Kentucky Field Crop News

Spanning 5 departments and 120 counties

UK Wheat Science Group | UK Corn & Soybean Science Group

Martin-Gatton College of Agriculture, Food and Environment

June 2026 – Volume 02 Issue 05

In this Issue:

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2026 Pest Management Field Day Canceled

The 2026 Pest Management Field Day has been canceled due to unforeseen circumstances. The field day was originally planned for June 25th at the University of Kentucky Research and Education in Princeton, Kentucky. The Weed Science Team and Grain Crops Pest Management Group look forward to hosting you at future events.

Taking the Temperature on Tar Spot Risk

Kiersten Wise, UK Extension Plant Pathologist

As mentioned in last week's Kentucky Pest News article, the current crop stages in western KY and the moderate May and early June temperatures have created some risk for tar spot development based on the Crop Risk Tool that forecasts disease risk for tar spot and gray leaf spot for corn that is between growth stages V10 and R3 (Figure 1). Despite this current elevated risk, it appears that risk will decrease in the next week or beyond, as temperatures and humidity increase. Symptoms and signs from any infections that occurred between mid-May and early June may be visible in two to three weeks, or maybe longer, depending on weather conditions. In most cases, applying foliar fungicide once at tasseling/silking (VT/R1) is the most effective way to prevent yield loss from foliar diseases like tar spot and gray leaf spot and offers the greatest potential for a positive return on investment (ROI).

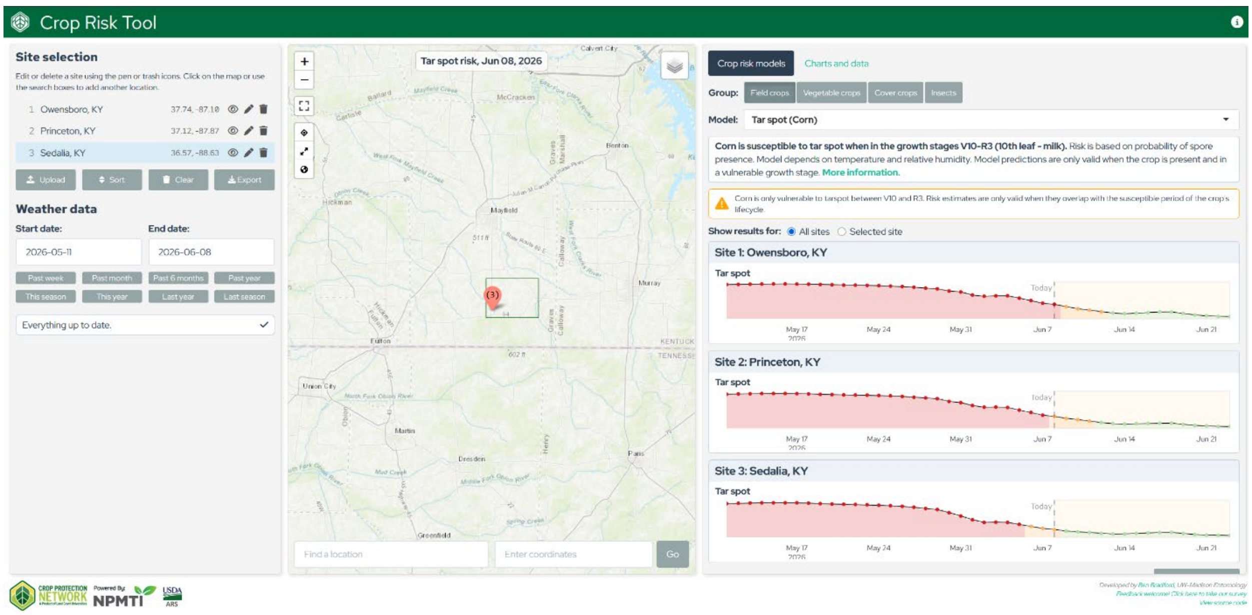

Figure 1. Example of Crop Risk Tool model prediction for tar spot risk for locations in western Kentucky from June 8, 2026.

