

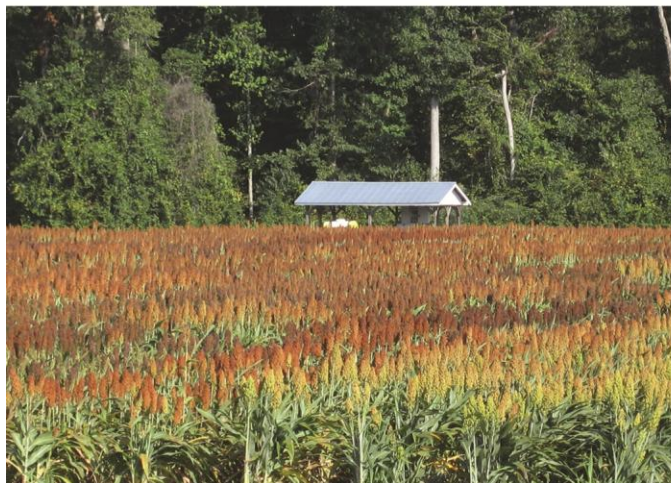
2012 Performance of Sorghum Hybrids in Virginia



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Introduction

Based on the data from the U.S. Grain Council (<http://www.grains.org/sorghum>), grain sorghum is the third most important cereal crop grown in the United States and the fifth most important cereal crop grown in the world. The United States is the world's largest producer of grain sorghum followed by India and Nigeria with approximately 9.7 million acres harvested in the 2009/2010 cropping season. In the United States, sorghum production is concentrated in the central and southern plains of five states - Kansas, Texas, Nebraska, Oklahoma and Missouri, representing approximately 89% of total production. In many parts of the world sorghum has traditionally been used for food. In the United States, sorghum is primarily used for animal feed, but also for food and industry derivatives such as wallboard and biodegradable packaging materials. Recently sweet sorghums were considered for bioenergy feedstock production.

Sorghum is one of the most drought tolerant cereal crops currently under cultivation. It offers farmers the ability to reduce costs on irrigation and other on-farm expenses. The International Water Management Institute (IWMI) warns that by the year 2025, 25 percent of the world's population will experience severe water scarcity. However, water productivity in both irrigated and rain-fed acres can be increased through the use of more water-use efficient crops, like sorghum. This and other economic concerns prompted Murphy-Brown, one of the largest animal feed operations in the country, to push for increased sorghum production in Virginia and Carolinas (V-C). For the 2012 Murphy-Brown Sorghum Program, cash price for sorghum will be 95% of the harvest price for corn at selected elevators, one of which is in Waverly, VA.

Before Murphy-Brown became interested in sorghum production in the V-C region, researchers at the Virginia Tech Tidewater Agricultural Research and Extension Center (TAREC) in Suffolk, VA, realized the benefits of a drought tolerant and less input-demanding cereal to replace corn, otherwise a water inefficient crop. With funds provided by the National Sorghum Checkoff Program a hybrid testing program was initiated at TAREC in 2009. In 2012, 45 sorghum hybrids were planted in approximately 240 ft² plots at five locations in Virginia: TAREC; Virginia State University's (VSU) Randolph Farm; and at three commercial fields in Isle of Wight, Sussex and Southampton counties. Plots were replicated three and four times in a randomized complete block design (RCBD).

Results in 2012



Figure 1. Planting sorghum with a NG Plus 3 Monosem two-row precision vacuum planter in plots of two- 40 ft. rows on 36-inch centers.

Data collected on grain yield seed, test weight, seed moisture, corn earworm and other insect damage, heading date (days from planting), and head mold rating are presented here. Heading date was recorded only at TAREC and head mold only at Isle of Wight. Test weight and insect damage was not recorded at the VSU location. Grain yield and seed moisture at harvest were recorded at all locations. Relative yield (Table 12) was calculated as yield percent of individual hybrids from the means of all hybrids tested at individual locations. Only four hybrids yielded over the hybrid means at all locations: GX12353, TRX15401, DKS49-45, and 84G62. Eight more yielded over the hybrid means at four out of five locations: GX12364, GW9320, DKS56-67, NK6638, 83P17, 5613, 06173, and TR463. The hybrids with the lowest, yields well below the means at all locations, were 10413 and 3552, and 11 more had significantly lower yields than the hybrid means at the majority of locations: 732B, M75GB39, GX12522, GX123121, 68653, 50113, 0813, TR457, H-39-0W, NK8416, and 5556. It was a positive relationship between the number of days to heading and yield, but the relation was weak. For example, four of the highest yielding hybrids at TAREC, GX12353, 92123, TRX85123, and TRX15401, had 61, 58, 65, and 70 days to heading, respectively. At the same time one of the lowest yielding hybrids at all locations, NK8416 had 68 days to heading.

Cultural Practices in 2012

Table 1. Cultural practices used in sorghum tests in 2012.

Activity	Product	TAREC	Isle of Wight Co., VA	Sussex Co., VA	Southampton Co., VA	VSU
<i>Planting Date</i>		May 29	May 24	May 25	May 21	May 31
<i>Harvest Date</i>		Sept. 16 - 26	Sept. 22	Sept. 21	Sept. 18	Oct. 5
<i>Seeds/ac</i>		100,000	100,000	100,000	100,000	100,000
<i>Soil Type</i>		Emporia sandy loam	Emporia sandy loam			Dunbar fine sandy loam
<i>Land Preparation</i>		Strip Till	Conventional	Conventional	Strip Till	Conventional
<i>Irrigation</i>		None	None	None	None	None
	Atrazine	1 qt/ac (5/30)	1 qt/ac (5/24)			Tillage
	Intro	1 qt/ac (5/30)	1 qt/ac (5/24)	1 qt/ac (5/25)	1 qt/ac (5/21)	
	Round-up	20 oz/ac (5/24)		20 oz/ac (5/25)	20 oz/ac (5/21)	
<i>Pest Control</i>	Bathyroid XL				3 oz/ac (8/9)	None
	Lannate LV	1.5 pt/ac (8/8 & 8/17)	1.5 pt/ac (8/10 & 8/20)			
<i>Disease Control</i>	None	None	None	None	None	None
<i>Nutrient Management</i>	32% Urea	60 lb/ac N-32% (5/30 & 6/27)	60 lb/ac N-32% (5/24 & 6/30)	60 lb/ac N-32% (5/25 & 6/26)	60 lb/ac N-32% (5/21 & 6/26)	131 lbs of DAP (18-46-0), 150 lbs of potash (0- 0-60), and 32 lbs of ammonium sulfate (21-0-0; 24% S) per acre before seeding. 90 lbs per acre of ammonium sulfate (21-0-0; 24% S) at knee high.

Weather Conditions in 2012

Table 2. Weather and rainfall information in 2012 by location.

