University of Kentucky
College of Agriculture, Food and Environment
Agricultural Experiment Station

2021 Kentucky Soybean Variety Performance Tests

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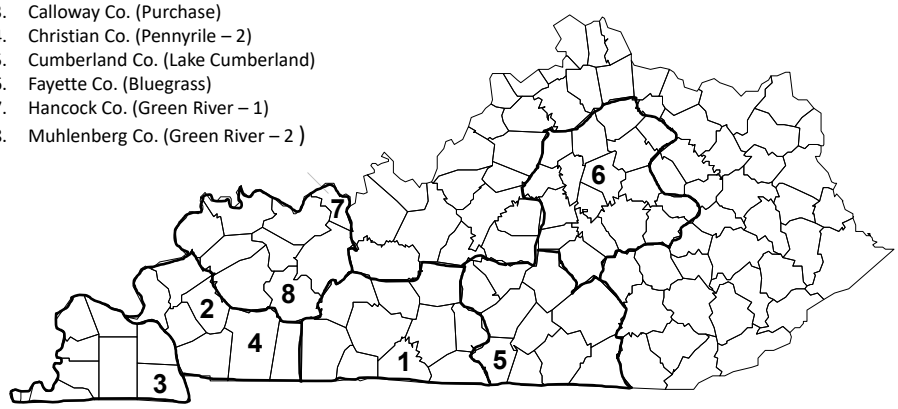
The Kentucky Soybean Variety Performance Tests are conducted to provide an unbiased and objective estimate of the relative performance of soybean varieties commercially available in Kentucky. This information may be used by growers and seed producers to aid in selecting varieties that will give the highest total production in a specific situation. Soybean varieties in the 2021 tests were entered by soybean growers, commercial companies, state and federal institutions.

Tests were conducted at eight locations. Planting and harvest dates are shown in Table 1.

Kentucky Soybean Variety Performance Trials - 2021 test sites

1. Allen Co. (Mammoth Cave)
2. Caldwell Co. (Pennyrile – 1)
3. Calloway Co. (Purchase)
4. Christian Co. (Pennyrile – 2)
5. Cumberland Co. (Lake Cumberland)
6. Fayette Co. (Bluegrass)
7. Hancock Co. (Green River – 1)
8. Muhlenberg Co. (Green River – 2)



Methods

All tests were planted in a randomized complete block design by maturity group with a no-till plot planter (Haldrup SNT-25, 6-rows–Haldrup USA). The maturity groups (MG) were defined as MG 2 for the varieties in the relative maturities (reMG) 2.0 to 2.9, MG 3 for the reMG 3.0 to 3.9 varieties, MG 4 Early for the reMG 4.0 to 4.5 varieties, MG 4 Late for the reMG 4.6 to 4.9 varieties, and MG 5 for the reMG 5.0 to 5.9 varieties (tables 5-11). Each test had three replications (plots) for each variety. The individual plots were 15.5 feet long and six rows wide with 15 inches between rows. Four to five viable seeds per foot of row were planted. Seed bed depth information is provided in the agronomic information for each test site. A seeding rate guide for full-season and double-crop soybeans is shown in Table 2. Seeding rates should be adjusted for standard germination rates as well as expected stand losses. Reductions in emergence are typically more severe in damp, cool conditions with heavy residues or with soil crusting. Reductions in emergence are typically less with warm soils and adequate soil moisture levels. All test sites were treated with fertilizers, lime, and herbicides before planting following current IPM and fertilizer/lime recommendations (UK ID-249: *A Comprehensive Guide to Soybean Management in Kentucky*). Seed source and varietal information are located in Table 3. Companies nominated their varieties and could choose to treat

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Table 1. Locations, planting and harvest dates for the 2021 Kentucky Soybean Variety Performance Tests

Region	Test Site	Collaborators	Ag. Practice	Previous Crop	Planting Dates	Harvest Dates
Bluegrass	Fayette County	C. Venard	No-till	Corn	4/23/2021	MG 2, 3: 10/12/2021 MG 4 Early and Late: 10/14/2021 MG 5: 10/27/2021
Green River	Hancock County	Mr. Hagman, soybean producer, and Mr. Tates, UK Ext. Ag. & Nat Resources agent	No-till	Corn	MG 2, 3, 4 Early: 5/14/2021 MG 4 Late and MG 5: 5/15/2021	MG 2, 3, 4 Early and MG 5: 10/10/2021 MG 4 Late: 10/11/2021
	Muhlenberg County	Mr. Miller, soybean producer, and Mr. Simpson, UK Ext. Ag. & Nat Resources agent	Minimum tillage	Corn	MG 2, 3, 4 Early: 5/20/2021 MG 4 Late and MG 5: 5/21/2021	MG 2, 3, 5: 10/18/2021 MG 4 Early and Late: 10/19/2021
Lake Cumberland	Pulaski County	Mr. Pierce, soybean producer, and Mr. Adkins, UK Ext. Ag. & Nat Resources agent	No-till	Soybean, cover crop mix	MG 2, 3, 4 Early and MG 4 Late: 5/19/2021 MG 5: 5/20/2021	MG 2, 3, 4 Late: 11/3/2021 MG 4 Early and MG 5: 11/4/2021
Mammoth Cave	Allen County	Mr. Shaw, soybean producer and Mr. Huber, UK Ext. Ag. & Nat Resources agent	No-till	Corn	5/13/2021	MG 2, 3, 5: 10/22/2021 MG 4 Early and Late: 10/23/2021
Pennyrile	Caldwell County	Mr. Peek, UKREC Farm manager	Till	Tobacco, wheat cover crop	4/27/2021	MG 2, 3: 9/24/2021 MG 4 Early: 9/25/2021 MG 4 Late and MG5: 10/5/2021
	Christian County	Mr. Askew, soybean producer, and Mr. Futrell, UK Ext. Ag. & Nat Resources agent	No-till	Corn, wheat cover crop	5/22/2021	11/2
Purchase	Calloway County	Dr. Taylor and Dr. Ferguson, Murray State University	No-till	Tobacco, wheat cover crop	5/12/2021	MG 2, 3, 4 Early MG 5: 10/8 MG 4 Late: 10/9

their seed with fungicides, insecticides, nematicides, beneficial organisms, and/or germination/growth/systemic acquired resistance enhancers (Table 3).The plots were maintained as weed-free as possible during the growing season. All plots were mechanically end-trimmed to 15.5 feet during the early vegetative stages (V1 to V3).

The four center rows of each plot were harvested with a research plot combine (Wintersteiger Delta plot combine–Wintersteiger, USA). Each maturity group was harvested separately.

Yield is reported in bushels (60 pounds) per acre adjusted to 13% moisture. An electronic weight and moisture monitor (HarvestMaster HM800 GrainGage system, Juniper Systems, Inc., USA) located on the combine was used for record weight and moisture readings for each plot. Data were collected with a field PC connected to the monitor in the Mirus software (Mirus Harvest Software, Juniper Systems, Inc., USA), and analyzed with Agrobase GEN II statistical software (Agronomix Software Inc., Canada).

Lodging was recorded at harvest at all test sites. Lodging was rated on a scale of 1 to 5, where 1 = all plants erect; 2 = all plants over slightly or a few down; 3 = all plants over moderately or 25% down; 4 = all plants over considerably or 50% down; 5 = over 50% to all plants down.

Maturity date. Maturity dates were only recorded at the Caldwell County location. A variety was considered mature when 99% of the pods reached their normal mature color. One to two weeks of good drying weather may be needed beyond the date given before the plants are ready to combine.

Plant height was measured in inches from the soil surface to the tip of the main stem. Plant height was recorded at the Caldwell County location, at harvest.

Disease scouting. Diseases may cause yield loss if soybean plants are infected prior to or at flowering. Planting disease-resistant or disease-tolerant varieties will help eliminate this possible yield loss. Growers should review Table 3, "Company Specifications," for disease resistance/tolerance ratings. In addition to the company specifications, the test plots were scouted every other week during the soybean growing season for diseases. During the 2021 season, significant sudden death syndrome (SDS) was observed at the Calloway County test site mid-to-late August. Frogeye leaf spot (FLS) was also observed, at all locations, but the ratings were very low. FLS and SDS ratings at the Calloway test site were performed and analyzed by Dr. Carl Bradley, UK Extension Specialist in Plant Pathology, and Ms. Kelsey Mehl, Agriculture Extension Associate.

Protein and oil concentrations. Whole-seed samples were collected at the Caldwell Co., Fayette Co. and Hancock Co., test sites, and were analyzed with a NIR spectrophotometer (DA 7250, Perten Instruments, Sweden). The data are reported on the basis of 13% moisture and were statistically analyzed with Agrobase GEN II statistical software.

Interpretation

An important step in profitable soybean production is selecting the best varieties for each management system. The Kentucky Soybean Variety Performance Tests are conducted to provide information useful in making this selection.

Performance of soybean varieties is affected by many factors, including year, location, soil type, and time of planting. A particular soybean variety is adapted for full-season growth in a band approximately 100 miles wide from north to south. Thus, the best variety in northern Kentucky may not be best for southern areas. For this reason, the Kentucky Soybean Variety Performance Tests are conducted at several locations in the major soybean-producing areas of the state. The yields as reported in this publication should be used for relative comparisons; actual yields on a grower's farm may be different.

Performance of soybean varieties will vary from year to year and from location to location depending on adaptability, weather conditions, and management practices. Performance of a variety across a period of years and at several locations in the state is the best indicator of its production potential (see the University of Kentucky publication *Agronomy Notes*, Volume 21, No. 3, "Using Performance Test Results in Soybean Variety Selection in Kentucky," and UK ID-249). The data presented in Table 5, "State Summary – Recommended Table," have been averaged across 2019-2020-2021 full-season years and locations, and are recommended to evaluate variety relative performances. This table is also recommended for selecting varieties for maximum yield in double-crop systems in Kentucky. Better yielding full-season varieties are also the better-yielding double-crop varieties. Variety performance in a full-season environment that maximizes yield is a better indicator of performance than late-planted soybeans that have reduced yields. The data from three years of full-season tests, analyzed across years and locations, predict performance of a variety more accurately than a single, full-season, or double-crop test (Pfeiffer, Todd 1987. Applied Agricultural Research, Vol. 2, No. 3, pp. 141-145.

Small differences in yield are usually of little importance. The yield of two varieties at a single location can differ because of chance factors (difference in soil characteristics, fertility, or availability of moisture), although the inherent yielding ability is the same. The significance level in the tables 5-13 is 0.10. The significance level is the measure of how likely the observed result could have occurred by chance. A value of 0.10 means that the confidence is 9 out of 10 that the observed yield difference did not happen by chance or randomness. To decide if an observed yield difference is real, the least significant difference (LSD) values cited at the bottom of each maturity group should be used. LSD is the value a given by statistical analysis (ANOVA) at a significance level (here 0.10, or 90% accuracy). LSD can be used to compare means (such as average yields) as long as the experiment has been designed for that purpose. The LSD is used to compare adjacent variety means when variety means are arranged in order of magnitude. If the difference in yield between two varieties is greater than the LSD value, it is reasonable to assume that the varieties differ in yielding ability.

Yield is only one factor to consider in selecting a variety for a production system. Oil and protein contents, date of maturity, lodging resistance, disease resistance, availability of time and equipment, economic management and weed control costs need to be considered as well.

Oil and protein levels are influenced by variety and weather (primarily temperature) during seed filling. We recommend that growers create a list of varieties that meet their needs for agronomic characteristics: yield, maturity group, soybean cyst nematode resistance, etc. Then, using the protein and oil data from Table 4, select varieties that have the highest average oil and protein concentrations. This approach should select varieties that have the best chance of producing acceptable yield and meet the oil and protein standards.

The data are presented by maturity groups based on the information provided

by the companies supplying the seed (Table 3). Due to weather patterns at a location, maturity alone can affect yield; this impact will be reflected by large differences in the maturity group averages. Selecting varieties from several maturity groups can reduce the impact of these maturity group fluctuations. The date of a 50 percent chance of a fall killing frost is important in determining which variety should be planted. The dates, presented along with tables 5 to 11, are based on long-term (30 years) averages. Actual dates will vary from year to year. For the dates of a one-year-out-of-10 chance of a fall killing frost, subtract 13 to 18 days from the average dates. For maximum yield, a variety must mature before the first killing frost in the fall.

In case of known soybean cyst nematode (SCN) problems, a resistant variety should be used in the production system with a recommended crop rotation program. Planting resistant varieties should be considered as the number of acres affected by SCN in Kentucky has increased. SCN occurs in at least 51 western Kentucky counties. Low levels of SCN show few or no visible symptoms but can cause yield losses of up to 25 percent (https://plantpathology.ca.uky.edu/extension/soybean-cyst-nematode). Fields should be tested for SCN regularly. Producers should contact their local University of Kentucky County Extension office for more information on collecting and submitting samples.

Growing Conditions–2021

The state temperatures in March were above normal for three straight weeks, with several days at highs peaking in the 70s. Precipitation also was above normal for the month as the state averaged 6.83 inches. The wet pattern started the second week of the month. Severe weather on the 25th brought some isolated instances of large hail, and damaging winds. Heavy rainfall led to multiple bouts of flooding, on the 27th.

The warm month of March was followed by a very chilly start to April. Temperatures dropped below freezing for three straight nights behind a strong cold front. The state then saw a quick warming trend over the next couple weeks, with temperatures peaking in the 70s -80s, with below normal rainfall. April started with widespread rain showers and snow. Overall, the state only averaged about 3 inches of precipitation for the month.

In May, Kentucky received 3.58 inches of rain , which is about 1.5 inches below normal. Most of that fell over the first week of May followed by two weeks of dry conditions.

Following the dry month of May, a more active weather pattern returned in June. Overall, the state averaged 4.83 inches for the month. The more significant accumulations fell over the first couple weeks. The state then saw dry conditions over the second half of the month.

July started with a very active pattern. The state averaged over 1 inch a week for three weeks, with heavy localized rainfall and flooding. Conditions then turned dry for most of the state through the remaining couple weeks of the month. The state averaged 6.06 inches for the month, which is over an inch above normal. Temperatures were close to seasonable norms for the first half of July with typical summer-time humidity. As conditions dried out later in July, temperatures increased with heat indices topping the century mark. Some of the warmest temperatures were recorded on the 27th and 29th with highs in the upper 80s to middle 90s.

August started out cooler than normal. High temperatures were in the 80s and lows were in the 60s during the middle of the month following the passage of a cold front on August 15. During the last week of the month, typical summer heat with highs in upper 90 degrees were recorded and heat index readings surged past the century mark. August precipitation totals varied widely across the region, ranging from about 1.5 inches below to 4 inches above normal depending on the location. Rainfall totals for August averaged above normal.

The first 10 days of the September were cooler than normal, with the low temperatures dropping into the 50s on several nights. A warmer pattern developed from the 11th through 21st, with highs commonly in the mid 80s to 90. Humidity levels during this time period kept our lows to the 60s. A cold front, descended on Sept. 22 and lasted through the 26th. Temperature went up again from the 27th to the 30th to the mid to upper 80s. September precipitation totals were quite variable, with most of the state being drier than normal.

During the first three weeks of October, Kentucky experienced well above normal temperatures and above normal rainfall over the first two week. Temperatures averaged 70 degrees, 10 degrees above normal. The conditions were favorable for good progress with harvest of soybean. After October 25 however, conditions were much cooler and cold fronts brought waves of rain to the region. Kentucky experienced prolonged period of wet weather, which slowed down soybean harvest activities (Sources: UKAg Weather Center, KY Mesonet, the National Weather Service, and the National Integrated Drought Information System).

Detailed precipitation and temperature information at each test location is provided next to tables 5-10, in the sections Agronomic Information. The data were collected using WatchDog 2900ET weather stations positioned in each field, and analyzed with the SpecWare 9 Pro Software (Spectrum Technologies, Inc.).

Special Notes–2021

In 2021, the test site in Christian County was subject to deer damage. Significant defoliation was observed up to three weeks after planting. Deer fed on the upper most

Table 2. Planting guide for full-season and double-crop soybeans

Full-season soybeans

Target stand plant/acre	Germination rate	Assumed stand loss	Final seeding rate (seeds/acre)	Row spacing (in.) 7.5	15	30
				seeds per foot		
100,000	95%	5%	110,803	1.6	3.2	6.4
		10%	116,959	1.7	3.4	6.7
		20%	131,579	1.9	3.8	7.6
		30%	150,376	2.2	4.3	8.6
	90%	5%	116,959	1.8	3.4	6.7
		10%	123,457	1.8	3.5	7.1
		20%	138,889	2.0	4.0	8.0
		30%	158,730	2.3	4.6	9.1
	85%	5%	123,839	1.8	3.6	7.1
		10%	130,719	1.9	3.8	7.5
		20%	147,059	2.1	4.2	8.4
		30%	168,067	2.4	4.8	9.6

Double-crop soybeans

Target stand plant/acre	Germination rate	Assumed stand loss	Final seeding rate (seeds/acre)	Row spacing (in.) 7.5	15	30
				seeds per foot		
140,000	95%	5%	155,125	2.2	4.5	8.9
		10%	163,743	2.3	4.7	9.4
		20%	184,211	2.6	5.3	10.6
		30%	210,526	3.0	3.0	12.1
	90%	5%	163,743	2.3	7.4	9.4
		10%	172,840	2.5	5.0	9.9
		20%	194,444	2.8	5.6	11.2
		30%	222,222	3.2	6.4	12.8
	85%	5%	173,375	2.5	5.0	10.0
		10%	183,007	2.6	5.3	10.5
		20%	205,882	3.0	5.9	11.8
		30%	235,294	3.4	6.8	13.5

foliage. Stems appeared snapped. However, the plants had time to recover and developed foliage from the axillary buds. The data collected at this test site are presented in Table 9 but were not included in the yield data analysis in the Recommended Table. The data are presented as information–soybean can recover from this type of damage.