Tar spot can be easily confused with insect frass, which is plentiful in corn at this time of year. Tar spot lesions are raised and feel bumpy on the leaf surface and often are surrounded by a small brown or tan halo (Figure 2). Insect frass will not have a halo or margin surrounding the lesion and should wash off with water. Always submit suspected tar spot samples to your County Agent for submission to the Plant Disease Diagnostic Laboratory for confirmation.

Figure 2. Tar spot lesions (left) and insect frass (right) on corn leaves (Photos: Kiersten Wise)

If a VT/R1 application is not currently planned for a given field, scouting over the next few weeks can help determine if disease is present and if fungicide applications are needed based on growth stage and predicted weather conditions.

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Do Large Corn Ears Mean High Yields?

Dennis Egli, UK Professor Emeritus

Is ear size a reliable indicator of corn yield? It all depends. If 'large' means ears where most of the flowers produce kernels, the answer is probably yes. We all know that stress during pollination and kernel set can reduce the number of kernels per ear. Partially filled ears are usually an indicator of reduced yield. So, ear size is an indicator of yield.

It's possible, however, that an increase in kernel size (weight per kernel) can compensate for the reduction in kernel number and reduce the effect of the reduction in ear size on yield. Compensation occurs when the stress is relieved during seed filling, resulting in larger kernels. Unfortunately, the increase in kernel size is limited and it may not be enough to prevent yield loss. From the viewpoint of kernels per ear, ear size is usually related to yield.

Ears that are completely filled to the tip are usually taken as an indicator of maximum yield. Strange as it may seem, this is not always true. Completely filled ears in a highly productive environment can be an indication that yield was left in the field because there were not enough flowers available to convert all of the productivity of the crop into yield. This situation occurs when the population is too low (not enough ears per acre), increasing population in this situation will increase the flowers per acre and the crop will be able to convert all its productivity into yield.

So, we have a dilemma – unfilled kernels at the tip of the ear can indicate stress that reduced the number of kernels per ear and probably yield or it can indicate that the number of flowers was not limiting, and yield was at a maximum. Nothing can be done about unfilled kernels resulting from stress (except hope for better weather next year). But if all the ears are filled to the tip, you might want to consider bumping up your population next year.

Ear size (flowers per ear) is also under genetic control, so it can vary among hybrids. Genetic differences in ear size do not directly influence yield, but they do affect the population needed to produce maximum yield. Hybrids with small ears need higher populations to produce maximum yield than hybrids with large ears. For example, the population producing maximum yield with an ear size of 480 potential kernels per ear is roughly 44,000 plants per acre for a crop yielding 250 bushels per acre. Increase the ear size to 576 kernels per ear and the optimum population drops to about 37,000 plants per acre for the same yield. Genetic differences in ear size did not affect yield because yield is determined by the productivity of the crop, not the number of potential kernels (ear size). In other words, just increasing ear size does not increase the productivity of the crop, it only increased the potential kernel number. But ear size will influence the population required to produce maximum yield.

Environmental conditions during ear development also influence ear size (flowers per ear), although much of the research on this topic suggests that the changes are relatively small.

Ear size-yield relationships are complicated. The key to understanding them lies in the source of the variation. If kernels per ear (effective ear size) is reduced by stress during pollination and kernel set, yield will probably be reduced. In this case ear size (kernels per ear) is related to yield. Genetic differences in ear size are not related to yield, but they will affect the population needed for maximum yield. So, ear size may or may not affect yield. It all depends. Always remember – "A river cuts through rock, not because of its power, but because of its persistence" (Mark Bradburn, Financial advisor).

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Corn Pollination is a Critical Window for Yield

Chad Lee, UK Extension Grain Crops Specialist

Corn possesses separate male and female flowers on the same plant. The tassel is the male flower, responsible for producing pollen, while the ear is the female flower, containing the ovules. For successful seed set to occur, pollen grains must land on the silks and travel down these tubes to fertilize the ovules, which then develop into individual kernels.

