

# Corn & Soybean News



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 Martin-Gatton  
College of Agriculture,  
Food and Environment  
Grain and Forage Center of Excellence

## Xtendimax, Engenia, and Tavium Availability in Kentucky for 2024

**T**he United States District Court of Arizona vacated the 2020 Xtendimax, Engenia, and Tavium labels for use in dicamba-resistant soybean on Feb. 6, 2024. This order left the availability of the three products for the 2024 season in limbo for approximately a week. On Feb. 14, 2024 the EPA responded to the court ruling with an Existing Stocks Order allowing the sale and distribution of existing stocks of Xtendimax, Engenia, and Tavium. What does this all mean for the 2024 growing season and the use of these products? The following information is my interpretation of the EPA Existing Stocks Order and how it may affect Kentucky soybean growers in 2024. If you are in doubt about how to use a product in 2024 or how this order affects you, please refer to the EPA order or the products label, website, or representative. You can find the official EPA Existing Stocks Order at this link:

[https://www.epa.gov/system/files/documents/2024-02/dicamba-notice-existing-stocks-order\\_02142024.pdf](https://www.epa.gov/system/files/documents/2024-02/dicamba-notice-existing-stocks-order_02142024.pdf)

The order indicates that the sale and distribution of Xtendimax, Engenia, and Tavium will be allowed by persons other than the registrants until May 31, 2024 in Kentucky. “Persons other than registrants” would include co-ops, local dealers, and commercial distributors. Only product that was in possession of the “other persons” on or before the February 6 court ruling can be sold or distributed. While a majority of products were already in possession of these “other persons” or “in the channel”, not all product was at this stage on February 6 and thus a full supply availability is highly unlikely to occur.

Furthermore, the order allows for the use or application of these three products by both private and commercial applicators in dicamba-resistant soybean fields until June 30, 2024 in Kentucky. This date aligns with the already established cutoff date for Kentucky.

Lastly, and most importantly, **ALL APPLICATIONS OF XTENDIMAX, ENGENIA, AND TAVIUM MUST STILL FOLLOW THE RESTRICTIONS IMPLEMENTED ON THE MOST RECENT LABELS INCLUDING THE MANDATORY ANNUAL TRAINING.**

Frequently asked questions and scenarios are described below:

- **Will there be a shortage of Xtendimax, Engenia, or Tavium?** Yes, there will be less supply available in 2024 than will be needed for Kentucky soybean acres. As mentioned above a large majority of Xtendimax, Engenia, and Tavium was likely already in the channel on February 6. Though there certainly was supply of these products that had not reached the “other persons” by that date and thus a shortage is very likely. Farmers and applicators should make plans now for the potential of a shortage. See the below comments on potential alternatives.
- **Can a custom applicator still apply Xtendimax, Engenia, or Tavium to a farmer’s dicamba-resistant soybean field?** Commercial applicators will be allowed to apply Xtendimax, Engenia, or Tavium to a farmer’s dicamba-resistant soybean field until June 30, 2024 in Kentucky. Commercial applicators can apply product that was within their possession or that was in the channel prior to the February 6<sup>th</sup> ruling.
- **Can a farmer spray Xtendimax, Engenia, or Tavium that they have already purchased to their dicamba-resistant soybean fields:** Yes, a farmer can apply any product in their possession prior to Feb 6, 2024 to their dicamba-resistant soybean fields until June 30, 2024.
- **Can a farmer still buy Xtendimax, Engenia, or Tavium to spray on their dicamba-resistant soybean fields:** Yes, a farmer can still buy these products from co-ops, dealers, or distributors who were in possession of the product prior to February 6, 2024. The farmer must purchase the product by May 31, 2024 and apply it prior to June 30, 2024. I would encourage farmers to make these purchases sooner rather than later due to the potential shortage; it is very likely product will no longer be available by the May 31 purchase cutoff.
- **It is June 15, 2024 and a farmer who is applying product to their own acres realizes they do not have enough Xtendimax, Engenia, or Tavium for all of their dicamba-resistant soybean acres. Will they be able to buy more to use on the remaining acreage?** No. Sales and distribution of Xtendimax, Engenia, and Tavium will conclude on May 31, 2024. In this scenario, the farmer has two options: 1. Hire a custom applicator that has extra Xtendimax, Engenia, or Tavium on hand to apply to the remaining acres, or 2. Seek alternative herbicides for weed control in those fields. See the next question and Tables 1 and 2 for alternative herbicides.