Location	Month	Temperature			Rainfall
		Max	Min	AVG	
		°F			inch
<i>TAREC, VA</i>	May	82	59	70	7.86
	June	86	61	73	6.17
	July	93	72	82	4.52
	August	88	69	78	7.91
	September	83	59	71	3.62
	October	76	54	65	7.89
<i>Isle of Wight Co., VA</i>	May	81	61	71	5.64
	June	86	63	74	3.17
	July	93	74	83	1.03
	August	87	71	79	7.45
	September	81	61	71	3.99
	October	72	52	62	0.14
<i>Sussex Co., VA</i>	May	81	58	70	1.95
	June	84	60	72	4.34
	July	93	72	82	3.63
	August	87	69	78	9.84
	September	80	59	69	4.64
	October	71	54	63	1.82
<i>Southampton Co., VA</i>	May	82	59	71	2.58
	June	87	60	73	1.65
	July	93	71	82	3.48
	August	88	68	78	12.39
	September	82	59	70	6.19
	October	73	53	63	2.15
<i>VSU, VA</i>	May			70	6.62
	June			73	4.06
	July			80	8.07
	August			77	6.24
	September			68	12.16
	October			59	6.46

Results in 2012

Table 3. Worm¹ and Other² damage (number of plants damaged/plot), the approximate number of days until 50% heading³ and the number of corn earworms counted per 10 heads/plot⁴ for sorghum hybrids tested at TAREC (Suffolk), VA, in 2012.

Variety	Whorl-Stage Damage		50% Heading ³	Corn Earworm ⁴
	Worm ¹	Other ²		
<i>Dates when data was taken</i>	<i>6/27/2012</i>		<i>7/27-8/7/2012</i>	<i>8/6/2012</i>
732B	0.3 ab	1.0 b-d	57 mn	21.5 a
M75GB39	0.3 ab	2.3 a-d	58 i-n	13.3 b-d
GX12522	0.3 ab	1.8 a-d	57 mn	10.5 c-f
765B	0.8 a	1.8 a-d	68 ab	0.5 h
GX12353	0.0 b	3.3 ab	61 g-l	3.8 e-h
GX12364	0.3 ab	1.0 b-d	62 d-i	5.0 e-h
GX12321	0.0 b	1.0 b-d	48 o	17.0 a-c
766B	0.0 b	1.5 b-d	59 i-m	12.8 b-d
06173	0.3 ab	1.0 b-d	68 ab	0.8 h
68653	0.0 b	1.5 b-d	66 a-e	0.5 h
4503	0.0 b	1.3 b-d	62 e-j	0.5 h
50113	0.3 ab	1.5 b-d	65 b-g	0.3 h
10413	0.0 b	1.5 b-d	58 k-n	17.3 a-c
92123	0.3 ab	1.3 b-d	58 k-n	18.0 ab
0813	0.0 b	2.0 a-d	64 b-g	0.3 h
TR438	0.5 ab	3.0 a-c	59 i-n	8.5 d-g
TR448	0.3 ab	1.0 b-d	57 mn	21.0 a
TR457	0.0 b	0.8 cd	57 l-n	10.8 b-e
TR463	0.0 b	2.3 a-d	59 i-n	4.8 e-h
TR4941	0.3 ab	1.5 b-d	60 h-m	4.5 e-h
TR481	0.8 a	1.3 b-d	66 a-d	3.0 gh
TR4951	0.0 b	4.0 a	64 b-g	0.3 h
TR82G	0.5 ab	1.0 b-d	68 a-c	0.5 h
TRX85131	0.5 ab	2.0 a-d	65 b-f	2.3 gh
TRX15401	0.0 b	0.3 d	70 a	0.8 h
GW9417	0.0 b	2.3 a-d	60 h-m	3.0 gh
GW9320	0.0 b	1.0 b-d	62 d-j	1.0 h
DKS54-00	0.0 b	2.3 a-d	68 a-c	3.3 f-h
DKS44-20	0.0 b	1.3 b-d	69 e-j	1.8 gh
DKS53-67	0.0 b	1.0 b-d	68 a-c	0.3 h
DKS49-45	0.0 b	1.0 b-d	64 c-h	1.8 gh
NK8416	0.0 b	1.3 b-d	68 ab	0.8 h
KS735	0.0 b	0.8 cd	62 d-i	4.5 e-h
NK6638	0.0 b	0.8 cd	61 f-k	1.3 gh
SP6929	0.0 b	0.3 d	58 i-n	2.0 gh
NK7829	0.8 a	0.3 d	65 b-g	0.8 h
84G77	0.3 ab	1.3 b-d	60 h-m	3.3 f-h
84P80	0.0 b	1.3 b-d	65 b-f	2.5 gh
83G66	0.0 b	2.5 a-d	60 h-m	2.8 gh
83P17	0.0 b	0.8 cd	68 a-c	0.5 h
84G62	0.3 ab	1.3 b-d	65 b-g	1.0 h
3552	0.3 ab	1.3 b-d	57 i-n	6.0 d-h
H-39-0W	0.3 ab	1.3 b-d	55 n	13.0 b-d
5556	0.0 b	1.8 a-d	58 j-n	7.0 d-h
5613	0.3 ab	0.3 d	60 h-m	4.0 e-h
Mean	0.2	1.4	62	5.3
LSD	0.6	2.3	4	7.3

¹ Damage by corn earworms and fall armyworm, yellow striped armyworm.

² Damage by billbug stink bug, Japanese beetle.

⁴ Only corn earworms were found feeding in heads.

Results in 2012

Table 4. Grain yield seed, test weight, and harvest moisture for sorghum hybrids tested at TAREC (Suffolk), VA, in 2012.