The Pollination Process (VT/R1 Stages)

Pollination typically occurs during the grouped VT (Tasseling) and R1 (Silking) growth stages. In modern corn hybrids, silks often emerge before the tassel has fully cleared the whorl, and the timing between full tassel emergence and silk emergence is usually very tight, often within a single day. A single plant will drop pollen for approximately six to seven days, with most of the pollen release occurring over a three-day window. Pollen drop occurs mostly in the early morning to avoid heat and ensure successful fertilization.

Figure 1. Corn tassel (left) and corn silks (right).

The Impact of Environmental Stress

The corn plant is extremely sensitive to environmental conditions during the period spanning one week before to one week after pollination. Severe drought stress can cause tassels to drop pollen before silks are emerged. Also, under severe drought stress, the top leaves can stay wrapped around the tassels preventing pollen from reaching silks. If pollination is successful, but water is limiting, kernels can abort during the subsequent R2 (Blister) and R3 (Milk) stages. Stresses during these reproductive stages are often first visible as aborted kernels at the tip of the ear, which may progress further down the ear in severe cases.

Irrigation Can Help

Timely irrigation can help overcome water deficiencies and perhaps is more important during this time than at any other point during corn growth and development. Corn water demand is the highest starting about a week before pollination until about a week after pollination.

Checking for Success

About a week after pollination, you can start checking for pollination success. Using a sharp knife, cut the husks from ear base to tip. Ensure that the knife is slicing through all husks to the kernels. Gently remove the husks and ensure that you have not removed silks. Once all husks are removed, gently shake the ear. Once an ovule is fertilized, that silk detaches from the ovule. Gently shaking the ear will allow those detached silks to fall away. The silks that remain are attached to ovules that are not fertilized.

Figure 2. Checking corn ears for pollination.

Once pollination is successful, the plant enters the seed-fill period. Seed-fill typically lasts 30 to 40 days depending on heat unit accumulation, eventually reaching physiological maturity when the "black layer" forms at the base of the kernel. Corn water demand decreases from pollination to black layer.

Resources

Lee, C., & Knott, C. (Eds.). A Comprehensive Guide to Corn Management in Kentucky (ID-139). University of Kentucky Cooperative Extension Service.

Nielsen, R.L. 2022. A Fast & Accurate Pregnancy Test for Corn. http://www.kingcorn.org/news/timeless/EarShake.html

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Control Seed Moisture of Canola and Wheat after Harvest to Preserve Quality

Sam McNeill, UK Extension Agricultural Engineer

Canola and wheat crops are maturing rapidly in western Kentucky and point to an earlier than normal harvest. With favorable weather predicted in the next few days across much of the state, harvest progress will likely be well ahead of the 5-year average despite intermittent/spotty rain showers.

Limits of Field Drying

The extent and rate of field drying is largely dependent on rainfall and relative humidity, then temperature and the amount of wind and sunshine. Canola and wheat give up and re-absorb moisture more quickly than corn and have different equilibrium moisture properties. Whether drying in the field or in a bin, the limits of drying are dictated by the average ambient conditions, as shown in Table 1.

Table 1. Equilibrium moisture levels for canola (C) and soft red winter wheat (W) over a range of ambient conditions in Kentucky. Source: ASABE, 2017.