- **A farmer is worried they will not be able to get enough Xtendimax, Engenia, or Tavium to use on their dicamba-resistant soybean fields. Will they be allowed to use other dicamba formulations on dicamba resistant soybean?** No! Only Xtendimax, Engenia, and Tavium are allowed for use on dicamba-resistant soybean. If you are concerned about not having enough dicamba for your dicamba resistant soybean fields I would encourage you to seek alternative postemergence herbicide options in those systems, such as glufosinate. Additionally, you should consider which fields would benefit the most from dicamba and/or glufosinate applications based on weed spectrum. Our research has shown that the use of dicamba and glufosinate in these soybean systems is most valuable on fields with waterhemp or Palmer amaranth infestations, while alternative products can be used on fields without these problematic weeds. See Table 1 and 2 for more information. Additional product information weed control efficacy tables can also be found in AGR-6 (<https://www2.ca.uky.edu/agcomm/pubs/agr/agr6/agr6.pdf>)
- **Is the annual training to apply Xtendimax, Engenia, or Tavium still required in 2024?**  
Yes.
- **Does this affect other dicamba formulations or generic dicamba products?** No, the vacatur and Existing Stocks Order only applies to Xtendimax, Engenia, and Tavium. All other dicamba products that are labeled for use in corn, pastures, and other crops are not affected by these rulings and orders.
- **Can a generic dicamba formulation be applied for spring burndown prior to dicamba-resistant soybean planting?** Yes, BUT you must wait for the labeled replant interval which is typically 30 days and 1 inch of rain. If you wish to plant immediately after burndown you must use Xtendimax, Engenia, or Tavium.
- **Will we have Xtendimax, Engenia, or Tavium for use in 2025 and beyond?** The current Existing Stocks Order only applies to the 2024 soybean growing season. It is still to be determined what will happen in future years as the registrants and EPA assess their next steps with these three products.

**Table 1.** Postemergence herbicide programs with and without the inclusion of dicamba in Xtend Flex soybean and their influence on waterhemp control 3 weeks after the late post application. Note that programs that exclude dicamba or glufosinate in either of the two postemergence applications resulted in less than acceptable control of waterhemp indicating the necessity of dicamba and glufosinate for waterhemp control.

Early Post Treatment	Late Post Treatment	% Visual Waterhemp Control <sup>a</sup>
Untreated		0 C
Xtendimax -22 fl oz + Roundup PwrMax3 – 30 fl oz Dual II Magnum – 1.33 pt	Liberty – 32 fl oz + Roundup PwrMax3 – 30 fl oz	96 A
Xtendimax – 22 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	93 A
Liberty – 30 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	100 A
Prefix -2.33 pt + Select Max – 12 fl oz	Liberty – 32 fl oz	58 B
Prefix – 2.33 pt + Select Max – 12 fl oz/a	Cobra – 12.5 fl oz + Assure II – 10 fl oz	10 C

<sup>a</sup> Means within a column followed by a different letter are statistically different. Tukey HSD  $\alpha=0.05$

**Table 2.** Postemergence herbicide programs with and without the inclusion of dicamba in Xtend Flex soybean and their influence on giant ragweed, morning glory, smooth pigweed, and foxtail control 3 weeks after the late post application. Note that programs that exclude dicamba and/or glufosinate in either of the two postemergence applications resulted in equivalent control to those receiving dicamba and/or glufosinate indicating alternatives are available in the absence of dicamba and/or glufosinate.

Early Post Treatment	Late Post Treatment	Giant Ragweed	Morningglory, Smooth Pigweed, & Giant Foxtail
Untreated		0 b	0 b
Xtendimax -22 fl oz + Roundup PwrMax3 – 30 fl oz Dual II Magnum – 1.33 pt	Liberty – 32 fl oz + Roundup PwrMax3 – 30 fl oz	100 a	100 a
Xtendimax – 22 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	100 a	100 a
Liberty – 30 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	100 a	100 a
Prefix -2.33 pt + Pursuit – 4 fl oz	Liberty – 32 fl oz + Select Max – 12 fl oz	94 a	100 a
Prefix – 2.33 pt + Select Max – 12 fl oz/a + FirstRate – 0.3 oz/a	Cobra – 12.5 fl oz + Pursuit – 4 fl oz	94 a	100 a

<sup>a</sup> Means within a column followed by a different letter are statistically different. Tukey HSD  $\alpha=0.05$

**Dr. Travis Legleiter**

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# Feeding the World in 2050 – Can We Do It?

