



Spring 2025

Cooperative Extension Service

Daviess County

4800A New Hartford Road

Owensboro KY 42303

270-685-8480

daviess.ca.uky.edu

Comments from Clint

Dr. Dennis Egli, University of Kentucky Professor Emeritus in the Department of Plant and Soil Sciences wrote this interesting article on how far corn and soybean production has come in the United States. Corn yield in Kentucky trends continuously upward since 1940. That's 84 years of steadily increasing yield. Corn yield did not change from the Civil War period to the beginning of World War II, creating a yield plateau that lasted for 74 years.

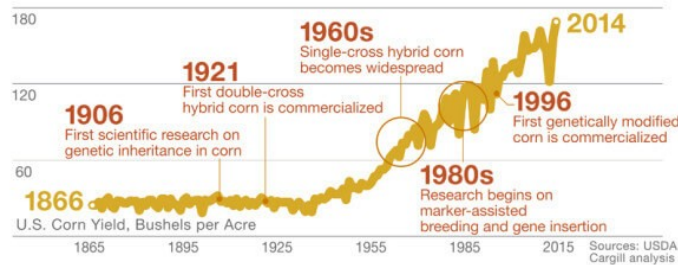
Corn yield during that period averaged 24.3 bushels per acre in Kentucky. This plateau was not limited to corn in Kentucky. Corn in all the Corn Belt states, wheat in Kentucky, and crops in other countries exhibited similar plateaus. Soybean yields were not estimated by the National Agricultural Statistics Service until 1924. Soybean yield trended upward from 1924, when the yield was 11 bushels per acre, until the present. The initial yield increases were probably a result of producers learning how to grow this new crop and selecting better lines from the initial lines introduced from China.

Corn farming up to 1940 was low-input. Cropping systems were based on rotations including tobacco, small grains, and hay. Nitrogen came from animal manure and legumes in the rotation. Weeds were controlled by mechanical cultivation and manual labor. Farmers grew open-pollinated corn varieties and saved their own seed. Extension programs in the early 1900s trained farmers to identify the perfect corn ear to save for seed for the next crop. University research focused on soil fertility

and other aspects of crop management. Interestingly, none of these activities had any effect on yield, and the plateau persisted.

The question is - what changes drove the steady increase in yield that began in 1940s? Open-pollinated varieties were replaced by hybrid-type corn, which was planted on nearly 90% of the acres in Kentucky by 1950. The use of inorganic fertilizers increased rapidly after 1945 due to the availability of nitrates produced in the World War II explosives factories. The development of herbicides and pesticides improved weed, insect, and disease control. These inputs were supported by changes in

U.S. corn yields: A history of innovation



management practices such as higher corn populations, narrow rows – made possible by herbicides and mechanization – and better disease and insect control. Some argue that changes in the environment, such as more solar radiation resulting from the efforts to improve the atmosphere, contributed to yield growth. These changes stimulated a dramatic shift from a low- to a high-input system with a big increase in off-farm inputs. The work of plant breeders was the driving force behind the increase in corn and soybean yields. The changes in inputs and management practices were essential, but they would not be effective without improved higher-yielding hybrids and varieties. You can't manage a 1960s hybrid to produce today's yields, and today's hybrids won't produce today's yields with 1960s management. Variety vs. management is the classic interaction – neither can get the job done on its own.

ESTIMATING NITROGEN LOSS

The week of March 10 provided fantastic conditions for applying anhydrous ammonia in advance of corn planting. No one predicted the rain, ponding, and flooding which followed in the first week of April. Now the question is... how much nitrogen has been lost to denitrification. Nitrogen still in the ammonium form is stable in any soil condition. Denitrification only occurs when nitrate nitrogen (NO_3) is converted into nitrous dioxide gas (NO_2) and escapes into the atmosphere. This reaction happens when the soil lacks oxygen due to complete water saturation. Soil microbes require oxygen to survive. After two or three days any available soil oxygen is displaced by water, so to survive, microbes consume oxygen from nitrate which converts it to nitrous dioxide. Up to 4% of nitrate nitrogen can be lost to the atmosphere each day saturated soil conditions continue. The process resets as soon as the soil profile drains out and oxygen returns.