Temp F	Relative Humidity (%)													
	40		50		60		65		70		80		90	
	Moisture content (% wb)													
	C	W	C	W	C	W	C	W	C	W	C	W	C	W
40	6.3	11.1	7.2	12.1	8.4	13.2	9.1	13.8	10.0	14.4	12.5	15.9	17.6	18.0
50	6.1	10.7	7.0	11.8	8.1	12.9	8.8	13.4	9.7	14.1	12.1	15.5	17.1	17.6
60	5.9	10.4	6.8	11.4	7.9	12.5	8.6	13.1	9.4	13.7	11.8	15.1	16.7	17.2
70	5.7	10.1	6.6	11.1	7.7	12.2	8.3	12.8	9.2	13.4	11.5	14.8	16.3	16.9
80	5.6	9.8	6.4	10.8	7.5	11.9	8.1	12.5	8.9	13.1	11.2	14.5	15.8	16.6
90	5.4	9.6	6.2	10.6	7.2	11.6	7.9	12.2	8.6	12.8	10.9	14.2	15.4	16.3

Clemson University provides a free tool to quickly calculate the equilibrium moisture content of SRW wheat (as well as corn and soybean) for specific locations (by zip code) based on a five-day weather forecast. After selecting the type of grain from a drop-down list, the user chooses between three prediction equations or a composite which averages their values. Designed to help grain managers make decisions on when to harvest and/or operate drying or aeration fans, this tool was used to predict the trend in moisture changes from June 7-13 for Mayfield, Princeton, Elizabethtown and Lexington with results shown in Figure 1a-1d. The values shown for wheat were provided by the model, while the values for canola were calculated and inserted by the author. Note that a drying trend of 3-6 points is predicted for these areas and will approach moisture levels suitable for natural air or low temperature drying systems (10% for canola and 15% for wheat) in all regions. Keep in mind that most weather models predict temperatures more accurately than relative humidity or rainfall, especially scattered showers (so local conditions will vary). Still, this is a useful tool for predicting short-term changes in moisture.

