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1973 Grain Sorghum Performance Trials

J.J. Bonnemann
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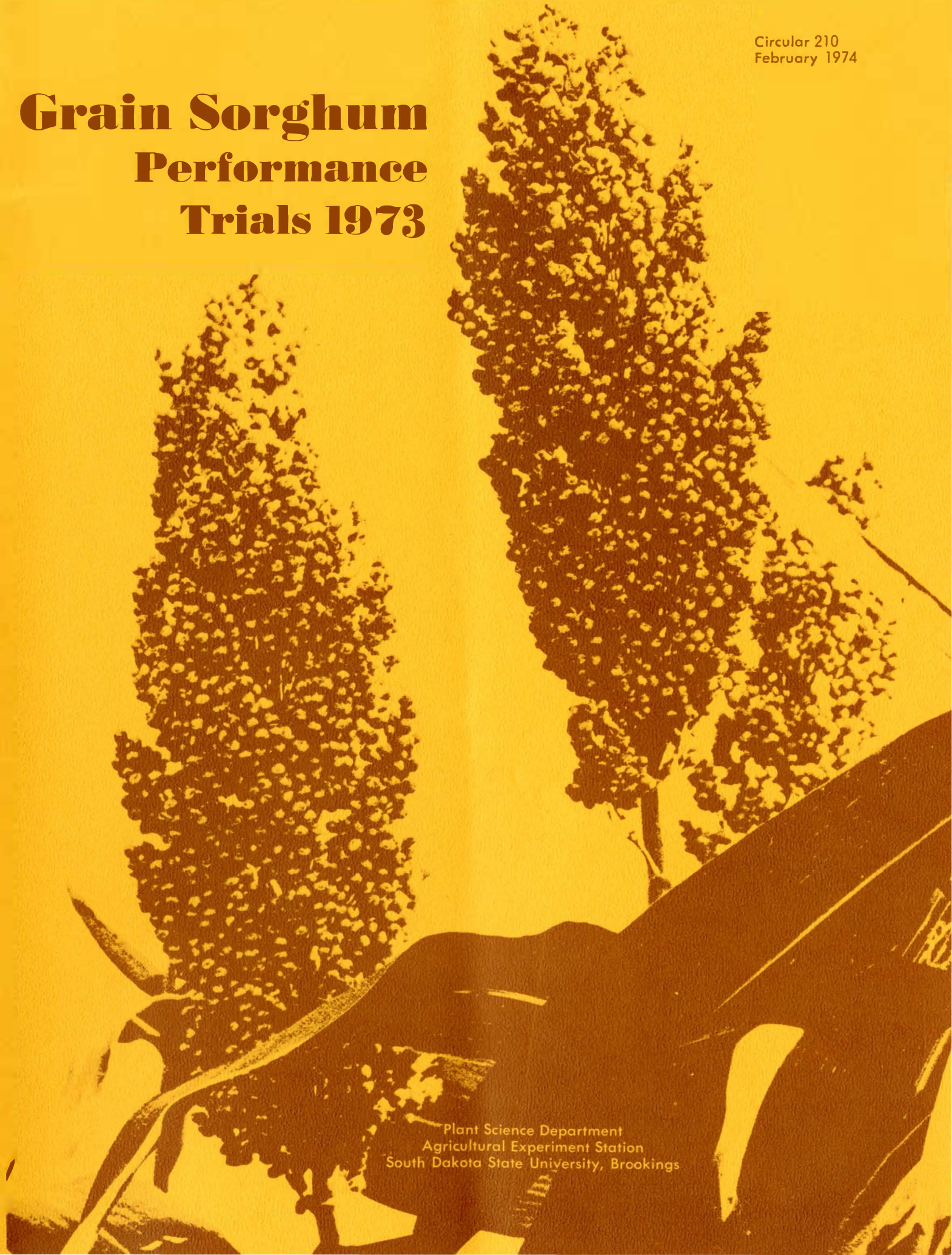
Grain Sorghum Performance Trials 1973