Recently I came across the statement that feeding the world's population in 2050 would require 50 to 100% increases in yield. I have seen these figures before and wondered if they are valid. After all, 2050 is only 26 years from now. Doubling crop yields in roughly a quarter of a century seems like a huge challenge.

What does the historical record tell us about yield growth? Yields of two major food crops - wheat (world) and rice (Asia) - were up by approximately 30% over the last 25 years. Obviously, the rate of yield growth will have to increase a lot to meet the 50 to 100% goal.

Is such a large increase in production needed? The answer to this question hinges, in part, on changes in population and diet. Population growth rates are declining, with 66 countries in the world reporting growth rates below replacement. China just announced that its population is declining. The demand for food, fueled by population growth, is not increasing as fast as it once was.

Changes in diet are also an important part of the equation. Eating more meat, often associated with rising prosperity, requires more feed (grain) production per capita compared with a plant-based diet.

Production of grain crops per capita (kg of grain per person) provides a simple comparison of changes in population and agricultural production. Production per capita of wheat (World) and rice (Asia) increased steadily from 1961 through roughly 1985, clearly illustrating the power of the Green Revolution (Fig. 1). The increase in production (mostly from increasing yield) after 1985 matched the increase in population through 2018, so the production per capita did not change (ignoring the year-to-year fluctuations). Population increased by 61 (World) and 64% (Asia) (3 and 2 billion people, respectively) during this period, but the production of wheat and rice matched the increase in population. Increasing yields after 1985 produced enough wheat and rice to feed the growing population.

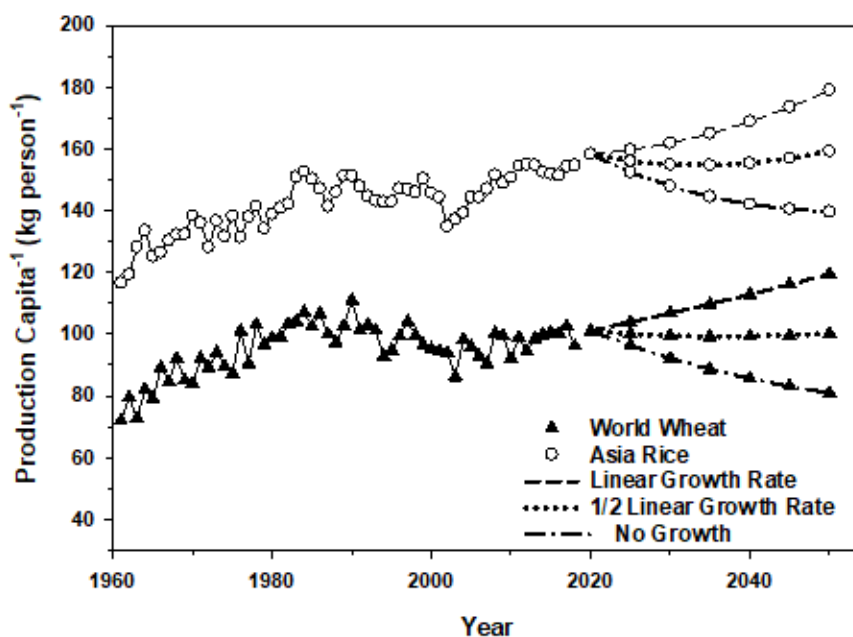


Figure. 1. Per capita production of rice (Asia only) and wheat (world) from 1961 through 2018. Production and population data from the Food and Agriculture Organization database (FAOSTAT). Adapted from Egli, D.B. (2021) Applied Crop Physiology: Understanding the Fundamentals of Grain Crop Management. CABI. One kilogram = 2.2 pounds.

We did OK in the past, but what about the future? Projections of production per capita into the future (dashed lines in Fig. 1) were based on two assumptions. First, I assumed that the harvested area of both crops did not change, and, secondly, I assumed that population would grow at the median rate estimated by the United Nations Population Group in 2019. I calculated future productivity using the average (2009 to 2018)(linear) yield growth rate.

Surprisingly, the average rate of yield growth resulted in increases in production per capita for both crops (Fig. 1) reflecting the declining rate of population growth. Production per capita was maintained when the yield growth rate was reduced to one-half the average rate. Producing enough wheat and rice to feed the population in 2050 required yield growth that was only half of the average rate from 2009 to 2018. One-half the recent rate results in a 28 (wheat) and 14% (rice) increase in yield by 2050 – substantially less than the 50 to 100% target commonly mentioned in the literature.