The test site in Allen County was unfortunately exposed to herbicide drift (Benzoic Acid, 2,4-D, Dicamba, XtendiMax, Engenia, FeXapan). Some varieties in the trials are sensitive to the herbicide, and were injured. The amount the varieties were exposed is unknown. The injury was first observed on July 28, when the MG2 varieties were at the end of the R4 stage, MG3 varieties at mid-R4, MG 4 Early varieties at the end of R3, MG 4 Late varieties at mid-R3, and the MG5 varieties at early-to-mid R3. The symptoms were rated on 8/27 as percent of foliage on the whole plants exhibiting curling and scorching. The data presented in Table 8 are for information only. The data were not included in the yield data analysis in the Recommended Table (Table 4).

Soybean Production Information

This Progress Report from the Kentucky Agricultural Experiment Station and is published with approval from the Director.

As of October 12, 2021, soybean production for Kentucky was forecast at 98.5 million bushels, down 3% from 2020. Yield was estimated at 55 bushels per acre, up 9.0 bushels from a year ago. Acreage for harvest as beans was estimated at 1.79 million acres, down 50,000 acres from the previous year. (Source: October Crop Production, Kentucky–News Release USDA, NASS, Kentucky Field Office, October 12th, 2021).

The University of Kentucky offers a series of publications, blogs, and websites which contain detailed information for soybean and grain production practices in Kentucky:

- KyGrains.info, The Farmer's Resource for Grain Production in Kentucky
- UK ID-249, A Comprehensive Guide to Soybean Management in Kentucky
- Kentucky Pest Newsletter
- University of Kentucky Cooperative Extension Service
- Kentucky Soybean Variety Performance Tests website
- The University of Kentucky Grain Crops website provides information on all Kentucky variety test publications and related resources

Kentucky State Seed Law

The Kentucky State Seed Law requires all seed exposed, offered for sale, or sold in Kentucky to be labeled as to a) kind and variety for each agricultural seed component present in excess of 5% of the whole, and b) the percentage by weight of each component. All soybean seed blends should be labeled as to the percentage of each variety that makes up the mixture. All soybean seed must be labeled by variety name; the term "variety unknown" may no longer be used in place of a variety designation for soybeans.

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Table 3. Source of Seed and Variety Specifications.[A]

Variety Name	Maturity Group	Herbicide Technologies[B]	Disease Resistance Traits[C]					Seed treatment(s)
			Soybean Cyst Nematode resistance	Phytophtora soja[D]		Sudden death syndrome	Other[C,E]	
				Resistance gene	Field tolerance			
Armor Seed – WinfieldUnited - armorseed.com								
ARMOR 39-E75	3.9	Enlist	PI88.788		MR	MR		WardenCX
ARMOR 39-F73	3.9	XtendFlex	PI88.788	None	Moderate	MR		WardenCX
ARMOR 46-F13	4.6	XtendFlex	PI88.788	1c	MR	MR		WardenCX
ARMOR 48-D25	4.8	Xtend	PI88.788	1c	Moderate	MR		WardenCX
ARMOR 48-F22	4.8	XtendFlex	PI88.788	1a	Moderate	MS		WardenCX
ARMOR 45-D20	4.5	Xtend	PI88.788	1a, 1c	MR	MR		WardenCX
ARMOR 44-E44	4.4	Enlist	PI88.788	1a	MR	MR		WardenCX
AgriGold - agrigold.com								
AGRIGOLD G2905XF	2.9	XtendFlex	R PI188788	1k,3a	R	MT		NA
AGRIGOLD G3451E3	3.4	Enlist, STS	R PI188788	1k	R	R		NA
AGRIGOLD G3506XF	3.5	XtendFlex, STS	R PI188788		MT	MT		NA
AGRIGOLD G3520RX	3.5	Xtend	R PI188788, R3, MR14	1c	R	MT		NA
AGRIGOLD G3724XF	3.7	XtendFlex	R PI188788		MT	R		NA
AGRIGOLD G4100XF	4.1	XtendFlex	R PI188788		MT	R		NA
AGRIGOLD G4255RX	4.2	Xtend, STS	MT PI188788	1c	MS	MT		NA
AGRIGOLD G4615XF	4.6	XtendFlex, STS	R PI188788	1c	MT	MT		NA
BASF - agriculture.basf.us								
XO 3651E	3.6	Enlist	3, 14	1k	MR	MT		ObviousPlus Poncho Votivo Ilevo
XO 3861E	3.8	Enlist	3, 14	1k	MS	MT		ObviousPlus Poncho Votivo Ilevo
XO 4371E	4.3	Enlist	3, 14	None	MT	T		ObviousPlus Poncho Votivo Ilevo
XO 4681E	4.6	Enlist	3, 14	None	MT	T		ObviousPlus Poncho Votivo Ilevo
CZ 4742XF (no longer offered)	4.7	Xtend Flex	3, 14	1a	MT	T		ObviousPlus Poncho Votivo Ilevo
CZ 4892XF (no longer offered)	4.8	Xtend Flex	3, 14	1a	MS	T		ObviousPlus Poncho Votivo Ilevo
CZ 4912XF (no longer offered)	4.9	Xtend Flex	3, 14	1c	MS	T		ObviousPlus Poncho Votivo Ilevo
Bayer Asgrow - cropscience.bayer.com								
ASGROW AG29XF1	2.9	XF	R3	1c				ACCELERON F+I
ASGROW AG30XF2	3.0	XF	R3	1c	5	MR		ACCELERON F+I
ASGROW AG35XF1	3.5	XF	R3	1c	4	MR		ACCELERON F+I
ASGROW AG37XF2	3.7	XF	R3	1c	5	MR		ACCELERON F+I
ASGROW AG38XF1	3.8	XF	R3	1c	5	MS		ACCELERON F+I
ASGROW AG40XF0	4.0	XF	R3	1c	4	MR		ACCELERON F+I
ASGROW AG40XF1	4.0	XF/SR	R3	1c	5	MS		ACCELERON F+I
ASGROW AG42XF0	4.2	XF	R3	1a	5	MR		ACCELERON F+I
ASGROW AG43XF2	4.3	XF						
ASGROW AG45XF0	4.5		R3	1a	4	S		ACCELERON F+I
ASGROW AG47XF0	4.7	XF/SR	R3	1a	4	S		ACCELERON F+I
ASGROW AG48XF0	4.8	XF/SR	R3	1c	4	MR		ACCELERON F+I
ASGROW AG48XF2	4.8	XF	R3	1a	4	MS		ACCELERON F+I
Brevant™ Seeds - brevant.com								
B389EE	3.8	Enlist E3	3, 14	1k	MT	MR		LumiGEN
B400EE	4.0	Enlist E3	3, 14	None	MT	R		LumiGEN
B421EE	4.2	Enlist E3	3, 14	None	MS	MR		LumiGEN
B459EE	4.5	Enlist E3	3, 14	None	MT	MR		LumiGEN
B450EE	4.5	Enlist E3	3, 14	1k	MT	MR		LumiGEN
B470EE	4.7	Enlist E3	Y, PI88788	1a	MS	MS		LumiGEN
Channel Seed - channel.com								
CHANNEL 3521RXF	3.5	XtendFlex	R	Rps 1c	MS			Acceleron Fungicide + Insecticide + Illevo
CHANNEL 3721RXF	3.7	XtendFlex/SR	R	Rps 1c	MS			Acceleron Fungicide + Insecticide + Illevo
CHANNEL 4422RXF	4.4	XtendFlex/SR	R	Rps 1c	T			Acceleron Fungicide + Insecticide + Illevo
CHANNEL 4720RXF	4.7	XtendFlex/SR	R	Rps 1c	T			Acceleron Fungicide + Insecticide + Illevo
Dyna-Gro Seed - nutrienagsolutions.com								
DYNA-GRO S3961STS	3.9	Conv	R3, MR14	None	MT	MR		Equity VIP Saltro
DYNA-GRO S39EN19	3.9	E3	R3, MR14	None	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S39XF41	3.9	XTFlex	MR3	None	MT	MS	MR-FLS	Equity VIP Saltro
DYNA-GRO S4122STS	4.1	Conv	MR3	1a	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S41EN72	4.1	E3	R3, MR14	None	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S43EN61	4.3	E3	R3, MR14	None	MT	MR	R-FLS	Equity VIP Saltro
DYNA-GRO S43XF51	4.3	XTFlex	MR3	1a	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S43XS70	4.3	XT/STS	R3, MR14	1c	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S45ES10	4.5	E3/STS	R3, MR14	None	MT	MR	R-FLS	Equity VIP Saltro

Table 3. Source of Seed and Variety Specifications, continued.

Variety Name	Maturity Group	Herbicide Technologies[B]	Disease Resistance Traits[C]					Seed treatment(s)
			Soybean Cyst Nematode resistance	Phytophtora soja[D]		Sudden death syndrome	Other[C,E]	
				Resistance gene	Field tolerance			
DYNA-GRO S46ES91	4.6	E3/STS	R3, MR14	None	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S46XF31S	4.6	XTFlex	R3, MR14	1c	MT	MR		Equity VIP Saltro
DYNA-GRO S46XS60	4.6	XT/STS	R3, MR14	1c	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S4751STS	4.7	Conv	Susceptible	None	MT	MR	MR-FLS	Equity VIP Saltro
DYNA-GRO S48XT56	4.8	XT	R3, MR14	1a	MT	R	MR-FLS	Equity VIP Saltro
DYNA-GRO S49EN12	4.9	E3	R3, MR14	None	MT	MR	MR-FLS	Equity VIP Saltro
GDM Seed - DonMario - gdmseeds.com								
DONMARIO DM42F62S	4.2	XtendFlex						Cruiser Maxx Vibrance
DONMARIO DM46F62	4.6	XtendFlex						Cruiser Maxx Vibrance
DONMARIO DM46E62	4.6	Enlist						Cruiser Maxx Vibrance
DONMARIO DM48E62S	4.8	Enlist						Cruiser Maxx Vibrance
Golden Harvest - goldenharvestseeds.com								
GH 3512E3S	3.5	Enlist/STS	MR3	Rpslc	MR	R		CMV Saltro
GH 3732XF	3.7	XtendFlex	R3		MR	MR		CMV Saltro
GH 3762E3S	3.7	Enlist/STS	MR3	Rpslc	MR	R		CMV Saltro
GH 3952XF	3.9	XtendFlex	R3	Rpslc	MR	R		CMV Saltro
GH 4072E3	4.0	Enlist	MR3	Rpslc/Rps3A	MR	R		CMV Saltro
GH 4392XF	4.3	XtendFlex	MR3		MR	MR		CMV Saltro
GH 4452XFS	4.4	XtendFlex/STS	MR3	Rpslc	MR	MR		CMV Saltro
GROWMARK, INC - FS HiSoy Soybean Brand - growmarkfs.com								
HS 40F10	4.0	XtendFlex	3, 14		MT	MR		ACC I + F
HS 41F00	4.1	XtendFlex/STS	3, 14	Rps 1c	MT	MR		ACC I + F
HS 44F10	4.4	XtendFlex	3, 14	Rps 1c	MT	MR		ACC I + F
HS 46F00	4.6	XtendFlex/STS	3, 14	Rps 1c	MT	MR		ACC I + F
HS 48F00	4.8	XtendFlex/STS	3, 14	Rps 1a	MT	MR		ACC I + F
HS 45E00	4.5	E3	3, 14	Rps 1a	MT	MR		ACC I + F
HS 48E10	4.8	E3/STS	3, 14	None	MT	MR		ACC I + F
Local Seed Company - localseed.com								
LS3908XFS	3.9	XtendFlex/STS	MR3	NG		MR		Radius Premium
LS4299XS	4.3	Xtend/STS	R3 MR14	Rps1c	MR	MR		Radius Premium
LS4415XF	4.4	XtendFlex						Radius Premium
LS4517XFS	4.5	XtendFlex/STS						Radius Premium
LS4606XFS	4.6	XtendFlex/STS	R3 MR14	Rps1c		MR		Radius Premium
LS4795XS	4.7	Xtend/STS	R3 MR14	Rps1c	R	R		Radius Premium
LS4707XF	4.7	XtendFlex	MR3	Rps1a		MR		Radius Premium
LS4805XFS	4.8	XtendFlex/STS	R3 MR14	Rps1a		MR		Radius Premium
LS4806XS	4.8	Xtend/STS	R3 MR14	Rps1c	MR	MR		Radius Premium
LS4919XFS	4.9	XtendFlex/STS						Radius Premium
LS5009XS	5.0	Xtend/STS	R3 MR14	Rps1c	MR	R		Radius Premium
LS5119XF	5.1	XtendFlex						Radius Premium
NuTech Seed - nutechseed.com								
NUTECH SEED 35N03E	3.5	E3	PI88788	Rps 1k				Lumisena
NUTECH SEED 37N01E	3.7	E3	PI88788					Lumisena
NUTECH SEED 39N04E	3.9	E3	PI88788					LumiGen, Lumisena ILEVO, Bacillus subtilis and Bacillus pumilis
NUTECH SEED 39N05E	3.9	E3	PI88788	Rps 1k				LumiGen, Lumisena ILEVO, Bacillus subtilis and Bacillus pumilis
NUTECH SEED 41N03E	4.1	E3	PI88788					Lumisena
NUTECH SEED 43N04E	4.3	E3	PI88788					LumiGen, Lumisena ILEVO, Bacillus subtilis and Bacillus pumilis
NUTECH SEED 46N02E	4.6	E3	PI88788	Rps 1k				Lumisena
NUTECH SEED 48N06E	4.8	E3	PI88788	Rps 1k				Lumisena
Partners Brand Seed - partnersbrandseed.com								
Partners Brand Seed PB423 E3 STSn	4.2	E3, STS	R3,MR14	NA	MR	NA	Frogeye Leaf Spot- MR	Alert 2020, Insecticide, Fungicide, Inoculant
Partners Brand Seed PB 3722 E3S	3.7	E3, STS	R3	Rps1c	T	MT	Frogeye Leaf Spot- R	Alert 2020, Insecticide, Fungicide, Inoculant
Pioneer Hi-Bred International, Inc. - pioneer.com								
PIONEER P36A83X	3.6	RR2X	3, 14	1a	MT	T		LumiGEN
PIONEER P39A45X	3.9	RR2X	3, 14	1c	MT	HT		LumiGEN
PIONEER P42A96X	4.2	RR2X	3, 14	1c	MT	T		LumiGEN
PIONEER P46A86X	4.6	RR2X	3, 14		MT	MT		LumiGEN
PIONEER P47A64X	4.7	RR2X	3, 14		MT	T		LumiGEN
Seed Consultants - seedconsultants.com								
SEED CONSULTANTS SC 7361E™	3.6	E3/Enlist	PI88788	1k	MR	MS		LumiGEN
SEED CONSULTANTS SC 7372E™	3.7	E3/Enlist	PI88788	None	MR	MS		LumiGEN

Table 3. Source of Seed and Variety Specifications, continued.

