdressing is a smaller window of time and largely weather dependent. In wet years topdressing may be beneficial when N loss is significant. Corn color is a reliable indicator of how much N is needed at topdressing.

Topdressing N fertilizer is more beneficial in the river bottomland where soils are relatively sandy, wet and tends to lose the N in the form of nitrate leaching.

Trying to determine the most effective N management plan on an operation can be challenge. Producers need to balance N efficiency, with time, environmental factors and cost. Today there are several tools available to help producers increase N efficiency while maximizing yields. University of Missouri Extension has a strip trial program designed to compare on-farm trials including N management. Nitrogen management trials may include rate comparison trials, N decision support comparisons and other producer ideas that may increase N efficiency. Rate comparison trials can be done on variable rate fields or flat rate fields. Support comparisons may include a number of N decision tools, such as drone-based aerial imagery, crop models, historical yield maps, or soils data.

For more information on the MU strip trial program contact your local MU Extension agronomy specialist or ag engineer.

Source: *Dhruba Dhakal, agronomy specialist*



Tax Issues and Changes

A recent change by the Internal Revenue Service (IRS) is the filing deadline for 2018 tax returns for farmers. The typical date is March 1st, but on February 28, 2019 the IRS announced in Notice 2019-17 an extension to the March 1 deadline for farmers who did not make estimated tax payments by January 15, 2019. Under this Notice, farmers have until April 15 (April 17 for Maine or Massachusetts) to file their 2018 returns and pay in full any tax due. The notice waives the Internal Revenue Code (IRC) section 6654 penalty for failure to make estimated tax payments for these farmers and fishermen, but the relief must be requested.

Farmers requesting the waiver for the addition to the tax must attach Form 2210-F, Underpayment of Estimated Tax by Farmers and Fishermen to their 2018 tax return. The form can be submitted electronically or on paper. The taxpayers name and identifying number should be entered at the top of the form, and the waiver box (Part 1, box A) should be checked. The rest of the form should be left blank. It would be a good idea to visit with your tax preparer as soon as possible.

Recently, Missouri Department of Revenue announced it would allow the market facilitation program payments to qualify for the agriculture disaster subtraction. This announcement came in February, so please review your tax returns.

Planning for 2019

The Tax Cuts and Jobs Act (TCJA) of 2017 included many changes, which take time to learn. Multiple tax tools are available for asset purchases.

Section 179 - A taxpayer may elect to expense the cost of any section 179 property and deduct it in the year the property is placed in service. TCJA increased the maximum deduction from \$500,000 to \$1 million. It also increased the phase-out threshold from \$2 million to \$2.5 million. For taxable years beginning after 2018, these amounts of \$1 million and \$2.5 million will be adjusted for inflation. The maximum section 179 for 2019 is \$1,020,000 and the phase-out is \$2,550,000. The taxpayer can choose to the penny, the amount to expense using section 179.

Bonus First Year Depreciation - TCJA increased the bonus depreciation percentage from 50 percent to 100 percent for qualified property acquired and placed in service after Sept. 27, 2017, and before Jan. 1, 2023.

The definition of property eligible for 100 percent bonus depreciation was expanded to include used qualified property acquired and placed in service after Sept. 27, 2017, if all the following factors apply:

- ▶ The taxpayer or its predecessor did not use the

property at any time before acquiring it.

- ▶ The taxpayer did not acquire the property from a related party.
- ▶ The taxpayer did not acquire the property from a component member of a controlled group of corporations.

There are many additional tax rules and details concerning the purchasing of assets. Professional tax preparers should be consulted for advice.

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Aug. 22-23	Knox Co. (Novelty)	660-665-9866
Sept. 9-10	Boone Co. (Columbia)	573-875-5540 ext. 3