

2000 Pennsylvania Soybean Performance Report

Soybean tests are conducted annually to provide interested persons with information regarding the performance of soybeans grown in Pennsylvania. This report summarizes performance results for 2000.

The shorter season varieties (Group I, II, and early III) were tested at the Russell E. Larson Agricultural Research Center at Rock Springs in Centre County. The longer maturing varieties (Groups III and IV) were tested at the Southeast Agricultural Research and Extension Center situated in Lancaster County. A trial planted after small grains harvest was also conducted in Lancaster County.

Herbicide tolerant varieties (glyphosate RR and sulfonyleurea STS) were tested in separate trials.

Procedures The private seed company entries in this test were those chosen by the companies for testing. The public varieties were chosen based upon previous test results.

The plots in Centre County had 5 rows, each 12 feet long. Rows were spaced 7 inches apart. Each plot was trimmed to 9 feet, and all 5 rows were harvested. The Centre County trials were planted on May 31.

In Lancaster County, the full-season and double-crop trial plots had four rows with 15-inch-row spacing, and each was 20 feet long. Plots were trimmed to 18 feet and two center rows were harvested. The Lancaster County full-season trials were planted on June 2. All double crop trials were seeded on July 5.

The double-crop trials were irrigated the end of July with 1 acre inch of water.

Seeding rates of the Centre and Lancaster county full season trials were adjusted to obtain approximately 150,000 plants per acre. Each cultivar was replicated four times in all trials. In the double-crop trial, the seeding rate was adjusted to obtain approximately 200,000 plants per acre.

The following observations were made for some or all of the tests (Tables 1-6).

Yield was calculated after all the seed weights were adjusted to 13 percent moisture.

Maturity is the date when approximately 95 percent of pods were ripe.

Height is the average length of plants from the ground to the tip of the main stem.

Lodging was rated in all tests as follows:

- 1 = almost all plants erect
- 2 = all plants leaning slightly or a few plants down
- 3 = all plants leaning moderately, or 25-50 percent of the plants down
- 4 = all plants leaning considerably, or 50-80 percent of the plants down
- 5 = almost all plants down

Seed quality was rated according to the following scale:

- 1 = very good
- 2 = good
- 3 = fair
- 4 = poor
- 5 = very poor

Seed size gives the approximate number of seeds in one pound.

Interpretation of results

Variety performance differences are caused partially by genetic differences and partially by soil variation and other environmental variations which cannot be adequately controlled. Thus, small differences in performance may have no significance. Multiple-year averages are a more valid indication of the performance of a specific variety than are data for a single year. Statistical procedures have been used for the most important characteristics to allow meaningful comparisons of variety averages at a particular location. A standard least significant difference (LSD) value is provided for comparing varieties. Any difference between two variety averages that exceeds the LSD value is considered significant and not simply a result of uncontrolled environmental variation.

The value of coefficient of variation (CV) is a measure of relative variation useful in evaluating the precision achieved in an experiment. In grain and forage trials, for example, the CV value for yield is often between 5 and 15 percent. Confidence in the reliability of the experimental results declines as the CV value increases. Uncontrollable or unmeasurable variations in soil fertility, soil drainage, and other environmental factors contribute to increased CV values.

Growing conditions

Conditions during the 2000 growing season were characterized by below normal temperatures. Only June in Lancaster County had temperatures above normal. The rest of the growing months in Lancaster and all of the months in Centre County had below normal temperatures. Despite the cool growing season, soybean were mature enough in all trials before a killing frost occurred. Rainfall was below normal May and July in Centre County and July and August at the Lancaster site.

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Table 1. Soybean variety performance in Lancaster County, 2000.