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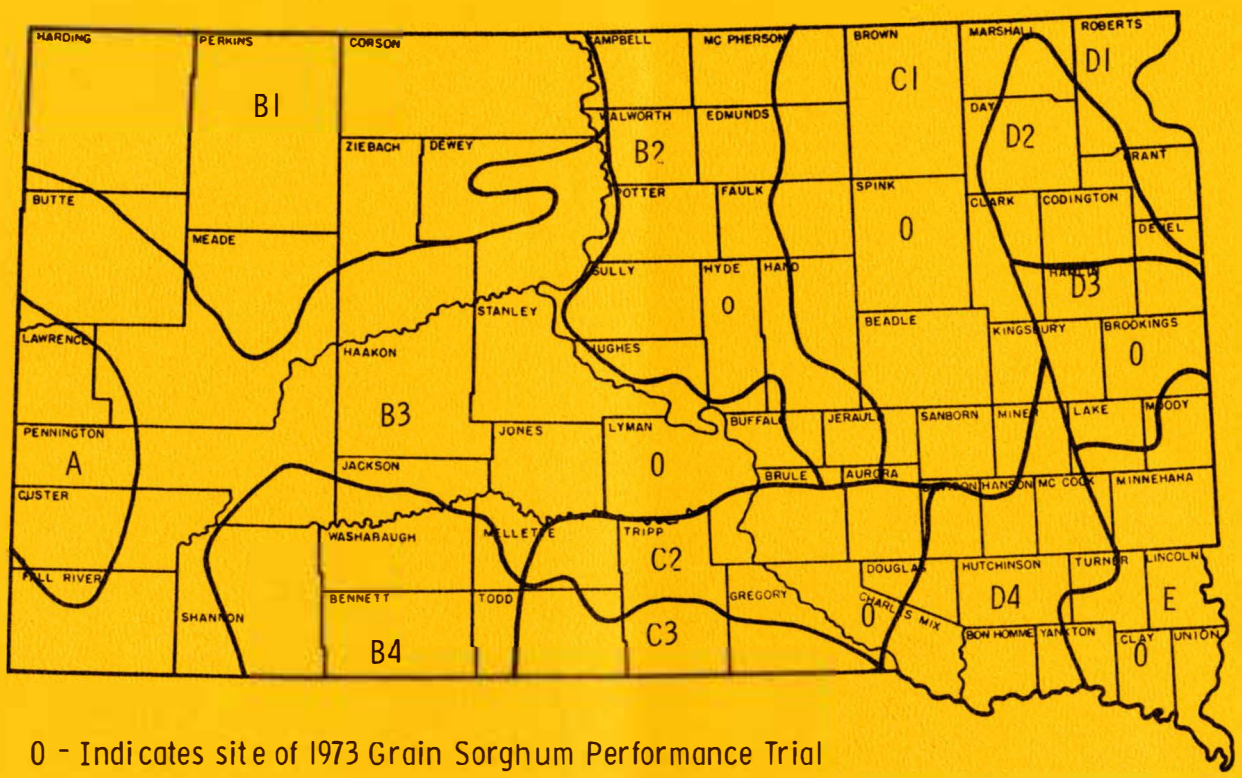
South Dakota State University, Brookings

Listing of Tables

CROP ADAPTATION AREAS



0 - Indicates site of 1973 Grain Sorghum Performance Trial

1973 Grain Sorghum Performance Trials

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The relative performance of grain sorghum hybrids grown under similar environmental conditions is evaluated in this report for the 1973 season. Performance records of the hybrids harvested in 1973 and available two-, three-, four-, and five-year averages are presented. The trials were conducted under the supervision of the Crop Performance Testing Activity, Agricultural Experiment Station, South Dakota State University, Brookings.

Location of the 1973 Trials

For adequate performance evaluation, the various entries must be grown under similar environmental conditions. Crop adaptation areas in which the trials are conducted are based upon soil type, elevation, temperature, rainfall and other physical differences. The exact location of the trials and dates of seeding and harvesting are included in Table 1. The trial that had been conducted in Clark County was discontinued in 1973. Data from soil samples taken at the various sites at time of seeding and the fertilizer applied are in Table 2.

Weather and Climatic Conditions

Climatic data for the 1973 grain sorghum year, May-September, are based upon Monthly Climatological Data and from reports of substation personnel at Presho. Weather information from the immediate Geddes site is not available. Precipitation received in May was about normal but was received in the early part of the month and did not help dry, cloddy seed beds. June rainfall was below normal at several sites and germination remained spotty in some trials. Where seedbeds were in good condition and germination was normal, excellent yields were obtained at harvest. Late July, August and early September were dry and several periods of hot weather (100^{o}) and strong winds caused stress at some sites. This stress was most damaging at Highmore. The quality and test weight of the grain varies with the growth stage of a hybrid during periods of extreme stress. Heading dates were about average at the eastern and southern sites but the hot, dry weather delayed heading, especially of the later maturity group, at central locations in the state.

The stress weakened plants were more easily entered by stalk rot organisms and stalk lodging was severe in some entries at several locations, especially Highmore, Presho and the Southeast Experiment Farm.

The assistance of the following individuals is acknowledged: A. O. Lunden, H. A. Geise and Q. S. Kingsley of the Plant Science Department; Substation Supervisors Burton Lawrensen, Herb Lund, Mike Volek and Ray Ward; and farmer-cooperator William Fijala.

TABLE 1. THE LOCATION OF TRIALS AND DATES OF SEEDING AND HARVESTING OF GRAIN SORGHUM PERFORMANCE TRIALS, SOUTH DAKOTA, 1973

County	Location and post office	Date Seeded	Date Harvested	Row Spacing
Brookings	Agronomy Farm, Brookings	May 25	October 1	30"
Charles Mix	William Fijala Farm, Geddes	May 10	October 3	40"
Clay	Southeast Experiment Farm, Beresford	May 23	October 4	30"
Hyde	Central Substation, Highmore	May 22	Sept. 27	36"
Lyman	South Central Research Farm, Presho	May 22	October 2	36"
Spink	Redfield Development Farm, Redfield	May 17	Sept. 28	30"

The last killing frost in the spring occurred before most of the seeding had begun or at least before any seedlings emerged. A killing frost (28^{o}) did not occur at any of the sites before the trials were harvested. Most adapted hybrids had matured at time of harvest, as indicated by the test weights, and needed a killing frost to hasten drying in the field and reduce green foreign matter in the threshed seed. Machine harvest of grain sorghum by farmers was delayed by the absence of a killing frost, (stress stunted full season hybrids needed a hard freeze) and then generous amounts of precipitation in October. Rainfall at Geddes was over 9 inches from September 1 until mid-October.

The trials were seeded from May 10 through May 25. Precipitation was limited at some sites during the seeding period and for some time thereafter. This retarded germination at some sites, especially the spring plowed field at Redfield where the stands were below that desired for irrigated conditions.