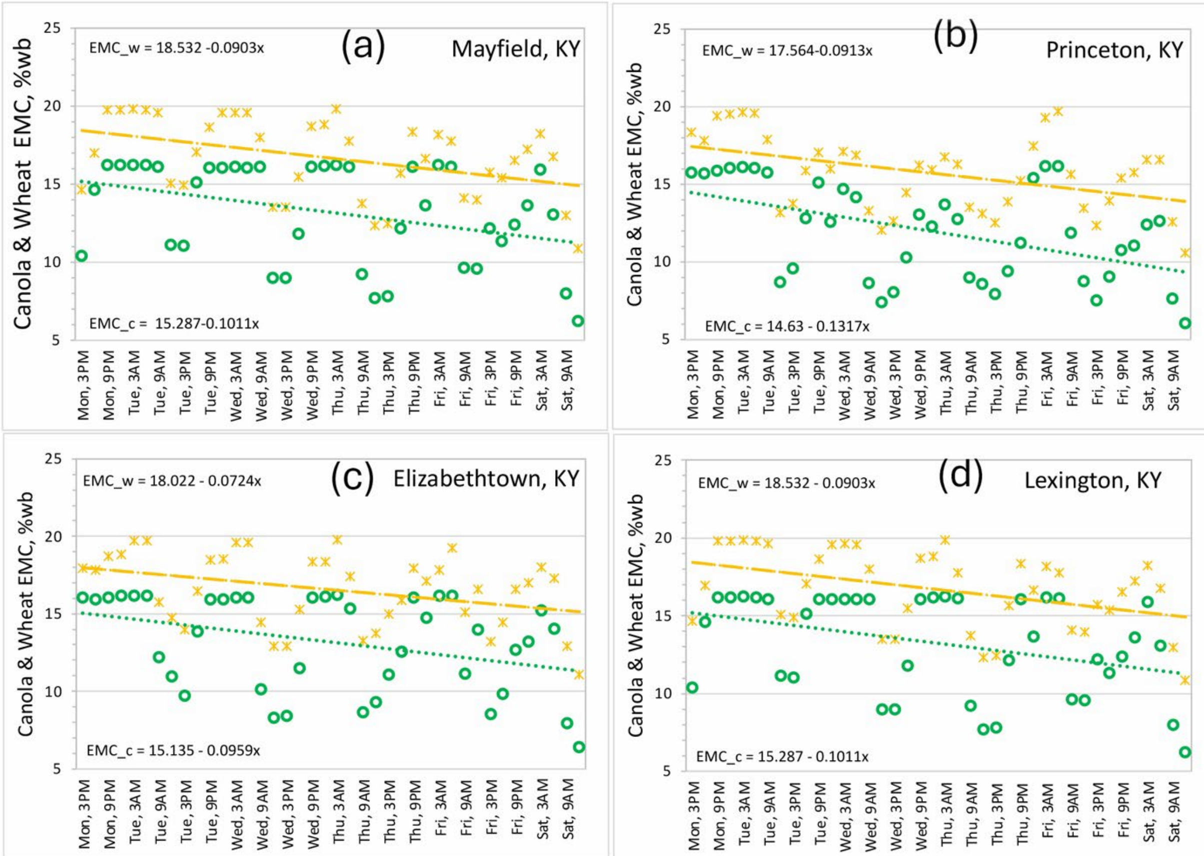

Figure 3. Predicted equilibrium moisture contents for canola and SRW wheat at 3-hour intervals and the overall trend from June 8 to 13 in Mayfield (a), Princeton (b), Elizabethtown (c), and Lexington (d) based on local temperature and relative humidity levels. Source: Clemson EMC Calculator

Implications for Fan Operation

The recommended minimum airflow rate for in-bin drying and aeration systems is 1.0 and 0.1 cfm per bushel of grain. The University of Minnesota Biosystems Engineering Department provides a free, useful decision tool for evaluating existing systems to determine the amount of air that can be delivered for a given bin-fan combination and manage the depth of grain to achieve these limits. For example, the performance of a 24-inch, 10 hp axial fan (3950 cfm at 5 inches of static pressure) on a 30-ft diameter bin is shown for both crops in Table 2. Note that the minimum drying rate for canola and wheat can be achieved at a depth of 9 feet and 12 feet, respectively, and that the minimum rate for aeration is exceeded by 5 at respective depths of 12 and 18 feet. Considering the rule of thumb that the time needed to move a cooling cycle through grain is estimated by dividing 15 by the amount of air per bushel, this can be achieved in 25 hours for canola and 30 hours for wheat (at depths of 12-ft and 18-ft, respectively).

Table 2: Airflow rates and static pressure of canola and wheat in a 30-ft diameter bin with a 24-in, 10 hp axial fan. Source: www.bbefans.cfans.umn.edu

		Canola			Wheat		
				Static			Static
Depth		Airflow		Pressure	Airflow		Pressure
ft	Bushels	cfm	cfm/bu	in. H20	cfm	cfm/bu	in. H20
1	565	12,873	22.8	1.6	14,107	25.0	0.8
2	1,131	11,100	9.8	2.7	13,091	11.6	1.5
3	1,696	9,528	5.6	3.3	12,226	7.2	2.0
4	2,262	8,259	3.7	3.8	11,444	5.1	2.5
5	2,827	7,288	2.6	4.1	10,770	3.8	2.9
6	3,393	6,500	1.9	4.3	10,058	3.0	3.2
7	3,958	5,871	1.5	4.5	9,379	2.4	3.4
8	4,524	5,357	1.2	4.6	8,795	1.9	3.6
9	5,089	4,929	1.0	4.7	8,285	1.6	3.8
10	5,655	4,566	0.8	4.8	7,835	1.4	3.9
11	6,220	4,254	0.7	4.9	7,426	1.2	4.0
12	6,786	3,982	0.6	5.0	7,045	1.0	4.1
13	7,351				6,721	0.9	4.2
14	7,917				6,396	0.8	4.3
15	8,482				6,129	0.7	4.4
16	9,048				5,862	0.6	4.5
17	9,613				5,638	0.6	4.6
18	10,179				5,413	0.5	4.7

Merging these Points

The output table from Clemson's decision tool allows users to see if grain will gain or lose moisture or stay the same during a 5-day period. Data can easily be transferred to an Excel spreadsheet to plot a local trendline (as was done in Figure 1). Armed with that information, plus knowing the physical limits of air movement with existing bin-fan combinations, crop managers in Kentucky and elsewhere can be better informed regarding profit-making decisions to control seed moisture during harvest and/or when operating fans to achieve target levels.

