



Your local link to MU for ag extension and research information

<http://aqebb.missouri.edu/aqconnection>

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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 16th - early 17th 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 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 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 continued to provide that "show me" attitude through a history of innovation and excellence in soil science, research, and Extension. Historic Sanborn Field, third oldest long-term study 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 with assisting farmers with an epidemic of hog cholera which threatened 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.

Active engagement in local communities has been 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 to Serve Missouri, Deliver Mizzou. 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*



Pruning and Starting Seeds

Pruning can begin in late winter in northern Missouri. Late February into March is the best time to prune fruit trees like apples, pears, plums, peaches, apricots, and others, as well as brambles and grapevines in northeast Missouri.

Too often backyard growers plant fruit trees and small fruits plants and leave them untended for several years. This neglect results in poor growth and delayed fruiting. Fruit plants require annual pruning and fertilization to be productive. If trees have not been pruned and fertilized annually, this could be why they are not productive. MU Extension has guides on pruning fruit trees and small fruit plants.

It is time to sort through old seed and throw out any that are several years old. Leafy green seed (spinach, kale, lettuce) is best started from fresh seed each year. The germination rate is not very good if kept for a second season. Make a list of plants that can be grown from seed and start purchasing them from local garden centers, or check out the online seed catalogs and place an order not found locally. Seed for unique and heirloom varieties usually have to be purchased from a company and started yourself.

When ordering seeds, keep in mind some general guidelines. Order only enough seeds for your needs. Otherwise, you will be faced with entirely too many plants or with storing the unused seeds. Ordering just what you can use and handle is one of the toughest problems most gardeners face this time of year. First figure how many plants are needed. Then consult the catalog description to find the percent germination, and how many seeds per packet. The germination is important, if the packet has plenty of seeds, but the germination is low, a person may want to order more. Some packets such as geraniums may only contain five seeds, while others may contain hundreds of seeds and be enough for several years!

Catalogs, and online websites, may also be used for ordering plants that arrive in the mail later in the spring. This is a good way to find many new and unusual perennial plants that may not be available locally. If there are garden centers and specialty nurseries close by, check their listings first before ordering from catalogs.

Take time now to buy new gardening supplies if needed. Garden centers and hardware stores often have sales on seed starting mix and seed packets in the spring. One way to create new garden labels is to purchase old window blinds at a thrift store, and cut them into the sizes needed for labels. Plastic meat trays are good to use for starting seeds. Lighting is critical for starting seeds indoors. Seeds need to be started under grow lights, because a window does not provide enough light on overcast, cloudy days during the winter months.

When ordering plants there are several important points to remember. Order from reliable sources to get good value and plants that are shipped properly. Check the hardiness of perennials. Hardiness zones are often quite variable among catalogs, so look at several for a particular plant. Then take an average or use the more conservative (warmer) zone figures to be more assured of a plant surviving.

For more information on pruning, seed starting or ordering plants, contact your county Extension Center.

Source: *Jennifer Schutter, horticulture specialist*

Nitrogen Rate and the Effect on Corn Yield

The following article is from research at the Graves-Chapple Extension and Education Center in Northwest, Missouri.

Introduction

The amount of nitrogen that is needed to optimize corn yield differs significantly from one field to another as well as within fields. Yield goal is the primary factor in Missouri when recommending a nitrogen fertilizer rate.

There is an economically optimum rate which growers should target. Using yield as a goal when determining nitrogen application rate generally optimizes the amount of nitrogen for corn growth when there are not any losses of nitrogen from the system.

Methods and Materials

Urea with Agrotain® was the nitrogen source applied on April 26, 2022 to the plots. Nitrogen rates applied were 0, 60, 120, 160, 180, 240, and 300 pounds per

acre. Pioneer 1359 hybrid was planted at a rate of 32,400 seeds per acre on April 30. Nitrogen products were surface applied onto no-till soybean residue. There were five replications in a randomized complete block design.

Results and Discussion

Corn yield response to nitrogen shows a responsive curve with maximum yields occurring at the 300-pound nitrogen/acre rate. The additional 60 pounds of nitrogen from 180 to 240 pounds provided a 10 bushel yield increase. The next additional 60 pounds provided a 2-bushel yield increase. These results are shown in Figure 1.



When looking at profitability, the additional 60 lb/acre of nitrogen going from 180 to 240 lb/acre provided a 10-bushel/acre yield increase. With a market price for corn of \$7.00/bu, this would be an increase of \$70/acre. The cost of the additional 60 lbs of nitrogen was approximately \$33.90/acre. In this case, the additional yield would have paid for the increased nitrogen expense.