Because a killing frost had not occurred when the performance trials were harvested, grain moisture was high in many varieties. The grain was well matured physiologically and of good quality when dried.

Hybrid Entry Procedure

Grain sorghums offered for sale in South Dakota or being produced for distribution in 1974 were eligible for entry. A closed-pedigree hybrid was entered by the permanent name and number under which it was sold by the parent company only. All

TABLE 2. SOIL CLASSIFICATION, LABORATORY ANALYSIS OF SOIL SAMPLES TAKEN PRIOR TO SEEDING, AND FERTILIZER APPLIED FOR THE 1973 CROP YEAR

		Laboratory analysis				Fertilizer applied			
		Org.							
County and area	Soil classification	mat. %	P lbs/A	K lbs/A	pH	Method	N lbs/A	P lbs/A	K lbs/A
Brookings, D3	Veinna L	3.5	16	197	6.9	soybean ground	0	0	0
Charles Mix, C2	Highmore SiCl	3.0	14	820	6.8	liquid spray	100	0	0
Clay, E	Egan SiCl	3.3	30	533	7.0	plowed down,fall	130	35	27
Hyde, B2	Java L	2.2	89	547	6.8	disced in	40	30	0
Lyman, B3	Promise C	3.2	35	682	7.5	disced in	40	30	0
Spink, C1	Boetia, SiCl	2.6	41	675	7.2	anhydrous	180	0	0

TABLE 3. TEMPERATURE AND PRECIPITATION DATA FOR THE 1973 GRAIN SORGHUM GROWING SEASON IN SOUTH DAKOTA

		Temperature, degrees F.			Precipitation, inches		
Location	Month	Mean av.	Departure from normal	Av. Departure	Month total	Departure from normal	Total Departure
Highmore*	May	57.4	0.2		2.22	-0.11	
1 W	June	68.9	2.1		0.92	-2.62	
	July	75.5	1.0		2.06	0.08	
B2	Aug.	78.5	5.7		0.89	-1.85	
	Sept.	60.5	-2.1	+1.4	1.89	0.58	-3.92
	First freeze Sept. 16 - 31°				7.98		
Presho	May				3.09		
	June				1.16		
B3	July				1.76		
	Aug.				1.85		
	Sept.				3.33		
	First freeze Oct. 12 - 28°				11.19		
Redfield*	May	53.4			1.96		
6 E	June	67.4			1.57		
	July	73.1			1.61		
C1	Aug.	75.3			1.15		
	Sept.	57.6			2.27		
	First freeze Oct. 16 - 29°				8.56		
Brookings*	May	53.2	-4.4		1.78	-1.01	
2 NE	June	66.4	-0.7		1.22	-2.73	
	July	70.1	-3.1		2.54	0.39	
D3	Aug.	71.9	0.7		1.54	-1.43	
	Sept.	57.2	-4.1	-2.3	2.73	0.70	-4.08
	First freeze Oct. 16 - 27°				9.81		
Centerville*	May	56.0			2.09		
6 SE	June	69.8			2.25		
	July	72.4			3.56		
E	Aug.	74.7			0.74		
	Sept.	58.7			4.66		
	First freeze Oct. 16 - 28°				13.30		

*Based upon reports of Monthly Climatological Data, Nat'l Weather Service

entries maintained minimum laboratory germination of 80% as required by South Dakota Certification Standards. A nominal fee was charged for each entry in each area except grain sorghum entries developed by State and Federal Experiment Stations and entered by the South Dakota Agricultural Experiment Station.

Experimental Procedure

Each trial consisted of four or five replications. Plots of individual entries were randomly located within each replication. All trials were seeded two rows at a time, with cone-planters mounted above flexi-planter units. A recommended herbicide for grassy weeds and insecticide for greenbug control were banded over the row at time of seeding. The various row spacings used are found in Table 1. The plots were two rows wide; plot lengths were dependent upon the area available at the various locations.

The harvested grain was taken from two 10-foot sections of each row in each individual plot. The heads were bagged as harvested, tagged and tied, returned to Brookings to driers and remained there for several weeks. Yields were calculated on the basis of pounds per acre. Depending upon location, either three or four replications were harvested for yield determination and one replication was left for observational purposes.

Moisture determinations made at the time of normal first-frost dates are generally more reliable and informative than determinations made at harvest time. Generally, these figures and test weight of the harvested grain indicated more realistically the maturity of the grain. Moisture percentages given for 1973 are a true indication of the maturity of the entry at that time because a killing frost had not occurred at any site and did not occur until at least mid-October.

Moisture samples were taken at all locations during the period of September 17-21. Ten to twelve heads, adequate for a 400-500 gram grain sample, were cut from each entry, placed in a polyethylene bag, tagged and sealed tightly. At the main station the samples were threshed and cleaned, and moisture percentages were determined with an electronic moisture meter. The upper limit of the meter is 35 percent. Material above this level is indicated at 35.+ in the tables and normally would indicate hybrids of late maturity for that area.

The periods of stress delayed heading and maturing of some hybrids, particularly the full season entries, at several trial sites. The early hybrids that headed before the stress periods were generally quite dry when sampled and only limited drying would have been necessary. Medium to late season hybrids have customarily yielded higher than early hybrids but generally need drying and longer periods of drying. The present energy crisis should be cause to evaluate the various hybrids at normal time of killing frost more critically. It is possible to reduce drying costs by sacrificing the higher yield from the full season lines that frequently require drying before storage.