Variety Name	Maturity Group	Herbicide Technologies[B]	Disease Resistance Traits[C]					Seed treatment(s)
			Soybean Cyst Nematode resistance	Phytophtora soja[D]		Sudden death syndrome	Other[C,E]	
				Resistance gene	Field tolerance			
SEED CONSULTANTS SC 7381E™	3.8	E3/Enlist	PI88788	None	R	MS		LumiGEN
SEED CONSULTANTS SC 7421™	4.2	E3/Enlist	PI88788	1c	MR	MS		LumiGEN
SEED CONSULTANTS SC 7461™	4.6	E3/Enlist	PI88788	None	MR	MS		LumiGEN
Stewart Seeds - stewartseeds.com								
STEWART 3531XF	3.5	XF	PI88788	1c	MS	MS		Acceleron Elite
STEWART 3632XF	3.6	XF	PI88788	1c	S	MR		Acceleron Elite
STEWART 3731XF	3.7	XF	PI88788	1c	MS	MS		Acceleron Elite
STEWART 3931XF	3.9	XF	PI88788	Susc	MS	MR		Acceleron Elite
STEWART 4231XF	4.2	XF	PI88788	1c	MS	MS		Acceleron Elite
STEWART 4442XF	4.4	XF	PI88788	1c	S	MR		Acceleron Elite
STEWART 4730XF	4.7	XF	PI88788	1c	MS	MR		Acceleron Elite
Stine Seed Company - stineseed.com								
STINE 36EE12	3.6	E3						NA
STINE 39EC22	3.9	E3						NA
STINE 41EB32	4.1	E3						NA
STINE 42EE20	4.2	E3						NA
STINE 44EC20	4.4	E3						NA
STINE 46EE20	4.6	E3						NA
STINE 47EB32	4.7	E3						NA
STINE 47EE20	4.7	E3						NA
STINE 48EE20	4.8	E3						NA
UniSouth Genetics, Inc. - usgseed.com								
USG 7282XFS	2.8	XF/STS	R3,MR14	To be determined	NA	NA	R-Stem Canker	Ipconazole/metalaxyl/imidicloprid
USG 7392XFS	3.9	XF/STS	R3,MS14	None	MR	MR	R-Stem Canker	Ipconazole/metalaxyl/imidicloprid
USG 7441XF	4.4	XF	MR3	None	MR	MR	R-Stem Canker	Ipconazole/metalaxyl/imidicloprid
USG 7461XFS	4.6	XF/STS	R	Rps1C	MS-MR	MR	R-Stem Canker, Excluder	Ipconazole/metalaxyl/imidicloprid
USG 7472XFS	4.7	XF/STS	R3,MR14	To be determined	NA	MR	R-Stem Canker, R-Frogeye	Ipconazole/metalaxyl/imidicloprid
USG 7481XF	4.8	XF	R3,MR14	Rps1A	MR	MR	R-Stem Canker, MR-Frogeye	Ipconazole/metalaxyl/imidicloprid
USG 7491XFS	4.9	XF/STS	R	Rps1A	MR	MS	R-Stem Canker	Ipconazole/metalaxyl/imidicloprid
USG 7461XTS	4.6	XT	R3,MR14	Rps1A	MR	MR	R-Frogeye, R-Stem Canker	Ipconazole/metalaxyl/imidicloprid
University of Kentucky								
ESSEX (long term check-released 1974)	5.0	CONV-PUB						none
PENNYRILE (long-term check-released 1987)	4.7	CONV-PUB						none
University of Missouri								
UNIVERSITY OF MISSOURI S17-2243C	4.5	CONV	R				SC	Warden CX
UNIVERSITY OF MISSOURI S16-12137C	4.6	CONV	S				SC	Warden CX
UNIVERSITY OF MISSOURI S09-13608C	4.7	CONV	MS				SC	Warden CX
UNIVERSITY OF MISSOURI S17-2193C	4.7	CONV	R				SC	Warden CX
UNIVERSITY OF MISSOURI S16-5503R	4.8	RR1	R				RN, RKN	Warden CX
UNIVERSITY OF MISSOURI S16-8898C	4.8	CONV	R				RKN	Warden CX
UNIVERSITY OF MISSOURI S16-14801C	4.8	CONV	R				RN, RKN, SC	Warden CX
UNIVERSITY OF MISSOURI S16-7840C	5.0	CONV	R				RN, RKN, SC	Warden CX
UNIVERSITY OF MISSOURI S16-9090C	5.2	CONV	R				RN, RKN	Warden CX
UNIVERSITY OF MISSOURI S16-9478C	5.2	CONV	R				RN	Warden CX
UNIVERSITY OF MISSOURI S16-15170C	5.3	CONV	R				SC	Warden CX

A This information is provided by the seed nominators and has not been verified by the soybean variety performance test program.

B Conv/CONV: conventional soybean variety; Extend/Xtend/X/XT: dicamba-tolerant soybean variety; E3/Enlist: variety tolerant to Enlist Duo™ herbicide; PUB: Public release variety; RR1: first generation Roundup Ready (glyphosate) soybean variety (original trait, introduced in 1996); RR2: second generation Roundup Ready 2 Yield soybean variety (introduced in 2009) ; SR/STS: sulfonylurea-tolerant soybean variety; XF/XtendFlex/Xtend Flex/XTFlex: variety tolerant to dicamba, glyphosate and glufosinate herbicides.

C S: susceptible; MS: moderately susceptible; MT: moderately tolerant; T: tolerant; MR: moderately resistant; R: resistant ; blank space: no information provided or information unknown.

D All races of Phytophtora sojae identified so far in Kentucky can be controlled with varieties in the Rps 1c or 1k. Race-specific resistance is highly effective but requires a proper match between pathogen race and soybean variety. Field tolerance is a lower level of protection that will provide good control against all races. Seed and yound seedlings of tolerant soybean varieties must be protected with a fungicde since field tolerance develops after early seedling growh stages.

E FLS: frogeye leaf spot, RKN: root knot nematode.

RECOMMENDED TABLE

Table 4. State Summary: Recommended Table.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	LODGING 2021	Technologies	PROTEIN CONTENT %[A/C] 2021	2020-2021	2019-2021	OIL CONTENT %[A/C] 2021	2020-2021	2019-2021
MATURITY GROUP II (relative MG 2.0-2.9)[E]											
AGRIGOLD G2905XF	**65.6**	NA	NA	2.3	XtendFlex	38.0	NA	NA	20.6	NA	NA
ASGROW AG29XF1	64.3	NA	NA	1.0	XF	37.4	NA	NA	20.5	NA	NA
USG 7282XFS[D]	49.1	NA	NA	2.5	XF/STS	**38.5**	NA	NA	**20.8**	NA	NA
GROUP II AVERAGE	**59.7**			**1.9**		**38.0**			**20.6**		
LSD (0.10)	4.3					0.3			0.2		
C.V.	5.8					1.0			1.4		
MATURITY GROUP III (relative MG 3.0-3.9)											
DYNA-GRO S39EN19	**78.1**	**73.6**	**72.3**	2.1	Enlist	36.3			21.1		
ARMOR 39-E75	**78.1**			1.9	E3	37.3	35.6	35.2	20.6	20.2	19.9
DYNA-GRO S39XF41	78.0			2.1	XTFlex	37.8			19.9		
USG 7392XFS	77.8			2.1	XF/STS	38.3			19.8		
NUTECH SEED 39N04E	77.1	72.1		1.8	E3	36.8	35.6		20.3	19.9	
ARMOR 39-F73	76.5			2.1	XtendFlex	36.7			20.1		
AGRIGOLD G3451E3[D]	75.6			3.2	Enlist, STS	36.0			**22.2**		
NUTECH SEED 37N01E	75.4			1.5	E3	37.9			20.5		
SEED CONSULTANTS SC 7381E™	75.2	71.6		1.7	E3/Enlist	36.7	35.2		20.6	20.2	
GH 3762E3S	74.7			2.7	Enlist/STS	36.0			21.0		
STINE 39EC22	74.3			1.6	E3	35.8			21.3		
XO 3651E	74.0			1.9	Enlist	36.6			21.4		
DYNA-GRO S3961STS	74.0	68.6		1.6	Conv	38.1	**36.5**		19.3	19.1	
B389EE	73.9	69.5		1.8	Enlist E3	35.6	34.3		21.3	**20.8**	
SEED CONSULTANTS SC 7372E™	73.6			1.6	E3/Enlist	37.6			20.5		
LS3908XFS	73.2			2.1	XtendFlex/STS	38.4			19.6		
XO 3861E	73.2			1.5	Enlist	36.6			21.1		
AGRIGOLD G3506XF[D]	73.0			2.2	XtendFlex, STS	37.1			20.8		
NUTECH SEED 35N03E	73.0			2.2	E3	36.7			21.2		
NUTECH SEED 39N05E	72.6	69.0		1.8	E3	35.9	34.4		21.4	**20.8**	
STINE 36EE12	72.4			2.7	E3	36.9			22.0		
ASGROW AG38XF1	71.9			1.7	XF	36.9			20.4		
GH 3732XF	71.8			1.8	XtendFlex	35.9			20.7		
ASGROW AG37XF2	71.7			1.8	XF	**39.4**			20.2		
SEED CONSULTANTS SC 7361E™	71.1			1.8	E3/Enlist	36.8			21.5		
GH 3952XF	71.0			1.8	XtendFlex	36.1			20.9		
AGRIGOLD G3724XF	70.8			2.4	XtendFlex	37.5			19.8		
CHANNEL 3521RXF	70.5			1.8	XtendFlex	36.6			20.8		
ASGROW AG35XF1	70.0			1.9	XF	37.1			20.9		
CHANNEL 3721RXF	69.7			2.4	XtendFlex/SR	38.9			19.6		
AGRIGOLD G3520RX	69.3			1.8	Xtend	37.9			20.4		
PIONEER P36A83X	68.9	69.6		1.7	RR2X	36.2	34.7		20.5	20.1	
PIONEER P39A45X	68.8			1.4	RR2X	35.3			22.0		
Partners Brand Seed PB 3722 E3S	68.4			2.1	E3, STS	36.5			21.4		
STEWART 3531XF	68.2			1.6	XF	36.7			21.0		
GH 3512E3S	67.9			3.2	Enlist/STS	36.7			21.6		
STEWART 3632XF	67.4			1.4	XF	37.1			20.6		
STEWART 3731XF	66.9			2.6	XF	38.9			19.7		
STEWART 3931XF	64.6			1.5	XF	38.0			20.2		
ASGROW AG30XF2	58.9			1.7	XF	39.3			19.8		
GROUP III AVERAGE	**72.0**	**70.6**	**72.3**	**2.0**							
LSD (0.10)	5.4	3.4				0.6	0.4		0.4	0.3	
C.V.	5.6	5.1				1.2	1.3		1.3	1.4	
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)											
ARMOR 44-E44	**82.5**	75.7		2.0	Enlist	36.9	35.2		20.6	20.0	
GH 4392XF	80.9			2.4	XtendFlex	36.4			20.8		
NUTECH SEED 43N04E	80.6	**77.0**		2.4	E3	34.9	33.4		**21.8**	**21.0**	
GH 4452XFS	80.4			1.5	XtendFlex/STS	36.2			20.5		
B421EE	80.3			2.9	Enlist E3	35.4			21.6		
DYNA-GRO S43XS70	80.1	74.2	72.4	1.8	Xtend	36.8			20.1		
ARMOR 45-D20	80.1			2.4	XT/STS	36.5	35.2	34.9	20.1	19.5	19.4
LS4299XS	79.9	73.7	**73.1**	1.7	Xtend/STS	36.7	35.2	**35.0**	20.0	19.8	19.5
DYNA-GRO S41EN72	79.7			2.8	E3	34.9			21.7		
UNIVERSITY OF MISSOURI S17-2243C	79.3			1.7	CONV	36.0			20.7		
ASGROW AG43XF2	78.9			1.5	XF	35.6			21.5		
DYNA-GRO S45ES10	78.9	75.1		1.9	E3/STS	37.0	35.4		20.7	19.9	

continued

RECOMMENDED TABLE

Table 4. State Summary: Recommended Table, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	LODGING 2021	Technologies	PROTEIN CONTENT %[A/C] 2021	2020-2021	2019-2021	OIL CONTENT %[A/C] 2021	2020-2021	2019-2021
B450EE	78.8			2.2	Enlist E3	35.9			**21.8**		
LS4415XF	78.6			2.2	XtendFlex	36.5			20.2		
HS 45E00	78.5	72.7		1.6	E3	35.8	34.5		20.8	20.2	
NUTECH SEED 41N03E	78.3	73.0		1.6	E3	37.4	35.6		19.9	19.4	
PIONEER P42A96X	78.2	71.8	71.4	1.4	RR2X	36.3	35.0	34.6	20.8	20.4	**20.3**
STINE 41EB32	78.2	74.8		1.8	E3	36.9	35.3		20.9	20.2	
AGRIGOLD G4255RX[D]	78.2	73.6		1.7	Xtend, STS	36.7	34.8		19.6	19.3	
HS 44F10	78.0			1.9	XtendFlex	36.9			19.8		
DYNA-GRO S4122STS	77.8			2.7	Conv	38.2			20.3		
LS4517XFS	76.8			2.7	XtendFlex/STS	37.6			20.0		
ASGROW AG42XF0	76.7			2.4	XF	36.7			21.2		
SEED CONSULTANTS SC 7421™	76.6	72.7		2.8	E3/Enlist	36.8	35.0		21.3	20.6	
B459EE	76.4	71.8		2.0	Enlist E3	37.2	35.3		20.5	20.1	
CHANNEL 4422RXF	75.7			2.1	XtendFlex/SR	37.4			20.1		
GH 4072E3	75.1			1.4	Enlist	36.9			20.5		
ASGROW AG40XF1	75.1			1.6	XF/SR	**38.5**			20.4		
STEWART 4442XF	74.5			2.1	XF	36.4			19.9		
Partners Brand Seed PB423 E3 STSn	74.4	71.4		1.7	E3, STS	37.9	**36.1**		20.4	19.8	
USG 7441XF	74.3			2.1	XF	38.3			19.6		
B400EE	74.2	71.7		1.3	Enlist E3	36.7	35.3		21.5	20.7	
STINE 44EC20	74.2			1.9	E3	37.5			20.4		
XO 4371E	73.7			2.2	Enlist	37.0			21.3		
STINE 42EE20	73.0			2.4	E3	37.8			19.0		
ASGROW AG40XF0	73.0			1.4	XF	38.1			20.4		
ASGROW AG45XF0	72.9			3.0		35.2			20.9		
HS 41F00	72.2			1.9	XtendFlex/STS	37.0			19.9		
DYNA-GRO S43XF51	72.2			2.4	XTFlex	38.2			19.8		
STEWART 4231XF	72.0			1.7	XF	37.0			19.9		
DONMARIO DM42F62S	72.0			2.7	XtendFlex	36.2			20.1		
DYNA-GRO S43EN61	71.9	70.2		2.5	E3	37.1	35.4		21.4	20.9	
HS 40F10[D]	67.2			2.8	XtendFlex	35.7			20.1		
AGRIGOLD 4100XF[D]	66.2			2.5	XtendFlex	36.2			19.9		
GROUP IV EARLY AVERAGE	**76.3**	**73.3**	**72.3**	**2.1**		**36.8**	**35.1**	**34.8**	**20.5**	**20.1**	**19.7**
LSD (0.10)	5.4	3.9	2.9			0.6	0.4	0.3	0.4	0.3	0.2
C.V.	5.3	5.4	5.0			1.2	1.3	1.2	1.3	1.4	1.4
MATURITY GROUP IV LATE (relative MG 4.6-4.9)											
PIONEER P47A64X	**89.3**			2.1	RR2X	35.6			19.8		
DYNA-GRO S48XT56	86.6	75.3	72.6	1.6	XT	37.2	35.8	35.6	19.6	19.0	18.8
PIONEER P46A86X	86.2	**76.6**		2.3	RR2X	36.4	34.6		19.6	19.7	
ARMOR 46-F13	86.2			2.6	XtendFlex	36.6			19.8		
HS 46F00	85.2			2.2	XtendFlex/STS	35.8			20.0		
ARMOR 48-F22	84.2			1.9	XtendFlex	35.8			20.3		
LS4806XS	83.8	74.8		1.7	Xtend/STS	36.6	35.4		20.5	20.0	
ARMOR 48-D25	83.5	75.5	**73.0**	1.8	Xtend	35.8	34.8	34.8	20.6	19.9	19.6
LS4606XFS	83.5			2.2	XtendFlex/STS	35.8			19.9		
HS 48F00	83.4			1.7	XtendFlex/STS	35.5			20.3		
AGRIGOLD G4615XF	83.3			2.3	XtendFlex, STS	35.5			20.2		
ASGROW AG48XF2	83.3			2.6	XF	36.7			19.9		
STINE 46EE20	82.9			1.8	E3	37.4			20.0		
DYNA-GRO S46XF31S	82.9			2.4	XTFlex	35.7			19.8		
USG 7461XFS	82.8			1.8	XF/STS	35.7			20.1		
ASGROW AG47XF0	82.6			1.6	XF/SR	36.0			20.1		
LS4795XS	82.1	74.9	71.0	1.8	Xtend/STS	36.7	35.1	34.8	20.5	20.1	**19.9**
DYNA-GRO S4751STS	82.0	73.0		2.3	Conv	35.6	34.0		20.8	20.2	
B470EE	81.8	73.9		1.8	Enlist E3	35.7	34.2		21.2	20.4	
NUTECH SEED 46N02E	81.7	74.0		2.3	E3	35.7	33.9		**21.7**	**21.3**	
STEWART 4730XF	81.4			2.1	XF	36.0			20.0		
DYNA-GRO S46ES91	81.3	73.0		1.9	E3/STS	36.6	35.1		20.5	19.9	
STINE 48EE20	81.1			2.6	E3	36.4			20.0		
UNIVERSITY OF MISSOURI S17-2193C	80.7			2.4	CONV	36.0			20.1		
XO 4681E	80.7			1.9	Enlist	36.9			20.1		
USG 7472XFS	80.7			3.2	XF/STS	36.9			19.8		
USG 7461XTS	80.4	74.5		2.6	XT	35.8	34.5		20.4	20.0	
DYNA-GRO S46XS60	80.2	72.9	71.5	1.6	XT/STS	36.4	34.9	34.9	20.4	20.0	19.8
SEED CONSULTANTS SC 7461™	79.5			1.8	E3/Enlist	36.8			20.4		
LS4919XFS	79.3			2.4	XtendFlex/STS	36.4			20.0		
LS4805XFS	79.3			1.9	XtendFlex/STS	35.7			20.3		

continued

RECOMMENDED TABLE

Table 4. State Summary: Recommended Table, continued.

