

Corn & Soybean News



April 2024

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Grain and Forage
Center of Excellence

Will Longer Growing Seasons Increase Crop Productivity?

The growing season is usually defined as the days from the last freeze (32°F) in the spring to the first freeze (32°F) in the fall. Since climate change is increasing air temperature, the growing season is getting longer. The increase in length is a result of both the last freeze in the spring occurring earlier and the first freeze in the fall occurring later. One recent analysis of trends on the data from 10 counties in Western Kentucky suggested that there has been a 10% increase in the length of the growing season since 1950.

Does a longer growing season increase crop productivity? A longer growing season increases the time available for crop growth and it also increases the solar radiation available when temperatures are suitable for crop growth. With more time to grow and more solar radiation to drive growth, one would think that crop yields might go up – right? Unfortunately, it is not that simple.

Yield is directly related to the length of the growing season if yield is the total above ground plant (forages for example). The longer the crop grows, the higher the yield, so longer growing seasons could increase productivity of these crops.

The time–yield relationship in grain crops is more complicated. The key to understanding it lies in the crop growth cycle. Grain crops start out growing vegetatively, then they flower and shift to reproductive growth when seeds form and grow to their mature size. Yield is essentially zero at the beginning of the seed-filling period; all of the yield is produced during seed filling. The events (vegetative growth, flowering and seed set) prior to seed filling are important, but they are only preliminary to the main event.

There is substantial variation in the length of the total growth cycle (vegetative and reproductive growth) within and among grain crop species. A recent survey of literature identified soybean varieties that took from 86 to 144 days to reach maturity. Corn showed similar variation (78 to 149 days). A cowpea variety that reached maturity in 62 days had the shortest growth cycle I could find, while there were varieties of sorghum and rice that took ~250 days to reach maturity.

Longer-duration grain crop varieties utilize more of the longer growing seasons, but they do not necessarily produce higher yield. Yield will increase only if the seed-filling period (when yield is produced) increases in step with the total growth period.

Selecting varieties with longer total growth durations will increase the seed-filling period and yield only until the total growth duration reaches 100 to 110 days. The seed-filling period then stays the same as the total growth duration increases to a maximum. A variety that matures in 144 days will have the same seed-filling period and yield as one that matures in 110 days, but it will have a longer vegetative growth period. The extra vegetative tissue produced by the late maturing variety will not necessarily contribute to higher yield.

Growing a full-season variety will use more of the growing season and produce more vegetation but it will not necessarily convert the extra time (and extra solar radiation) into higher yield. The full-season variety will spend the same amount of time producing yield (i.e., growing the seeds) as an earlier variety. Grain crops are just not very efficient at converting time into yield.

If yield was directly related to the total growth duration, yields should increase from North to South across the Corn Belt as the growing season increases. Varieties grown in the South have longer durations than those in the North, but yields are not higher, even in irrigated fields. The longer-season varieties cannot convert the extra time into yield.

One way to use the extra potential productivity provided by a longer growing season is with double cropping. Growing two crops in one year (two seed-filling periods in one year) uses more of the potential productivity. Growing soybean after a winter wheat crop increases the total yield per year, but it is only possible when the growing season is long enough to accommodate the second crop. Double or triple cropping is especially important in the tropics where the growing season is 365 days long. The higher temperatures associated with climate change will probably move double cropping north in the US.

The warming associated with climate change will no doubt continue to produce longer growing seasons. Unfortunately, the only way to capitalize on this change in potential productivity is through double cropping. Growing varieties that take longer to mature will use more of the growing season, but they will not necessarily produce higher yields. When faced with change, we should always remember the words of William R. Inge (1860 – 1954) - “There are two kinds of fools: One says, ‘This is old, therefore it is good’; the other says, ‘This is new, therefore it is better’ ”.

Adapted from Egli, D.B. 2011. Time and Productivity of Agronomic Crops and Cropping Systems. *Agronomy Journal* 103:743-750.

