Grain Sorghum Hybrids for Grain 2014

Hybrid Selection

The LSU AgCenter conducts yearly grain sorghum hybrid yield tests at several locations around the state. The data in Table 1 are yields of grain sorghum hybrids from trials conducted in 2014 from seven locations along with averages across all locations. This aggregation is compiled to provide grain sorghum producers in Louisiana with unbiased information on hybrid performance under different soil types and conditions.

Grain Yield

Most producers agree that grain yield is the most important characteristic on which to base hybrid selection. Performance of top-yielding hybrids is indicated by footnotes in Table 1. Hybrids are listed in order of performance (average of all sites). Since hybrids do not perform the same in different environments, choose among the hybrids that performed well overall and from the location that most closely fits your growing conditions.

Maturity Group

Grain sorghum hybrids were tested in 2014 at research stations near Alexandria, Baton Rouge, Bossier City, Crowley, St. Joseph and Winnsboro. Grain sorghum growth and development are controlled primarily by exposure to accumulated heat units. This means that days from planting to maturity may change based on seasonal temperature variation from year to year, from location to location, and may be influenced by date of planting at a given location.

Other Agronomic Characteristics

Information on plant height, test weight, bird damage, and midge damage is found in Table 2. Plant height is associated with how well a hybrid can resist lodging, but it is not the only factor involved. Generally, shorter hybrids have greater standability, but there are exceptions. Sorghum midge and birds are the two of the dominant pests for grain sorghum production in Louisiana. Damage difference by varieties is influenced by several agronomic factors, such as: head type, head exertion, maturity, planting date, harvest date, and surround weed control. Understanding these interactions is essential to managing for reduced pest damage. However, these values can also be useful in determine why a hybrid performed poorly at a given location by excel in other locations.

Fertilization

The soil pH should be at least 5.8 for optimal production of grain sorghum. Nitrogen can be applied preplant or at planting, or the split application method can be adopted. Nitrogen should be applied between at the rate of 100-120 pounds per acre on upland soils. If split applications are made, the second application should be made by the 6-8 leaf stage of growth. Phosphate and potassium preplant or at planting when it is recommended by a soil test.

Planting Rate and Depth

Grain sorghum should be planted at a rate of approximately 75,000 seed per acre. This is the equivalent to 5-6 seeds per foot of row on 40-inch rows, 4-5 seeds per foot of row on 30-36 inch rows or 3-4 seeds per foot of row on 20-inch rows. If rows are 10 inches or narrower, 3 seeds per foot of row should be adequate. It will be necessary to calibrate the planter to the proper planting rate rather than just plant a certain weight of seed per acre because hybrids can vary greatly in seed size – as much as 4 to 7 pounds of seed per acre. Seed should be

placed deep enough to reach soil moisture, but no deeper than 2 inches. The best depth is typically ¾ - 1 ½ inches deep.

Planting Date

Plant grain sorghum as early as possible within the recommended planting date period. In south Louisiana, the recommended planting range is between April 1 and May 1. In North Louisiana, the range is typically between April 15 and May 15. Early planting is one of the most important cultural practices a producer can adopt to maximize grain sorghum yields, as yields decrease greatly with later planting dates. Just as importantly later planted crops will normally be subjected to more severe insect (especially sorghum midge) and disease pressures. When the option is to plant soybeans or grain sorghum after June 15, it is usually better to plant soybeans than grain sorghum. In ratoon studies this year, a very early maturing hybrid did well in a ratoon-cropping system. Probaly the best way to best ensure a feasible ratoon-production system is to identify very early maturing hybrids that are adapted and competitive with the standard, later maturing hybrids.

Insects

The white sugarcane aphid (WSA) is a new insect pest of grain sorghum in Louisiana. This aphid has the ability to cause significant injury and crop death to all stages of grain sorghum. Populations of WSA build very rapidly and are exacerbated by the use of broad-spectrum insecticides for other insects such as sorghum midge and the sorghum headworm complex.

Grain sorghum should be routinely scouted for WSA in early vegetative stages and continued throughout the growing season. Scout by lifting up leaves with your forearm to reveal early aphid colonies. Look for honeydew on lower leaves (will have a sticky, shiny appearance) to locate larger established colonies. The aphid has a whitish, light yellow appearance with dark tips on the cornicles. Preliminary research conducted by the LSU AgCenter has set a threshold at 50 aphids per leaf occurring in 20% of the field. WSA ratings were taken at St. Joseph (Commerce silt loam) (Tables 10 and 11).