Brand	Entry	Yield, bu/A	Maturity	Height, inches	Lodging	Seed quality	Size, Seeds/lb
Public	Loda	50.6	09-25	27	2.0	2.0	2316
Public	LN92-7369	57.4	09-30	28	2.0	2.0	1974
Public	Resnik	66.6	10-03	27	1.8	2.0	2522
Wilken	3447	65.8	10-03	30	1.8	2.0	2377
Public	Darby	62.1	10-03	29	1.8	2.0	2508
Wilken	3442	68.0	10-04	27	1.5	2.0	2441
Public	Probst	67.9	10-05	29	2.0	2.0	2551
Chemgro	3888	75.5	10-07	29	2.0	2.0	2259
Garst	D385	72.7	10-07	31	2.0	2.0	2328
Public	General	68.7	10-07	28	1.0	2.0	2142
Wilken	WE872	70.9	10-09	31	2.0	2.0	2152
Dynagro	3395	69.8	10-09	28	2.0	2.0	2686
Mid-Atlantic	MA3420	73.3	10-13	30	2.0	2.0	2073
Wilken	WE858	72.8	10-13	30	2.0	2.0	2204
Chemgro	4199STS	78.4	10-15	28	2.0	2.0	2352
NK	S42-H1	77.1	10-15	31	2.2	2.0	2204
Wilken	3468	74.4	10-15	31	2.2	2.0	2259
Rohrer	4005	71.7	10-15	29	2.0	2.0	2671
Agway	APK 364	71.6	10-15	29	2.0	2.0	2183
Agway	APK 392	70.8	10-15	29	2.0	2.0	2624
Wilken	3494	70.7	10-15	30	1.8	2.0	2640
Dynagro	3369N	70.4	10-15	30	1.2	2.0	2389
NK	S38-T8	70.3	10-15	30	1.8	2.0	2215
Agway	APK 182	70.1	10-15	30	2.0	2.0	2152
Wilken	3467N	69.3	10-15	30	1.2	2.0	2402
Public	Williams 82	67.5	10-15	31	2.2	2.0	2083
Mid-Atlantic	MA3555	66.6	10-15	28	1.8	2.0	2121
Public	Stressland	75.2	10-20	30	2.5	2.0	2454
Mid-Atlantic	MA3901	71.0	10-20	29	1.8	2.0	2495
Wilken	4034	79.6	10-23	30	2.0	2.0	2454
Wilken	4031N	75.3	10-23	34	2.8	2.0	2102
Mean		70.0					
LSD (.05)		08.6					
CV %		11.2					

Table 2. RR Soybean variety performance in Lancaster County, 2000.

Brand	Entry	Yield, bu/A	Maturity	Height, inches	Lodging	Seed quality	Size, Seeds/lb
DeKalb	DKB35-51	77.0	10-04	31	2.0	2.0	2402
DeKalb	DKB36-51	73.3	10-07	30	2.0	2.0	2752
Garst	D370RR	72.3	10-07	35	2.5	2.0	2340
Wilken	3464RR	72.0	10-07	34	2.2	2.0	2365
Dynagro	3370RR	70.6	10-07	34	2.8	2.0	2441
NK	NKX039R	70.5	10-07	30	2.0	2.0	2073
Chemgro	3500RR	70.0	10-07	30	2.0	2.0	2802
Dynagro	3399RR	70.0	10-09	29	1.8	2.0	2565
Agway	APK 374RR	69.7	10-09	33	2.5	2.0	2352
DeKalb	DKB38-51	68.2	10-09	29	2.0	2.0	2702
Mid-Atlantic	MA4001RR	66.7	10-09	35	3.0	2.0	2855
Asgrow	AG3702	65.7	10-09	28	1.5	2.0	2377
Wilken	3498RR	64.7	10-09	29	2.0	2.0	2467
Garst	D399RR/N	73.8	10-13	36	2.8	2.0	2441
Mid-Atlantic	MA3444RR	67.9	10-13	32	2.2	2.0	2522
Wilken	WE670RR	66.7	10-13	29	2.0	2.0	2377
Mid-Atlantic	MA4220RR	66.0	10-13	31	2.2	2.0	2495
Agripro	AP4004RR/N	73.2	10-15	34	2.5	2.0	2536
Agway	APK 404RR	73.2	10-15	36	2.5	2.0	2441
Wilken	3497RR	73.0	10-15	29	1.5	2.0	2377
Agway	APK 397RR	71.8	10-15	30	2.0	2.0	2536
NK	S42-M1	71.0	10-15	36	2.8	2.0	2415
Mid-Atlantic	MA3720RR	70.6	10-15	32	2.2	2.0	2768
Chemgro	3700RR	67.6	10-15	28	2.0	2.0	2415
Asgrow	AG3901	67.1	10-15	30	2.0	2.0	2508
Dynagro	3388RR	65.9	10-15	32	2.0	2.0	2415
DeKalb	DKB44-51	77.4	10-20	33	2.2	2.0	2624
Agway	APK 398RR	72.1	10-20	29	2.2	2.0	2428
Dynagro	3394RR	71.6	10-20	29	1.8	2.0	2402
Asgrow	AG4403	69.9	10-20	33	2.2	2.0	2624
Chemgro	3900RR	68.1	10-20	29	1.8	2.0	2415
Mid-Atlantic	MA4211RR	68.1	10-20	30	2.0	2.0	2768
DeKalb	CX444cRR	75.2	10-23	32	2.2	2.0	2428
Agripro	AP4319RR/N	66.1	10-23	34	2.0	2.0	2293
Garst	D437RR/N	64.4	10-23	37	2.0	2.0	2248
Mean		69.7					
LSD (.05)		NS					
CV %		10.4					