	YIELD (BU/AC)[A/B]			LODGING		PROTEIN CONTENT %[A/C]			OIL CONTENT %[A/C]		
BRAND VARIETY	**2021**	**2020-2021**	**2019-2021**	**2021**	**Technologies**	**2021**	**2020-2021**	**2019-2021**	**2021**	**2020-2021**	**2019-2021**
ASGROW AG48XF0	79.0			2.4	XF/SR	35.4			19.7		
USG 7491XFS	78.5			1.9	XF/STS	35.9			20.2		
STINE 47EE20	78.4			2.7	E3	37.4			19.3		
UNIVERSITY OF MISSOURI S16-5503R	77.9			4.8	RR1	38.0			19.4		
UNIVERSITY OF MISSOURI S16-14801C	77.9			4.6	CONV	37.0			19.9		
CHANNEL 4720RXF	77.8			2.2	XtendFlex/SR	36.8			19.3		
NUTECH SEED 48N06E	77.4			2.8	E3	36.7			20.3		
DONMARIO DM46F62	76.5			2.4	XtendFlex	36.1			19.8		
UNIVERSITY OF MISSOURI S16-8898C	76.0			4.7	CONV	37.3			20.4		
DYNA-GRO S49EN12	75.8			2.4	E3	36.9			19.2		
STINE 47EB32	74.2			2.4	E3	36.8			19.6		
HS 48E10	74.1			3.2	E3/STS	35.8			19.4		
UNIVERSITY OF MISSOURI S16-12137C	73.8			2.7	CONV	36.2			20.1		
CZ 4892XF	72.6			1.4	Xtend Flex	36.3			19.6		
CZ 4912XF	72.4			2.2	Xtend Flex	37.1			19.8		
DONMARIO DM48E62S	71.7			2.8	Enlist	37.5			19.8		
UNIVERSITY OF MISSOURI S09-13608C	71.6			2.8	CONV	37.1			19.0		
CZ 4742XF	70.3			1.9	Xtend Flex	38.0			19.8		
LS4707XF	70.0			3.1	XtendFlex	35.5			20.6		
USG 7481XF	69.9			3.1	XF	35.5			20.6		
DONMARIO DM46E62[D]	69.4			3.0	Enlist	35.0			20.3		
PENNYRILE (long term check-released 1987)	56.1	52.3	51.8	1.9	CONV-PUB	**39.4**	**37.8**	**37.2**	19.8	19.5	19.4
GROUP IV LATE AVERAGE	**78.9**	**72.5**	**68.0**	**2.4**		**36.4**	**35.0**	**35.5**	**20.0**	**20.0**	**19.5**
LSD (0.10)	5.6	3.5	2.7			0.7	0.5	0.3	0.5	0.3	0.2
C.V.	5.3	4.9	4.7			1.5	1.3	1.2	1.7	1.5	1.5
MATURITY GROUP V (relative MG 5.0-5.9)[E]											
UNIVERSITY OF MISSOURI S16-9090C	**83.4**		NA	3.9	CONV	36.1		NA	20.2		NA
UNIVERSITY OF MISSOURI S16-7840C	77.2		NA	4.3	CONV	36.9		NA	19.2		NA
UNIVERSITY OF MISSOURI S16-15170C	75.8	68.3	NA	2.9	CONV	37.2	35.7	NA	18.9	18.6	NA
LS5119XF	75.4		NA	2.2	XtendFlex	34.7		NA	**20.8**		NA
LS5009XS	75.2	**69.6**	NA	3.5	Xtend/STS	37.2	36.4	NA	19.1	18.7	NA
UNIVERSITY OF MISSOURI S16-9478C	74.6		NA	4.2	CONV	37.1		NA	19.6		NA
ESSEX (long term check-released 1974)	58.3	56.7	NA	2.0	CONV-PUB	**38.6**	**36.9**	NA	19.4	**19.1**	NA
GROUP V AVERAGE	**74.3**	**64.9**		**3.3**		**36.8**	**36.3**		**19.6**	**18.8**	
LSD (0.10)	5.5	3.6				1.1	0.6		0.8	0.8	
C.V.	5.4	5.4				2.1	1.7		2.9	4.1	

[A] Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group and year column.

[B] The 2021 yield data were collectd at the Caldwell Co., Calloway Co., Fayette Co., Hancock Co., Muhlenberg Co., and Pulaski Co. The 2020 yield data were collected at the Allen Co., Caldwell Co., Calloway Co., Christian Co., Cumberland Co., Fayette Co., Hancock Co., Muhlenberg Co., and Meade Co. test sites. The 2019 yield data were collected in Allen Co., Caldwell Co., Calloway Co., Christian Co., Cumberland Co., Fayette Co., Meade Co., and McLean Co.

[C] The 2021 oil and protein samples were collecetd at the Caldwell Co., Fayette Co., and Hancock Co. test sites. The 2019-2020 oil and protein samples were collected at the Caldwell Co., Calloway Co., and Fayette Co. test sites.

[D] The varieties were planted at the Allen Co., Calloway Co., Christian Co., and Hancock Co. test sites in 2021. Unfortunately, the data collected from the Allen Co. and Christian Co. were not suitable for variety evaluation (intensive damage due to herbicide injury and deer defoliation). The varieties were evaluated at the two remaining test sites.

[E] The varieties in the relative Maturity Group 2 were entered in the trials in 2021 only. Similarly, no varieties in the 2021 reMG 5 were entered before 2020.

Table 5. Bluegrass Region: Fayette County.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
MATURITY GROUP II (relative MG 2.0-2.9)				
AGRIGOLD G2905XF	**51.3**			1.0
ASGROW AG29XF1	42.9			1.0
GROUP II AVERAGE	**47.1**			**1**
LSD (0.10)	5.5			
C.V.	8.7			
MATURITY GROUP III (relative MG 3.0-3.9)				
B389EE	**72.6**	**69.1**		1.0
GH 3762E3S	72.0			1.0
DYNA-GRO S39XF41	70.7			1.0
NUTECH SEED 39N05E	68.6	62.5		1.0
USG 7392XFS	68.5			1.0
XO 3861E	66.9			1.0
PIONEER P39A45X	66.4			1.0
GH 3512E3S	66.0			1.0
ARMOR 39-F73	65.7			1.0
DYNA-GRO S3961STS	65.4	62.1		1.0
AGRIGOLD G3724XF	65.2			1.0
SEED CONSULTANTS SC 7361E™	64.4			1.0
ARMOR 39-E75	64.2			1.0
DYNA-GRO S39EN19	63.6	63.2	60.7	1.0
SEED CONSULTANTS SC 7381E™	63.4	61.1		1.0
NUTECH SEED 39N04E	62.6	57.0		1.0
SEED CONSULTANTS SC 7372E™	62.4			1.0
NUTECH SEED 35N03E	62.1			1.0
ASGROW AG37XF2	61.9			1.0
CHANNEL 3721RXF	61.9			1.0
LS3908XFS	61.7			1.0
GH 3952XF	61.7			1.0
PIONEER P36A83X	61.3	58.2		1.0
STINE 36EE12	61.3			1.0
XO 3651E	60.9			1.0
CHANNEL 3521RXF	60.4			1.0
STEWART 3731XF	60.1			1.0
GH 3732XF	59.7			1.0
NUTECH SEED 37N01E	58.1			1.0
STEWART 3632XF	57.8			1.0
Partners Brand Seed PB 3722 E3S	57.6			1.0
ASGROW AG38XF1	54.3			1.0
AGRIGOLD G3520RX	54.0			1.0
STINE 39EC22	53.9			1.0
STEWART 3531XF	53.7			1.0
ASGROW AG35XF1	53.5			1.0
ASGROW AG30XF2	52.4			1.0
STEWART 3931XF	48.8			1.0
GROUP III AVERAGE	**61.7**	**61.9**	**60.7**	**1.0**
LSD (0.10)	5.3	3.3		
C.V.	6.4	5.7		
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)				
XO 4371E	**79.3**			1.0
B459EE	75.7	**72.4**		1.0
NUTECH SEED 43N04E	75.4	68.4		1.0
B450EE	75.0			1.0
STEWART 4442XF	75.0			1.3
LS4415XF	74.6			1.0
DYNA-GRO S43XS70	74.2	71.0	61.6	1.0
DYNA-GRO S43EN61	74.1	71.4		1.0
B421EE	73.6			1.0
GH 4392XF	73.3			1.0
HS 44F10	72.9			1.0
GH 4452XFS	72.7			1.0
UNIVERSITY OF MISSOURI S17-2243C	72.7			1.0
ASGROW AG43XF2	71.9			1.0
DYNA-GRO S43XF51	71.0			1.0
STINE 42EE20	70.9			1.0
Partners Brand Seed PB423 E3 STSn	70.4	72.0		1.0
SEED CONSULTANTS SC 7421™	70.3	66.1		1.0
STINE 44EC20	70.1			1.0

continued

Table 5. Bluegrass Region: Fayette County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
ARMOR 45-D20	70.0			1.0
B400EE	69.0	65.1		1.0
ASGROW AG42XF0	68.9			1.3
ASGROW AG40XF1	68.3			1.0
DYNA-GRO S4122STS	67.9			1.0
DYNA-GRO S41EN72	67.8			1.0
NUTECH SEED 41N03E	67.8	64.3		1.0
CHANNEL 4422RXF	67.7			1.0
LS4299XS	66.9	66.0	**68.9**	1.0
ASGROW AG45XF0	66.9			1.0
STEWART 4231XF	66.8			1.0
LS4517XFS	66.8			1.0
USG 7441XF	65.8			1.0
STINE 41EB32	65.5	66.3		1.0
ARMOR 44-E44	65.3	62.5		1.0
HS 41F00	65.1			1.0
DYNA-GRO S45ES10	64.8	65.0		1.0
HS 45E00	63.5	63.2		1.0
DONMARIO DM42F62S	63.4			1.0
ASGROW AG40XF0	63.1			1.0
GH 4072E3	61.3			1.0
PIONEER P42A96X	60.0	60.1	56.9	1.0
GROUP IV EARLY AVERAGE	**69.4**	**66.7**	**62.5**	**1.0**
LSD (0.10)	4.4	4.4	3.4	
C.V.	4.8	6.7	6.4	
MATURITY GROUP IV LATE (relative MG 4.6-4.9)				
NUTECH SEED 46N02E	**90.6**	**77.3**		1.0
HS 46F00	85.7			1.0
STINE 46EE20	85.7			1.0
UNIVERSITY OF MISSOURI S17-2193C	84.7			2.0
DYNA-GRO S4751STS	83.5	66.9		1.0
ASGROW AG48XF2	83.5			1.0
LS4795XS	83.2	67.5	61.1	1.0
ARMOR 46-F13	83.2			1.3
LS4919XFS	83.1			1.0
NUTECH SEED 48N06E	83.1			1.0
USG 7461XFS	82.9			1.0
ASGROW AG47XF0	82.6			1.0
USG 7472XFS	82.5			1.0
DYNA-GRO S46ES91	81.9	72.9		1.0
XO 4681E	81.6			1.3
ASGROW AG48XF0	81.6			1.3
DYNA-GRO S46XF31S	81.5			1.0
SEED CONSULTANTS SC 7461™	81.5			1.0
PIONEER P47A64X	81.3			1.0
DYNA-GRO S48XT56	81.0	70.7	**71.6**	1.0
ARMOR 48-F22	80.3			1.0
STEWART 4730XF	80.3			1.3
PIONEER P46A86X	79.9	70.6		1.0
CHANNEL 4720RXF	79.8			1.0
HS 48F00	79.8			1.0
UNIVERSITY OF MISSOURI S09-13608C	79.7			1.0
LS4806XS	79.6	67.3		1.0
UNIVERSITY OF MISSOURI S16-12137C	79.2			1.7
ARMOR 48-D25	79.2	67.3	67.7	1.0
DONMARIO DM48E62S	79.1			1.7
UNIVERSITY OF MISSOURI S16-14801C	79.0			3.3
STINE 47EE20	78.2			1.0
STINE 48EE20	78.1			1.0
UNIVERSITY OF MISSOURI S16-5503R	77.8			4.0
USG 7491XFS	77.6			1.0
DYNA-GRO S49EN12	77.5			1.0
LS4606XFS	77.0			1.0
USG 7461XTS	76.7	70.7		1.0
HS 48E10	76.1			1.0
DYNA-GRO S46XS60	75.9	63.1	63.6	1.0
DONMARIO DM46F62	75.6			1.0
AGRIGOLD G4615XF	75.3			1.3
CZ 4742XF	74.7			1.0
LS4805XFS	74.5			1.0
STINE 47EB32	74.3			1.0

continued

Table 5. Bluegrass Region: Fayette County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
CZ 4892XF	74.1			1.0
USG 7481XF	73.0			1.0
B470EE	72.7	68.4		1.0
UNIVERSITY OF MISSOURI S16-8898C	70.9			4.3
CZ 4912XF	70.5			1.0
LS4707XF	67.2			1.0
PENNYRILE (long term check-released 1987)	53.5	50.3	47.8	1.0
GROUP IV LATE AVERAGE	**78.7**	**67.7**	**62.3**	**1.2**
LSD (0.10)	4.6	3.2	2.5	
C.V.	4.3	4.5	4.4	

continued

Table 5. Bluegrass Region: Fayette County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
MATURITY GROUP V (relative MG 5.0-5.9)				
UNIVERSITY OF MISSOURI S16-9090C	**84.9**			3.3
LS5119XF	83.5			1.0
UNIVERSITY OF MISSOURI S16-9478C	77.7			3.7
LS5009XS	75.8	67.1		1.0
UNIVERSITY OF MISSOURI S16-7840C	75.7			2.7
UNIVERSITY OF MISSOURI S16-15170C	71.8	**67.7**		1.0
ESSEX (long term check-released 1974)	56.9	55.5		1.0
GROUP V AVERAGE	**75.2**	**63.4**		**2.0**
LSD (0.10)	6.2	3.7		
C.V.	5.7	5.5		

A Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group and year column.

B The 2019-2021 yield data were collected at the University of Kentucky Spindletop Research Farm in Fayette Co., KY.

Agronomic Information
Bluegrass Region: Fayette County

GPS coordinates	38°07'22.0"N 84°29'25.3"W	
Soil texture	Silt loam (0-12 in.)	
	Sand	13.21%
	Silt	66.50%
	Clay	20.29%
	CEC	27.68 meq/100g
	Plant available water	19.06%
	Field capacity water	39.10%
	Wilting point water	20.04%
Slopes		0%
Previous crop		corn
Soil test (4/23/2021)	pH	6.31
	P	373 lbs/a
	K	242 lbs/a
	SCN test	250 (low)
Fertilizer/lime applied	none	
Agricultural practice		no-till
Pre-planting herbicides	Sharpen, Fierce EZ	3/9
	Forfeit 280, Canopy 75 DWG	4/2
	Authority XL, Mad Dog, Matador-S	4/23
Planting date		4/23/2021
Planting depth		0.5-1 in.
Population*	119,600/a	7/9
Post-emergence herbicides	Intensity One	5/27
	Reflex, Basagran, Fusion, Warrant	6/22
Harvest dates	MG 2 & 3	10/12
	MG 4 Early & Late	10/14
	MG 5	10/27
50% killing frost		10/26

** Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Bluegrass Region: Fayette County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures: Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
April (4/23-4/30)	2.54	5	58	80	32
May	4.34	11	61	89	30
June	7.74	13	72	93	45
July	4.36	13	73	90	51
August	7.73	12	73	92	50
September	3.55	11	65	88	40
October (10/1-10/27)	4.08	14	61	83	30

Data source: WatchDog weather station – on-site

Table 6. Green River Region: Hancock and Muhlenberg Counties.