Measurements of Performance

Variations in soil fertility, slope or stand may cause varieties of equal potential to yield differently. Mathematical determinations were made to determine if yield differences were caused by variations in environment or were true varietal differences. Small yield differences have no significance.

Discussion of Results

Grain sorghums are grown extensively in south central South Dakota and in varying amounts elsewhere around the state where it is too hot and dry for corn production.

In 1973, the moisture patterns were varied across the state. Precipitation was adequate in the early spring and, depending upon seedbed preparation and late May showers, stands ranged from good to poor.

In the area normally throught of as the major grain sorghum production area rainfall was limited and spotty from June through mid-September. The temperatures in the south central area were above normal much of July and August. Only the early hybrids headed at dates comparable to previous years. The drouth stress and periods of 100-degree days and hot winds retarded development 10-14 days at Highmore and Presho. At Redfield, with irrigation partially curtailed because of the drouth, the plants were also slowed in development but to a lesser degree. Only at the sites on the borders of the major production area were conditions more favorable for normal development of the grain sorghum. These weather caused problems are evident in the results given in the tables.

The yields were good to excellent at Beresford and Brookings. Most yields were good at Geddes. Yields were down at the remaining trial sites. Because the plots are hand harvested the plots could be and were harvested at normal harvest dates in late September and early October. The heads taken were returned to the main station for drying and processed as usual. Large farm-type operations were delayed in many areas because the stalks and most leaves were green until freezing in mid-October and then excessive precipitation prevented the machines from getting into the fields. In the major production area 20% of the crop was still in the field the end of November.

Lodging was quite variable. Where stress had prematurely ripened and weakened the stalk, lodging was apparent, especially at Highmore and Beresford. There also was stalk breakage at Presho and Geddes. At the other locations the stalks were green until the first frost and harvest was completed before any lodging occurred.

TABLE 4. 1973 GRAIN SORGHUM PERFORMANCE TRIAL, AREA B3, SOUTH CENTRAL RESEARCH FARM, PRESHO

Brand and Variety	Yield, lb/A	Test Wt. lb/B	Height, inches	Date Headed	Percent Lodging	Percent Moisture 9/20/73
Asgrow Dorado E	4630	57	36	8/6	5	35.+
ACCO R 1010	4165	59	41	8/2	25	29.0
Northrup-King NK 121	4165	57	36	7/31	0	26.6
Pride P-500A	4155	57	39	7/31	0	22.7
Pioneer 866	4120	57	39	8/6	5	34.0
Northrup-King NK 180	4105	58	37	8/4	0	31.9
ACCO X-7275	4025	57	34	8/6	0	35.+
DeKalb C-42A	4025	53	34	8/8	0	34.8
Frontier Super 400A	4020	55	36	8/7	12	35.+
DeKalb A-26	3995	56	30	7/31	0	32.2
SDAES SD 503	3945	58	39	8/2	0	26.9
SDAES RS 610	3935	54	34	8/8	38	35.+
DeKalb X-1330	3840	57	35	7/28	5	30.5
DeKalb A-25	3795	55	34	7/29	10	22.8
SDAES RS 506	3730	58	37	7/30	3	32.4
Horizon 25	3705	57	38	8/7	0	35.+
Pride P-550 BR	3695	57	36	8/1	0	27.4
Frontier 400C	3680	55	36	8/6	0	35.+
Northrup-King NK 129	3675	59	38	7/31	15	29.4
Frontier 350	3640	58	36	7/31	3	26.7
Western WS 201	3635	57	38	7/29	0	25.5
Pride P-570	3625	57	37	8/4	0	31.1
ACCO R 1019	3605	54	35	8/11	3	35.+
Frontier 389	3590	58	38	8/7	10	35.+
Northrup-King NK MM52	3570	56	35	7/28	5	20.3
Pioneer 8681	3555	54	30	8/10	20	35.+
Excel 9163	3505	57	31	8/9	0	33.9
Frontier 385	3415	55	33	8/6	3	30.1
Pioneer 878	3410	58	33	8/3	8	28.4
Pioneer 894	3340	58	30	7/30	5	21.9
ACCO R 920	3195	56	35	7/29	0	24.8
SDAES SD 106	3050	55	32	7/29	6	25.2
SDAES SD 451	3020	56	38	7/31	12	23.4
SDAES SD 104	2925	57	32	7/27	0	21.8
Western WS 102	2505	59	35	7/31	2	32.5
Horizon 45	2440	52	33	8/13	0	35.+
Western WS 210	2105	48	33	8/20	0	35.+
Frontier 401	1990	53	32	8/15	2	35.+
SDAES NB 635	1950	50	37	8/16	0	35.+
Horizon 84	1770	50	29	8/15	0	35.+
Mean	3480					
CV = 15.8% LSD (.05)	890					