Dr. Dennis Egli

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ADM Requiring Farmer Data to Satisfy Upcoming EU Demands

One of our county agents was contacted by a farmer asking about new requirements from ADM on soybeans being sold at ADM Silver Grove location in the fall of 2024. That county agent contacted me. With help from the Kentucky Soybean Board, I was able to set up a meeting with three people from ADM who are working with the European Union to deliver these certified soybeans.

The following is what I gleaned from that meeting.

1. The European Union (EU) will be requiring “deforestation-free” soybeans, and they will require traceability to the field.
2. The EU set the requirement for December 2024, meaning that the 2024 crop will need to be documented.
3. Farmers will need to create an account with Farmers Business Network (FBN). The FBN account is free of charge to the farmer. The farmer can choose to participate in other FBN programs if the farmer wishes.
4. Farmers need enroll in “ADM re:source” via the FBN website or FBN app.
5. ADM is partnering with FBN for some of their carbon market programs as well.
6. Farmers need to send field boundaries to FBN. (Again, the EU will require traceability of the soybeans to each field.)
7. FBN will look at satellite imagery to confirm that the field was not forested before December 31, 2020.
8. The EU is defining a forested area bigger than 1.24 acres (with some other parameters) being removed counts as deforested for that field. The ADM people and I discussed fence rows being removed. If they were over 1.24 acres, then they probably count as being deforested. The FBN people working on this project and can provide definitive answers.
9. The geo-references to fields will not be linked to farmer names when the data is submitted to the EU. But, both FBN and ADM will have that data.
10. Most of the ADM sites in the program are the sites close to the rivers to make tracing easier.
11. The Silver Grove site (and possibly some other Kentucky sites) will only accept deforestation-free soybeans. So, while a farmer has a choice as to where to sell soybeans, if they want to sell to Silver Grove (or some of the other locations), they will have to enroll with the deforestation-free program and provide the required data.
12. The people at ADM said that anyone selling soybeans into the EU will have to have similar documentation. ADM is trying to directly account for those acres with this program. The people at ADM said that Bunge and Cargill will need to develop similar programs if they want to sell soybeans to the EU. ADM is not aware of how Bunge and Cargill will set up their programs.
13. ADM is offering "up to" a \$0.20/bushel premium if farmers join the program by May 1, 2024. If farmers join after that date, ADM is offering up to a \$0.15/bushel premium.

14. Final enrollment date is June 1, 2024 and field boundaries for the entire operation need to be submitted no later than July 15, 2024.

This ADM Deforestation-free Frequently Asked Questions website has a good outline of the key points. After my meeting, I went to this site to double-check my notes:

<https://admandvantage.com/adm-resource-questions/> Please, go to this website and read through the Frequently Asked Questions. My notes above do not cover every question you may have. This website will get you closer to all of those questions.

This is a new era for farmers in Kentucky. The EU is demanding traceability. ADM is interpreting that as needing geo-referenced field boundaries on every acre. To sell soybeans at certain ADM locations, farmers will need to submit their farm data to FBN and ADM and that data will be anonymized and shared with the EU.

Farmers have been sharing their data for years with USDA FSA, John Deere, Case IH, private soil testing labs, Pioneer, DeKalb, and others. In some cases, they have paid the companies to share their data with them.

But this is the first time of which I am aware that farmers are sharing their data with grain buyers, including companies and foreign governments. I doubt this will be the last.

As you all hear and learn about these programs, please reach out to me.

Dr. Chad Lee, Director- Grain & Forage Center of Excellence
UK Grain Crops Specialist (859) 257-3203 Chad.Lee@uky.edu

Sample Courier Service 2024

UK Plant Disease Diagnostic Lab

Courier service for diagnostic samples from the UKREC to the Plant Disease Diagnostic Lab on campus will begin on April 18th and run once a week through September. The normal pick-up day and time will be **Wednesdays at 8 a.m. CDT**. However, note that the first pick-up will be on a Thursday due to scheduling conflicts. Samples should be dropped off at Jason Travis's office in Office Trailer A by close of business the day before. County Extension Agents impacted by the courier service have been sent an exact schedule.