Table 1. The percentage of fertilizer N in the $\text{NO}_3\text{-N}$ form 0, 3, and 6 weeks after application.

N Source	Weeks After Application		
	0	3	6
% of Fertilizer as $\text{NO}_3\text{-N}$			
Anhydrous Ammonia (AA)	0	20	65
AA with N-Serve	0	10	50
Urea	0	50	75
Urea with N-Serve	0	30	70
UAN solutions	25	60	80
Ammonium Nitrate	50	80	90

BROADCAST SEEDER AVAILABLE

An APV MDD 100 broadcast seeder is available by request for demonstration use in activities such as establishing grass waterways and filter strips, frost seeding clover into pasture, or overseeding heavy use and winter feeding areas this spring.



The unit will attach to a four-wheeler or truck bed. Call the Hancock County Extension office to schedule the unit at (270) 927-6618.

FARMERS' MARKET

Make plans to attend the Opening Day of the Owensboro Regional Farmers' Market!

April 12th from 8:00 a.m. to 12 noon



FINAL STAND COUNTS

Row width and length of row needed to equal 1/1,000th acre.

15" rows 34 feet 10 inches
 20" rows 26 feet 2 inches
 30" rows 17 feet 5 inches

Counted plants in the length of row should be multiplied by 1,000 to equal plants per acre. Hula Hoops are also a convenient method to estimate stands in narrow rows. Count the plants within the circle and multiply by the factor below that matches the inner diameter of your hoop.

Hoop inner diameter = multiply factor

18" = 24,662	21" = 18,119	24" = 13,872
27" = 10,961	30" = 8,878	33" = 7,337
36" = 6,165		

WELCOME GEORGIA

Georgia McCrady is the newest staff assistant at the Extension Office. She comes to us from the Daviess County Conservation District. We are excited to have her!

KADF UPDATE

The Daviess County Agriculture Development Council met on March 27 and committed a portion of the 2025 Master Settlement Agreement appropriations for Daviess County.

The council committed the Green River Area Beef Improvement Group \$100,000.00 to administer the Daviess County Agricultural Investment Program; The Daviess County Soil Conservation District \$10,000.00 to administer the Daviess County Youth Agricultural Cost Share Program; and Grain Day Inc. \$10,200.00 to support the Kentucky Farm Succession Seminar to be held this summer.

Current board members are Katie Pedigo and Frank Schadler representing the Farm Service Agency. Lucas Brey and Jamie Wright representing the Soil Conservation District. Katie Clark and Dustin Warren representing the Cooperative Extension Service, Brandon Gilles and Robert Fischer representing early career farmers and Camille Lambert representing agri-business.

WEATHER ALERT FOR AGRICULTURE

The University of Kentucky Ag Weather Center has announced the launch of "Weather Alert." The smartphone application aims to serve both Kentucky's farming community and other residents by providing critical weather updates and forecasts.

The app's first phase, now complete, offers a user-friendly design with access to current and forecasted weather data, high-resolution radar, and timely warning and watch alerts. Users can receive alerts tailored to their specific GPS location or other designated areas, enhancing their ability to make informed management and production decisions.

Weather Alert is available at no cost and free from advertisements, ensuring a seamless and efficient user experience. Weather Alert is available for download on iOS and Android, with plans to expand to other platforms. To download via iOS, visit <https://apple.co/3wN3645>, download via Android, visit <https://bit.ly/4dUyxdq>.



