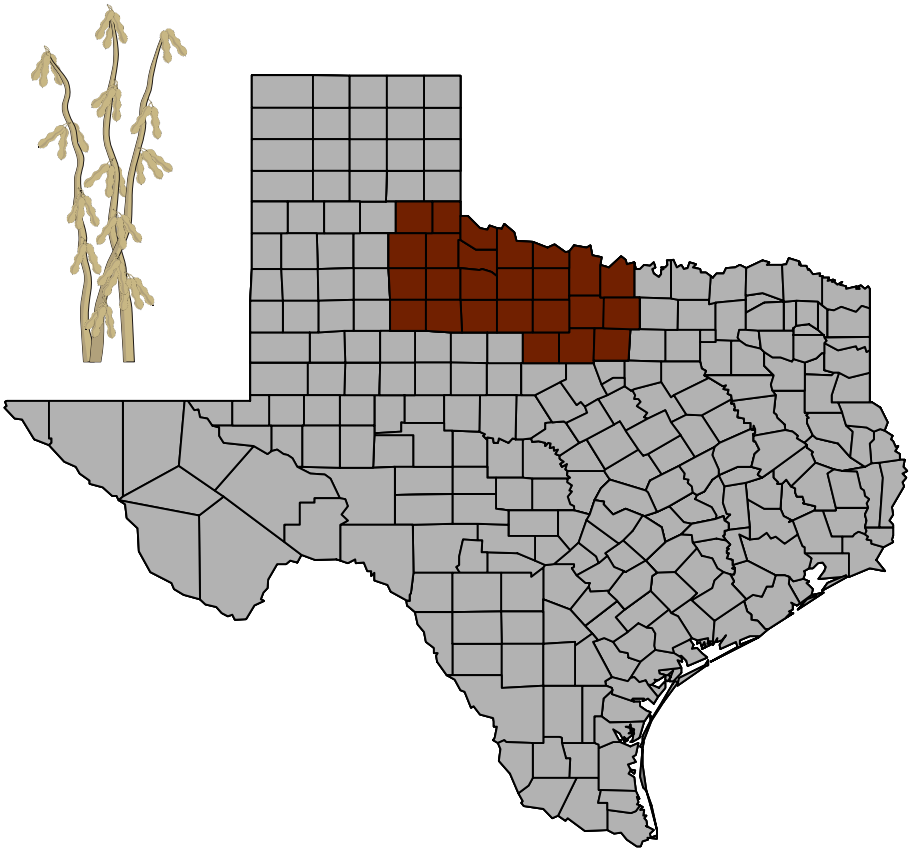
ROLLING PLAINS

2000

Soybean Variety Evaluations



Vernon Center Technical Report #2001 - 01

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Texas Rolling Plains Soybean Variety Evaluations: Munday Research Station - 2000

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Summary of results

The 2000 crop production season started with great promise in May and June due to timely rainfalls. Substantial rainfall in June with cooler than normal temperatures gave an optimistic forecast for high yields in the early-planted and double-cropped soybean test . The optimism faded in July through September, as in the previous growing seasons of 1998 and 1999. Rainfall became sparse and temperatures regularly climbed above 100 ^{o}F. Irrigations were scheduled as needed, but soybean development was hindered by temperature extremes. Agronomic information for both plantings is presented in Table 1.

The test site at Munday was bedded into 30-inch rows. Test plots were four rows wide and 20 feet in length. In the early-planted soybeans, Treflan at 2 pt/A was applied 30 days prior to planting. Raptor at 5 oz/A was applied on 11 May to control emerging puncturevine and pigweed. One application of Karate was made on 22 June to control cotton bollworms feeding on the newly developed soybean leaves. Mechanical cultivation and hand weeding were used as needed.

In the double-cropped soybean test, Roundup Ultra at 3 pt/A and Dual Magnum at 1 pt/A were applied in combination as a preplant burndown 11 days before planting. Raptor at 5 oz/A was applied 10 days after planting to control emerging puncturevine, pigweed, and volunteer wheat. Unfortunately, Raptor caused early season soybean injury which was probably due to improper seed furrow closure. This injury was not apparent later in the growing season, and yields are not believed to have been inhibited. Roundup at 1 qt/A was applied 1 month after emergence of Roundup Ready soybeans to control volunteer wheat. Mechanical cultivation and hand weeding were used as needed.

Top yields exceeded 35 bu/A in the early-planted conventional soybeans (Table 2) and 28 bu/A in the early-planted Roundup Ready soybeans (Table 3). Top yields of the double-cropped soybeans were 25 bu/A for both the conventional and Roundup Ready varieties (Tables 4 and 5). Even though this is an improvement over 1998 and 1999 yields, we still feel 40 and 30 bu/A soybeans are needed in early-planted and double-cropped soybeans, respectively, in order for soybean production to be attractive to farmers. The hot and dry weather that occurred later in the growing season obviously limited yields.