Company	Hybrid	Test weight	Seed moisture	Yield @ 14%
		lb/bu	%	moisture bu/ac
DYNA-GRO SEED	732B	52.1 a-f [†]	14.3 k-m	66 b-e
DYNA-GRO SEED	M75GB39	54.7 ab	15.0 j-m	60 de
DYNA-GRO SEED	GX12522	51.7 a-f	18.4 b-l	79 a-e
DYNA-GRO SEED	765B	45.5 a-g	22.4 ab	82 a-e
DYNA-GRO SEED	GX12353	55.9 a	19.1 a-j	105 ab
DYNA-GRO SEED	GX12364	42.8 e-g	18.7 b-k	83 a-e
DYNA-GRO SEED	GX123121	50.5 a-f	14.7 j-m	58 de
DYNA-GRO SEED	766B	46.6 a-g	16.5 e-m	75 a-e
RICHARDSON SEEDS, LTD	06173	47.2 a-g	21.7 a-c	84 a-e
RICHARDSON SEEDS, LTD	68653	41.8 fg	22.5 ab	54 de
RICHARDSON SEEDS, LTD	4503	48.9 a-g	18.6 b-k	72 a-e
RICHARDSON SEEDS, LTD	50113	49.6 a-g	17.7 c-l	66 b-e
RICHARDSON SEEDS, LTD	10413	52.9 a-e	15.0 j-m	51 e
RICHARDSON SEEDS, LTD	92123	54.7 ab	17.1 d-m	111 a
RICHARDSON SEEDS, LTD	0813	49.3 a-g	17.2 d-m	72 a-e
TRIUMPH	TR438	49.3 a-g	13.1 m	77 a-e
TRIUMPH	TR448	52.9 a-e	15.3 i-m	81 a-e
TRIUMPH	TR457	51.4 a-f	14.1 lm	62 c-e
TRIUMPH	TR463	50.3 a-g	15.0 j-m	80 a-e
TRIUMPH	TR4941	49.9 a-g	16.0 f-m	83 a-e
TRIUMPH	TR481	47.6 a-g	21.1 a-d	69 b-e
TRIUMPH	TR4951	44.5 b-g	20.2 a-g	85 a-e
TRIUMPH	TR82G	52.3 a-f	17.2 d-m	58 de
TRIUMPH	TRX85131	48.9 a-g	15.6 h-m	75 a-e
TRIUMPH	TRX15401	51.8 a-f	21.3 a-d	104 ab
GAYLAND WARD SEED COMP.	GW9417	49.3 a-g	19.8 a-h	62 c-e
GAYLAND WARD SEED COMP.	GW9320	53.5 a-d	17.7 c-l	81 a-e
DEKALB	DKS54-00	40.0 g	23.4 a	74 a-e
DEKALB	DKS44-20	48.9 a-g	15.9 g-m	87 a-e
DEKALB	DKS53-67	44.7 b-g	21.2 a-d	68 b-e
DEKALB	DKS49-45	43.2 d-g	20.3 a-f	78 a-e
SORGHUM PARTNERS	NK8416	52.4 a-e	19.1 a-j	72 a-e
SORGHUM PARTNERS	KS735	52.9 a-e	16.4 f-m	81 a-e
SORGHUM PARTNERS	NK6638	53.9 a-c	17.4 c-m	93 a-d
SORGHUM PARTNERS	SP6929	48.5 a-g	17.9 c-l	74 a-e
SORGHUM PARTNERS	NK7829	48.4 a-g	18.5 b-l	70 b-e
PIONEER	84G77	46.6 a-g	19.5 a-i	76 a-e
PIONEER	84P80	47.7 a-g	15.8 g-m	77 a-e
PIONEER	83G66	43.5 c-g	20.9 a-e	81 a-e
PIONEER	83P17	45.5 a-g	21.8 a-c	102 a-c
PIONEER	84G62	49.4 a-g	15.2 i-m	84 a-e
GOLDEN ACRES	3552	46.6 a-g	16.9 d-m	74 a-e
GOLDEN ACRES	H-39-0W	51.4 a-f	14.7 j-m	53 de
GOLDEN ACRES	5556	51.9 a-f	14.4 k-m	71 a-e
GOLDEN ACRES	5613	44.5 b-g	16.3 f-m	75 a-e
Mean		49	17.8	76

[†] Within each column means followed by the same letter are not statistically different based on Tukey's HSD test (P = 0.05).

Results in 2012

Table 5. Worm¹ and Other² damage (number of plants damaged/plot), the number of corn earworms counted per 10 plants/plot³, and the visual score of head mold⁴ for sorghum hybrids tested at Isle of Wight County, VA, in 2012. The first number of the visual score was 0, no mold, 1, 10% of the heads in a plot with mold, 2-20%, 3-30%, 4-40%, and 5 ≤ 50% of the heads in a plot were molded. The second number shows the percent mold coverage within a head and was ≥ 2 for less than 25% coverage, 25 for 25% coverage, 50 for 50%, and 75 for ≤ 75% coverage.

Variety	Whorl-Stage Damage		Corn Earworm ³	Visual score ⁴
	Worm ¹	Other ²		
<i>Dates data was taken</i>	<i>6/26/2012</i>	<i>8/7/2012</i>	<i>8/23/2012</i>	
732B	0.0 b	2.0 a-d	23.0 a-i	5.0 a-d
M75GB39	0.0 b	1.0 a-d	13.0 e-l	3.2 d-k
GX12522	0.0 b	0.3 cd	25.3 a-h	5.2 a-c
765B	0.0 b	2.3 a-c	2.7 i	1.1 l-n
GX12353	0.0 b	1.7 a-d	8.0 i-l	1.3 k-n
GX12364	0.0 b	2.3 a-c	20.3 b-k	3.6 b-i
GX12321	0.0 b	1.0 a-d	6.0 j-l	4.6 a-g
766B	0.0 b	0.7 b-d	28.3 a-e	4.3 a-g
06173	0.0 b	1.3 a-d	4.3 kl	0.7 mn
68653	0.0 b	1.0 a-d	9.0 h-l	1.0 l-n
4503	0.0 b	0.0 d	4.0 kl	1.0 l-n
50113	0.0 b	1.0 a-d	9.3 h-l	0.7 mn
10413	0.0 b	1.0 a-d	24.7 a-i	4.9 a-e
92123	0.0 b	1.0 a-d	18.3 c-l	3.5 c-j
0813	0.0 b	1.0 a-d	26.7 a-g	3.0 f-k
TR438	0.0 b	2.0 a-d	16.7 d-l	4.8 a-f
TR448	0.0 b	3.0 a	19.3 c-l	3.8 a-h
TR457	0.3 b	0.7 b-d	17.3 d-l	5.3 a-c
TR463	0.0 b	2.0 a-d	25.3 a-h	4.5 a-g
TR4941	0.0 b	0.7 b-d	28.7 a-e	4.4 a-g
TR481	0.0 b	1.3 a-d	8.3 i-l	0.7 mn
TR4951	0.0 b	0.0 d	10.3 g-l	2.4 h-m
TR82G	0.0 b	0.3 cd	12.0 e-l	2.3 h-m
TRX85131	0.0 b	0.7 b-d	23.7 a-i	5.4 ab
TRX15401	0.0 b	0.7 b-d	3.0 i	1.8 i-n
GW9417	0.0 b	0.3 cd	27.3 a-f	5.0 a-d
GW9320	6.0 a	0.7 b-d	30.7 a-d	3.9 a-h
DKS54-00	0.0 b	0.7 b-d	18.0 c-l	1.8 i-n
DKS44-20	0.0 b	0.7 b-d	20.3 b-k	3.2 d-k
DKS53-67	0.0 b	0.3 d	11.3 f-l	2.8 g-l
DKS49-45	0.0 b	1.0 a-d	24.3 a-i	2.8 g-l
NK8416	0.0 b	0.7 b-d	3.0 i	0.3 n
KS735	0.0 b	1.0 a-d	24.3 a-i	4.0 a-h
NK6638	0.0 b	1.3 a-d	20.7 b-k	3.3 d-j
SP6929	0.0 b	0.7 b-d	36.3 ab	4.6 a-g
NK7829	0.0 b	2.7 ab	14.3 d-l	3.1 e-k
84G77	0.0 b	0.7 b-d	28.3 a-e	4.5 a-g
84P80	0.0 b	0.7 b-d	16.0 d-l	3.1 e-k
83G66	0.0 b	0.7 b-d	34.7 a-c	4.5 a-g
83P17	0.0 b	0.0 d	14.0 d-l	1.7 j-n
84G62	0.0 b	0.7 b-d	21.3 a-j	2.2 h-n
3552	0.0 b	0.0 d	37.7 a	5.5 a
H-39-0W	0.0 b	0.0 d	30.3 a-d	5.6 a
5556	0.0 b	0.0 d	12.7 e-l	4.3 a-g
5613	0.0 b	2.3 a-c	24.3 a-i	3.4 c-j
Mean	0.1	1.0	18.5	3.3
LSD	2.5	2.1	16.9	1.9