It is worth noting that assuming no yield growth resulted in declines in production per capita for both crops (Fig. 1). We must increase production to meet the future demand for wheat and rice, but the increase may not have to be as large as many people think.

Our projections, however, did not consider possible effects of climate change on future food production. Higher temperatures will probably reduce yield of grain crops, but we have a cushion if we only need one-half of the current rate of yield growth to maintain production per capita.

Climate change may also cause extended droughts and excess rainfall which could cause catastrophic reductions in yield or even force abandonment of some cropping areas (think about California in the past few years). The extent of these disasters will depend upon how quickly society can reduce greenhouse gas emissions.

The analysis presented here for two major food crops is much more optimistic about the future than the 50 to 100% folks. Maintaining yield growth at one-half of the recent rate seems much more doable than doubling yield. Our ace in the hole is the continuous development of new technologies that will help increase productivity and counter some of the effects of climate change. In this time of uncertainty, it is worthwhile to remember the words of Franklin Delano Roosevelt (32nd president of the United States) – “We observe a world of great opportunities disguised as insoluble problems”.

**Dr. Dennis Egli**

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# Italian Ryegrass Field Tour to Be Held in Princeton

**I**talian ryegrass continues to increase as a problematic weed in all of Kentucky's major agronomic crops. While ryegrass has been a perennial problem in wheat, it has become increasingly problematic in no-till corn and soybean.

The University of Kentucky Weed Science team will be hosting a field tour to highlight Italian ryegrass research being conducted at the UKREC in Princeton, Kentucky. The team will cover ryegrass control in the fall and spring prior to no-till corn and soybean planting as well as continued research on ryegrass control in wheat.

The field tour will occur on March 28, 2024, in Princeton, Kentucky. The day will begin at the Caldwell County Extension Office (1025 US Hwy 62 W, Princeton, KY) with registration beginning at 8:30 am. The tour will start with opening remarks at the Extension Office at approximately 9 am followed by a caravan to the UKREC to tour ryegrass research plots. The tour will wrap up prior to noon.

Pre-Registration for the event is recommended, but not required. You can register at [https://uky.az1.qualtrics.com/jfe/form/SV\\_3w9zPIbfbHT33JI](https://uky.az1.qualtrics.com/jfe/form/SV_3w9zPIbfbHT33JI) or by using the QR code in the advertisement below.

For more information about the ryegrass field tour call (859) 562-2569 or email Jason Travis ([jason.travis@uky.edu](mailto:jason.travis@uky.edu))

**Dr. Travis Legleiter**

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# *Italian Ryegrass Control Field Tour*

**Thursday, March 28, 2024**

**8:30 a.m. to 11:30 a.m.**

**Please meet at the Caldwell County Extension Office**

1025 U.S. Highway 62 West, Princeton, KY

Sign-in begins at 8:30 a.m. CDT

A caravan will proceed to the UKREC in Princeton for plot tours of Italian ryegrass research

**Please pre-register by scanning  
QR Code or clicking link:**

[https://uky.az1.qualtrics.com/jfe/form/  
SV\\_3w9zPIbfbHT33JI](https://uky.az1.qualtrics.com/jfe/form/SV_3w9zPIbfbHT33JI)



**Credits — CCA: 3 CEUs for IPM; KY PAT: 1 CEU for Category 10, 2 CEUs for Category 1A**



Italian ryegrass (aka Annual Ryegrass) is rapidly becoming one of the most problematic weeds in no-till corn and soybean production in Kentucky.

Presented by **Dr. Travis Legleiter, UK Extension Associate Professor - Weed Science**, this field tour will highlight the options available to Kentucky farmers for maximum control of this problematic weed in the fall and spring prior to corn and soybean planting.

For more information about the field tour call (859) 562-2569.

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Lexington, KY 40506



Disabilities  
accommodated  
with prior notification.





**April 4, 2024**  
**8 am-2 pm**



# PLANTER CLINIC

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- *Discussion of planter components and proper maintenance.*



Pre-registration is required at  
[www.KATSPlanterClinic2024](http://www.KATSPlanterClinic2024)

\$105

Lunch is included

Credits pending



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



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LEXINGTON, KY 40546

# UPCOMING EVENTS

## Italian Ryegrass Control Field Tour

*March 28, 2024*

## KATS Planter Workshop

*April 4, 2024*

## 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*