The use of harvest aids may be negatively affected by white sugarcane aphids. Aphid control is not only important for protecting yields but also increasing harvest efficiency. Please visit www.lsuagcenter.com for more information on recommended insecticides for WSA and other pests in grain sorghum.

Disease

The usual culprits (Pythium, Rhizoctonia, Fusarium, Aspergillus, Phoma, and others) causing seedling diseases could be a problem in isolated areas of grain sorghum in Louisiana, particularly if wet and/or cool conditions persist soon after planting. However, if recommended planting dates are followed, seedling diseases are usually avoided. Regardless, many fungicide seed treatments are available and labeled for use in grain sorghum if inclement weather is anticipated or if year-to-year problem areas are identified. Please refer to the LSU AgCenter Plant Disease Management Guide (www.lsuagcenter.com) for seed treatment fungicides in grain sorghum.

Grain sorghum also may be affected by many foliar diseases during the growing season including: anthracnose, corn leaf blight, rough leaf spot, zonate leaf spot, gray leaf spot, and others. The most common foliar disease in Louisiana grain sorghum is anthracnose. Check www.lsuagcenter.com for information on hybrids resistant to specific diseases prior to planting. Avoidance is the most efficient and cheapest tactic for disease management. Fields should be scouted weekly during vegetative stages until 25% flowering (most fungicides are not labeled for application past this growth stage) for foliar diseases. Fungicide application decisions should be made on a field-by-field basis. First, correctly identify the disease. Some diseases look very similar, and there are other conditions that may be confused for disease. Additionally, fungicides may not be effective on some pathogens. LSU AgCenter specialists in the state can assist with proper identification, if necessary. Second, grain sorghum can tolerate a significant amount of defoliation before yield loss occurs. Plants are most vulnerable from boot to blooming, where 20% defoliation results in approximately 10-12% yield loss. After late milk stage, 20% defoliation would result in losses of less than approximately 5%. If a fungicide application is warranted, be sure to follow label instructions. Ground applications are preferred using as much total volume as possible. Nozzle selection is important consideration regarding droplet size and coverage as well. Do not use reduced rates. Use rates within the recommended ranges.

A number of stalk and/or head diseases may affect grain sorghum in Louisiana including: anthracnose (stalk type), charcoal rot, Fusarium stalk rot, and others. Generally, when these diseases are encountered, there is nothing that can be done in the short term. Depending on the disease, some cultural options may be available for management such as resistant hybrids, tillage, crop rotation, etc. Head and grain molds may be exacerbated by inclement weather during grain maturation.

Core block trials

Pairing information from the core block trials with the OVT can provide growers valuable information on how well the yield data translates between the two trials. This information should be used as an accompaniment to the OVT information and not a replacement.

Acknowledgements

H.J. “Rick” Mascagni, Professor and Coordinator (Northeast Research Station)
Josh Lofton, Assistant Professor and Specialist (Macon Ridge Research Station)
Steve Harrison, Professor, School of Plant, Environmental & Soil Sciences (Baton Rouge)
Daniel Stephenson, Professor (Dean Lee Research Station)
Ronnie Levy, Assistant Professor (Dean Lee Research Station)
Clayton Hollier, Professor, Department of Plant Pathology & Crop Physiology (Baton Rouge)
Dustin Harrell, Assistant Professor (Rice Research Station)
Blair Buckley, Associate Professor (Red River Research Station)
David Kerns, Associate Professor (Macon Ridge Research Station)
Trey Price, Assistant Professor (Macon Ridge Research Station)
Bill Waltman, Research Associate (Red River Research Station)

Amy Cooper, Research Associate (Red River Research Station)

Table 1. Yields of grain sorghum hybrids in 2014 among six locations.