¹ Damage by corn earworms and fall armyworm, yellow striped armyworm.

² Damage by billbug stink bug, Japanese beetle.

³ Only corn earworms were found feeding in heads.

Results in 2012

Table 6. Grain yield, test weight, and harvest moisture for sorghum hybrids tested at Isle of Wight County, VA, in 2012.

Company	Hybrid	Test weight	Seed moisture	Yield @ 14%
		lb/bu	%	moisture bu/ac
DYNA-GRO SEED	732B	57.9 a-d [†]	14.9 d-h	66 e-h
DYNA-GRO SEED	M75GB39	57.0 a-e	15.4 c-h	73 a-h
DYNA-GRO SEED	GX12522	54.7 a-e	16.1 a-h	55 gh
DYNA-GRO SEED	765B	55.3 a-e	17.8 a	92 a-g
DYNA-GRO SEED	GX12353	57.6 a-e	15.5 c-h	95 a-f
DYNA-GRO SEED	GX12364	55.7 a-e	15.7 a-h	88 a-h
DYNA-GRO SEED	GX123121	54.5 a-e	14.7 f-h	78 a-h
DYNA-GRO SEED	766B	55.6 a-e	15.5 c-h	76 a-h
RICHARDSON SEEDS, LTD	06173	57.6 a-e	15.8 a-h	82 a-h
RICHARDSON SEEDS, LTD	68653	54.5 a-e	16.3 a-e	72 b-h
RICHARDSON SEEDS, LTD	4503	57.5 a-e	14.9 d-h	79 a-h
RICHARDSON SEEDS, LTD	50113	56.7 a-e	15.5 c-h	78 a-h
RICHARDSON SEEDS, LTD	10413	53.0 e	14.6 gh	64 e-h
RICHARDSON SEEDS, LTD	92123	57.1 a-e	15.3 c-h	97 a-e
RICHARDSON SEEDS, LTD	0813	53.6 c-e	15.9 a-h	89 a-e
TRIUMPH	TR438	54.0 a-e	15.0 c-h	80 a-h
TRIUMPH	TR448	54.5 a-e	14.0 h	69 c-h
TRIUMPH	TR457	53.3 de	14.8 e-h	76 a-h
TRIUMPH	TR463	55.7 a-e	15.5 c-h	88 a-h
TRIUMPH	TR4941	55.9 a-e	15.6 b-h	80 a-h
TRIUMPH	TR481	56.1 a-e	16.9 a-e	83 a-h
TRIUMPH	TR4951	55.9 a-e	15.7 a-h	84 a-h
TRIUMPH	TR82G	57.4 a-e	15.4 c-h	92 a-g
TRIUMPH	TRX85131	54.7 a-e	16.4 a-g	80 a-h
TRIUMPH	TRX15401	58.1 a-c	15.6 b-h	108 ab
GAYLAND WARD SEED COMP.	GW9417	52.8 e	17.7 ab	58 f-h
GAYLAND WARD SEED COMP.	GW9320	57.0 a-e	15.4 c-h	69 c-h
DEKALB	DKS54-00	58.0 a-d	15.8 a-h	100 a-e
DEKALB	DKS44-20	56.6 a-e	15.5 c-h	85 a-h
DEKALB	DKS53-67	58.8 a	15.7 a-h	106 a-d
DEKALB	DKS49-45	55.2 a-e	16.7 a-f	93 a-g
SORGHUM PARTNERS	NK8416	57.5 a-e	16.0 a-h	66 e-h
SORGHUM PARTNERS	KS735	54.4 a-e	15.5 c-h	80 a-h
SORGHUM PARTNERS	NK6638	56.5 a-e	15.6 b-h	89 a-e
SORGHUM PARTNERS	SP6929	54.9 a-e	16.3 a-g	66 e-h
SORGHUM PARTNERS	NK7829	55.8 a-e	16.2 a-g	72 a-h
PIONEER	84G77	57.2 a-e	15.7 a-h	74 a-h
PIONEER	84P80	58.5 ab	15.3 c-h	107 a-c
PIONEER	83G66	53.8 b-e	16.8 a-f	67 e-h
PIONEER	83P17	54.7 a-e	16.6 a-g	100 a-e
PIONEER	84G62	58.2 a-c	15.5 c-h	110 a
GOLDEN ACRES	3552	53.8 b-e	17.0 a-d	71 b-h
GOLDEN ACRES	H-39-0W	53.0 e	15.4 c-h	50 h
GOLDEN ACRES	5556	57.0 a-e	15.5 c-h	71 b-h
GOLDEN ACRES	5613	54.2 a-e	17.1 a-c	93 a-g
Mean		56	15.8	81

[†] Within each column means followed by the same letter are not statistically different based on Tukey's HSD test (P = 0.05).

Results in 2012

Table 7. Worm¹ and Other² damage (number of plants damaged/plot), and worm count per 10 heads³ for sorghum hybrids tested at Sussex County, VA, in 2012.