	YIELD (BU/AC)[A/B]				LODGING	
BRAND VARIETY	2021 HANCOCK	2021 MUHLENBERG	2020-2021	2019-2021	2021 HANCOCK	2021 MUHLENBERG
MATURITY GROUP II (relative MG 2.0-2.9)						
AGRIGOLD G2905XF	**69.7**	**66.7**			2.7	3.3
ASGROW AG29XF1	67.0	63.4			1.0	1.0
USG 7282XFS	59.8	N/A			3.3	N/A
GROUP II AVERAGE	**65.5**	**65.1**			**2.3**	**2.2**
LSD (0.10)	1.6	4.8				
C.V.	1.8	5.6				
MATURITY GROUP III (relative MG 3.0-3.9)						
DYNA-GRO S39XF41	**88.8**	73.4			2.0	4.0
AGRIGOLD G3506XF	87.5	N/A			2.3	N/A
DYNA-GRO S39EN19	83.0	73.0	69.3	68.9	1.0	4.3
USG 7392XFS	82.4	79.2			1.3	4.0
XO 3651E	82.4	66.8			1.7	4.7
SEED CONSULTANTS SC 7381E™	81.4	76.0	69.7		1.0	2.3
ARMOR 39-E75	80.7	73.9			1.3	3.3
AGRIGOLD G3451E3	79.3	N/A			3.7	N/A
ARMOR 39-F73	79.2	**80.6**			1.7	3.3
NUTECH SEED 39N04E	78.8	78.1	**71.7**		1.7	2.7
NUTECH SEED 37N01E	78.0	75.1			1.3	3.0
ASGROW AG35XF1	77.9	70.5			2.0	3.3
AGRIGOLD G3520RX	77.7	66.7			1.3	3.3
ASGROW AG38XF1	76.1	71.3			1.0	3.0
PIONEER P36A83X	75.7	70.1	69.6		1.0	3.0
CHANNEL 3521RXF	75.5	67.2			1.0	3.7
STINE 36EE12	75.3	62.7			3.0	4.0
Partners Brand Seed PB 3722 E3S	74.8	61.6			1.0	3.7
ASGROW AG37XF2	73.5	76.7			1.0	3.3
SEED CONSULTANTS SC 7372E™	73.2	74.0			1.0	3.3
AGRIGOLD G3724XF	73.1	69.7			3.0	4.0
CHANNEL 3721RXF	72.7	70.6			1.7	5.0
GH 3762E3S	72.6	69.8			2.0	5.0
STINE 39EC22	72.3	77.9			1.3	3.0
STEWART 3531XF	72.2	65.9			1.3	2.7
NUTECH SEED 35N03E	71.8	69.2			1.3	4.7
GH 3952XF	71.7	65.9			1.0	3.3
GH 3512E3S	71.3	65.4			2.7	5.0
LS3908XFS	71.2	74.1			1.3	3.7
GH 3732XF	70.5	77.6			1.3	3.7
DYNA-GRO S3961STS	70.1	65.6	63.1		1.0	2.3
STEWART 3731XF	70.1	63.1			2.3	5.0
STEWART 3931XF	70.0	62.5			1.0	2.0
SEED CONSULTANTS SC 7361E™	69.3	59.9			1.0	3.7
B389EE	68.8	64.4	60.9		1.3	3.7
PIONEER P39A45X	68.2	61.7			1.0	2.3
NUTECH SEED 39N05E	68.1	59.8	60.2		2.0	2.7
XO 3861E	67.1	56.2			1.0	3.0
STEWART 3632XF	66.1	71.8			1.3	3.0
ASGROW AG30XF2	63.3	51.3			1.0	4.3
GROUP III AVERAGE	**74.5**	**68.9**	**66.3**	**68.9**	**1.5**	**3.5**
LSD (0.10)	4.1	5.4	2.5			
C.V.	5.3	5.7	5.2			
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)						
DYNA-GRO S41EN72	**86.0**	73.6			2.0	5.0
DYNA-GRO S45ES10	84.7	82.3	**77.7**		2.3	2.3
ARMOR 44-E44	84.6	87.5	**77.7**		1.3	3.0
GH 4392XF	81.8	82.4			1.3	4.3
AGRIGOLD G4255RX	81.6	N/A	70.6		1.3	N/A
NUTECH SEED 43N04E	80.7	80.6	75.0		1.7	4.3
ASGROW AG42XF0	79.5	84			1.3	4.0
DYNA-GRO S43XS70	79.5	82.3	72.4	**68.3**	1.7	2.3
NUTECH SEED 41N03E	78.9	75	69.5		1.3	1.0
DONMARIO DM42F62S	78.8	57.6			2.3	4.7
ARMOR 45-D20	78.5	85.4			2.3	3.7
B450EE	78.4	74.3			2.7	2.0
CHANNEL 4422RXF	78.3	73.5			1.0	3.3
HS 44F10	77.9	83.1			1.7	3.0
B421EE	77.3	80.5			2.0	5.0

continued

Table 6. Green River Region: Hancock and Muhlenberg Counties, continued.

	YIELD (BU/AC)[A/B]				LODGING	
BRAND VARIETY	2021 HANCOCK	2021 MUHLENBERG	2020-2021	2019-2021	2021 HANCOCK	2021 MUHLENBERG
USG 7441XF	76.6	72.4			1.7	2.0
DYNA-GRO S4122STS	75.4	77.2			2.0	5.0
LS4299XS	75.0	86.2	70.6	67.5	1.3	2.3
HS 41F00	74.1	66.9			1.7	2.0
SEED CONSULTANTS SC 7421™	73.6	90.8	75.3		2.3	4.7
ASGROW AG43XF2	72.7	82.7			1.3	2.0
Partners Brand Seed PB423 E3 STSn	72.7	61.9	64.0		1.7	2.0
GH 4072E3	72.5	84.8			1.0	2.3
PIONEER P42A96X	72.5	77.3	68.6	65.8	1.3	1.0
UNIVERSITY OF MISSOURI S17-2243C	72.4	**91.6**			1.0	2.0
STEWART 4442XF	72.0	70.5			1.7	3.0
STINE 42EE20	72.0	68.8			1.3	4.0
B400EE	71.5	66.6	64.7		1.0	1.0
LS4415XF	71.2	82			1.3	3.7
GH 4452XFS	70.8	88.3			1.0	1.3
STINE 41EB32	70.6	87	70.0		1.0	3.7
LS4517XFS	70.4	81.1			2.7	4.7
ASGROW AG40XF1	70.2	77.1			1.3	2.7
ASGROW AG40XF0	69.2	69.2			1.0	1.7
HS 40F10	68.3	N/A			2.3	N/A
XO 4371E	67.7	54			1.3	4.3
ASGROW AG45XF0	67.6	81.6			3.7	4.3
DYNA-GRO S43XF51	67.6	76.5			1.7	3.7
STINE 44EC20	66.7	66.6			1.3	2.0
AGRIGOLD G4100XF	66.4	N/A			2.0	N/A
B459EE	65.3	63	59.8		2.0	2.3
STEWART 4231XF	64.1	70.5			1.3	2.0
DYNA-GRO S43EN61	63.0	53.8	60.0		1.3	5.0
HS 45E00	59.3	89.8	71.3		1.0	2.7
GROUP IV EARLY AVERAGE	**73.6**	**76.6**	**69.8**	**67.2**	**1.6**	**3.1**
LSD (0.10)	4.0	4.4	2.6	2.2		
C.V.	5.2	5.5	5.3	5.1		
MATURITY GROUP IV LATE (relative MG 4.6-4.9)						
UNIVERSITY OF MISSOURI S16-8898C	**88.6**	82.4			4.3	5.0
PIONEER P47A64X	87.5	**97.4**			1.3	2.3
USG 7461XFS	86.3	86.0			1.7	1.7
ASGROW AG48XF2	86.2	77.0			2.0	3.0
UNIVERSITY OF MISSOURI S16-5503R	86.1	79.9			4.7	5.0
ARMOR 48-F22	84.8	90.7			2.0	2.3
LS4806XS	84.5	78.4	71.3		1.3	2.0
ARMOR 46-F13	84.1	89.6			1.7	3.7
PIONEER P46A86X	83.5	89.4	74.7		2.0	3.0
LS4606XFS	83.1	86.3			2.0	3.0
DYNA-GRO S48XT56	82.8	88.6	**75.7**	**74.3**	1.3	2.3
ARMOR 48-D25	81.1	87.3	73.2	71.3	1.0	3.3
LS4795XS	80.9	79.8	71.4	68.0	1.3	2.7
ASGROW AG47XF0	80.2	83.7			1.3	2.0
SEED CONSULTANTS SC 7461™	79.3	65.4			2.3	2.0
HS 46F00	79.1	81.9			1.7	3.0
XO 4681E	78.4	65.7			1.3	5.0
DONMARIO DM46F62	78.4	63.9			3.0	2.0
B470EE	78.2	83.9	70.5		1.0	2.7
UNIVERSITY OF MISSOURI S16-14801C	78.0	80.6			5.0	5.0
LS4805XFS	77.6	87.7			1.0	2.7
STEWART 4730XF	77.3	77.7			1.7	3.0
ASGROW AG48XF0	76.8	73.0			1.3	4.0
AGRIGOLD G4615XF	76.5	83.4			1.7	3.7
DYNA-GRO S46XS60	75.8	78.3	68.5	66.0	1.0	2.0
DYNA-GRO S46XF31S	75.7	87.5			1.7	4.0
USG 7472XFS	75.6	79.3			3.0	4.7
USG 7461XTS	75.5	76.4	70.3		2.3	3.7
DYNA-GRO S46ES91	75.1	85.2	68.3		1.3	2.7
USG 7491XFS	74.9	77.7			1.7	1.7
HS 48F00	74.8	88.8			1.7	1.7
STINE 46EE20	74.5	72.7			1.3	2.0
STINE 47EE20	74.3	77.1			2.3	4.0
STINE 48EE20	74.2	75.7			2.3	3.3
UNIVERSITY OF MISSOURI S09-13608C	72.5	70.7			2.7	4.0
HS 48E10	72.3	62.2			3.7	4.0
LS4919XFS	72.0	81.1			1.3	3.7

continued

Table 6. Green River Region: Hancock and Muhlenberg Counties, continued.

	YIELD (BU/AC)[A/B]				LODGING	
BRAND VARIETY	2021 HANCOCK	2021 MUHLENBERG	2020-2021	2019-2021	2021 HANCOCK	2021 MUHLENBERG
DYNA-GRO S4751STS	70.6	90.0	71.0		1.3	3.7
UNIVERSITY OF MISSOURI S17-2193C	70.4	87.3			2.3	3.0
NUTECH SEED 48N06E	70.3	73.0			3.3	4.0
DONMARIO DM46E62	69.7	59.2			3.3	3.0
LS4707XF	69.4	66.2			3.0	3.7
CZ 4892XF	68.8	61.4			1.0	2.7
UNIVERSITY OF MISSOURI S16-12137C	68.1	75.7			2.0	3.7
USG 7481XF	67.0	61.4			2.7	4.7
NUTECH SEED 46N02E	66.8	70.0	64.2		2.7	3.0
CHANNEL 4720RXF	66.2	71.3			1.3	3.3
CZ 4912XF	64.6	74.6			1.7	2.0
CZ 4742XF	64.0	62.5			1.3	3.3
DYNA-GRO S49EN12	62.9	64.9			2.3	3.3
DONMARIO DM48E62S	61.5	N/A			1.3	N/A
STINE 47EB32	61.4	58.1			2.0	2.3
PENNYRILE (long term check-released 1987)	55.9	49.6	48.8	47.8	1.0	2.0
GROUP IV LATE AVERAGE	**75.2**	**76.9**	**69.0**	**65.5**	**2.0**	**3.1**
LSD (0.10)	3.8	3.9	2.4	2.1		
C.V.	4.8	4.8	4.8	4.8		
MATURITY GROUP V (relative MG 5.0-5.9)						
UNIVERSITY OF MISSOURI S16-9090C	**82.0**	**81.0**			5.0	**82.0**
UNIVERSITY OF MISSOURI S16-7840C	79.4	77.2			5.0	79.4
UNIVERSITY OF MISSOURI S16-9478C	72.5	77.6			5.0	72.5
LS5009XS	69.3	74.6	64.6		4.7	69.3
UNIVERSITY OF MISSOURI S16-15170C	65.1	75.7	**65.8**		4.3	65.1
LS5119XF	63.5	66.6			2.3	63.5
ESSEX (long term check-released 1974)	53.6	52.6	52.5		2.0	53.6
GROUP V AVERAGE	**69.3**	**72.2**	**61.0**		**4.0**	**2.9**
LSD (0.10)	4.9	6.9	2.8			
C.V.	6.4	6.6	6.3			

[A] *Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group and year column.*

[B] *The 2021 and 2020 yield data were collected at the Hancock Co., KY andMuhlenberg Co., KY test sites, the 2019 data at the McLean Co., KY test site. Significant Frogeye Leaf Spot and Sudden Death Syndrome (SDS) disease pressure was observed at the test site in Hancock County in 2020. Disease ratings were performed by Dr. Carl Bradley, Pr. and Extension Plant Pathologist, and Ms. Kelsey Mehl, Agriculture Extension Associate (see the University of Kentucky PR-794 publication for more details).*

Agronomic Information
Green River Region: Hancock County

GPS coordinates	37°53'23.5"N 86°40'26.8"W	
Soil texture	Silt loam (0-12 in.)	
	Sand	35.17%
	Silt	53.43%
	Clay	11.40%
	CEC	6.06meq/100g
	Plant available water	20.40%
	Field capacity water	28.65%
	Wilting point water	8.25%
Slopes		0-2%
Previous crop		corn
Soil test (5/15)	pH	6.08
	P	332 lbs/a
	K	312 lbs/a
	SCN test	875 (moderate)
Agricultural practice		no-till
Pre-emergence herbicides	Authority XL, Mad Dog, Matador-S	5/15
Post-emergence herbicides	Warrant	6/22
Planting dates	MG 2, 3, & 4 Early	5/14/2021
	MG 4 Late & 5	5/15/2021
Planting depth		1.5 in.
Population*	129,900/a	7/15
Post-emergence herbicides	MadDog Plus	6/08/2020
	Forfeit 280SL	6/11/2020
Harvest dates	MG 2, 3, 4 Early, & 5	10/10
	MG 4 Late	10/11
50% killing frost		10/20

**Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Green River Region: Hancock County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures		
			Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
May (5/15-5/31)	2.61	8	68	92	43
June	2.55	14	75	99	50
July	5.49	9	75	96	54
August	4.05	9	76	98	52
September	2.44	10	69	91	42
October (10/1-10/11)	1.08	6	70	89	58

Data source: WatchDog weather station – on-site.

Agronomic Information
Green River Region: Muhlenberg County

GPS coordinates	37°20'30.0"N 87°18'03.3"W	
Soil texture	Silt loam (0-12 in.)	
	Sand	20.74%
	Silt	68.31%
	Clay	10.96%
	CEC	6.33 meq/100g
	Plant available water	23.75%
	Field capacity water	31.78%
	Wilting point water	8.04%
Slopes (occasionally flooded)		0-2%
Previous crop		corn
Soil test (5/21)	pH	6.14
	P	87 lbs/a
	K	206 lbs/a
	SCN test	125 (low)
Agricultural practice		shallow tillage
Pre-emergence herbicides	Authority, Matador-S	5/21
Planting dates	MG 2, 3, & 4 Early	5/20
	MG 4 Late & 5	5/21
Planting depth		1.5 in.
Population*	157,200/a	
Post-emergence herbicides	Basagran 5L, Reflex, Warrant, Fusion	6/25
Harvest dates	MG 2, 3 & 5	10/18
	MG 4 Early & Late	10/19
50% killing frost		

**Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Green River Region: Muhlenberg County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures		
			Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
May (5/21-5/31)	0.59	4	69	92	44
June	4.74	10	76	98	52
July	6.54	10	77	94	55
August	3.92	10	77	97	55
September	2.37	12	69	91	44
October (10/1-10/19)	0.84	7	67	90	36

Data source: WatchDog weather station – on-site.

Table 7. Lake Cumberland Region: Pulaski County.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
MATURITY GROUP II (relative MG 2.0-2.9)				
ASGROW AG29XF1	**65.6**			2.7
AGRIGOLD G2905XF	62.5			1.0
GROUP II AVERAGE	**64.1**			**1.9**
LSD (0.10)	5.4			
C.V.	6.4			
MATURITY GROUP III (relative MG 3.0-3.9)				
DYNA-GRO S39XF41	**88.1**			2.3
DYNA-GRO S39EN19	87.7	**81.2**	79.3	2.7
ASGROW AG38XF1	83.3			2.0
LS3908XFS	81.5			2.0
USG 7392XFS	81.2			2.0
AGRIGOLD G3520RX	80.9			1.3
GH 3762E3S	80.8			3.7
STEWART 3531XF	80.6			1.0
DYNA-GRO S3961STS	80.2	79.5		1.3
XO 3651E	79.6			1.3
ARMOR 39-E75	79.5			1.7
NUTECH SEED 39N04E	78.8	75.6		1.0
SEED CONSULTANTS SC 7381E™	78.7	78.1		1.7
CHANNEL 3521RXF	78.5			2.0
ARMOR 39-F73	78.5			2.3
STINE 39EC22	77.1			1.0
GH 3952XF	76.8			2.0
NUTECH SEED 39N05E	76.5	76.2		2.0
SEED CONSULTANTS SC 7372E™	76.2			1.0
ASGROW AG37XF2	75.6			2.0
STEWART 3731XF	75.6			3.0
PIONEER P39A45X	75.0			1.3
CHANNEL 3721RXF	74.9			3.0
XO 3861E	74.9			1.0
B389EE	74.1	73.5		1.7
STINE 36EE12	73.8			4.0
NUTECH SEED 37N01E	73.3			1.0
ASGROW AG35XF1	73.2			1.3
GH 3732XF	72.9			1.3
STEWART 3632XF	72.5			1.3
AGRIGOLD G3724XF	71.8			2.7
Partners Brand Seed PB 3722 E3S	71.3			2.0
SEED CONSULTANTS SC 7361E™	70.2			1.0
NUTECH SEED 35N03E	70.1			1.7
PIONEER P36A83X	69.9	75.6		1.0
STEWART 3931XF	68.9			2.0
GH 3512E3S	63.7			3.0
ASGROW AG30XF2	61.9			1.0
GROUP III AVERAGE	**76.0**	**77.1**	**79.3**	**1.8**
LSD (0.10)	5.3	3.7	2.9	
C.V.	5.1	5.1	4.9	
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)				
HS 45E00	**86.1**	80.7		1.0
STINE 41EB32	86.1	**83.3**		1.7
DYNA-GRO S43XS70	85.1	83.2	**85.5**	2.0
LS4299XS	83.6	80.5	82.6	1.7
PIONEER P42A96X	83.4	80.3	82.6	2.0
LS4517XFS	83.2			2.7
CHANNEL 4422RXF	83.0			3.0
LS4415XF	81.4			2.7
STINE 42EE20	81.3			3.3
GH 4452XFS	81.2			1.7
ASGROW AG43XF2	81.0			1.0
ARMOR 44-E44	80.9	79.3		2.3
NUTECH SEED 41N03E	80.7	77.8		1.7
GH 4392XF	80.4			2.7
ARMOR 45-D20	80.0			3.0
UNIVERSITY OF MISSOURI S17-2243C	79.3			1.7
DYNA-GRO S4122STS	79.2			2.3
DONMARIO DM42F62S	78.8			3.7
B450EE	78.5			3.3