TABLE 5. 1973 GRAIN SORGHUM PERFORMANCE TRIAL, AREA C1, IRRIGATED, REDFIELD DEVELOPMENT FARM, REDFIELD

Brand and Variety	Yield, lb/A	Test Wt. lb/B	Height inches	Date Headed	Percent Lodging	Percent Moisture 9/17/73
Northrup-King NK 180	4670	57	44	8/9	0	33.8
Northrup-King NK 233A	4470	59	43	8/12	12	35.+
SDAES RS 610	4395	56	47	8/11	0	35.+
Excel 9163	4165	59	40	8/14	38	35.+
Funk's G-399	3910	59	42	8/13	0	35.+
Excel 202C	3855	56	40	8/7	20	35.+
Pioneer 866	3795	57	49	8/14	0	35.+
Asgrow Dorado E	3590	58	44	8/13	5	35.+
SDAES SD 503	3415	58	55	7/29	3	32.3
Northrup-King NK 129	3380	58	46	8/3	2	33.9
ACCO R 1010	3360	59	50	7/28	3	29.8
Niagara NCX 1002S	3350	58	45	8/11	12	34.2
Excel 433	3310	57	38	8/17	8	35.+
Funk's Exp HW 3075	3305	57	40	8/16	0	35.+
Funk's G-393	3300	57	45	8/11	2	34.1
ACCO R 1019	3255	58	43	8/14	3	35.+
Pioneer 883	3235	55	45	8/9	5	35.+
DeKalb A-26	3230	54	33	8/9	0	34.4
Horizon 84	3210	54	39	8/19	0	35.+
Horizon 80	3205	53	48	8/18	0	35.+
Horizon Exp 920	3070	52	52	8/25	0	35.+
Horizon 45	3040	55	42	8/18	6	35.+
SDAES RS 506	3005	57	51	7/31	0	31.5
ACCO X-7275	2945	55	43	8/7	0	35.+
Horizon 25	2915	59	40	8/13	0	34.9
DeKalb A-25	2830	53	40	7/30	10	28.2
ACCO R 920	2750	56	45	7/27	10	24.5
Western WS 201	2740	56	47	7/26	3	29.6
Frontier 350	2680	58	44	8/1	0	27.1
SDAES SD 451	2665	56	50	7/29	25	29.2
Pioneer 8901	2615	48	42	7/31	0	35.+
Pioneer 894	2590	56	39	7/28	15	26.6
Funk's Exp HW 3843	2480	53	34	8/16	0	35.+
Funk's G-251	2470	57	38	7/30	0	30.1
SDAES SD 106	2470	55	43	7/26	5	30.8
Frontier 385	2330	55	38	8/13	5	33.5
SDAES SD 104	2140	57	38	7/24	5	30.7
Western WS 102	1285	56	37	8/6	0	33.5
Mean	3145					
CV = 20.8% LSD (.05)	1060					

TABLE 6. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED AT PRESHO, 1969-1973

Brand and Variety	Average yield, pounds per acre			
	1969-73	1970-73	1971-73	1972-73
ACCO R 920	3865	3190	3310	3820
ACCO R 1010		3615	3810	4405
ACCO R 1019		3315	3545	4000
DeKalb A-26				3780
DeKalb C-42A			3760	4310
Frontier Super 400A		3665	3865	4360
Northrup-King NK 121			3780	4360
Northrup-King NK 180			3690	4330
Pioneer 866			3540	4120
Pioneer 878			3515	4025
Pride P-500A		3525	3750	4360
Pride P-550BR		3640	3760	4275
SDAES SD 451	2810	2875	2985	3470
SDAES SD 503	3335	3490	3690	4265
SDAES RS 506		3810	3675	4270
SDAES RS 610	3280	3385	3610	4080
SDAES NB 635				3070
Western WS 201				4170

TABLE 7. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED AT REDFIELD, 1969-1973

Brand and Variety	Average yield, pounds per acre			
	1969-73	1970-73	1971-73	1972-73
ACCO R 920				4035
ACCO R 1010		5420	4875	3935
ACCO R 1019		4885	4420	3685
DeKalb A-26				3815
Northrup-King NK 180				5125
Pioneer 866		5670	5125	4105
Pioneer 883	5890	5320	4835	3945
Pioneer 894	4960	4775	4425	3595
SDAES SD 451	4410	4315	4280	3550
SDAES SD 503	4310	4420	4920	3995
SDAES RS 506		5840	5355	4220
SDAES RS 610	4260	5450	4960	4015
Western WS 201				3825

TABLE 8. 1973 GRAIN SORGHUM PERFORMANCE TRIAL, AREA D3, AGRONOMY FARM, BROOKINGS

Brand and Variety	Yield, lb/A	Test Wt. lb/B	Height, inches	Date Headed	Percent Lodging	Percent Moisture 9/21/73
Northrup-King NK 180	6395	55	48	7/29	0	32.6
Northrup-King NK 129	6055	58	47	7/27	2	23.9
Northrup-King NK 121	5985	57	46	7/27	0	22.9
ACCO R 1010	5925	59	51	7/27	0	22.6
Northrup-King NK MM 52	5925	56	41	7/18	0	19.7
ACCO R 920	5845	55	44	7/23	3	19.2
Western WS 102	5760	57	41	7/27	0	22.9
SDAES RS 506	5740	56	52	7/26	15	25.4
Funk's Exp HW 3843	5595	52	35	8/7	0	35.+
Niagara NCX 1002S	5580	57	46	7/29	0	28.3
Pioneer 8901	5530	55	41	7/28	0	20.6
Western WS 201	5480	55	45	7/24	0	19.9
Horizon 25	5460	57	45	8/1	0	25.3
SDAES SD 106	5450	55	42	7/22	0	20.8
DeKalb A-26	5360	53	36	7/29	0	28.4
ACCO R 1019	5360	58	40	8/6	0	35.+
Asgrow Dorado E	5305	57	44	7/31	0	29.0
Funk's Exp HW 3075	5245	56	39	8/8	0	35.+
Pioneer 894	5210	57	37	7/25	0	18.6
Excel 202C	5210	54	39	7/30	0	25.8
SDAES SD 104	5140	57	42	7/18	0	19.6
Funk's G-393	5105	56	44	8/1	0	28.9
SDAES RS 610	5095	53	46	8/4	2	34.4
DeKalb A-25	5095	52	41	7/25	10	22.2
SDAES SD 503	5070	56	54	7/28	0	24.4
SDAES SD 102	5055	54	45	7/16	0	20.4
Pioneer 878	5030	55	42	7/31	0	31.2
Funk's G-251	4975	57	48	7/26	0	21.1
Horizon 45	4840	52	41	8/9	0	35.+
SDAES SD 451	4700	55	48	7/26	0	22.6
Funk's G-399	4695	56	45	8/6	0	31.3
Horizon 84	4370	52	39	8/9	0	35.+
Horizon 80	4215	50	45	8/11	0	35.+
Horizon EX 920	4100	48	49	8/16	0	35.+
Mean	5290					
CV = 8.5% LSD (.05)	731					