Variety	Whorl-Stage Damage		8/6/2012	Corn Earworm ³	
	Worm ¹	Other ²		8/10/2012	8/13/2012
<i>Dates when data was taken</i>	6/26/2012				
732B	0.00 b	1.00 a-c	1.67 b	1.33 b-e	1.67 ab
M75GB39	0.00 b	1.00 a-c	1.00 bc	1.00 b-e	0.00 c
GX12522	0.00 b	1.00 a-c	0.67 bc	0.00 e	0.33 bc
GX12564	0.00 b	1.00 a-c	0.00 c	0.67 c-e	0.00 c
GX12353	0.00 b	1.33 a-c	0.00 c	0.67 c-e	0.67 a-c
GX12364	0.00 b	1.33 a-c	0.00 c	0.67 c-e	0.33 bc
GX12321	0.00 b	0.33 bc	0.33 c	0.67 c-e	0.00 c
766B	0.00 b	1.00 a-c	1.00 bc	0.33 de	0.00 c
06173	0.00 b	0.33 bc	0.33 c	2.67 ab	0.00 c
68653	0.00 b	0.67 bc	0.67 bc	0.00 e	0.00 c
4503	0.00 b	1.00 a-c	0.33 c	2.00 b-d	2.00 a
50113	0.33 a	0.33 bc	0.00 c	1.33 b-e	0.67 a-c
10413	0.00 b	1.33 a-c	4.00 a	2.67 ab	1.67 ab
92123	0.00 b	0.67 bc	1.67 b	1.00 b-e	0.33 bc
0813	0.00 b	1.33 a-c	0.00 c	0.00 e	0.00 c
TR438	0.00 b	2.00 a-c	0.33 c	0.33 de	0.33 bc
TR448	0.00 b	1.00 a-c	0.33 c	0.67 c-e	0.33 bc
TR457	0.00 b	0.67 bc	1.00 bc	4.33 a	2.00 a
TR463	0.00 b	1.67 a-c	0.00 c	1.00 b-e	0.00 c
TR4941	0.00 b	2.33 ab	0.00 c	0.33 de	0.00 c
TR481	0.00 b	1.67 a-c	0.00 c	0.67 c-e	1.67 ab
TR4951	0.00 b	1.00 a-c	0.00 c	0.00 e	0.00 c
TR82G	0.00 b	0.00 c	0.00 c	0.00 e	0.00 c
TRX85131	0.00 b	3.00 a	0.00 c	2.67 ab	0.00 c
TRX15401	0.00 b	0.33 bc	0.33 c	0.67 c-e	0.33 bc
GW9417	0.00 b	1.00 a-c	0.67 bc	1.00 b-e	0.33 bc
GW9320	0.00 b	0.67 bc	0.00 c	1.00 b-e	2.00 a
DKS54-00	0.00 b	0.00 c	0.33 c	1.33 b-e	0.00 c
DKS44-20	0.00 b	2.33 ab	0.33 c	1.67 b-e	0.33 bc
DKS53-67	0.00 b	0.00 c	0.00 c	0.33 de	0.33 bc
DKS49-45	0.00 b	2.33 ab	0.33 c	1.33 b-e	1.33 a-c
NK8416	0.00 b	0.67 bc	1.00 bc	1.00 b-e	1.00 a-c
KS735	0.00 b	2.50 ab	1.00 bc	0.00 e	1.00 a-c
NK6638	0.00 b	1.33 a-c	0.00 c	0.33 de	0.00 c
SP6929	0.00 b	1.33 a-c	0.00 c	2.67 ab	0.00 c
NK7829	0.00 b	0.33 bc	0.33 c	1.00 b-e	0.33 bc
84G77	0.00 b	1.33 a-c	0.00 c	0.67 c-e	0.33 bc
84P80	0.00 b	0.00 c	0.00 c	1.00 b-e	0.00 c
83G66	0.00 b	1.67 a-c	1.00 bc	1.00 b-e	1.33 a-c
83P17	0.00 b	1.33 a-c	0.00 c	0.33 de	0.00 c
84G62	0.00 b	1.00 a-c	0.00 c	0.33 de	0.67 a-c
3552	0.00 b	1.00 a-c	0.00 c	0.33 de	0.00 c
H-39-0W	0.00 b	0.50 bc	0.67 bc	2.33 bc	0.00 c
5556	0.00 b	0.67 bc	0.67 bc	0.67 c-e	0.33 bc
5613	0.00 b	0.67 bc	0.33 c	2.00 b-d	0.00 c
Mean	0.01	1.08	0.45	1.02	0.48
LSD	0.15	2.30	1.19	1.97	1.36

¹ Damage by corn earworms and fall armyworm, yellow striped armyworm.

² Damage by billbug stink bug, Japanese beetle.

³ Only corn earworms were found feeding in heads.

Results in 2012

Table 8. Grain yield, test weight, and harvest moisture for sorghum hybrids tested at Sussex County, VA, in 2012.

Company	Hybrid	Test weight	Seed moisture	Yield @ 14%
		lb/bu	%	moisture bu/ac
DYNA-GRO SEED	732B	52.5 a [†]	17.0 e-i	93 a-c
DYNA-GRO SEED	M75GB39	58.4 a	16.7 e-i	95 a-c
DYNA-GRO SEED	GX12522	55.4 a	18.6 b-i	75 a-d
DYNA-GRO SEED	765B	51.4 a	22.1 ab	76 a-d
DYNA-GRO SEED	GX12353	58.1 a	16.4 f-i	112 ab
DYNA-GRO SEED	GX12364	54.2 a	18.2 b-i	84 a-d
DYNA-GRO SEED	GX123121	54.2 a	15.6 hi	78 a-d
DYNA-GRO SEED	766B	55.2 a	16.7 e-i	100 a-c
RICHARDSON SEEDS, LTD	06173	53.5 a	21.5 a-d	77 a-d
RICHARDSON SEEDS, LTD	68653	50.8 a	21.9 a-c	45 d
RICHARDSON SEEDS, LTD	4503	53.6 a	18.2 b-i	88 a-d
RICHARDSON SEEDS, LTD	50113	57.3 a	17.3 d-i	81 a-d
RICHARDSON SEEDS, LTD	10413	55.2 a	14.9 i	68 cd
RICHARDSON SEEDS, LTD	92123	49.7 a	18.5 b-i	84 a-d
RICHARDSON SEEDS, LTD	0813	56.4 a	17.3 d-i	74 a-d
TRIUMPH	TR438	55.4 a	15.5 hi	92 a-c
TRIUMPH	TR448	55.4 a	15.5 hi	93 a-c
TRIUMPH	TR457	55.3 a	16.1 g-i	92 a-c
TRIUMPH	TR463	53.7 a	18.8 b-i	85 a-d
TRIUMPH	TR4941	53.8 a	17.9 b-i	87 a-d
TRIUMPH	TR481	54.0 a	21.1 a-e	90 a-c
TRIUMPH	TR4951	53.9 a	19.1 a-i	69 b-d
TRIUMPH	TR82G	57.7 a	19.4 a-h	95 a-c
TRIUMPH	TRX85131	54.2 a	19.9 a-h	99 a-c
TRIUMPH	TRX15401	54.7 a	21.8 a-c	94 a-c
GAYLAND WARD SEED COMP.	GW9417	54.6 a	18.3 b-i	82 a-d
GAYLAND WARD SEED COMP.	GW9320	57.2 a	17.6 c-i	102 a-c
DEKALB	DKS54-00	52.7 a	20.7 a-f	91 a-c
DEKALB	DKS44-20	56.8 a	16.8 e-i	79 a-d
DEKALB	DKS53-67	56.8 a	19.4 a-h	93 a-c
DEKALB	DKS49-45	54.5 a	18.4 b-i	116 a
SORGHUM PARTNERS	NK8416	57.3 a	19.6 a-h	74 a-d
SORGHUM PARTNERS	KS735	55.7 a	17.2 d-i	101 a-c
SORGHUM PARTNERS	NK6638	55.4 a	17.3 d-i	92 a-c
SORGHUM PARTNERS	SP6929	56.8 a	18.6 b-i	89 a-d
SORGHUM PARTNERS	NK7829	55.8 a	20.2 a-g	96 a-c
PIONEER	84G77	56.6 a	17.5 c-i	97 a-c
PIONEER	84P80	56.8 a	19.7 a-h	86 a-d
PIONEER	83G66	56.0 a	17.7 c-i	100 a-c
PIONEER	83P17	50.1 a	23.3 a	91 a-c
PIONEER	84G62	57.7 a	18.9 a-i	96 a-c
GOLDEN ACRES	3552	53.5 a	21.0 a-e	83 a-d
GOLDEN ACRES	H-39-0W	56.1 a	16.4 f-i	77 a-d
GOLDEN ACRES	5556	56.5 a	18.2 b-i	86 a-d
GOLDEN ACRES	5613	55.2 a	17.0 e-i	101 a-c
Mean		55	18.4	88

