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Crop Zones in South Dakota

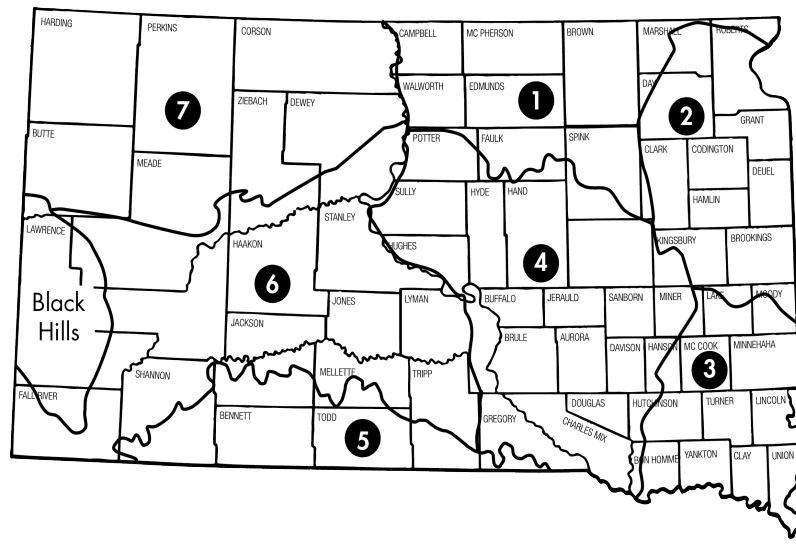


Table 1. Planting and harvest dates and previous crop.

Location	Planting Date	Harvest Date	Previous Crop	Crop Zone
Dakota Lakes	5/31/16	10/16/16	Wheat	4
Kennebec	6/2/16	10/17/16	Corn	6
Wall	6/1/16	11/3/16	Wheat	6
Location	N Fertility	Starter Fertilizer	Seeding Rate	Herbicides
Dakota Lakes	25 lb/ac (UAN)	10-25-0-5-.5 (Zn) - 6 gpa	60,000 pls/ac	Atrazine, Dual, Roundup Roundup, Sharpen
Kennebec	100 lb/ac (urea)	10-25-0-5-.5 (Zn) - 6 gpa	60,000 pls/ac	
Wall	80 lb/ac (UAN)	10-25-0-5-.5 (Zn) - 6 gpa	60,000 pls/ac	

Trial Highlights

The 2016 Grain Sorghum Hybrid Trials consisted of 3 sites (Dakota Lakes, Kennebec and Wall) across the central and western portions of South Dakota. In total, 29 hybrids were tested (Table 1). Planting and harvest dates can be found in Table 1. All planting was done with a no-till drill and a planting population of 60,000 seeds per acre. Fertilizer applied can also be found on Table 1. Plots were harvested using a Wintersteiger plot combine.

Across all sites, the trial average was 93 bu/ac with a range of 70 – 116 bu/ac. The highest yielding site was Dakota Lakes with a trial average of 114 bu/ac and a range of 88 -138 bu/ac (Table 3a). This range (50 bu/ac) highlights the fact that variety selection is incredibly important.

Tables 4 shows the 2-year averages for the sites and hybrids that have been available. Because weather plays such a significant role in crop development and varies greatly from year to year, longer term data is generally a better guideline when choosing an appropriate variety. For each table, the data are sorted by yield for ease of use. However, there are other factors to consider when choosing an appropriate hybrid (maturity, grain color, seed cost, etc)

Acknowledgements

We would like to thank Dr. Dwayne Beck at Dakota Lakes, Mr Kim Halverson at Kennebec and Mr. Dale Patterson at Wall for their generosity in offering land space as well herbicide control, fertility and updates on crop progress

Table 2. Grain Sorghum Hybrids included in 2016 Variety Trial

Variety	Company Name	Maturity Group (E, M/E, M) [†]	Days to 50% Bloom	Grain Color (B, C, R, Y) [‡]	Panicle Type (SC or SO) [§]
Arrow 216	Arrow Seed	E	52	R	SO
Arrow X1R	Arrow Seed	E	54	R	SC
Chromatin 0163	Chromatin, Inc	E	56	B	SC
Dekalb 28-05	Monsanto	E	58	B	SO
Dekalb 28E	Monsanto	E	57	B	SC
Dekalb 29-28	Monsanto	E	58	B	SO
Dekalb Pulsar	Monsanto	M/E	60	B	SO
Legend 5001	Legend Seed	E	51	R	SO
Legend EXP 1	Legend Seed	E	53	W	SO
Legend EXP 2	Legend Seed	M/E	60	W	SC
Legend EXP 3	Legend Seed	M/E	60	W	SO
Legend EXP 4	Legend Seed	E	57	R	SO
Legend EXP 5	Legend Seed	E	57	R	SC
Sorghum Partners 31A15	Sorghum Partners, LLC	E	58	B	SC
Sorghum Partners 3303	Sorghum Partners, LLC	M/E	60	W	SC
Sorghum Partners 33S40	Sorghum Partners, LLC	M/E	60	W	SC
Sorghum Partners 34A19	Sorghum Partners, LLC	M/E	60	B	SC
Sorghum Partners KS310	Sorghum Partners, LLC	E	58	B	SC
Sorghum Partners KS585	Sorghum Partners, LLC	M	66	B	SC
Ward 9058	Gaylon Ward	-	-	-	-
Ward 9059	Gaylon Ward	-	-	-	-
Ward 9076	Gaylon Ward	-	-	-	-
Ward 9108	Gaylon Ward	-	-	-	-
Ward 9125	Gaylon Ward	-	-	-	-
Ward 9131	Gaylon Ward	-	-	-	-
Ward 9134	Gaylon Ward	-	-	-	-
Ward 9135	Gaylon Ward	-	-	-	-
Ward 9138	Gaylon Ward	-	-	-	-
Ward 9139	Gaylon Ward	-	-	-	-