TABLE 9. 1973 GRAIN SORGHUM PERFORMANCE TRIAL, AREA E, SOUTHEAST EXPERIMENT FARM, BERESFORD

Brand and Variety	Yield, lb/A	Test Wt. lb/B	Height, inches	Date Headed	Percent Lodging	Percent Moisture 9/21/73
DeKalb C-42A	6630	56	47	7/31	10	25.4
Excel 433	6465	56	44	8/2	0	20.4
Northrup-King Savanna 3	6450	55	49	8/3	0	29.5
Frontier Super 400A	6215	54	51	8/1	0	23.6
Asgrow Dorado E	6045	55	47	7/28	5	20.1
ACCO R 1029	5865	57	47	8/3	0	26.3
Northrup-King NK 266A	5790	56	51	7/31	3	23.7
Northrup-King NK 222	5730	57	45	7/29	2	23.9
Pioneer 8681	5720	53	49	8/4	3	24.5
Niagara NCX 1002S	5600	57	47	7/26	3	23.2
Pioneer X-8385	5590	53	49	7/31	0	23.9
Northrup-King NK 265	5540	56	54	8/8	12	23.8
DeKalb C-42C	5530	56	51	8/8	0	29.4
Horizon 80	5475	55	50	8/10	0	32.0
SDAES RS 610	5465	55	52	8/2	2	24.1
Northrup-King NK 180	5465	56	47	7/28	10	21.3
ACCO R 1019	5445	56	48	8/6	15	21.6
SDAES RS 506	5435	56	52	7/22	20	21.8
Western WS 210	5360	55	52	8/9	0	32.3
Frontier 400C	5345	55	51	7/30	5	24.6
SDAES SD 451	5265	56	53	7/21	5	18.4
Horizon 45	5220	55	43	8/10	0	25.4
Pioneer 866	5180	56	53	8/3	25	28.3
Northrup-King NK 233A	5180	59	48	7/28	3	22.3
Horizon 25	5170	56	47	7/28	6	25.8
ACCO R 1010	4985	57	60	7/24	5	21.0
SDAES SD 503	4915	56	61	7/24	8	21.5
SDAES SD 106	4795	54	45	7/21	12	18.9
ACCO X-7275	4775	54	42	7/31	0	29.3
Horizon 84	4625	55	39	8/10	0	24.4
SDAES NB 635	4490	54	52	8/6	5	30.8
Horizon Ex 920	3830	55	54	8/7	0	34.8
DeKalb C-42Y	3675	55	51	8/5	0	32.3
SDAES SD 104	3670	54	41	7/20	0	20.6
Mean	5320					
CV = 15.1% LSD (.05)	1300					

TABLE 10. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED AT BROOKINGS, 1969-1973

Brand and Variety	Average yield, pounds per acre			
	1969-73	1970-73	1971-73	1972-73
ACCO R 920			4680	4590
ACCO R 1010			4470	4275
ACCO R 1019			3480	3085
DeKalb A-26				3345
Northrup-King NK 121				4805
Northrup-King NK 180				4560
Pioneer 878			3975	3705
Pioneer 894	4495	4720	4300	4225
SDAES SD 104			4350	4350
SDAES SD 106				4575
SDAES SD 451	4470	4390	4075	3705
SDAES SD 503	4450	4250	4105	3655
SDAES RS 506		5125	5065	4610
SDAES RS 610	3905	4160	3840	3110
Western WS 102			4585	4195
Western WS 201				4255

TABLE 11. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED AT THE SOUTHEAST EXPERIMENT FARM, BERESFORD, 1969-1973

Brand and Variety	Average yield, pounds per acre			
	1969-73	1970-73	1971-73	1972-73
ACCO R 1010		5820	5990	5980
ACCO R 1019		5955	6150	6430
ACCO R 1029	6310	6110	6270	6620
DeKalb C-42A	6315	6100	6320	6815
DeKalb C-42C				6270
DeKalb C-42Y				5285
Frontier Super 400A			6460	6795
Frontier 400C			6520	7145
Northrup-King NK 180				6415
Northrup-King NK 222	6135	5955	6385	6515
Northrup-King NK 265	6605	6455	6585	6935
Pioneer 866	6310	6045	6335	6730
SDAES SD 451	5470	5275	5630	5970
SDAES SD 503	5840	5720	5920	5975
SDAES RS 506		5920	6285	6470
SDAES RS 610	6175	5815	6210	6410
SDAES NB 635				6230