[†] Within each column means followed by the same letter are not statistically different based on Tukey's HSD test (P = 0.05)

Results in 2012

Table 9. Worm¹ and Other² damage (number of plants damaged/plot) and the number of worms counted per ten heads³ for sorghum hybrids tested at Southampton Co., VA, in 2012.

Variety	Whorl-Stage Damage		Corn
	Worm ¹	Other ²	Earworm Count ³
<i>Dates data was taken</i>	<i>6/26/2012</i>		<i>8/7/2012</i>
732B	0.00 b	1.67 a-c	17.7 b-l
M75GB39	0.00 b	0.33 bc	19.3 a-k
GX12522	0.00 b	1.33 a-c	22.3 a-i
765B	0.00 b	0.67 a-c	2.5 l
GX12353	0.67 a	2.33 a	9.7 e-l
GX12364	0.00 b	1.00 a-c	26.3 a-d
GX12321	0.00 b	1.33 a-c	7.0 g-l
766B	0.00 b	1.00 a-c	29.3 ab
06173	0.00 b	0.67 a-c	6.5 i-l
68653	0.00 b	0.67 a-c	7.3 g-l
4503	0.00 b	1.00 a-c	5.0 kl
50113	0.00 b	1.00 a-c	22.5 a-i
10413	0.00 b	1.00 a-c	27.7 a-c
92123	0.00 b	0.33 bc	16.7 b-l
0813	0.00 b	0.00 c	25.5 a-e
TR438	0.00 b	0.67 a-c	18.3 b-l
TR448	0.00 b	0.33 bc	16.7 b-l
TR457	0.00 b	0.33 bc	21.0 a-k
TR463	0.00 b	0.33 bc	10.7 d-l
TR4941	0.00 b	1.00 a-c	34.7 a
TR481	0.00 b	0.33 bc	13.0 c-l
TR4951	0.00 b	2.33 a	15.3 b-l
TR82G	0.00 b	2.00 ab	10.5 d-l
TRX85131	0.00 b	0.33 bc	22.7 a-h
TRX15401	0.00 b	0.67 a-c	9.0 f-l
GW9417	0.00 b	1.00 a-c	23.0 a-g
GW9320	0.00 b	0.00 c	14.0 b-l
DKS54-00	0.00 b	1.33 a-c	10.3 d-l
DKS44-20	0.00 b	0.33 bc	12.3 c-l
DKS53-67	0.00 b	2.00 ab	17.0 b-l
DKS49-45	0.00 b	0.67 a-c	19.0 a-k
NK8416	0.00 b	0.00 c	6.0 j-l
KS735	0.00 b	0.33 bc	18.0 b-l
NK6638	0.00 b	0.67 a-c	9.0 f-l
SP6929	0.00 b	0.33 bc	22.3 a-i
NK7829	0.00 b	0.00 c	18.3 b-l
84G77	0.00 b	0.33 bc	14.7 b-l
84P80	0.00 b	0.33 bc	22.3 a-i
83G66	0.00 b	0.67 a-c	14.7 b-l
83P17	0.00 b	0.67 a-c	6.7 h-l
84G62	0.00 b	0.00 c	29.7 ab
3552	0.00 b	1.33 a-c	34.7 a
H-39-0W	0.00 b	0.33 bc	23.7 a-f
5556	0.00 b	1.00 a-c	22.0 a-j
5613	0.00 b	2.00 ab	8.0 f-l
Mean	0.01	0.80	17.1
LSD	0.28	1.77	2.8

¹ Damage by corn earworms and fall armyworm, yellow striped armyworm.

² Damage by billbug stink bug, Japanese beetle.

³ Only corn earworms were found feeding in heads.

Results in 2012

Table 10. Grain yield, test weight, and harvest moisture for sorghum hybrids tested at Southampton Co., VA, in 2012.