Table 3a. 2016 Dakota Lakes, SD Grain Sorghum Performance - Average yield, 95% CI, test weight, height. All values are adjusted to 13% moisture where necessary

Hybrid	Crop Zone 4				
	Dakota Lakes				
	Yield (bu/ac)	95% Confidence Interval [§]		Test Wt. (lb/bu)	Moisture (%)
Ward 9076	138	125	151	54.7	18.8
Ward 9135	133	120	146	55.2	17.6
Dekalb 28-05	133	119	146	55.9	15.6
Ward 9108	131	118	144	53.0	16.7
Ward 9125	129	116	142	51.5	17.4
Ward 9139	126	113	139	55.9	19.4
Dekalb 29-28	124	111	137	55.5	15.2
Ward 9134	122	109	135	54.0	18.8
Sorghum Partners 31A15	121	108	134	53.1	16.7
Sorghum Partners 34A19	121	107	134	52.5	15.2
Sorghum Partners KS585	120	107	134	57.4	17.9
Dekalb Pulsar	120	107	133	54.9	16.1
Legend EXP 4	117	104	131	55.7	17.2
Sorghum Partners KS310	116	103	129	53.5	16.1
Legend EXP 3	113	100	127	57.9	16.1
Ward 9131	111	98	124	52.7	17.4
Ward 9138	111	98	124	53.5	19.9
Legend EXP 5	111	98	124	56.4	16.8
Dekalb 28E	110	96	123	53.3	14.4
Legend 5001	105	91	118	53.0	14.8
Sorghum Partners 33S40	102	89	115	57.8	15.9
Ward 9059	101	88	114	51.3	21.4
Ward 9058	100	87	113	52.4	20.8
Legend EXP 2	96	83	109	56.8	16.5
Sorghum Partners 3303	91	78	104	55.2	16.2
Legend EXP 1	91	78	104	54.9	15.9
Chromatin 0163	88	75	101	53.6	17.5
Average	114	101	127	54.5	17.1
TYG [†]	125.0	-	-	56.5	

[†] Yield or test weight value required to determine if varieties are significantly different from one another with 95% confidence. Bolded values are not statistically different from the highest value

[§] The 95% confidence interval says that the true average will be within this interval with 95% certainty, based on the specific study site parameters

Table 3b. 2016 Kenebec, SD Grain Sorghum Performance - Average yield, 95% CI, test weight, height. All values are adjusted to 13% moisture where necessary

Hybrid	Crop Zone 6				
	Kenebec				
	Yield (bu/ac)	95% Confidence Interval [§]		Test Wt. (lb/bu)	Moisture (%)
Ward 9125	121	107	135	47.1	16.2
Ward 9135	119	105	133	51.6	18.4
Ward 9108	115	101	129	51.0	16.9
Ward 9139	114	100	128	52.9	19.9
Ward 9059	113	100	127	51.6	19.6
Sorghum Partners 34A19	113	99	127	47.1	17.0
Ward 9134	111	97	125	53.7	17.7
Legend EXP 5	110	96	124	54.6	15.9
Ward 9131	106	92	120	49.5	17.2
Dekalb 28-05	105	91	119	50.4	13.5
Sorghum Partners KS310	104	90	118	50.2	14.3
Legend EXP 4	104	90	118	55.7	16.6
Sorghum Partners KS585	103	89	117	52.9	18.4
Dekalb Pulsar	103	89	117	51.9	15.3
Sorghum Partners 31A15	100	86	114	48.2	14.4
Ward 9076	100	86	114	49.8	20.3
Arrow X1R	100	86	114	54.9	14.6
Ward 9138	97	83	111	54.3	17.6
Dekalb 29-28	95	82	109	51.4	14.7
Ward 9058	92	78	106	51.9	19.1
Sorghum Partners 33S40	91	77	105	55.0	14.6
Legend EXP 3	90	76	104	56.1	15.5
Legend EXP 1	90	76	104	53.0	14.1
Legend EXP 2	88	74	102	54.7	15.5
Sorghum Partners 3303	87	73	101	53.6	14.8
Dekalb 28E	86	73	100	51.1	12.9
Chromatin 0163	82	68	96	52.7	18.4
Legend 5001	79	65	93	53.1	14.4
Arrow 216	71	58	85	54.5	14.8
Average	100	86	114	52.2	16.3
TYG [†]	107.0	-	-	54.5	-

