



# Northeast Missouri 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

## The History of Extension Education

The mission of the University of Missouri Extension is to extend research-based information and education to improve the lives of citizens. From time to time, it is important to revisit history and reflect on how Extension has evolved.

The practice of living off the land is well documented in early American history. Tisquantum, more commonly known as Squanto, was a Native North American of the Patuxet tribe that occupied the coastal area west of Cape Cod Bay in the late 16<sup>th</sup> early 17<sup>th</sup> century. To support their society, agricultural practices included clearing fields, breaking ground, and fertilizing the soil with fish and crustaceans and weeding was typically done with clam-shell hoes. This horticulture practice was necessary to accumulate surplus for winter needs and trade with the English settlers. Legend has it that after a period of famine, Squanto was credited with giving the first “Extension” demonstration to the Pilgrims on proper planting and harvesting techniques. Following that growing season, the first Thanksgiving feast or harvest festival occurred with more Indians present than Pilgrims.

Some 200 years later, the United States made formal attempts to continue this teaching and Extension through various Acts of Congress. The land-grant mission was established by the Morrill Act of 1862 to promote the liberal and practical education of various social classes, pursuits, and professions in life. It was followed by the Hatch Act of 1887 to ensure that the necessary basic and applied agricultural research would be conducted by state colleges of agriculture in cooperation with the federal government, which is now represented by the U.S. Department of Agriculture. The Morrill Act of 1890, which established Lincoln University, provided additional funds to ensure that the land grants were open to all citizens without regard to race.

In 1899, Congressman Willard Vandiver conveyed, “I come from a state that raises corn and cotton, cockleburs and Democrats, and frothy eloquence neither convinces nor satisfies me. I’m from Missouri, and you have got to show me”.

The University of Missouri (MU) land-grant institution has a history of innovation and excellence in soil science, research and Extension. Historic Sanborn Field, third oldest long-term studies of its kind in the world has yielded important research findings since its establishment in 1888. Only the University of Illinois Morrow Plots and Rothamsted in England are older research sites.

In 1913, ten University of Missouri “Farm Advisors” were charged to assist farmers with an epidemic of hog cholera, threatening to destroy swine herds throughout Missouri. With the passage of the 1914 Smith-Lever act, 27 years after the land grant establishment, the Extension Service was in full swing. The Extension Service was established to provide a means of making research information readily available to those on the land and to assist in solving their individual problems. The Land

Grant College was charged with the mission of taking unbiased research-based information to citizens at the local level.

Since 1914, Extension educators have been responsible for adult education and improving the lives and economy of citizens at the local level. It is well known that this delivery model enables adults to have the ultimate determination in what action they take because of that education.

Community engagement is critical to the success of Extension over the past century. Constituent feedback is instant which gives the Extension specialist a feeling of the pulse of the individual, community, or leader. That pulse, provides great incite on how to develop new and improved programming to serve the needs of the citizens at the local level.

Locally elected county, regional and state Extension council members serve as the interface between MU Extension and the local and state government. Council members have many opportunities to be key communicators and advocates for the valuable programs and work that Extension does in communities across the state.

Extension Specialists are often referred to as change agents. While the culture, socio-economics, technologies, research and development change, so too does the Extension Specialist. The ability of Extension to develop new educational programs, as needs change, keeps it as relevant today as to when Squanto educated the Pilgrims.

**Source:** *Todd Lorenz, agronomy specialist*

## **University of Missouri Research Trial Results**

Research results from herbicide and yield trials conducted by MU researchers are now available on the web and at many county extension offices. These results help farmers and retailers decide which crop production inputs best meet their needs.

University of Missouri conducts research on herbicide and seed products to provide impartial replicated product comparison data to the public. Statistical analyses are provided to clearly identify significant differences between products.

Dr. Kevin Bradley, University of Missouri Extension State Weed Specialist leads the herbicide research team. Results from 2017 herbicide field research trials

are available on the web at [weeds.cscience.missouri.edu](http://weeds.cscience.missouri.edu). The website offers a searchable database of all MU herbicide field research searchable by year, herbicide, weed, or crop. It also offers a link to install the University of Missouri weed identification app on your smartphone or tablet.