Company	Hybrid	Test weight	Seed moisture	Yield @ 14%
		lb/bu	%	moisture bu/ac
DYNA-GRO SEED	732B	57.1 ab [†]	16.2 bc	63 a-d
DYNA-GRO SEED	M75GB39	58.0 ab	17.2 bc	74 a-d
DYNA-GRO SEED	GX12522	57.9 ab	16.8 bc	64 a-d
DYNA-GRO SEED	765B	52.4 ab	23.1 ab	83 a-d
DYNA-GRO SEED	GX12353	56.7 ab	18.0 bc	94 a-d
DYNA-GRO SEED	GX12364	50.1 ab	19.8 bc	84 a-d
DYNA-GRO SEED	GX123121	52.9 ab	15.4 bc	48 d
DYNA-GRO SEED	766B	55.8 ab	16.8 bc	73 a-d
RICHARDSON SEEDS, LTD	06173	48.2 b	28.0 a	88 a-d
RICHARDSON SEEDS, LTD	68653	54.4 ab	18.7 bc	75 a-d
RICHARDSON SEEDS, LTD	4503	53.9 ab	19.1 bc	80 a-d
RICHARDSON SEEDS, LTD	50113	55.8 ab	18.0 bc	82 a-d
RICHARDSON SEEDS, LTD	10413	56.0 ab	14.8 c	62 a-d
RICHARDSON SEEDS, LTD	92123	55.6 ab	17.1 bc	75 a-d
RICHARDSON SEEDS, LTD	0813	52.5 ab	21.5 a-c	73 a-d
TRIUMPH	TR438	55.2 ab	15.2 bc	53 cd
TRIUMPH	TR448	54.7 ab	17.3 bc	71 a-d
TRIUMPH	TR457	55.4 ab	15.0 bc	69 a-d
TRIUMPH	TR463	55.8 ab	19.1 bc	89 a-d
TRIUMPH	TR4941	55.1 ab	16.9 bc	82 a-d
TRIUMPH	TR481	56.1 ab	20.4 a-c	83 a-d
TRIUMPH	TR4951	55.1 ab	18.7 bc	79 a-d
TRIUMPH	TR82G	56.4 ab	20.3 a-c	99 ab
TRIUMPH	TRX85131	56.2 ab	19.8 bc	92 a-d
TRIUMPH	TRX15401	54.3 ab	22.3 a-c	101 a
GAYLAND WARD SEED COMP.	GW9417	56.9 ab	18.8 bc	87 a-d
GAYLAND WARD SEED COMP.	GW9320	58.6 a	17.9 bc	95 a-c
DEKALB	DKS54-00	56.4 ab	17.5 bc	87 a-d
DEKALB	DKS44-20	55.5 ab	19.2 bc	75 a-d
DEKALB	DKS53-67	56.6 ab	20.0 a-c	85 a-d
DEKALB	DKS49-45	58.3 ab	16.4 bc	91 a-d
SORGHUM PARTNERS	NK8416	56.7 ab	21.1 a-c	78 a-d
SORGHUM PARTNERS	KS735	51.4 ab	17.4 bc	70 a-d
SORGHUM PARTNERS	NK6638	55.8 ab	18.7 bc	92 a-d
SORGHUM PARTNERS	SP6929	54.5 ab	19.0 bc	81 a-d
SORGHUM PARTNERS	NK7829	54.9 ab	20.6 a-c	91 a-d
PIONEER	84G77	56.4 ab	17.8 bc	73 a-d
PIONEER	84P80	57.8 ab	17.2 bc	87 a-d
PIONEER	83G66	55.0 ab	18.5 bc	81 a-d
PIONEER	83P17	53.8 ab	21.3 a-c	94 a-d
PIONEER	84G62	57.1 ab	18.4 bc	90 a-d
GOLDEN ACRES	3552	56.3 ab	18.9 bc	77 a-d
GOLDEN ACRES	H-39-0W	54.8 ab	16.3 bc	53 b-d
GOLDEN ACRES	5556	57.4 ab	18.2 bc	74 a-d
GOLDEN ACRES	5613	54.6 ab	18.1 bc	86 a-d
Mean		55	18.6	80

[†] Within each column means followed by the same letter are not statistically different based on Tukey's HSD test (P = 0.05).

Results in 2012

Table 11. Grain yield and seed moisture for sorghum hybrids tested at VSU, VA, in 2012.

Company	Hybrid	Seed moisture	Yield @ 14% moisture
		%	bu/ac
DYNA-GRO SEED	732B	12.6 d-f [†]	17 fg
DYNA-GRO SEED	M75GB39	13.9 a-f	37 a-g
DYNA-GRO SEED	GX12522	13.3 b-f	19 e-g
DYNA-GRO SEED	GX12353	14.0 a-f	36 a-g
DYNA-GRO SEED	GX12364	14.3 a-f	45 a-f
DYNA-GRO SEED	GX123121	12.2 ef	-
DYNA-GRO SEED	766B	13.3 b-f	48 a-f
RICHARDSON SEEDS, LTD	06173	15.0 a-c	61 a-c
RICHARDSON SEEDS, LTD	68653	13.5 a-f	46 a-f
RICHARDSON SEEDS, LTD	4503	13.3 b-f	56 a-d
RICHARDSON SEEDS, LTD	50113	13.4 b-f	41 a-g
RICHARDSON SEEDS, LTD	10413	12.4 ef	23 d-g
RICHARDSON SEEDS, LTD	92123	13.6 a-f	37 a-g
RICHARDSON SEEDS, LTD	0813	13.6 a-f	52 a-e
TRIUMPH	TR438	12.6 d-f	34 b-g
TRIUMPH	TR448	13.1 b-f	35 b-g
TRIUMPH	TR457	12.8 c-f	29 c-g
TRIUMPH	TR463	13.3 b-f	35 b-g
TRIUMPH	TR4941	13.5 a-f	46 a-f
TRIUMPH	TR481	14.4 a-f	38 a-g
TRIUMPH	TR4951	14.1 a-f	39 a-g
TRIUMPH	TR82G	14.0 a-f	53 a-e
TRIUMPH	TRX85131	13.6 a-f	42 a-f
TRIUMPH	TRX15401	15.2 ab	46 a-f
GAYLAND WARD SEED COMP.	GW9417	13.7 a-f	47 a-f
GAYLAND WARD SEED COMP.	GW9320	15.2 ab	62 a-c
DEKALB	DKS54-00	14.2 a-f	42 a-f
DEKALB	DKS44-20	14.1 a-f	36 a-g
DEKALB	DKS53-67	15.1 a-c	48 a-f
DEKALB	DKS49-45	13.9 a-f	47 a-f
SORGHUM PARTNERS	NK8416	15.1 a-c	71 a
SORGHUM PARTNERS	KS735	13.7 a-f	43 a-f
SORGHUM PARTNERS	NK6638	14.3 a-f	37 a-g
SORGHUM PARTNERS	SP6929	14.0 a-f	40 a-g
SORGHUM PARTNERS	NK7829	14.5 a-e	47 a-f
PIONEER	84G77	13.5 a-f	51 a-f
PIONEER	84P80	14.4 a-e	56 a-d
PIONEER	83G66	14.4 a-e	38 a-g
PIONEER	83P17	14.1 a-f	39 a-g
PIONEER	84G62	14.8 a-d	41 a-f
GOLDEN ACRES	3552	13.6 a-f	44 a-g
GOLDEN ACRES	H-39-OW	12.0 f	26 d-g
GOLDEN ACRES	5556	13.4 b-f	44 a-f
GOLDEN ACRES	5613	13.4 a-f	43 a-f
DYNA-GRO SEED	765B	15.8 a	64 ab
Mean		13.8	42

[†] Within each column means followed by the same letter are not statistically different based on Tukey's HSD test ($P = 0.05$).