Brand/Hybrid	Alex	BR	BC	CR	St. Joseph		WN	Avg
					Com sil	Shar cl		
				lb/acre				
DEKALB DKS51-01	4,932	2,778	6,045	5,892	6,271	5,840	4,022	5,111
DEKALB DKS53-67	7,275	3,239	5,773	5,363	6,204	5,324	4,214	5,342
Dyna-Gro M72GW14	5,956	2,110	4,904	4,142	5,654	4,339	2,027	4,162
Dyna-Gro M75GB39	6,333	2,793	5,357	3,118	6,495	5,256	4,241	4,799
Dyna-Gro M77GB52	5,830	3,192	4,304	5,350	5,777	5,362	3,661	4,782
Dyna-Gro M77GR61	5,800	2,880	4,749	4,756	5,716	5,610	2,623	4,591
Dyna-Gro 765B	6,209	2,798	5,431	5,936	5,557	5,506	2,562	4,857
Sorghum Partners NK6638	5,582	3,249	4,452	5,526	5,030	5,391	4,628	4,837
Sorghum Partners SP7868	6,137	3,774	4,779	5,657	6,297	5,203	3,273	5,017
Sorghum Partners SP6929	7,146	2,681	5,282	4,630	6,052	5,115	2,510	4,774
Sorghum Partners NK7829	6,352	2,930	5,721	5,024	6,101	4,689	1,401	4,603
Sorghum Partners X865	5,810	3,415	5,944	5,449	5,843	5,009	3,078	4,935
Sorghum Partners K73-J6	6,230	2,759	5,240	5,099	4,858	4,629	3,384	4,600
Sorghum Partners NK7633	6,405	2,935	6,386	5,076	4,508	3,715	3,121	4,592
Sorghum Partners X445	6,521	2,884	5,071	4,270	6,027	5,645	1,653	4,582
Sorghum Partners X446	5,213	2,418	4,170	2,998	5,392	4,326	2,387	3,843
REV® RV9924™	6,432	2,710	5,803	4,746	6,612	5,764	3,965	5,147
REV® RV9782™	6,976	3,557	5,201	5,197	6,487	6,051	4,659	5,447
REV® RV9562™	6,930	3,039	5,473	4,463	6,561	6,047	3,974	5,212
REV® RV9883™	5,540	2,872	5,280	4,581	5,906	5,716	4,465	4,909
Pioneer 83P17	6,738	3,266	6,241	5,979	6,553	6,012	3,067	5,408
Pioneer 84P80	5,974	3,182	5,267	4,853	6,220	5,426	2,802	4,818
Pioneer 83P99	6,367	3,308	5,758	5,003	5,091	4,955	3,512	4,856
Sorghum Partners SPX3680	5,984	2,842	5,773	3,720	4,609	4,313	3,727	4,424
Sorghum Partners SPX3678	6,470	2,732	4,808	3,372	5,189	5,551	4,051	4,596
Sorghum Partners SPX3675	6,572	3,078	4,691	3,517	5,022	5,265	2,843	4,427
Sorghum Partners SPX3550	6,418	3,482	3,987	3,552	4,945	5,457	3,958	4,543
Sorghum Partners X840	6,174	2,557	4,080	5,521	5,420	5,272	3,467	4,642
Sorghum Partners X715	5,689	3,597	4,629	5,567	5,237	5,571	2,978	4,753
Average	**6,207**	**3,002**	**5,194**	**4,771**	**5,726**	**5,254**	**3,380**	

Table 2. Agronomic data for grain sorghum hybrids in 2014.[1]

Brand/hybrid	Test Weight	Height	Bird damage[a]	Midge damage[b]
	lbs/bu	Inches	%	%
DEKALB DKS51-01	54.0	61	19	5
DEKALB DKS53-67	55.6	57	9	3
Dyna-Gro 765B	54.7	61	15	7
Dyna-Gro M72GW14	53.9	55	1	3
Dyna-Gro M75GB39	54.8	51	11	2
Dyna-Gro M77GB52	53.5	56	14	3
Dyna-Gro M77GR61	50.9	59	10	3
Pioneer 83P17	53.0	59	14	2
Pioneer 83P99	54.4	55	10	7
Pioneer 84P80	54.7	57	13	3
REV® RV9562™	54.9	56	18	7
REV® RV9782™	55.6	55	9	3
REV® RV9883™	53.8	58	10	3
REV® RV9924™	54.3	61	14	3
Sorghum Partners K73-J6	53.4	55	14	5
Sorghum Partners NK6638	51.5	55	13	10
Sorghum Partners NK7633	52.8	52	5	2
Sorghum Partners NK7829	53.9	58	11	10
Sorghum Partners SP6929	54.1	53	6	3
Sorghum Partners SP7868	55.9	57	8	5
Sorghum Partners SPX3550	49.8	48	3	0
Sorghum Partners SPX3675	49.7	51	6	3
Sorghum Partners SPX3678	50.3	55	3	0
Sorghum Partners SPX3680	52.5	53	13	0
Sorghum Partners X445	52.8	52	3	5
Sorghum Partners X446	53.0	46	9	2
Sorghum Partners X715	56.0	55	10	10
Sorghum Partners X840	55.5	69	15	7
Sorghum Partners X865	54.9	59	14	3