continued

Table 7. Lake Cumberland Region: Pulaski County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
HS 44F10	78.3			2.7
ASGROW AG40XF1	78.1			1.3
STEWART 4442XF	78.0			2.7
GH 4072E3	78.0			1.3
HS 41F00	77.4			2.7
STEWART 4231XF	77.2			2.3
B400EE	76.9	76.3		1.0
ASGROW AG45XF0	76.5			2.7
DYNA-GRO S45ES10	76.1	76.7		2.3
B421EE	75.9			4.3
STINE 44EC20	75.6			3.0
DYNA-GRO S41EN72	75.5			3.0
B459EE	75.5	76.1		2.0
Partners Brand Seed PB423 E3 STSn	74.5	75.4		2.0
USG 7441XF	73.3			2.0
ASGROW AG42XF0	72.5			3.0
XO 4371E	72.4			3.0
ASGROW AG40XF0	72.2			1.7
NUTECH SEED 43N04E	71.6	79.0		2.7
SEED CONSULTANTS SC 7421™	71.0	71.3		3.3
DYNA-GRO S43EN61	68.6	73.6		3.3
DYNA-GRO S43XF51	64.9			2.0
GROUP IV EARLY AVERAGE	**77.9**	**78.1**	**83.6**	**2.4**
LSD (0.10)	5.2	3.4	2.8	
C.V.	5.0	4.6	4.6	
MATURITY GROUP IV LATE (relative MG 4.6-4.9)				
ASGROW AG47XF0	**89.5**			2.0
STINE 46EE20	86.0			2.3
HS 48F00	84.5			2.3
PIONEER P47A64X	84.0			3.3
ARMOR 46-F13	83.6			4.0
STINE 48EE20	83.0			3.3
LS4919XFS	82.8			3.0
STEWART 4730XF	82.7			2.7
LS4606XFS	82.3			3.3
DYNA-GRO S4751STS	81.9	77.3		4.0
DYNA-GRO S48XT56	81.6	72.1	74.7	1.0
XO 4681E	81.4			2.3
LS4806XS	81.1	77.5		2.7
AGRIGOLD G4615XF	80.9			3.0
DYNA-GRO S46XF31S	79.8			3.3
PIONEER P46A86X	79.3	78.0		4.0
ASGROW AG48XF0	78.9			3.3
B470EE	78.8	**80.4**		2.3
CHANNEL 4720RXF	78.4			3.0
ARMOR 48-F22	78.3			2.0
NUTECH SEED 46N02E	78.1	76.2		2.0
USG 7472XFS	78.0			4.3
LS4805XFS	77.9			2.7
ASGROW AG48XF2	77.8			3.0
HS 46F00	77.6			2.7
USG 7491XFS	77.0			3.0
SEED CONSULTANTS SC 7461™	75.8			2.0
UNIVERSITY OF MISSOURI S16-14801C	75.0			5.0
DYNA-GRO S49EN12	74.9			3.0
DYNA-GRO S46ES91	74.2	70.6		2.7
STINE 47EE20	73.7			2.7
DONMARIO DM46F62	73.5			3.3
UNIVERSITY OF MISSOURI S16-12137C	73.0			3.7
UNIVERSITY OF MISSOURI S17-2193C	72.5			3.0
CZ 4912XF	72.4			4.3
USG 7461XFS	72.3			2.7
UNIVERSITY OF MISSOURI S16-5503R	71.7			5.0
ARMOR 48-D25	70.1	74.4	81.9	2.3
HS 48E10	69.2			4.3
UNIVERSITY OF MISSOURI S16-8898C	68.8			5.0
DYNA-GRO S46XS60	68.6	73.9	**83.9**	2.7
USG 7461XTS	68.2	75.2		3.3
CZ 4892XF	68.2			1.0
UNIVERSITY OF MISSOURI S09-13608C	67.6			4.3

continued

Table 7. Lake Cumberland Region: Pulaski County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
DONMARIO DM48E62S	67.6			2.7
CZ 4742XF	66.4			2.0
LS4795XS	65.9	68.5	74.4	2.3
NUTECH SEED 48N06E	64.5			4.0
STINE 47EB32	63.5			3.7
USG 7481XF	60.8			4.7
LS4707XF	60.3			4.7
PENNYRILE (long term check-released 1987)	57.3	57.0	61.8	4.3
GROUP IV LATE AVERAGE	**75.0**	**73.4**	**75.3**	**3.1**
LSD (0.10)	5.3	3.4	2.6	
C.V.	5.2	4.8	4.5	

continued

Table 7. Lake Cumberland Region: Pulaski County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING
MATURITY GROUP V (relative MG 5.0-5.9)				
UNIVERSITY OF MISSOURI S16-9090C	**81.1**			5.0
UNIVERSITY OF MISSOURI S16-7840C	76.5			5.0
LS5009XS	76.3	**75.9**		4.0
UNIVERSITY OF MISSOURI S16-9478C	73.4			5.0
UNIVERSITY OF MISSOURI S16-15170C	71.2	71.2		3.0
LS5119XF	69.7			3.7
ESSEX (long term check-released 1974)	57.7	59.2		5.0
GROUP V AVERAGE	**72.3**	**68.8**		**4.4**
LSD (0.10)	5.8	3.8		
C.V.	5.4	5.5		

A Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group and year column.

B The 2021 data yield data were collected in Pulaski Co., KY. The 2019 and 2020 yield data were collected attest sites in Cumberland Co., KY.

Agronomic Information
Lake Cumberland Region: Pulaski County

GPS coordinates	37°04'04.6"N 84°46'03.1"W	
Soil texture	Silt loam (0-12 in.)	
	Sand	20.74%
	Silt	61.24%
	Clay	10.35%
	CEC	5.89 meq/100g
	Plant available water	22.09%
	Field capacity water	31.46%
	Wilting point water	8.81%
Slopes		2-12%
Previous crop		corn
Soil test (5/20)	pH	6.34
	P	405 lbs/a
	K	280 lbs/a
	SCN test	125 (low)
Agricultural practice		no-till
Planting date	MG 2, 3, & 4 Early and Late	5/19
	MG 5	5/20
Planting depth		0.5 in.
Population*		158,900/a
Post-emergence herbicides	Basagran 5L, Reflex, Warrant, Fusion	6/25
Harvest dates	MG 2, 3 & 4 Late	11/3
	MG 4 Early & 5	11/4
50% killing frost		10/24

**Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Lake Cumberland Region: Pulaski County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures: Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
May (5/20-5/31)	1.33	4	68	91	46
June	4.64	13	75	92	50
July	4.69	15	77	91	55
August	4.00	11	77	93	57
September	2.26	12	67	88	42
October	4.59	16	61	84	34
November (11/1-11/4)	0.05	1	43	63	31

Data source: WatchDog weather station – on-site.

Table 8. Mammoth Cave Region: Allen County.

BRAND VARIETY	YIELD (BU/AC)[A/B]	2021 LODGING	BENZOIC ACID INJURY RATING
MATURITY GROUP II (relative MG 2.0-2.9)			
AGRIGOLD G2905XF	**46.1**	1.0	0
ASGROW AG29XF1	45.1	1.0	0
USG 7282XFS	41.8	1.0	0
GROUP II AVERAGE	**44.3**	**1.0**	
LSD (0.10)	3.4		
C.V.	6.1		
MATURITY GROUP III (relative MG 3.0-3.9)			
USG 7392XFS	**67.0**	1.0	0
ARMOR 39-F73	66.3	1.0	0
LS3908XFS	66.2	1.0	0
PIONEER P39A45X	65.1	1.0	0
DYNA-GRO S39EN19	64.0	1.0	20
Partners Brand Seed PB 3722 E3S	64.0	1.0	40
STINE 39EC22	63.8	1.0	40
XO 3861E	63.4	1.0	10
ASGROW AG35XF1	63.2	1.0	0
STINE 36EE12	62.8	1.0	40
NUTECH SEED 37N01E	62.7	1.0	40
AGRIGOLD G3520RX	62.5	1.0	0
CHANNEL 3521RXF	62.3	1.0	0
AGRIGOLD G3451E3	61.2	1.0	40
GH 3512E3S	61.1	1.0	10
GH 3762E3S	61.0	1.0	20
B389EE	60.8	1.0	20
XO 3651E	60.6	1.0	40
ASGROW AG38XF1	60.5	1.0	0
STEWART 3531XF	60.4	1.0	0
GH 3732XF	59.6	1.0	0
NUTECH SEED 35N03E	58.7	1.0	20
SEED CONSULTANTS SC 7361E™	58.6	1.0	40
ASGROW AG37XF2	58.1	1.0	0
STEWART 3632XF	57.7	1.0	0
NUTECH SEED 39N04E	57.3	1.0	40
PIONEER P36A83X	57.1	1.0	0
NUTECH SEED 39N05E	56.8	1.0	20
ARMOR 39-E75	56.4	1.0	40
SEED CONSULTANTS SC 7372E™	56.1	1.0	40
GH 3952XF	55.3	1.0	0
STEWART 3731XF	55.3	1.0	0
DYNA-GRO S3961STS	55.0	1.0	20
SEED CONSULTANTS SC 7381E™	54.5	1.0	20
CHANNEL 3721RXF	54.0	1.0	0
DYNA-GRO S39XF41	53.3	1.0	0
AGRIGOLD G3724XF	52.6	1.0	0
AGRIGOLD G3506XF	52.1	1.0	0
STEWART 3931XF	51.6	1.0	0
ASGROW AG30XF2	50.8	1.0	0
GROUP III AVERAGE	**59.2**	**1.0**	
LSD (0.10)	3.6		
C.V.	5.7		
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)			
LS4415XF	**66.7**	1.0	0
B421EE	66.5	1.0	40
NUTECH SEED 41N03E	65.7	1.0	10
DYNA-GRO S43XS70	65.3	1.0	0
DYNA-GRO S41EN72	65.2	1.3	10
LS4517XFS	63.9	1.3	0
USG 7441XF	61.4	1.0	0
AGRIGOLD G4255RX	60.7	1.0	0
XO 4371E	59.8	1.0	30
ASGROW AG42XF0	59.6	1.3	0
HS 45E00	59.4	1.0	10
ASGROW AG40XF1	59.1	1.0	0
LS4299XS	58.6	1.0	0
ARMOR 44-E44	58.3	1.0	10
HS 41F00	58.2	1.0	0
PIONEER P42A96X	57.9	1.0	0
DONMARIO DM42F62S	57.7	1.0	0

continued

Table 8. Mammoth Cave Region: Allen County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B]	2021 LODGING	BENZOIC ACID INJURY RATING
ARMOR 45-D20	57.2	1.0	0
STINE 41EB32	57.2	1.0	10
STINE 44EC20	57.2	1.0	20
DYNA-GRO S45ES10	56.8	1.0	20
HS 40F10	56.8	1.3	0
CHANNEL 4422RXF	56.6	1.0	0
GH 4452XFS	56.3	1.0	0
NUTECH SEED 43N04E	55.7	1.0	20
B459EE	55.5	1.0	40
HS 44F10	55.2	1.0	0
GH 4392XF	55.1	1.0	0
ASGROW AG43XF2	55.0	1.0	0
B450EE	54.9	1.0	40
DYNA-GRO S43EN61	54.7	1.0	20
AGRIGOLD G4100XF	54.5	1.3	0
ASGROW AG45XF0	54.1	1.0	0
Partners Brand Seed PB423 E3 STSn	54.0	1.0	10
SEED CONSULTANTS SC 7421™	53.8	1.0	10
ASGROW AG40XF0	52.2	1.3	0
STEWART 4442XF	52.2	1.0	0
STINE 42EE20	51.8	1.0	20
STEWART 4231XF	51.4	1.0	0
B400EE	51.1	1.0	20
DYNA-GRO S43XF51	50.7	1.0	0
DYNA-GRO S4122STS	49.5	1.0	10
GH 4072E3	48.2	1.0	40
UNIVERSITY OF MISSOURI S17-2243C	47.9	1.0	40
GROUP IV EARLY AVERAGE	**56.8**	**1.0**	
LSD (0.10)	3.6		
C.V.	5.9		
MATURITY GROUP IV LATE (relative MG 4.6-4.9)			
HS 48E10	**76.8**	1.3	10
STINE 47EE20	76.1	1.0	5
STINE 48EE20	76.0	1.0	5
USG 7461XFS	75.8	1.0	0
LS4606XFS	75.4	1.0	0
LS4806XS	73.7	1.0	0
AGRIGOLD G4615XF	73.5	1.3	0
PIONEER P47A64X	73.4	1.0	0
STEWART 4730XF	73.2	1.0	0
LS4707XF	73.0	1.7	0
LS4919XFS	72.3	1.0	0
USG 7481XF	72.1	1.3	0
USG 7472XFS	71.4	1.3	0
DONMARIO DM46E62	71.3	1.7	20
ARMOR 46-F13	71.0	1.0	0
NUTECH SEED 48N06E	70.9	1.0	30
DYNA-GRO S46XF31S	70.1	1.0	0
CZ 4892XF	68.7	1.0	0
STINE 46EE20	68.0	1.0	5
ASGROW AG48XF2	67.1	1.0	0
XO 4681E	67.1	1.3	5
DONMARIO DM48E62S	65.5	1.0	20
USG 7491XFS	65.3	1.0	0
DYNA-GRO S4751STS	64.8	1.0	30
LS4795XS	64.7	1.0	0
UNIVERSITY OF MISSOURI S16-14801C	64.5	3.7	5
SEED CONSULTANTS SC 7461™	64.4	1.0	10
DYNA-GRO S46ES91	63.8	1.0	10
PIONEER P46A86X	63.3	1.0	0
CHANNEL 4720RXF	63.2	1.0	0
DYNA-GRO S48XT56	63.2	1.0	0
UNIVERSITY OF MISSOURI S17-2193C	63.1	1.3	5
USG 7461XTS	63.0	1.0	0
CZ 4912XF	62.5	1.0	0
UNIVERSITY OF MISSOURI S09-13608C	62.4	1.3	10
STINE 47EB32	61.9	1.0	30
ARMOR 48-D25	61.8	1.0	0
DYNA-GRO S49EN12	61.7	1.0	10
HS 46F00	61.5	1.0	0
NUTECH SEED 46N02E	61.3	1.0	30

continued

Table 8. Mammoth Cave Region: Allen County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B]	2021 LODGING	BENZOIC ACID INJURY RATING
ASGROW AG47XF0	60.9	1.0	0
DYNA-GRO S46XS60	59.6	1.0	0
UNIVERSITY OF MISSOURI S16-12137C	58.6	1.3	5
HS 48F00	58.5	1.0	0
ARMOR 48-F22	58.3	1.0	0
UNIVERSITY OF MISSOURI S16-8898C	57.8	3.0	30
B470EE	57.2	1.0	10
ASGROW AG48XF0	56.8	1.0	0
DONMARIO DM46F62	56.6	1.0	0
LS4805XFS	55.6	1.0	0
UNIVERSITY OF MISSOURI S16-5503R	55.3	3.0	30
PENNYRILE (long term check-released 1987)	50.3	1.0	5
CZ 4742XF	49.2	1.0	0
GROUP IV LATE AVERAGE	**65.2**	**1.2**	
LSD (0.10)	4.3		
C.V.	6.3		

continued

Table 8. Mammoth Cave Region: Allen County, continued.

BRAND VARIETY	YIELD (BU/AC)[A/B]	2021 LODGING	BENZOIC ACID INJURY RATING
MATURITY GROUP V (relative MG 5.0-5.9)			
LS5119XF	**72.1**	1.0	0
LS5009XS	67.2	1.0	0
UNIVERSITY OF MISSOURI S16-9478C	66.1	3.3	10
UNIVERSITY OF MISSOURI S16-7840C	66.0	3.3	20
UNIVERSITY OF MISSOURI S16-9090C	63.6	2.0	15
UNIVERSITY OF MISSOURI S16-15170C	61.4	1.0	10
ESSEX (long term check-released 1974)	59.5	1.0	10
GROUP V AVERAGE	**65.1**	**1.8**	
LSD (0.10)	5.1		
C.V.	7.0		

[A] *Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group.*

[B] *The 2021 data collected were not suitable for variety evaluation due to intensive herbicide injury on sensitive varieties. The yields presented in the Table are for information (injury - symptoms - recovery/impact on yield). The symptoms were observed on 7/28 (the date does not indicate when injury actually occu, symptoms were rated on 8/27 as percentage of foliage over the whole plant showing curling and scorching injury.*

Agronomic Information
Mammoth Cave Region: Allen County

GPS coordinates	36°45'57.6"N 86°16'15.2"W	
Soil texture	Silt loam (0-12 in.)	
	Sand	14.26%
	Silt	73.31%
	Clay	12.43%
	CEC	7.66meq/100g
	Plant available water	25.01%
	Field capacity water	34.83%
	Wilting point water	9.82%
Slopes		2-12%
Previous crop		corn
Soil test (5/13)	pH	6.09
	P	9lbs/a
	K	110lbs/a
	SCN test	500 (low)
Agricultural practice		no-till
Pre-emergence herbicide	MadDog Plus, Autority XL, Matador-S	5/13
Planting date		5/13
Planting depth		1-2 in.
Population*		129,300/a
Post-planting herbicides	Basagran, Reflex, Warrant, Fusion	6/24
Harvest dates	MG 2, 3 & 5	10/22
	MG 4 Early & Late	10/23
50% killing frost		10/22

**Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Mammoth Cave Region: Allen County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures		
			Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
May (5/13-5/31)	0.79	5	68	92	40
June	3.95	9	75	95	50
July	2.98	9	76	92	54
August	5.60	11	76	97	54
September	4.57	12	68	89	42
October (10/01-10/23)	3.64	10	65	87	35

Data source: WatchDog weather station – on-site

Table 9. Pennyrile Region: Caldwell and Christian Counties.