TABLE 12. 1973 GRAIN SORGHUM PERFORMANCE TRIAL, AREA B2, CENTRAL SUBSTATION, HIGHMORE

Brand and Variety	Yield, lb/A	Test Wt. lb/A	Date Headed	Percent Lodging	Percent Moisture 9/20/73
Western WS 201	4245	55	7/28	2	17.4
Northrup-King NK 180	4235	56	8/1	2	28.6
SDAES SD 106	4195	54	7/24	5	20.4
DeKalb A-25	3875	53	7/26	0	18.9
Pioneer 8681	3780	57	8/7	0	33.8
ACCO R 1010	3735	56	7/30	3	23.4
SDAES RS 610	3625	56	8/4	2	31.9
SDAES RS 506	3595	56	7/27	20	26.1
Northrup-King NK 121	3490	56	7/28	0	22.5
DeKalb A-26	3415	54	7/31	0	21.9
SDAES SD 451	3395	55	7/29	10	18.8
Pioneer 878	3385	57	8/2	0	21.5
Northrup-King NK MM 52	3305	56	7/22	0	16.4
Pioneer 883	3260	56	8/6	0	31.6
Pioneer 894	3130	57	7/28	3	20.9
DeKalb X-1330	3100	56	7/24	3	15.6
Frontier 385	3070	56	8/4	0	24.9
Asgrow Dorado E	3050	58	8/2	0	26.0
Excel 202C	3050	56	8/1	0	19.0
ACCO R 920	2995	55	7/27	2	17.1
Funk's G-393	2890	58	8/4	0	29.6
Western WS 102	2875	55	7/28	20	21.8
Horizon 25	2870	56	8/3	0	29.0
Funk's Exp HW 3843	2705	55	8/7	0	30.9
SDAES SD 104	2685	55	7/24	30	18.0
Frontier Super 400A	2650	55	8/5	0	27.8
Frontier 400C	2505	55	8/6	0	33.1
Frontier 389	2415	56	8/5	0	31.1
Pioneer 866	2410	57	8/6	0	32.4
Funk's G-251	2405	57	7/29	0	17.6
Frontier 350	2165	56	7/30	0	19.4
Northrup-King NK 233A	2070	58	8/3	0	26.5
Funk's Exp HW 3075	1920	55	8/8	0	33.6
SDAES NB 635	1780	45	8/12	0	35.+
Horizon 45	1690	56	8/8	0	35.+
Funk's G-399	1640	58	8/7	0	30.0
Excel 9163	1160	59	8/6	15	32.3
SDAES SD 503	1035	56	7/30	2	24.8
Mean	2890				
CV = 31.3% LSD (.05)	1465				

TABLE 13. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM ENTERED AT HIGHMORE, 1969-1973

Brand and Variety	Average yield, pounds per acre			
	1969-73	1970-73	1971-73	1972-73
ACCO R 920	3620	3615	3685	4215
ACCO R 1010		3605	3680	4135
DeKalb A-26				4295
Frontier 389				3635
Frontier Super 400A			3615	3945
Frontier 400C			3585	3930
Northrup-King NK 121			3645	4095
Northrup-King NK 180			4185	4670
Pioneer 866			3985	3895
Pioneer 883			3925	4240
Pioneer 894	3645	3530	3640	4120
SDAES SD 104			2950	2300
SDAES SD 106				4165
SDAES SD 451	4335	3270	3510	4225
SDAES SD 503	3370	3100	2970	2010
SDAES RS 506		3315	3445	4020
SDAES RS 610	3675	3725	3890	4360
SDAES NB 635				3295
Western WS 201				4790

TABLE 14. 1973 GRAIN SORGHUM PERFORMANCE TRIAL, AREA C2, WILLIAM FIJALA FARM, GEDDES

Brand and Variety	Yield, lb/A	Test Wt. lb/B	Height, inches	Percent Lodging	Percent Moisture 9/20/73
Frontier Super 400A	5340	55	38	12	28.3
Northrup-King Savanna 3	5245	54	44	15	31.9
Pride P-570	4980	56	43	0	22.9
DeKalb C-42A	4770	53	37	10	25.9
SDAES NB 635	4705	57	43	8	35.+
Horizon 25	4635	57	38	0	23.6
SDAES RS 610	4515	56	44	0	29.8
Western WS 201	4505	56	47	2	19.1
Niagara NCX 1002S	4485	56	41	6	22.3
DeKalb C-42Y	4455	57	44	0	29.6
SDAES SD 503	4365	56	45	38	19.6
ACCO R 1019	4345	57	38	25	26.2
Pioneer 883	4280	53	40	5	24.5
Frontier 389	4230	48	40	10	27.9
Frontier 401	4205	56	37	2	33.2
Excel 433	4160	56	40	0	24.7
Horizon 84	4140	57	35	0	30.2
Pioneer 866	4105	53	44	0	27.9
SDAES RS 506	4070	56	50	10	23.2
Horizon 45	4020	54	38	0	34.8
DeKalb A-26	4000	53	35	0	18.7
Western WS 210	4000	55	40	0	35.+
Pioneer 8681	3980	52	39	5	30.6
Pride P-800Y	3960	55	39	0	26.5
Pride P-550BR	3890	52	45	10	15.7
Frontier 400C	3885	55	39	3	28.0
ACCO R 1010	3885	55	47	40	19.5
Northrup-King NK 180	3870	54	48	5	18.6
Frontier 350	3825	55	48	3	17.8
SDAES SD 451	3730	52	50	60	18.9
Northrup-King NK 222	3645	53	39	0	21.6
ACCO X-7275	3605	55	35	3	23.5
Frontier 385	3535	54	34	3	25.9
Pride P-500A	3500	54	44	5	18.5
DeKalb C-42C	3465	57	42	5	32.6
Northrup-King NK 265	3420	54	43	0	31.5
Asgrow Dorado E	3280	54	41	5	20.3
SDAES SD 106	2775	50	36	3	17.1
SDAES SD 104	2525	55	38	10	18.7
Mean	4060				
CV = 18.9% LSD (.05)	1245				