Best wishes to all for a productive growing season!

Julie Beale

UK Plant Disease Diagnostician/Director (859) 257-8949 jbeale@uky.edu

2024 Crop Protection Network

Virtual Crop Scout School Webinars Available

The [2024 Virtual Crop Scout School](#) webinars are now available for viewing on the [Crop Protection Network](#) (CPN). The scout school consists of over 30 webinars from crop protection specialists across the United States. Webinars are available from multiple extension specialists at the University of Kentucky, including JD Green, Edwin Ritchey, Kiersten Wise and Travis Legleiter.

These are short and focused webinars that cover the basics for pest management and agronomic topics that are relevant to farmers, crop consultants, industry, extension personnel and others. The webinars can be used as training tools for new personnel, or as a knowledge refresher for more experienced professionals.



Dr. Kiersten Wise

UK Extension Plant Pathologist (859) 562-1338 Kiersten.wise@uky.edu

UK Wheat Field Day

May 14, 2024

TOPICS INCLUDE:

- ◆ **Evolution of Carbon Markets: Are There Opportunities for Kentucky Wheat Producers?** - Dr. Jordan Shockley
- ◆ **Wheat Disease Update** - Dr. Carl Bradley
- ◆ **Wheat Breeding: Process and Methods** - Dr. Dave Van Sanford
- ◆ **Wheat Fertilization** - Dr. Edwin Ritchey
- ◆ **Residual Herbicide Timing for Ryegrass Control in Wheat** - Dr. Travis Legleiter
- ◆ **International, Domestic, and Local Trends That Inform Wheat Marketing Decisions** - Dr. Grant Gardner
- ◆ **Wheat Variety Trial (Walk Through)** - Bill Bruening

UKREC Farm

1205 Hopkinsville St,
Princeton, Ky 42445

9 am - NOON (Central time)

Registration: 8 am



EDUCATIONAL CREDITS:

CCA: PM 1hr, CM 0.5hr,
Prof Dev 0.5

Pesticide: 1 CEU cat 1A,
1CEU cat 10

For additional information contact Colette Laurent : (859) 562-1321 or claurent@uky.edu

Cooperative Extension Service

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MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

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Lexington, KY 40506



Disabilities
accommodated
with prior notification.

Crop Scouting Workshop

Ideal for agriculture interns, new and experienced producers, as well as a great refresher for others

- Corn and soybean diseases and growth staging
- Scouting for insect pests of corn and soybeans
- Weed ID
- Soil nutrients and their influence on crop growth

Credits:

CCA: pending

PAT: pending

May 21, 2024

8:30 am to 3:30 pm

University of Kentucky
Research and Education Center
Princeton, KY 42445



Pre-registration is required and will close on May 17
<https://2024KATSCropScouting.eventbrite.com>

\$105 registration fee

Lunch will be provided

*For more information contact Lori Rogers
270-365-7541 ext. 21317 (lori.rogers@uky.edu)*



SAVE THE DATE



June 27, 2024

Register at: <https://tinyurl.com/2j9y33md>



Sign-in and welcome will be held at the
Princeton First Baptist Church Christian Life Center
(behind NAPA Auto Parts on West Market Street) then caravan to the
UKREC.

Continuing Education Units for CCA and KY Pesticide applicator training will be available.

Registration is free—Lunch will be provided

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Wheat Field Day

May 14, 2024

KATS Crop Scouting Workshop

May 21, 2024

KATS Soil Properties & Their Impact on Delivering Water & Nutrients

June 6, 2024

Drone Pilot Certification Workshop (Madisonville)

June 10 & 11, 2024

Pest Management Field Day (IPM Grain Crops)

June 27, 2024

CORN, SOYBEAN & TOBACCO FIELD DAY

July 23, 2024

KATS Field Crop Pest Management & Spray Clinic

August 29, 2024



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