Economic Implications

Timely harvest and drying are essential steps in preserving crop quality and value, plus allow earlier planting of double-crop soybeans (definitely a win-win). If storing canola or wheat through the summer, dry both crops a point below the market level to keep humidity conditions in the bin low enough to control mold and insect activity (65% RH max). Considering the average monthly temperature in July and August is 80 F, the recommended moisture for canola (with 40% oil) and soft red winter wheat is 7.5 -8% and 12-12.5%, respectively, as shown in Table 1. Monitor stored grain weekly for hot spots, off-odors and mold or insect activity and run fans to control any problems, preferably during the coolest hours. Move grain to another bin to disperse hot spots if cooling does not control the problem.

Additional References

ASAE Standard D245.6. 2017. Moisture Relationships of Plant-based Agricultural Products. ASABE St. Joseph, MI.

Canola Council of Canada. 2024. Canola Encyclopedia: Harvest Management. https://www.canolacouncil.org/canola-encyclopedia/harvest-management

Canola Council of Canada. 2024. Canola Encyclopedia: Storage https://www.canolacouncil.org/canola-encyclopedia/storage.

Jones, C. & J. Solie. 2007. Storing Oklahoma Winter Canola. Oklahoma Cooperative Extension Service Pub. BAE-1110. https://extension.okstate.edu/fact-sheets/print-publications/bae/storing-oklahoma-winter-canola-bae-1110.pdf

McNeill, S., D. Overhults & M. Montross. 2025. Harvesting, Drying and Storing Wheat: in Kentucky Wheat Guide. University of Kentucky Cooperative Extension Service ID-125. https://publications.mgcafe.uky.edu/id-125

McNeill, S. & D. Overhults. 1992. Harvesting, Drying and Storing Canola: in Canola Production and Management. University of Kentucky Cooperative Extension Service. ID-114. (Archived).

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The Soybean Roller Coaster Ride May Be Coming to an End

Mohammad Shamim, UK Extension Grain Crops Associate

I remember attending a Western Kentucky agents' breakfast meeting last year when one agent remarked to another, “You can drive all over the state and not find a single bad soybean field.” At the time, he was absolutely right. Soybean got off to an excellent start, and as a soybean agronomist, I was optimistic that we would see some impressive numbers in the Kentucky Soybean Yield Contest.

Unfortunately, the season took a dramatic turn. A prolonged drought developed just as soybean entered the reproductive stages and needed water the most. While many fields achieved excellent pod set, the drought limited seed development and seed fill. The result was a crop that looked promising from the road but ultimately delivered disappointing yields in many areas.

This year has been different from the start.

The relatively dry conditions in March allowed many growers to plant soybean and corn earlier than usual. However, what appeared to be a favorable planting season soon became a roller coaster ride for soybean producers.

First, dry soils delayed germination and emergence in some fields. Many seeds remained in the ground for days or even weeks before receiving enough moisture to initiate germination. This led to uneven emergence and concerns about stand establishment.

Second, weed control became more challenging than expected. Many growers applied postemergence herbicides under less-than-ideal growing conditions. Cool temperatures slowed soybean metabolism and reduced the crop's ability to quickly metabolize herbicides, resulting in visible crop injury in some fields. While most soybean plants are expected to recover, symptoms such as leaf cupping, yellowing, and stunting can still be observed in certain areas.

Figure 1. Visible herbicide injury in soybean, characterized by white speckling and discoloration of leaf tissue.

Adding to the challenge, temperatures remained cooler than normal for much of the early growing season. Soybean growth and development depend on adequate heat accumulation, and the lack of warm temperatures slowed canopy development and delayed crop progress across much of the state. In some areas, spring frost even killed some soybean.