Dr. Bill Wiebold, University of Missouri Extension State Soybean Specialist leads the variety testing team. Selection of varieties that best fit a farmer's production goals is an essential part of profitable grain crop production. Over 600 corn, grain sorghum, and soybean varieties are tested at 32 locations throughout Missouri. Thanks to farmer cooperators throughout the state, one should be able to locate results close to their operation. Results from 2017 trials are available online at [varietytesting.missouri.edu](http://varietytesting.missouri.edu), and printed yield books for corn and soybean may be available at your University of Missouri Extension County office.

**Source:** *Max Glover, agronomy specialist*

## **Evaluating Wheat Stands for Spring Nitrogen Application**

As the fall growing season for winter wheat wraps up, the stand can be evaluated to determine the best time to apply spring nitrogen. The targeted fall stand for wheat seedlings (before tillering) is generally between 30 and 35 plants per square foot. Timely planting soon after the hessian fly-free date, followed by favorable weather may result in tillering in the fall. Development of a vigorous root system and several healthy tillers per plant in the fall is instrumental in growing high-yield winter wheat. If this fall growth is not achieved, yield potential can be reduced.

The most important management factors to promote good fall growth are the planting date and seed placement. Unlike other crops, the harvested population of wheat is not plants, but tillers. Each wheat plant can develop side shoots called tillers that will bear heads nearly as large as the head on the main stem. Normal seeding rates are sufficient to produce optimum yield only if two to three tillers develop on each plant. There are two main periods when tiller development occurs: (1) in the fall between planting and dormancy and (2) again for about one month in the spring when the wheat resumes growth until jointing and stem elongation begin. Ideally, the wheat crop should develop two to three strong tillers in the fall, and then no additional tiller development is needed in the spring. Tillers formed in the fall are often more vigorous and yield more than tillers formed in the spring. However, if there are not enough tillers formed during fall, then formation of additional vigorous tillers in the spring is critical to attaining good yields.

Tiller formation is highly influenced by nitrogen availability. Factors such as late planting, cold fall weather, fall drought, and inadequate fall N availability may cause the wheat crop to enter spring growth with inadequate tillers. It is important in this situation to apply nitrogen fertilizer to wheat in time for it to be available to the plant as soon as spring growth resumes. Nitrogen application at greenup can stimulate the formation of additional tillers and increase yield potential. Fields with an average tiller density below 60 per square foot should receive top priority for early spring nitrogen application.

When wheat is already well tillered at greenup (more than 70 tillers per square foot) nitrogen is most efficiently used if application is delayed until the wheat is near jointing. Jointing is the growth stage between tillering and stem elongation, when leaves begin to grow upright after spending the winter near the soil surface. Delaying application of nitrogen fertilizer until near jointing in well-tillered stands reduces the risk of nitrogen loss and best matches when wheat requires the most nitrogen. The highest rate of N uptake occurs between jointing and flowering.

In summary, fall tillering is ideal for high yield wheat. When good fall tillering occurs, nitrogen fertilizer produces the largest yield increase when applied near jointing. If fall tillering is poor, an early spring nitrogen application may stimulate tiller development and increase yield potential. Research trials on wheat with good fall tillering generally obtained the highest yield with a pre-jointing N application of 90 lbs/acre. For more information on managing wheat, see University of Missouri Extension Guide IPM1022 "Management of Soft Red Winter Wheat", available online at <http://extension.missouri.edu/p/IPM1022> and from your County University of Missouri Extension office.

**Source:** *Max Glover, agronomy specialist*

## **2017 Show-Me-Select Heifer Sale**



The Northeast Missouri Show-Me-Select Replacement heifer sale averaged \$2,118 at F & T Livestock Auction, Saturday, Dec. 9.

The 20 producers of the 224 heifers were enrolled in the MU educational heifer management program. The heifers were bred to sires with both calving-ease and growth genetics. The top lot sold belonged to Keithley/Jackson and brought \$3,200.

Highest average price from a consignor was \$2,460 on 21 head from Keithley/Jackson, Frankford, Mo. Other top consignors were Gene and Kim Dryden, Hannibal, Mo. \$2,423 on 13 head; McCutchan Angus, Monticello, Mo. \$2,414 on 7 head; and Kirby Latimer, Hunnewell, Mo. \$2,250 on 4 head.