TABLE 15. TWO-, THREE-, FOUR-, AND FIVE-YEAR AVERAGE YIELDS OF GRAIN SORGHUM HYBRIDS ENTERED AT GEDDES, 1969-1973

Brand and Variety	Average yields, pounds per acre			
	1969-73	1970-73	1971-73	1972-73
ACCO R 1010		3700	4145	5000
ACCO R 1019		3870	4395	5380
ACCO X-7275			5375	6095
DeKalb A-26				4425
DeKalb C-42A	4005	3770	4260	5470
DeKalb C-42C				4380
DeKalb C-42Y				4680
Frontier Super 400A		4250	4780	5555
Frontier 400C	4105	4040	4495	5540
Northrup-King NK 180			4575	5405
Northrup-King NK 222	3870	3635	4195	5095
Pioneer 866	4535	4310	4890	4430
Pioneer 883		3775	4110	5070
Pride P-500A				4520
Pride P-550BR		3555	3885	4665
Pride P-800Y				4860
SDAES SD 451			4120	4945
SDAES SD 503	3725	3470	3835	4895
SDAES RS 506		3895	4285	5015
SDAES RS 610	3975	3725	4115	4945
SDAES RS 635				5800
Western WS 201				4930

TABLE 16. ENTRIES SUBMITTED FOR THE 1973 GRAIN SORGHUM PERFORMANCE TRIALS AND TABLES WHERE RESULTS APPEAR

Company and Brand	Variety	Tables
ACCO Seed Co.	R 920	4,5,6,7,8,10,12,13
Box 1630	R 1010	4,5,6,7,8,9,10,11,12,13,14,15
Plainview, Texas	R 1019	4,5,6,7,8,9,10,11,14,15
"ACCO"	R 1029	9,11
	X 7275	4,5,9,14,15
Asgrow Seed Co. Des Moines, IA		
"Asgrow"	Dorado E	4,5,8,9,12,14
DeKalb AgResearch, Inc.	A-25	4,5,8,12
Rt. 2, Box 113	A-26	4,5,6,7,8,10,12,13,14,15
Glenvil, Nebraska	C-42A	4,6,14,15
"DeKalb"	C-42C	9,11,14,15
	C-42Y	9,11,14,15
	X-1330	4,12
Excel Hybrids Seed, Inc.	433	5,9,14
Box 1629, Plainview, TX	202C	5,8,12
"Excel"	X9163	4,5,12
Frontier Hybrids, Inc.	350	4,5,12,14
Box 460	385	4,5,12,14
Hutchinson, Kansas	389	4,12,14
"Frontier"	Super 400A	4,6,9,11,12,13,14,15
	400C	4,6,9,11,12,13,14,15
	401	4,14
Funk Seeds International	G-251	5,8,12
719 26th Street	G-393	5,8,12
Lubbock, Texas	G-399	5,8,12
"Funk's"	HW 3075	5,8,12
	HW 3843	5,8,12
King's Western Seed Co.	WS 102	4,5,8,10,12
Huron, South Dakota	WS 201	4,5,6,7,8,10,12,13,14,15
"Western"	WS 210	4,9,14
Miller Seed Co.	25	4,5,8,9,12,14
1540 Cornhusker Hwy.	45	4,5,8,9,12,14
Lincoln, NB	80	5,8,9
"Horizon"	84	4,5,8,9,14
	EX 920	5,8,9
Niagara Chemical Div., FMC		
11334 Elm St., Omaha, NB	NCX 1002S	5,8,9,14
"Niagara"		

TABLE 16. Continued

Company and Brand	Variety	Tables
Northrup, King & Co.	NK 121	4,6,8,10,12,13
P.O. Box 959	NK 129	4,5,8
Minneapolis, MN	NK 180	4,5,6,7,8,9,10,11,12,13,14,15
"NK"	NK 222	9,11,14,15
	NK 233A	5,9,12
	NK 265	9,11,14
	NK 266A	9
	NK MM 52	4,8,12
	Savanna 3	9,14
Pioneer Seed Co.	866	4,5,6,7,9,11,12,13,14,15
1206 Mulberry St.	878	4,6,8,10,12
Des Moines, Iowa	883	5,7,12,13,14,15
"Pioneer"	894	4,5,7,8,10,12,13
	8681	4,9,12,14
	8901	5,8
	X 8385	
Pride Co. Inc.	P-500A	4,6,14,15
Glen Haven, WI	P-550BR	4,6,14,15
"Pride"	P-570	4,14
	P-800Y	14,15
Agricultural Experiment	SD 102	8
Station	SD 104	4,5,8,9,10,12,13,14
Plant Science Dept.	SD 106	4,5,8,9,10,12,13,14
SDSU	SD 451	4,5,6,7,8,9,10,11,12,13,14,15
Brookings, SD	SD 503	4,5,6,7,8,9,10,11,12,13,14,15
"SDAES"	RS 506	4,5,6,7,8,9,10,11,12,13,14,15
	RS 610	4,5,6,7,8,9,10,11,12,13,14,15
	NB 635	4,6,9,11,12,13,14,15