Source: MU Graves-Chapple Research Farm

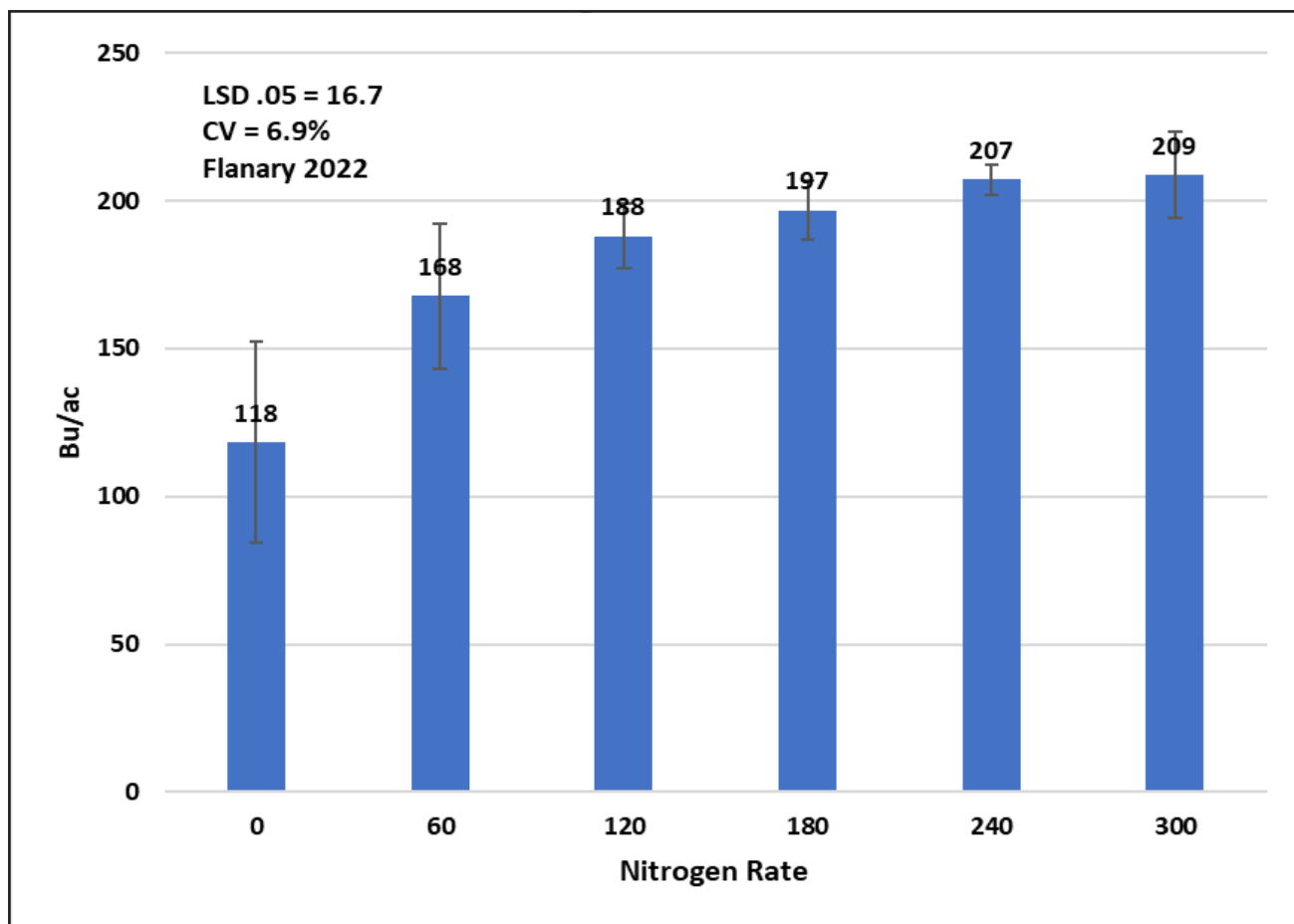
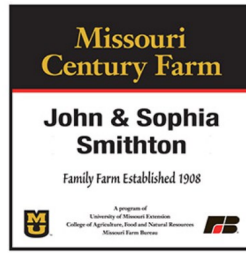


Figure 1 - The effect of different nitrogen application rates on corn yield in 2022.

Century Farm Program

Century farms and ranches have shaped the nation. Amidst every kitchen, behind every faded barn door, and in every soiled and calloused hand lie untold stories of those who feed our nation. As an industry, we are called to discover these stories and share with consumers everywhere the contribution farmers and ranchers have made to our American heritage. It is time to redefine sustainability and put a face to the farmer who fills our cupboards and clothes our backs.

In 1976, the Centennial Farm project was initiated in Missouri to award certificates to persons owning farms that had been in the same family for 100 years or more. Interest in the program continued so the College of Agriculture, Food and Natural Resources and University of Missouri Extension planned a 10-year update in 1986 called the Century Farm program. The



Missouri Farm Bureau joined as a program co-sponsor in 2008. This program has been sustained as a yearly event with over 100 farms recognized each year.

To qualify for this year's Missouri Century Farm Program, a farm must have been owned by the same family for 100 years as of December 31, 2020. The 100 years must be consecutive. This lineage can be through children, grandchildren, siblings, nieces, nephews, including through marriage or adoption. The farm must include a minimum of 40 acres of the original land purchased by the family, and it must make a financial contribution to the overall farm income.

Applications and details can be found at <https://extension.missouri.edu/programs/century-farms>.
Deadline is May 1, 2023.

For more information contact your local MU Extension Center.