[†] Yield or test weight value required to determine if varieties are significantly different from one another with 95% confidence. Bolded values are not statistically different from the highest value

[§] The 95% confidence interval says that the true average will be within this interval with 95% certainty, based on the specific study site parameters

Table 3c. 2016 Wall, SD Grain Sorghum Performance - Average yield, 95% CI, test weight, height. All values are adjusted to 13% moisture where necessary

Hybrid	Crop Zone 6				
	Wall				
	Yield (bu/ac)	95% Confidence Interval [§]		Test Wt. (lb/bu)	Moisture (%)
Ward 9135	97	76	118	57.8	12.3
Ward 9138	85	64	107	58.0	12.8
Dekalb 28-05	84	63	105	56.9	12.8
Sorghum Partners 31A15	81	60	102	57.2	12.5
Dekalb Pulsar	79	58	100	55.9	13.2
Sorghum Partners 34A19	78	57	100	55.2	11.7
Legend EXP 5	76	54	97	58.5	13.0
Legend EXP 4	75	53	96	57.9	13.7
Legend EXP 2	72	50	93	57.3	12.7
Ward 9076	69	48	90	52.0	13.9
Sorghum Partners KS310	67	46	88	56.4	12.0
Sorghum Partners KS585	65	44	86	55.6	13.5
Ward 9139	65	44	86	55.9	12.1
Ward 9134	63	42	84	55.0	12.8
Dekalb 28E	63	35	91	58.7	12.0
Ward 9059	62	41	83	54.4	13.2
Ward 9131	62	41	83	56.7	13.8
Legend EXP 3	61	37	85	57.0	12.3
Dekalb 29-28	61	40	82	57.8	13.5
Ward 9058	60	39	81	54.6	13.3
Legend EXP 1	57	35	78	57.7	12.4
Chromatin 0163	55	32	79	57.5	14.3
Ward 9125	52	31	73	54.4	14.4
Ward 9108	50	28	71	54.9	13.8
Sorghum Partners 3303	39	18	60	55.4	12.7
Sorghum Partners 33S40	31	10	52	58.2	13.2
Legend 5001	21	0	49	52.5	12.8
Average	64	42	86	56.3	13.0
TYG [†]	76.3			56.1	

[†] Yield or test weight value required to determine if varieties are significantly different from one another with 95% confidence. Bolded values are not statistically different from the highest value

[§] The 95% confidence interval says that the true average will be within this interval with 95% certainty, based on the specific study site parameters

Table 4a. Two-year average (2015-2016) for Dakota Lakes, SD Grain Sorghum Performance - Average yield, and test weight. All values are adjusted to 13% moisture where necessary

Variety	Crop Zone 4			
	Dakota Lakes			
	Yield (bu/ac)	95% Confidence Interval [§]		Test Wt. (lb/bu)
Sorghum Partners KS585	108	97	119	56.4
Dekalb 28-05	105	94	115	55.4
Dekalb 29-28	103	92	114	56.5
Sorghum Partners KS310	103	92	114	54.0
Dekalb 28E	101	91	112	53.0
Legend EXP 3	96	85	107	58.5
Dekalb Pulsar	95	84	106	54.6
Legend 5001	91	80	102	53.2
Legend EXP 2	87	76	98	56.4
Legend EXP 1	81	70	91	56.6
Average	97	86	108	55.5
TYG [†]	97.5			57.4

[†] Yield, test weight or protein value required to determine if varieties are significantly different from one another with 95% confidence. Bolded values are not statistically different from the highest value

Table 4b. Two-year average (2015-2016) for Kennebec, SD Grain Sorghum Performance - Average yield, and test weight. All values are adjusted to 13% moisture where necessary

Variety	Crop Zone 6			
	Kennebec			
	Yield (bu/ac)	95% Confidence Interval [§]		Test Wt. (lb/bu)
Sorghum Partners KS585	123	113	132	56.4
Dekalb Pulsar	119	109	128	54.6
Dekalb 28-05	116	107	126	55.4
Dekalb 29-28	113	103	122	56.5
Sorghum Partners KS310	112	102	122	54.0
Legend EXP 3	104	94	113	58.5
Dekalb 28E	101	91	110	53.0
Legend EXP 1	101	91	110	56.6
Legend EXP 2	100	90	110	56.4
Legend 5001	96	87	106	53.2
Average	108	99	118	55.5
TYG [†]	113.8			57.4

[†] Yield, test weight or protein value required to determine if varieties are significantly different from one another with 95% confidence. Bolded values are not statistically different from the highest value