ALFALFA WEEVILS AND POTATO LEAFHOPPER

The first cutting of alfalfa is still a few weeks away. Be on the watch for alfalfa weevil and potato leafhopper. Their emergence coincides with warmer temperatures, and requires insecticide control if the harvest is delayed due to weather. Hopperburn, the characteristic symptom, results from the accumulation of photosynthates in leaves. It begins as a V-shaped wedge of yellow extending from about the middle of the leaf to the tip. PLH can reduce yields up to 25%, as well as lower crude protein, vitamin A, carotene, calcium, phosphorus, and digestible dry matter content. A single, well-timed application of any one of several insecticides will provide excellent leafhopper control. A 35-day harvest schedule generally keeps leafhoppers from building to large numbers. Cutting drives the winged adults out of the field. The wingless nymphs are unable to leave, and most starve or die from some other cause before regrowth starts.



PASTURE FENCE CONSTRUCTION SCHOOL

Wes and Jennifer Poole are hosting a University of Kentucky Fence School on their farm on April 22. The event will meet in the morning at St. Colombia Catholic Church in Lewisport and at their Maceo farm after lunch. Participants will learn how to drive posts, build H-Braces, install both fixed knot woven wire and smooth electrified high tensile fence, the laws pertaining to fencing, and the basics of successfully installing permanent electric fencing. The day will consist of classroom sessions in the morning and hands-on activities in the afternoon. The class is limited to 35 participants. There is a \$35 fee to provide lunch and materials. Sign up at <https://2025fencingdaviess.eventbrite.com/>.



www.facebook.com/daviesscountyextension



www.instagram.com/daviesscountyextension/

Cooperative Extension Service

Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating. Lexington, KY 40506



Disabilities accommodated with prior notification.



Since 2009, the CORE Farmer Program has been a major component in Kentucky Corn Growers Association's effort to empower farmers with knowledge, friendships and understanding.

For more information and the application, visit <https://kycorn.org/programs/corefarmer/>

Application Deadline is May 30

KENTUCKY FARM SUCCESSION SEMINAR

More information will be coming in my summer newsletter, but mark your calendars for July 23. The Kentucky Farm Succession Seminar is returning to the Owensboro Convention Center.

The day will feature experts on how to successfully transition your farming business in a way that is financially viable for the next generation. Specialists in tax and estate planning will provide guidance in negotiating the challenges that can be encountered.

Presentations on improved communication and the approach of fair versus equal will be shared.

Registration will be \$35.00.

Call the Extension Office to be added to the list of people already planning to attend.

KENTUCKY FARM SUCCESSION SEMINAR
Building the Bridge to Your Farm's Future



2025 CORN AND SOYBEAN FUNGICIDE EFFICACY GUIDES NOW AVAILABLE

The 2025 fungicide efficacy tables for foliar diseases of corn and soybean, and soybean seedling diseases have been updated and are now available through the Crop Protection Network website:

<https://cropprotectionnetwork.org/>

These tables are updated annually based on data provided by United States Extension plant pathologists, with efficacy determined through replicated research trials across a broad geographic area. Results from University of Kentucky research trials are included in the development of these national fungicide efficacy ratings. The ratings in these guides reflect the efficacy of a fungicide against a given disease and are not rating yield response to a fungicide. It is an applicator's legal responsibility to read and follow label directions. Updated tables include: Fungicide Efficacy for Control of Corn Diseases, Fungicide Efficacy for Control of Soybean Seedling Diseases, and Fungicide Efficacy for Control of Soybean Foliar Diseases.

DAVIESS CO. FARMER APPRECIATION DAY

Mark your calendars for the morning of Saturday July 26. Daviess County Fiscal Court, Daviess County Cooperative Extension, Daviess County Farm Bureau and many other community partners are hosting a Farmer Appreciation Day at Panther Creek Park South. More information will come in my summer newsletter.

4-H CAMP

4-H Camp is June 10-13, 2025 in Dawson Springs. Registration forms are now available online at daviess.ca.uky.edu/4HCamp or at the Daviess County Extension Office.

Cost for campers is \$225. Ask about incentives for adult leaders.

Registration forms are due May 7.

Clint Hardy
Daviess County Extension Agent for
Agriculture and Natural Resources
Education
Email: chardy@uky.edu