[a]Bird damanage was collected at the Baton Rouge, Bossier City, and Saint Joseph locations.
[b]Midge damage was collected at the Saint Joseph and Winnsboro locations.

Table 3. Grain sorghum results from the St. Landry block demonstration for 2014.

LSU AgCenter Grain Sorghum Demonstration Report

Parish:	St. Landry
Community:	Washington, LA.
Principle Investigators:	Josh Lofton
County Agent:	Vince Deshotel
Cooperator:	Anthony Plattsmier
Crop:	Grain Sorghum
Previous Crop:	Soybeans
Soil Type:	mixed clay loam
Date Harvested:	8/11/14
Insect Control:	Transform for SC Aphid

Variety Name	Core Block	Harvest Wt (lbs)	Harvest Moist (%)	Acreage per plot	Dry 15.5% Wt(lbs)	Wt/A Adjusted	Bu/A Adjusted	Test Wt (lbs)
Dyna Gro M77GR61	Y	5812	15.4	1.01	5785	102.75	102	57
REV. 9924	Y	6716	15.6	1.01	6669	118.74	118	55
Dyna Gro M75GB39	Y	6160	15.8	1.01	6102	108.91	108	56
Dyna Gro 765B	Y	6030	17.6	1.01	5846	106.61	103	57
REV RV9562	Y	6572	15.4	1.01	6541	116.19	116	56
DK S53-67	Y	6172	16.3	1.01	6078	109.12	107	58
NK 6638	N	6160	15.4	1.01	6131	108.91	108	57
SPX 16613	N	6016	16.1	1.01	5938	106.36	105	54
KS 735	N	6212	15.8	1.01	6154	109.83	109	54
NK 7633	N	6392	15.5	1.01	6354	113.01	112	57
SP 7868	N	6646	15.9	1.01	6576	117.50	116	58
Pioneer 85G03	N	6274	15.7	1.01	6222	110.92	110	57
DK S44-20	N	6294	15.4	1.01	6264	111.28	111	56
SP 6929	N	6338	15.4	1.01	6308	112.05	112	57

Table 4. Grain sorghum results from the Rapids block demonstration for 2014.

LSU AgCenter Grain Sorghum Demonstration Report

Parish:	Rapids
Community:	Alexandria, LA
Principle Investigators:	Josh Lofton
Cooperator:	Fred Collins
Crop:	Grain Sorghum
Insect Control:	Transform for SC Aphid

Variety Name	Core Block	Harvest Wt (lbs)	Harvest Moist (%)	Acreage per plot	Dry 15.5% Wt(lbs)	Wt/A Adjusted	Bu/A Adjusted	Rank
SPX 16613	N	2026	-	0.28	2026	7236	121	-
NK 7829	N	2122	-	0.28	2122	7579	126	-
NK 8828	N	1996	-	0.28	1996	7129	119	-
Rev 9782	Y	1832	13.3	0.28	1896	6674	111	7
DK 5367	Y	2002	13.9	0.28	2028	7243	121	5
Dyna-gro M75GB39	Y	1864	13.9	0.28	1888	6743	112	6
Rev 9924	Y	2398	13.3	0.28	2446	9736	146	1
Rev 9562	Y	2112	13.4	0.28	2152	7685	128	2
Dyna-gro 77GR61	Y	2074	12.9	0.28	2125	7490	127	3
Dyno-gro 765B	Y	2020	13.6	0.28	2053	7333	122	4
Pioneer 84G62	N	2196	-	0.28	2196	7843	131	-
Pioneer 83P17	N	1862	-	0.28	1962	6650	111	-