The 43 buyers were responsible for just under \$475,000 worth of bred heifer exchanging hands in less than two hours. Repeat buyers, 32, purchased 178 head, or 80 percent of the total consignment. Calving surveys returned by these buyers provide important information that is given back to consignors to improve for future years.

The Show-Me-Select heifer development program takes nearly a year to complete. The heifers complete a pre-breeding examination usually 4 to 8 weeks before to breeding. This exam includes a pelvic measurement, reproductive tract score, and weighed. Heifers may be bred artificially or be exposed to natural service, however; the service sires must meet specific calving ease EPD requirements based on breed. This year 167 head, or 74 percent, of the heifers in the sale were synchronized and bred AI. In this sale, the choice to AI, showed a \$69 price advantage over those bred naturally.

All heifers must be pregnancy tested within 90 days of breeding by a veterinarian to determine expected calving date. The use of ultrasound has helped many of the veterinarians improve their accuracies on calving dates. During the development period the heifers undergo an extensive health program and are vaccinated at weaning, pre-breeding, and pregnancy examination as well as treated several time for internal and external parasites. Heifers are also screened for blemishes, condition, muscling and structural soundness by MU extension livestock specialist and USDA graders.

Averages of other Show-Me-Select sales from fall 2017 were Kirksville, \$1,872 on 147 head; Joplin, \$1,867 on 315 head; Kingsville, \$1,968 on 241 head; Fruitland, \$2,010 on 76 head; and Farmington, \$1,791 on 119 head.

This was the 21<sup>st</sup> year for the Show-Me-Select heifer sale in Palmyra with over 38,250 heifers have been through the program and 6,175 head have been sold through the sale. There were several new consignors this year and more are expected to start next year. If you are interested in the Show-Me-Select heifer program, contact your local MU Extension Livestock Specialist.

**Source:** *Daniel Mallory, livestock specialist*

## Private Pesticide Applicator Training

*(for those who need to obtain a license and those who need to renew a license)*

Adair (Kirksville) – Feb. 7 @ 2 p.m. or 6 p.m.  
(660-665-9866)

Audrain (Mexico) – Feb. 13 @ 3 p.m. or 7 p.m.  
(573-581-3231)

Boone (Columbia) – Feb. 6 @ 1 p.m. or 6 p.m.  
(573-445-9792)

Chariton (Keytesville) – Feb. 7 @ 2 p.m. or 6 p.m.  
(660-288-3239)

Clark (Kahoka) – Jan. 18 @ 6:30 p.m.  
(573-769-2177)

Howard (Fayette) – Feb. 1 @ 1 p.m. or 6 p.m.  
(660-248-2272)

Knox (Novelty) – Mar. 1 @ 7 p.m.  
(660-397-2179)

Lewis (Lewistown) – Jan. 29 @ 6:30 p.m.  
(573-769-2177)

Linn (Linneus) – Jan. 25 @ 2 p.m. or 6 p.m.  
(660-895-5123)

Macon (Macon) – Jan. 30 @ 2 p.m. or 6 p.m.  
(660-385-2173)

Marion (Palmyra) – Jan. 23 @ 1 p.m. or 6:30 p.m.  
(573-769-2177)

Monroe (Paris) – Feb. 27 @ 3 p.m. or 7 p.m.  
(660-327-4158)

Pike County (Bowling Green) – Jan. 9 @ 6:30 p.m.  
(573-769-2177)

Putnam (Unionville) – Feb 26 @ 2 p.m. or 6 p.m.  
(660-947-2705)

Ralls County (Center)– Jan. 11 @ 6:30 p.m.  
(573-769-2177)

Randolph (Moberly) – Feb. 1 @ 2 p.m. or 6 p.m.  
(660-269-9656)

Schuyler (Lancaster) – Feb. 13 @ 2 p.m.  
(660-457-3469)

Scotland (Memphis) – Mar 6 @ 3 p.m.  
(660-465-7255)

Shelby (Shelbyville) – Feb. 6 @ 3 p.m. or 7 p.m.  
(573-633-2640)

Sullivan (Milan) – Jan. 29 @ 2 p.m. (660-265-4541)

For the most current information regarding dicamba labels including training information check the Missouri Department of Agriculture's webpage..

**<http://agriculture.mo.gov/plants/pesticides/dicamba-facts.php>**