Generally, plots were harvested as they matured; however, the later-maturing varieties were left in the field from mid October to mid November due to the unseasonably wet weather which hindered timely harvest. Yields were generally lower for the double-cropped soybeans planted in mid June. This is not surprising since late-planted soybeans are generally exposed to hotter and drier weather earlier in their development. In contrast to 1999, the test mean of early-planted, conventional soybeans was slightly better than the test mean of early-planted, Roundup Ready varieties. However, this trend was reversed in the double-cropped studies. For both soybean plantings, seed quality was poor with varieties usually receiving ratings between 3 and 5. The delay in harvest from mid October to mid November probably decreased soybean quality by

1 to 1.5 points for the varieties harvested on 10 November in the early-planted soybean studies (Tables 2 and 3). Seed quality was slightly better in the double-cropped soybeans with two varieties receiving seed quality scores below 3 (Tables 4 and 5)

The Texas Agricultural Experiment Station and Texas Agricultural Extension Service do not recommend one variety over another. Interested parties are encouraged to study the tables in this report and earlier reports and references to determine which varieties may be adapted to the local area of production and also fit personal farming practices. Several years of data should be reviewed to identify promising varieties.

The support of the Texas Soybean Board, Private Seed Companies, and interested cooperators is greatly appreciated.

Table 1. Agronomic and cultural information for the 1999 soybean performance trials at Munday, TX.

SOIL TYPE:	Miles fine sandy loam
PREVIOUS CROP:	Soybean, early-planted; wheat, double-cropped
LAND PREPARATION:	Moldboard, disked, and bedded, early-planted; wheat harvest, double-cropped
PLANTING DATE:	25 April, early-planted; 6 June, double-cropped
SEEDING RATE:	140,000 seed/A
TEST DESIGNS:	Randomized complete block
NUMBER ENTRIES:	24
PLOT SIZE:	four, 30-inch rows wide by 20 ft. long
REPLICATIONS:	4
FERTILIZER:	25 March, 200 lbs/A of 20-10-0, early-planted; 30 May, 300 lbs/A of 20-10-0, double-cropped
HERBICIDE:	25 March, 2.0 pt/A Treflan, 11 May, 5 oz/A Raptor, early-planted; 26 May, 3.0 pt/A Roundup Ultra and 1pt/A Dual Magnum, 16 June, 5 oz/A Raptor, 6 July, 1 qt/A Roundup Ultra applied to Roundup Ready varieties only, double-cropped
INSECTICIDE:	22 June, 1.0 oz/A Karate, early-planted
IRRIGATIONS:	as needed, usually every 10 to 14 days
SIZE HARVESTED PLOT:	0.002 A
RAINFALL (inches):	April - 2.74, May - 1.26, June - 2.94, July - 0.30, August - 0.0, September - 0.0, October - 5.87, November - 3.76

Table 2. Irrigated conventional soybean variety trial on a Miles fine sandy loam, 25 April planting, Munday, 2000.

Variety	Brand	Harvest Date	Plant Height	Pod Height	Seed Quality	Yield
			--------- inch ------	---	--(1-5)[2]--	-- bu/A --
DP 4909	Delta & Pine Land	21 Sep	27	1.5	3.5	31.8
DP 4748S	Delta & Pine Land	10 Nov	24	1.0	5.0	25.5
DPX 4910S	Delta & Pine Land	10 Nov	25	0.8	5.0	25.3
DP 3478	Delta & Pine Land	29 Sep	22	0.5	4.6	21.5
TN 5-95	Tennessee[1]	10 Nov	24	1.1	4.8	37.1
TN 4-86	Tennessee	10 Nov	24	0.6	5.0	22.0
TN 4-94	Tennessee	10 Nov	24	1.1	5.0	19.2
Croplan 490	Land O'Lakes	21 Sep	30	1.6	3.6	27.9
Croplan 520	Land O'Lakes	10 Nov	28	0.8	4.0	13.5
Taylor 471	Corley Seed	6 Sep	23	0.8	3.8	28.9
Stressland	Corley Seed	3 Aug	19	0.5	3.5	25.1
Hutcheson	Corley Seed	29 Sep	21	0.5	3.0	21.6
AG4922	Asgrow	6 Sep	23	0.5	3.4	32.6
AG4402	Asgrow	3 Aug	21	0.6	3.6	18.9

[1]Tennessee Advanced Genetics

[2]Seed Quality: 1 = highest, 5 = lowest

Test Mean = 25.1 bu/A CV = 17.8% LSD (0.05) = 6.4

Table 3. Irrigated Roundup Ready soybean variety trial on a Miles fine sandy loam, 25 April planting, Munday, 2000.