	CALDWELL							CHRISTIAN	
	YIELD (BU/AC)[A/B]			2021				2021	
BRAND VARIETY	2021	2020-2021	2019-2021	LODGING	MATURITY DATE	HEIGTH (IN.)	COLOR	YIELD (BU/AC)[A/B]	LODGING
MATURITY GROUP II (relative MG 2.0-2.9)									
AGRIGOLD G2905XF	**100.5**			2.0	3	33	tan-grey	**55.4**	1.0
ASGROW AG29XF1	96.1			1.7	3	35	tan	49.8	1.0
USG 7282XFS	NA			NA	NA	NA	NA	36.9	3.0
GROUP II AVERAGE	**98.3**			**1.8**	**Sept. 3rd**	**34 in.**		**47.4**	**1.7**
LSD (0.10)	2.2							2.4	
C.V.	1.8							4.1	
MATURITY GROUP III (relative MG 3.0-3.9)									
STINE 36EE12	**99.3**			2.3	3	37	tan	62.2	1.3
DYNA-GRO S3961STS	97.0	81.9		1.3	7	41	brown	65.0	1.0
XO 3861E	97.0			2.0	10	32	tan	59.0	1.0
ARMOR 39-E75	96.9			2.0	7	37	tan	74.2	1.0
NUTECH SEED 39N04E	95.0	89.2		2.7	3	37	tan-grey	53.8	1.0
STINE 39EC22	93.7			2.0	7	35	tan-grey	71.6	1.0
NUTECH SEED 39N05E	93.4	84.5		1.3	10	36	brown	54.4	1.0
B389EE	93.3	**91.0**		1.7	7	34	brown	66.1	1.0
NUTECH SEED 37N01E	91.1			1.0	10	38	brown	71.1	1.0
DYNA-GRO S39EN19	91.0	87.7	88.7	1.7	7	36	tan	76.2	1.0
NUTECH SEED 35N03E	90.2			2.0	10	36	brown	**77.1**	1.3
GH 3732XF	90.0			1.7	3	42	brown	59.6	1.0
SEED CONSULTANTS SC 7361E™	89.5			2.3	14	32	tan	46.2	1.7
XO 3651E	88.8			1.3	10	37	grey	59.0	1.7
GH 3762E3S	86.6			2.7	7	51	brown	62.1	1.7
GH 3952XF	84.3			1.3	3	39	brown	46.5	1.3
DYNA-GRO S39XF41	84.3			2.0	3	46	brown	56.7	1.3
ASGROW AG38XF1	84.1			1.7	10	38	grey	51.1	1.0
ASGROW AG35XF1	83.1			2.0	3	36	brown	65.8	1.3
AGRIGOLD G3520RX	NA			NA	NA	NA	NA	65.7	1.0
ASGROW AG37XF2	83.0			1.7	10	39	tan	54.9	1.3
USG 7392XFS	82.5			2.0	10	43	dark brown	70.2	1.3
LS3908XFS	81.8			2.0	3	44	grey	49.3	2.0
SEED CONSULTANTS SC 7381E™	80.9	83.4		2.3	10	36	tan-grey	61.3	1.0
SEED CONSULTANTS SC 7372E™	80.7			1.0	10	34	brown	63.3	1.0
ARMOR 39-F73	80.7			2.0	10	38	brown	62.8	1.3
GH 3512E3S	80.5			3.3	3	38	tan	48.1	1.0
PIONEER P36A83X	79.7	83.6		2.3	3	37	tan	51.6	1.3
STEWART 3632XF	78.9			1.0	7	40	tan	53.2	2.0
Partners Brand Seed PB 3722 E3S	78.8			2.0	3	36	tan-grey	57.5	1.7
AGRIGOLD G3451E3	NA			NA	NA	NA	NA	57.0	3.0
AGRIGOLD G3520RX	78.7			2.0	3	39	dark brown	53.6	1.0
AGRIGOLD G3724XF	77.7			2.0	10	46	tan	55.5	2.0
PIONEER P39A45X	77.6			1.3	7	33	tan	49.8	1.7
STEWART 3531XF	77.4			1.7	3	36	grey	61.7	1.0
CHANNEL 3721RXF	77.1			1.7	3	42	dark brown	51.7	3.0
STEWART 3931XF	76.6			1.3	7	46	tan	52.7	1.0
CHANNEL 3521RXF	76.1			1.7	7	32	dark brown	52.5	1.0
STEWART 3731XF	73.5			2.0	3	40	brown	62.1	2.0
ASGROW AG30XF2	71.1			1.3	3	37	grey	45.8	2.0
GROUP III AVERAGE	**84.8**	**85.9**		**1.8**	**Sept. 7th**	**38.3 in.**		**59.0**	**1.4**
LSD (0.10)	7.0	4.2						3.8	
C.V.	6.1	5.2						6.1	
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)									
DYNA-GRO S41EN72	**101.7**			3.3	10	35	tan-grey	66.7	1.7
AGRIGOLD G4255RX	NA			NA	NA	NA	NA	66.2	1.3
B459EE	101.6	93.6		2.0	10	40	light brown	61.0	1.0
NUTECH SEED 43N04E	100.9	92.2		2.3	10	40	tan	65.2	2.7
B421EE	99.5			2.0	17	37	tan-grey	**74.9**	2.0
DYNA-GRO S4122STS	99.3			3.3	10	38	grey	53.1	1.3
ARMOR 44-E44	97.9	87.4		2.0	14	40	tan-grey	74.3	1.3
PIONEER P42A96X	97.7	86.1	**89.9**	1.3	10	43	tan-grey	65.3	1.0
ASGROW AG40XF0	96.2			1.7	10	39	tan-grey	57.5	1.0
XO 4371E	96.0			1.7	10	40	tan-grey	53.7	1.7
Partners Brand Seed PB423 E3 STSn	95.7	86.5		1.7	17	38	tan	54.8	1.0
STINE 44EC20	95.4			2.0	10	38	gold	59.6	1.0
DYNA-GRO S43EN61	94.3	87.3		2.3	10	40	gold	62.0	1.0
NUTECH SEED 41N03E	93.9	**94.3**		2.3	10	36	tan-grey	65.4	1.0
LS4299XS	93.3	85.2	88.2	1.7	10	38	tan-grey	72.7	1.7

continued

Table 9. Pennyrile Region: Caldwell and Christian Counties, continued.

	CALDWELL							CHRISTIAN	
	YIELD (BU/AC)[A/B]			2021				2021	
BRAND VARIETY	2021	2020-2021	2019-2021	LODGING	MATURITY DATE	HEIGTH (IN.)	COLOR	YIELD (BU/AC)[A/B]	LODGING
HS 40F10*	NA			NA	NA	NA	NA	63.9	1.0
HS 45E00	93.0	84.7		2.0	17	37	tan-grey	71.5	1.0
GH 4392XF	92.4			2.3	7	46	tan-grey	65.4	1.3
B450EE	90.6			3.0	3	35	tan	71.1	1.0
DYNA-GRO S45ES10	89.0	85.9		1.7	10	36	gold	52.1	1.7
AGRIGOLD G4100XF	NA			NA	NA	NA	NA	49.9	2.0
GH 4452XFS	88.7			2.3	3	40	grey	74.0	1.0
STINE 41EB32	88.5	89.2		1.3	10	44	gold	65.4	1.0
LS4517XFS	88.4			2.0	10	38	brown	74.6	2.3
STEWART 4442XF	87.8			2.0	14	42	tan	64.8	1.0
LS4415XF	87.6			3.0	10	38	light brow	65.0	1.3
ASGROW AG43XF2	87.2			1.7	10	35	tan-grey	64.8	1.0
B400EE	86.5	83.5		2.0	10	36	tan-grey	48.4	1.7
ASGROW AG40XF1	86.2			1.3	10	39	tan	38.4	2.3
UNIVERSITY OF MISSOURI S17-2243C	86.1			2.0	24	47	gold	59.7	1.0
GH 4072E3	85.9			1.0	17	30	tan-grey	59.0	1.0
ARMOR 45-D20	85.3			2.7	14	39	tan	69.2	1.7
HS 41F00	84.8			1.3	10	45	tan-grey	60.0	2.0
DYNA-GRO S43XS70	84.7	86.2	86.7	1.7	10	41	grey	70.7	1.3
ASGROW AG42XF0	84.4			2.0	17	45	tan	67.4	2.0
CHANNEL 4422RXF	84.3			2.0	10	46	tan-grey	66.9	1.7
HS 44F10	84.2			1.7	10	46	grey	55.1	1.3
DONMARIO DM42F62S	84.1			2.0	10	42	gold	49.7	2.7
USG 7441XF	83.6			3.3	10	41	tan-grey	63.5	1.7
STINE 42EE20	83.4			3.3	14	43	tan	66.0	1.3
SEED CONSULTANTS SC 7421™	83.0	83.4		2.3	10	36	tan-grey	62.5	1.7
STEWART 4231XF	81.9			1.3	10	42	tan-grey	63.9	1.3
DYNA-GRO S43XF51	81.5			3.3	10	40	tan-grey	62.6	1.0
ASGROW AG45XF0	79.4			3.3	10	43	grey	70.0	1.7
GROUP IV EARLY AVERAGE	**89.9**	**87.5**	**88.3**	**2.1**	**Sept. 11th**	**39.9 in.**		**62.9**	**1.4**
LSD (0.10)	7.6	4.5	3.4					3.6	
C.V.	6.3	5.4	5.0					5.5	
MATURITY GROUP IV LATE (relative MG 4.6-4.9)									
STINE 47EB32	**108.9**			3.7	20	40	grey	62.2	1.0
USG 7461XTS	105.7	90.5		2.3	20	33	tan	75.1	2.3
HS 46F00	105.3			2.7	20	46	tan-grey	59.9	1.7
PIONEER P46A86X	104.0	93.7		1.7	20	48	tan-grey	69.7	2.3
DYNA-GRO S48XT56	103.8	87.7	85.4	2.0	20	42	tan	71.5	1.0
STINE 46EE20	103.3			1.7	20	40	grey	68.1	1.0
NUTECH SEED 46N02E	102.3	92.9		3.7	24	33	tan-grey	74.5	1.0
STINE 48EE20	102.1			3.0	20	41	grey	75.0	1.3
DYNA-GRO S46XS60	102.0	92.4	**90.8**	2.0	24	40	tan	65.4	1.0
SEED CONSULTANTS SC 7461™	101.0			2.0	24	41	tan-grey	64.9	1.0
AGRIGOLD G4615XF	100.4			2.0	20	41	tan-grey	72.8	1.0
XO 4681E	99.6			2.7	20	47	grey	68.5	1.7
USG 7472XFS	99.2			3.0	20	44	grey	66.8	1.7
NUTECH SEED 48N06E	98.8			2.3	20	37	grey	63.9	1.7
ARMOR 46-F13	98.5			2.7	20	44	tan-grey	65.2	1.3
B470EE	98.3	86.6		2.0	20	40	grey	60.7	1.0
CZ 4892XF	98.3			1.0	24	45	gold	60.5	2.0
UNIVERSITY OF MISSOURI S17-2193C	97.6			2.3	20	47	gold	73.2	1.7
ARMOR 48-D25	97.6	84.7	81.4	2.0	20	42	tan	72.9	1.0
STEWART 4730XF	97.6			1.7	20	37	grey	70.0	1.3
PIONEER P47A64X	97.2			1.7	20	46	grey	77.7	1.3
DONMARIO DM48E62S	97.1			4.0	13	39	tan-grey	53.1	1.3
DYNA-GRO S46XF31S	96.3			2.3	20	41	tan-grey	68.4	1.3
DONMARIO DM46F62	96.2			2.0	20	44	grey	65.5	1.0
LS4606XFS	95.3			2.0	20	42	grey	68.5	3.0
ASGROW AG48XF2	95.2			3.0	20	43	gold	65.4	2.7
DYNA-GRO S46ES91	95.1	**94.5**		2.0	20	48	grey	64.7	1.3
CHANNEL 4720RXF	94.9			2.3	20	45	grey	64.1	1.3
DYNA-GRO S49EN12	94.8			3.0	20	45	tan	52.0	1.0
LS4795XS	94.5	85.0	80.5	2.0	20	40	grey	**80.3**	1.7
USG 7491XFS	94.4			2.0	24	35	gold	73.5	1.3
STINE 47EE20	94.0			3.0	20	38	grey	71.2	1.7
ASGROW AG47XF0	93.7			1.0	24	42	gold	62.9	1.0
LS4806XS	93.5	86.5		2.0	20	40	tan-grey	69.5	1.7
USG 7461XFS	93.2			2.0	20	42	grey	67.1	2.0
USG 7481XF	93.1			2.7	27	44	tan-grey	54.6	4.7

continued

Table 9. Pennyrile Region: Caldwell and Christian Counties, continued.

	CALDWELL							CHRISTIAN	
	YIELD (BU/AC)[A/B]			2021				2021	
BRAND VARIETY	2021	2020-2021	2019-2021	LODGING	MATURITY DATE	HEIGTH (IN.)	COLOR	YIELD (BU/AC)[A/B]	LODGING
HS 48F00	92.2			1.7	27	39	gold	63.1	1.0
ARMOR 48-F22	91.9			1.7	24	39	gold	71.1	1.0
DONMARIO DM46E62	NA			NA	NA	NA	NA	70.3	3.0
CZ 4912XF	90.8			2.0	20	54	grey	57.7	1.3
LS4805XFS	90.7			2.3	20	38	gold	70.1	1.0
CZ 4742XF	89.2			1.7	20	43	tan	51.8	1.0
LS4707XF	88.8			2.7	27	43	tan	58.9	2.7
ASGROW AG48XF0	88.7			2.3	20	41	tan-grey	67.7	2.7
DYNA-GRO S4751STS	88.2	83.1		1.7	20	36	tan-grey	64.3	1.0
UNIVERSITY OF MISSOURI S16-12137C	85.9			2.7	20	49	gold	60.8	2.3
HS 48E10	83.7			4.3	20	41	grey	65.1	1.7
UNIVERSITY OF MISSOURI S16-5503R	83.3			5.0	20	44	gold	67.9	4.3
UNIVERSITY OF MISSOURI S16-14801C	80.1			4.3	20	43	grey	74.5	3.0
LS4919XFS	79.6			2.3	20	40	tan-grey	62.3	1.7
UNIVERSITY OF MISSOURI S16-8898C	77.4			4.7	27	45	gold	67.2	3.0
UNIVERSITY OF MISSOURI S09-13608C	76.5			2.0	27	41	grey	60.9	1.3
PENNYRILE (long term check-released 1987)	66.4	59.2	60.0	1.0	20	46	gold	45.5	1.3
GROUP IV LATE AVERAGE	**94.2**	**86.4**	**79.6**	**2.4**	**Sept. 21st**	**42 in.**		**66.0**	**1.7**
LSD (0.10)	8.3	4.6	3.5					3.9	
C.V.	6.5	5.4	5.0					5.6	
MATURITY GROUP V (relative MG 5.0-5.9)									
LS5119XF	**95.6**			2.0	27	46	tan-grey	67.0	2.7
UNIVERSITY OF MISSOURI S16-15170C	92.5	**82.0**		2.3	30	47	tan	64.3	1.0
UNIVERSITY OF MISSOURI S16-9090C	85.9			3.3	27	45	tan	72.5	3.7
UNIVERSITY OF MISSOURI S16-7840C	80.2			4.7	30	48	gold	69.7	2.0
LS5009XS	79.0	76.6		4.3	27	46	tan	67.7	4.0
UNIVERSITY OF MISSOURI S16-9478C	75.2			2.7	27	44	gold	**73.1**	2.7
ESSEX (long term check-released 1974)	69.5	68.3		1.0	27	30	tan	40.6	2.3
GROUP V AVERAGE	**82.6**	**75.6**		**2.9**	**Sept. 28th**	**44 in.**		**65.0**	**2.6**
LSD (0.10)	4.5	3.7						4.1	
C.V.	3.8	4.9						5.7	

[A] *Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group and year column.*