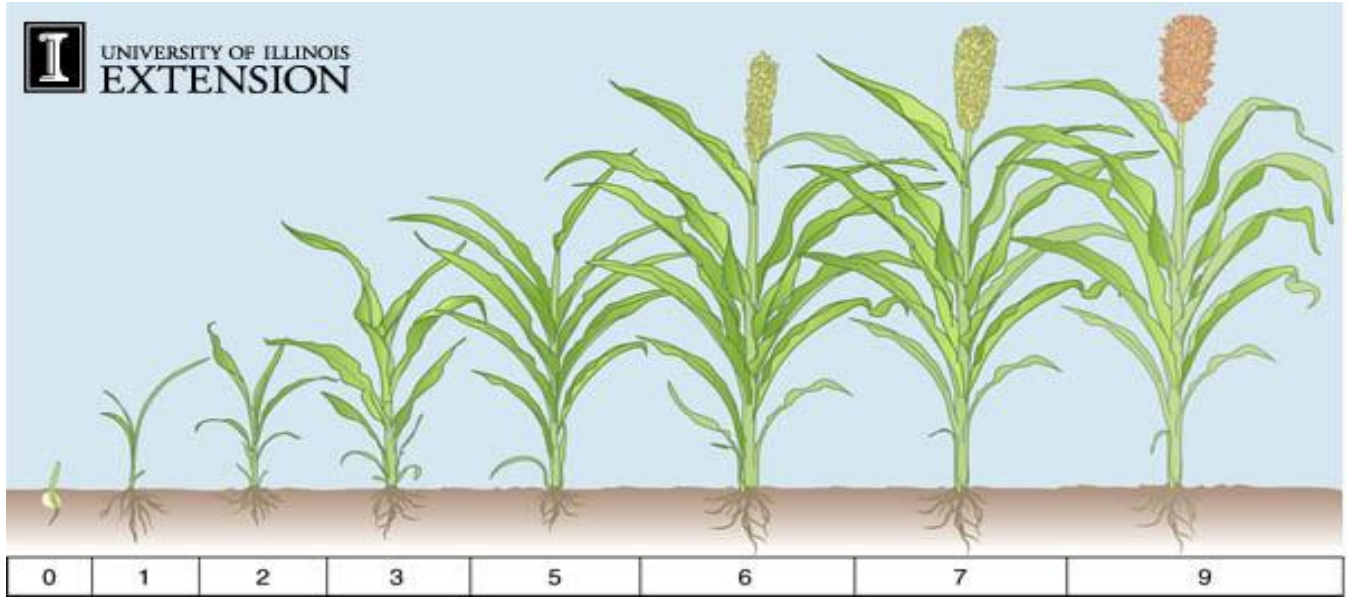
Performance of Sorghum Hybrids in Virginia

Considerations

Table 12. Relative yield of individual hybrids when compared with the average of all hybrids at each location.

	Company	Hybrid	Relative yield (%) to the average of each locations				
			Suffolk	Isle of Wight	Sussex	Southampton	VSU
1	DYNA-GRO SEED	732B	87	81	106	79	40
2	DYNA-GRO SEED	M75GB39	79	90	108	93	88
3	DYNA-GRO SEED	GX12522	104	68	85	80	45
4	DYNA-GRO SEED	765B	108	114	86	104	86
5	DYNA-GRO SEED	GX12353	138	117	127	118	107
6	DYNA-GRO SEED	GX12364	109	109	95	105	-
7	DYNA-GRO SEED	GX123121	76	96	89	60	114
8	DYNA-GRO SEED	766B	99	94	114	91	145
9	RICHARDSON SEEDS, LTD	06173	111	101	88	110	110
10	RICHARDSON SEEDS, LTD	68653	71	89	51	94	133
11	RICHARDSON SEEDS, LTD	4503	95	98	100	100	98
12	RICHARDSON SEEDS, LTD	50113	87	96	92	103	55
13	RICHARDSON SEEDS, LTD	10413	67	79	77	78	88
14	RICHARDSON SEEDS, LTD	92123	146	120	95	94	124
15	RICHARDSON SEEDS, LTD	0813	95	110	84	91	81
16	TRIUMPH	TR438	101	99	105	66	83
17	TRIUMPH	TR448	107	85	106	89	69
18	TRIUMPH	TR457	82	94	105	86	83
19	TRIUMPH	TR463	105	109	97	111	110
20	TRIUMPH	TR4941	109	99	99	103	90
21	TRIUMPH	TR481	91	102	102	104	93
22	TRIUMPH	TR4951	112	104	78	99	126
23	TRIUMPH	TR82G	76	114	108	124	100
24	TRIUMPH	TRX85131	99	99	113	115	110
25	TRIUMPH	TRX15401	137	133	107	126	112
26	GAYLAND WARD SEED COMP.	GW9417	82	72	93	109	148
27	GAYLAND WARD SEED COMP.	GW9320	107	85	116	119	100
28	DEKALB	DKS54-00	97	123	103	109	86
29	DEKALB	DKS44-20	114	105	90	94	114
30	DEKALB	DKS53-67	89	131	106	106	112
31	DEKALB	DKS49-45	103	115	132	114	169
32	SORGHUM PARTNERS	NK8416	95	81	84	98	102
33	SORGHUM PARTNERS	KS735	107	99	115	88	88
34	SORGHUM PARTNERS	NK6638	122	110	105	115	95
35	SORGHUM PARTNERS	SP6929	97	81	101	101	112
36	SORGHUM PARTNERS	NK7829	92	89	109	114	121
37	PIONEER	84G77	100	91	110	91	133
38	PIONEER	84P80	101	132	98	109	90
39	PIONEER	83G66	107	83	114	101	93
40	PIONEER	83P17	134	123	103	118	98
41	PIONEER	84G62	111	136	109	113	105
42	GOLDEN ACRES	3552	97	88	94	96	62
43	GOLDEN ACRES	H-39-0W	70	62	88	66	105
44	GOLDEN ACRES	5556	93	88	98	93	102
45	GOLDEN ACRES	5613	99	115	115	108	152

Table 13. Chart describing sorghum growth stages and the approximate dates when they occur if planting was on May 15 (courtesy to the University of Illinois, Extension Program for the picture).



Planting date May 15	Emergence (3-10 DFP); May 25
3-leaf stage (10 DAE); good weed control, June 5	5-leaf stage (20 DAE); roots develop fast; June 15
Growing point differentiation & stem elongation (30 DAE); June 25	Stage 4 – all except 3-4 leaves not yet expanded (40 DAE); July 5 Stage 5 – Boot stage (50 DAE); head is fully sized; rapid growth; July 15
Half boom (60 DAE); flowering takes 4 to 9 days; July 25	Soft dough (70 DAE); Aug. 5
Stage 8 – Hard dough (80 DAE); Aug. 15 Stage 9 – physiological maturity (90 DAE); Aug. 25	