Variety	Brand	Harvest Date	Plant Height	Pod Height	Seed Quality	Yield
			------ inch --------		--(1-5)[1]--	-- bu/A --
SG 498RR	Delta & Pine Land	10 Nov	19	0.5	5.0	25.7
DP 4690RR	Delta & Pine Land	10 Nov	22	0.5	5.0	22.1
SG 468RR	Delta & Pine Land	10 Nov	23	1.5	5.0	19.5
DP 4344RR	Delta & Pine Land	10 Nov	22	0.5	5.0	17.4
Croplan 4979RR	Land O'Lakes	29 Sep	29	1.5	3.9	28.6
Croplan 466RR	Land O'Lakes	21 Sep	21	0.6	3.6	26.5
Croplan 480RR	Land O'Lakes	13 Sep	20	0.6	3.9	26.1
Taylor 488NRR	Corley Seed	6 Sep	22	0.5	3.5	28.0
Taylor 466NRR	Corley Seed	10 Nov	21	0.5	4.6	19.4
Pioneer 9492RR	Pioneer	3 Aug	18	0.5	3.6	24.7

[1]Seed Quality: 1 = highest, 5 = lowest

Test Mean = 23.8 bu/A CV = 21% LSD (0.05) = 7.3

Table 4. Irrigated conventional soybean variety trial planted into wheat stubble on a Miles fine sandy loam, 6 June planting, Munday, 2000.

Variety	Brand	Harvest Date	Plant Height	Pod Height	Seed Quality	Yield
			------ inch ------		--(1-5)[1]--	-- bu/A --
DP 3478	Delta & Pine Land	9 Oct	24	2	3.6	25.2
DP 4748S	Delta & Pine Land	10 Nov	24	4	3.6	22.7
DP 4909	Delta & Pine Land	9 Oct	23	4	3.1	17.8
DPX 4910S	Delta & Pine Land	9 Oct	26	4	2.9	14.8
Croplan 490	Land O'Lakes	9 Oct	26	5	3.4	18.7
Croplan 520	Land O'Lakes	10 Nov	29	3	3.6	18.2

[1]Seed Quality: 1 = highest, 5 = lowest

Test Mean = 19.6 bu/A CV = 23.3% LSD (0.1) = 7.1

Table 5. Irrigated Roundup Ready soybean variety trial planted into wheat stubble on a Miles fine sandy loam, 6 June planting, Munday, 2000.

Variety	Brand	Harvest Date	Plant Height	Pod Height	Seed Quality	Yield
			----- inch -----		--(1-5)[1]--	-- bu/A --
SG 498 RR	Delta & Pine Land	10 Nov	17	3	3.5	23.6
DP 4344RR	Delta & Pine Land	29 Sep	23	4	4.1	22.7
SG 468 RR	Delta & Pine Land	29 Sep	20	4	3.1	18.5
DP 4690RR	Delta & Pine Land	9 Oct	23	4	3.8	16.9
Croplan 466RR	Land O'Lakes	29 Sep	22	4	2.6	25.3
Croplan 480RR	Land O'Lakes	29 Sep	22	4	3.0	21.0
Croplan 4979RR	Land O'Lakes	9 Oct	25	4	3.4	18.7

[1]Seed Quality: 1 = highest, 5 = lowest

Test Mean = 21.0 bu/A CV = 21.1% LSD (0.1) = NS

APPENDIX
Participating Private Companies and Varieties Entered

Asgrow Seed Co. 112 Clyde Dr. Hillsboro, TX 76645	AG 4402 AG 4922	
Corley Seed Farms 24148 N.W. Barton Rd. Westphalia, KS 66093-8234	Taylor 466NRR Taylor 471 Hutcheson	Taylor 488NRR Stressland
Delta & Pine Land 1301 East 50th Lubbock, TX 79404	DPX 4910S DP 4748S DP 4344RR SG 468RR	DP 3478 DP 4909 DP 4690RR SG 498RR
Land O'Lakes/ Croplan Genetics P.O. Box 171376 6555 Quince Road, Suite 202 Memphis, TN 38187	Croplan 490 Croplan 466RR Croplan 4979RR	Croplan 520 Croplan 480RR
Pioneer Hi-Bred International, Inc. 1616 South Kentucky, Suite C-150 Amarillo, TX 79102	Pioneer 9492RR	
Tennessee Advanced Genetics 2640-C Nolensville Rd Nashville, TN 37211	TN 4-86 TN 4-94 TN 5-95	