[B] *The 2019-2021 Caldwell Co. yield data were collected at the University of Kentucky Research and Education Center research farm in Princeton, KY. The 2019-2020 Christian Co., KY yield data were collected at on-farm test sites. Unfortunately, due to severe damage caused by deer-feeding, the on-farm 2021 data were not suitable for variety evaluation. The yields presented in the Table are for information (injury - the plants had an opportunity to recover and developed foliage from the axillary buds).*

Agronomic Information
Pennyrile Region: Caldwell County

GPS coordinates	37°05′51.6″N 87°51′53.9″W	
Soil texture	Silt loam (0-12 in.)	
	Sand	3.52%
	Silt	70.48%
	Clay	20.00%
	CEC	10.34 meq/100g
	Plant available water	20.17%
	Field capacity water	33.30%
	Wilting point water	13.13%
Slopes		0-6 %, eroded
Previous crop		Tobacco, winter wheat cover crop
Soil test (4/27)	pH	6.32
	P	69 lbs/a
	K	260 lbs/a
	SCN test	125 (low)
Agricultural practice		till
Planting dates		4/27
Planting depth		2 in.
Population*		104,900/a
Post-emergence herbicide	Basagran, Reflex, Warrant, Fusion	6/23
Harvest dates	MG 2 & 3	9/24
	MG 4 Early	9/25
	MG 4 Late & 5	10/5
50% killing frost		10/21

**Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Pennyrile Region: Caldwell County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures		
			Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
April (4/27-4/30)	2.23	4	58	80	32
May	4.97	12	61	89	30
June	6.32	9	72	93	45
July	6.62	12	73	90	51
August	2.97	9	73	92	50
September	2.38	11	65	88	40
October (10/1-10/5)	0.35	2	70	88	57

Data source: WatchDog weather station – on-site

Agronomic Information
Pennyrile Region: Christian County

GPS coordinates	36°39′28.9″N 87°21′16.6″W	
Soil texture	Silt loam (0-12 in.)	
	Sand	6.73%
	Silt	81.44%
	Clay	1.83 %
	CEC	8.84 meq/100g
	Plant available water	26.04 %
	Field capacity water	36.93%
	Wilting point water	11.13%
Slopes		2-6%
Previous crop		wheat
Soil test (5/22)	pH	5.91
	P	126 lbs/a
	K	301 lbs/a
	SCN test	750 (moderate)
Agricultural practice		no-till
Pre-emergence herbicide		NA
Planting date		5/22
Planting depth		0.5-1in.
Population		N/A
Post-emergence herbicides	Basagran 5L, Reflex, Warrant, Fusion	6/24
Harvest date		11/2
50% killing frost		10/21

Climate
Pennyrile Region: Christian County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures		
			Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
May (5/22-5/31)	0.43	4	68	95	42
June	4.76	12	75	95	48
July	3.83	11	77	96	54
August	8.42	11	77	99	52
September	2.81	11	68	91	41
October	4.27	12	62	91	32
November (11/1 & 2)	0	0	44	61	33

Data source: WatchDog weather station – on-site

Table 10. Purchase Region: 2021 Calloway County.

	YIELD (BU/AC)[A/B]				2021 DISEASE RATING[C]	
BRAND VARIETY	2021	2020-2021	2019-2021	2021 LODGING	SDS INDEX (0-100)	FLS
MATURITY GROUP II (relative MG 2.0-2.9)						
ASGROW AG29XF1	**51.0**			1.0	0.05	0.0
AGRIGOLD G2905XF	42.9			2.0	0.00	0.0
USG 7282XFS	38.4			1.7	0.04	0.0
GROUP II AVERAGE	**44.1**			**1.6**		
LSD (0.10)	4.8					
C.V.	8.7					
MATURITY GROUP III (relative MG 3.0-3.9)						
NUTECH SEED 37N01E	**77.1**			1.7	0.00	0.0
XO 3861E	77.0			1.7	0.00	0.0
SEED CONSULTANTS SC 7372E™	75.1			2.3	0.00	0.0
NUTECH SEED 35N03E	74.5			2.7	0.00	0.0
ARMOR 39-F73	74.3			2.3	0.00	0.0
ARMOR 39-E75	73.5			2.3	0.00	0.0
SEED CONSULTANTS SC 7361E™	73.4			2.0	0.00	0.0
USG 7392XFS	73.0			2.3	1.85	0.0
AGRIGOLD G3451E3	72.0			2.7	0.00	0.0
STINE 39EC22	71.1			1.0	0.69	0.0
SEED CONSULTANTS SC 7381E™	70.6	68.5		2.0	0.00	0.0
DYNA-GRO S39EN19	70.5	70.6	71.8	1.7	0.00	0.0
B389EE	70.1	65.6		1.7	0.00	0.0
NUTECH SEED 39N05E	69.4	**70.8**		1.7	0.00	0.0
NUTECH SEED 39N04E	69.2	66.4		1.7	0.00	0.0
LS3908XFS	68.9			2.3	1.65	0.0
AGRIGOLD G3724XF	67.6			2.0	0.00	0.0
GH 3762E3S	66.6			2.0	0.02	0.0
Partners Brand Seed PB 3722 E3S	66.5			3.0	0.31	0.0
DYNA-GRO S3961STS	65.8	61.9		2.0	0.00	0.0
XO 3651E	65.7			1.7	0.00	0.0
GH 3952XF	65.4			1.7	0.00	0.0
CHANNEL 3521RXF	65.0			1.7	0.00	0.0
PIONEER P39A45X	63.9			1.3	0.00	0.0
DYNA-GRO S39XF41	63.0			2.0	0.00	0.0
ASGROW AG38XF1	62.3			1.7	0.62	0.0
STINE 36EE12	62.1			1.7	0.00	0.0
ASGROW AG35XF1	61.5			2.0	0.44	0.0
CHANNEL 3721RXF	61.2			2.3	0.00	0.0
STEWART 3931XF	60.5			1.7	0.54	0.0
GH 3512E3S	60.3			4.3	0.00	0.0
GH 3732XF	60.2			1.7	0.00	0.0
STEWART 3531XF	59.4			1.7	0.11	0.0
ASGROW AG37XF2	59.2			1.7	0.15	0.0
STEWART 3731XF	59.1			2.0	0.00	0.0
AGRIGOLD G3506XF	58.6			2.0	0.00	0.0
AGRIGOLD G3520RX	57.8			1.7	0.01	0.0
STEWART 3632XF	57.3			1.0	0.02	0.0
PIONEER P36A83X	56.8	60.0		1.7	0.22	0.0
ASGROW AG30XF2	53.5			1.3	0.00	0.0
GROUP III AVERAGE	**66.0**	**66.3**		**2.0**		
LSD (0.10)	4.6	3.0				
C.V.	5.1	4.8				
MATURITY GROUP IV EARLY (relative MG 4.0-4.5)						
ARMOR 45-D20	**81.6**			2.0	0.01	0.0
GH 4452XFS	80.7			1.7	0.00	0.0
HS 45E00	79.3	79.2		1.7	0.00	0.0
ARMOR 44-E44	78.5	76.1		2.3	0.00	0.0
ASGROW AG43XF2	77.8			2.0	0.00	0.0
DYNA-GRO S43EN61	77.4	77.6		2.0	0.00	0.0
B459EE	77.1	79.3		2.7	0.00	0.0
DYNA-GRO S45ES10	76.2	79.6		2.0	0.00	0.0
B450EE	76.1			1.0	0.00	0.0
GH 4072E3	75.7			2.0	0.00	0.0
B421EE	75.0			3.0	0.00	0.0
GH 4392XF	74.8			3.0	0.01	0.0
B400EE	74.8	77.1		2.0	0.00	0.0
LS4415XF	74.8			1.7	0.11	0.0
AGRIGOLD G4255RX	74.7	75.5		2.0	0.00	0.0
NUTECH SEED 43N04E	74.7	**79.9**		2.3	0.00	0.0

continued

Table 10. Purchase Region: Calloway County, continued

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING	2021 DISEASE RATING[C] SDS INDEX (0-100)	FLS
USG 7441XF	74.5			2.7	0.56	0.0
LS4299XS	74.4	75.3	**74.3**	2.0	0.19	0.0
UNIVERSITY OF MISSOURI S17-2243C	74.0			2.3	0.00	0.0
DYNA-GRO S41EN72	73.6			2.3	0.00	0.0
NUTECH SEED 41N03E	73.6	75.4		2.0	0.00	0.0
DYNA-GRO S43XS70	73.4	74.2	73.5	2.0	0.00	0.0
XO 4371E	72.7			2.0	0.00	0.0
ASGROW AG42XF0	72.4			2.7	0.22	0.0
DYNA-GRO S43XF51	71.5			2.7	0.86	0.0
HS 44F10	71.5			1.3	0.00	0.0
STINE 41EB32	71.4	76.2		2.0	0.00	0.0
Partners Brand Seed PB423 E3 STSn	71.4	75.1		1.7	1.30	0.0
STEWART 4231XF	71.3			2.3	0.00	0.0
PIONEER P42A96X	71.1	73.3	73.8	1.7	0.74	0.0
SEED CONSULTANTS SC 7421™	71.0	73.0		3.0	0.00	0.0
STINE 44EC20	70.7			2.0	0.02	0.0
LS4517XFS	70.7			3.0	0.15	0.0
ASGROW AG40XF1	70.6			2.0	0.37	0.0
DONMARIO DM42F62S	69.0			2.7	0.00	0.0
ASGROW AG40XF0	68.4			1.7	0.00	0.0
DYNA-GRO S4122STS	67.7			2.3	0.11	0.0
CHANNEL 4422RXF	67.3			2.0	0.00	0.0
HS 40F10	66.2			3.3	0.00	0.0
AGRIGOLD G4100XF	66.0			3.0	0.00	0.0
ASGROW AG45XF0	65.6			3.0	5.40	0.0
STEWART 4442XF	65.3			2.0	0.01	0.0
HS 41F00	65.0			2.7	0.00	0.0
STINE 42EE20	60.1			1.7	0.20	0.0
GROUP IV EARLY AVERAGE	**72.5**	**76.4**	**73.9**	**2.2**		
LSD (0.10)	4.6	3.5	2.8			
C.V.	4.7	4.9	4.9			
MATURITY GROUP IV LATE (relative MG 4.6-4.9)						
PIONEER P47A64X	**88.7**			2.7	0.00	0.0
LS4795XS	88.4	86.4	**80.4**	1.7	0.02	0.0
ARMOR 48-D25	86.0	**86.9**	76.8	1.0	0.00	0.0
LS4806XS	85.7	78.9		1.0	0.00	0.0
AGRIGOLD G4615XF	83.2			2.0	0.00	0.0
NUTECH SEED 46N02E	82.5	80.6		1.7	0.00	1.7
DYNA-GRO S48XT56	81.7	80.3	77.3	2.0	0.00	0.0
PIONEER P46A86X	81.4	82.6		2.0	4.94	0.0
HS 46F00	81.3			2.0	0.00	0.0
HS 48E10	81.0			1.7	0.00	0.0
DYNA-GRO S46XS60	80.8	76.0	72.4	1.0	0.00	0.0
USG 7461XTS	80.2	81.1		2.7	0.56	0.0
HS 48F00	80.0			2.0	0.04	0.0
ASGROW AG48XF2	79.9			3.3	0.00	0.0
DYNA-GRO S49EN12	79.6			1.7	0.00	0.0
ARMOR 48-F22	79.2			2.3	0.00	0.0
XO 4681E	79.0			2.0	0.00	0.3
B470EE	78.9	74.8		1.7	0.00	0.0
STINE 47EB32	78.8			2.0	0.11	0.0
ARMOR 46-F13	78.0			2.0	0.00	0.0
DYNA-GRO S4751STS	77.8	78.9		2.0	1.85	0.0
LS4919XFS	77.2			3.0	0.00	0.0
LS4606XFS	76.7			1.7	0.19	1.7
DYNA-GRO S46XF31S	76.4			2.0	0.00	0.0
USG 7461XFS	76.3			2.0	0.00	0.0
CHANNEL 4720RXF	76.1			2.0	0.43	3.3
DYNA-GRO S46ES91	76.1	78.1		2.0	0.00	1.0
DONMARIO DM46F62	76.0			2.0	0.00	0.0
STINE 46EE20	75.4			2.3	1.52	0.0
ASGROW AG48XF0	75.2			2.0	0.15	0.0
NUTECH SEED 48N06E	74.8			2.3	0.00	0.0
UNIVERSITY OF MISSOURI S16-14801C	74.7			5.0	0.00	0.0
SEED CONSULTANTS SC 7461™	74.1			1.7	0.00	0.0
STINE 48EE20	73.6			2.7	0.07	0.0
STEWART 4730XF	72.9			2.0	0.00	1.7
STINE 47EE20	72.8			3.0	0.00	0.0
UNIVERSITY OF MISSOURI S17-2193C	71.7			2.0	0.00	1.0
USG 7491XFS	69.7			2.3	0.00	4.3

continued

Table 10. Purchase Region: Calloway County, continued

BRAND VARIETY	YIELD (BU/AC)[A/B] 2021	2020-2021	2019-2021	2021 LODGING	2021 DISEASE RATING[C] SDS INDEX (0-100)	FLS
USG 7472XFS	69.4			3.3	0.89	0.0
DONMARIO DM46E62	69.1			2.7	0.00	0.0
UNIVERSITY OF MISSOURI S16-5503R	68.8			5.0	0.00	0.0
UNIVERSITY OF MISSOURI S16-8898C	68.1			5.0	0.00	0.0
LS4707XF	67.7			3.3	3.52	0.0
LS4805XFS	67.3			2.0	0.00	0.0
ASGROW AG47XF0	66.2			2.0	9.38	0.3
CZ 4892XF	64.9			2.0	0.00	0.0
CZ 4742XF	64.7			2.0	0.00	0.0
USG 7481XF	64.2			2.7	2.83	0.0
UNIVERSITY OF MISSOURI S09-13608C	62.6			2.7	0.74	6.0
CZ 4912XF	61.4			2.3	0.00	0.0
UNIVERSITY OF MISSOURI S16-12137C	61.0			2.7	9.26	0.0
DONMARIO DM48E62S	58.9			2.3	2.59	0.0
PENNYRILE (long term check-released 1987)	53.5	52.5	57.6	2.0	0.00	0.0
GROUP IV LATE AVERAGE	**74.5**	**78.1**	**72.9**	**2.3**		
LSD (0.10)	5.6	3.5	2.9			
C.V.	5.6	4.9	4.9			
MATURITY GROUP V (relative MG 5.0-5.9)						
UNIVERSITY OF MISSOURI S16-9090C	**85.3**			5.0	0.00	0.0
UNIVERSITY OF MISSOURI S16-15170C	78.8	72.3		3.0	0.22	0.0
LS5009XS	76.4	**75.4**		3.3	0.00	0.0
UNIVERSITY OF MISSOURI S16-7840C	74.4			5.0	0.00	0.0
LS5119XF	73.7			3.0	0.26	0.0
UNIVERSITY OF MISSOURI S16-9478C	71.1			5.0	0.00	0.0
ESSEX (long term check-released 1974)	59.7	58.4		1.0	0.15	0.0
GROUP V AVERAGE	**74.2**	**68.7**		**3.6**		
LSD (0.10)	5.7	3.7				
C.V.	5.2	5.3				

[A] *Within a maturity group, shaded yield are not significantly different (0.10) from the highest yielding cultivar (bold) of that maturity group and year column.*

[B] *The 2019-2021 yield data were collected at the Murray State University Research Farm in Calloway Co., KY.*

[C] *Significant Frogeye Leaf Spot and Sudden Death Syndrome (SDS) disease pressure was observed at the test site in Hancock County in 2020. Disease ratings were performed by Dr. Carl Bradley, Pr. and Extension Plant Pathologist, and Ms. Kelsey Mehl, Agriculture Extension Associate.*

Agronomic Information
Purchase Region: Calloway County

GPS coordinates	36°36'55.8"N 88°20'58.1"W	
Soil texture	silt loam (0-12 in.)	
	Sand	6.62%
	Silt	77.14%
	Clay	16.24%
	CEC	9.05 meq/100g
	Plant available water	22.55%
	Field capacity water	33.68%
	Wilting point water	11.13%
Slopes		0-2%
Previous crop		tobacco, winter wheat cover crop
Soil test (5/12)	pH	6.05
	P	60 lbs/a
	K	228 lbs/a
	SCN test	5750 (moderate)
Agricultural practice		no-till
Planting date		5/12
Planting depth		0.5-1 in.
Population*		110,400/a
Post-emergence herbicides	Basagran 5L, Reflex, Warrant, Fusion	6/23
Harvest dates	MG 2, 3, 4 Early, & 5	10/8
	MG 4 Late	10/9
50% killing frost		10/21

**Average from 11 randomly selected varieties – 3 reps – in all maturity groups.*

Climate
Purchase Region: Calloway County

Month	Total monthly precipitation (in.)	Number of days of rain	Temperatures: Monthly average (F)	Highest recorded (F)	Lowest recorded (F)
May (5/12-5/31)	0.99	7	67	91	40
June	5.85	8	76	93	54
July	6.75	11	77	93	58
August	4.56	8	77	97	55
September	2.48	10	70	92	44
October (10/1-10/9)	1.39	4	70	88	57

Data source: WatchDog weather station – on-site

11-2021