Fortunately, the story did not end there.

The dry conditions of March and early April were followed by frequent and widespread rainfall events. Before these rains, some areas were experiencing substantial moisture deficits compared with normal precipitation levels. The recent rainfall has replenished soil moisture, improved crop conditions, and provided soybean with the water needed for vigorous growth.

As temperatures continue to warm and soil moisture remains favorable, many soybean fields are beginning to recover rapidly. Fields that appeared stressed or stagnant only a few weeks ago are now growing aggressively. In many locations, soybean planted in late March and early April has already reached flowering stages and is progressing well.

Although weather forecasts suggest continued variability throughout the summer, there are encouraging signs that rainfall patterns may remain more favorable than they were last year. If adequate rainfall continues through late June and July, soybean will be better positioned to navigate critical reproductive stages, including flowering, pod set, and seed fill. Such conditions would provide a strong foundation for yields that could exceed those of last season.

Figure 2: Soybean field showing healthy vegetative growth (left) and soybean at the full-bloom (R2) growth stage (right).

Double-crop soybean also appears to be entering the season under more favorable conditions than in recent years. Soil moisture levels are generally adequate following wheat and canola harvest, reducing concerns about stand establishment. In many cases, growers may not need to increase seeding rates to compensate for dry seedbeds as they have in previous seasons.

Warm temperatures combined with adequate soil moisture have already resulted in rapid emergence of recently planted double-crop soybean in parts of western Kentucky, including Christian County. Growers are encouraged to plant as soon as field conditions allow in order to maximize the growing season and improve yield potential.

For producers planting behind both wheat and canola, canola fields may offer a slight advantage because they typically leave less surface residue. These fields often dry more quickly and can allow for earlier soybean planting. Wheat fields, particularly those with heavy residue, may require additional time before field operations can resume.

While the growing season is far from over, soybean appears to be stepping off the roller coaster and onto a smoother track. Timely rainfall, improving temperatures, and generally favorable soil moisture conditions have transformed crop outlooks across much of Kentucky. The next several weeks will be critical, but for now, there is reason for cautious optimism as soybean enters the heart of the growing season.

Figure 3. Double-crop soybean emerging after canola harvest. Favorable soil moisture conditions have supported rapid and uniform emergence.

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University of Kentucky

Corn, Soybean & Tobacco Field Day

July 21, 2026

UKREC 300 Extension Rd., Princeton KY
8:00 am – 12:00 pm central time

Topics include:

- 2026 Corn Disease Update - Kiersten Wise
- Managing the silent yield robber: soybean cyst nematode – Carl Bradley
- Row Crop Edge-of-Field Water Quality Monitoring in Kentucky - Brad Lee
- Stink Bug Management in Soybeans and Corn Leafhopper Updates in Kentucky – Felipe Batista
- 2026 Weed Control Update – Travis Legleiter
- Soil fertility update – John Grove
- Corn Emergence Uniformity Affected by Tillage and Cover Crop Management – Chad Lee & Emily Marsh
- 2026/27 Corn and Soybean Outlook – Grant Gardner
- Pre-purchasing input strategies for 2027 – Jordan Shockley
- Dark Tobacco Update: Dark Air-cured Tobacco Production for Nicotine Extraction – Andy Bailey
- Burley Tobacco Update: Burley Plant Population Effects and Stand Loss Thresholds – Mitchell Richmond
- Long-Term Effects of Crop Rotation and Tillage on Burley Tobacco Yield - Shelby Spiggle

KYCORN

Kentucky Soybean Board

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Upcoming Events

2026

Drone Pilot Certification Workshop, Madisonville, KY
July 8 & 9, 2026

UK Corn, Soybean and Tobacco Field Day, Princeton, KY
July 21, 2026

High School Crop Scouting Competition, Princeton, KY
July 23, 2026

2027

Kentucky Crop Health Conference, Bowling Green, KY
Feb 4, 2027