Table 3. STS Soybean variety performance in Lancaster County, 2000.

Brand	Entry	Yield, Bu/A	Maturity	Height, inches	Lodging	Seed quality	Size, Seeds/lb
Chemgro	4199STS	88.0	10-20	32	2.0	2.0	2293
Mid-Atlantic	MA4010STS	83.2	10-20	32	2.0	2.0	2172
Dynagro	3402STS	81.6	10-20	32	2.0	2.0	2270
Wilken	4019STS	77.2	10-20	31	2.0	2.0	2293
NK	S40-C1	77.1	10-20	31	2.0	2.0	2225
Wilken	4012STS	74.6	10-20	30	2.0	2.0	2121
Agway	APK 414STS	83.1	10-23	33	2.0	2.0	2248
Mean		79.2					
LSD (.05)		09.4					
CV %		10.9					

Table 4. Soybean variety performance in Lancaster County, 2000, 1998, 1997.

Brand	Entry	Yield, bu/A					2-yr avg.	3-yr avg.
		2000	1998	1997	98-00	97, 98, 00		
Agway	APK364	71.6	57.2	52.1	64.4	60.3		
Agway	APK392	70.8	61.8	54.6	66.3	62.4		
Chemgro	4199STS	78.4	59.7	60.2	67.6	65.2		
Dynagro	3395	69.8	65.5	44.9	60.3	55.2		
Public	Resnik	66.6	54.0	48.6	61.6	57.2		
Public	Probst	67.9	55.2	54.3	65.2	61.6		
Public	General	68.7	61.8	50.0	64.6	59.8		
Public	Williams 82	67.5	55.2	56.6	69.6	65.3		
Public	Stressland	75.2	64.0	64.2	68.2	66.8		
Rohrer	4005	71.7	64.6	60.1	69.7	66.5		
Wilken	3468	74.4	60.0	52.9	67.2	62.4		
Wilken	3494	70.7	68.7	60.1	67.4	66.5		
Wilken	4031N	75.3	59.6	67.4				
Wilken	4034	79.6	63.3	71.4				

Table 5. STS Soybean variety performance in Lancaster County, 2000, 1998.

Brand	Entry	Yield, bu/A		
		2000	1998	2-yr avg 98-00
Agway	APK414STS	83.1	61.4	72.2
Chemgro	4199STS	88.0	57.9	73.0
Wilken	4019STS	77.2	59.1	68.2

Table 6. Soybean variety performance in Centre County, 2000.

Brand	Entry	Yield, bu/A	Maturity	Height, inches	Lodging	Seed quality	Size, Seeds/lb
Public	Loda	53.6	09-28	27	1.0	2.0	2248
Garst	D308	63.6	10-01	28	1.2	2.0	2671
Asgrow	A2804	55.9	10-02	30	1.0	2.0	2702
Public	LN92-7369	53.3	10-03	28	1.5	2.0	2609
Public	Darby	65.7	10-04	31	1.0	2.0	2802
Agripro	AP3525	65.4	10-04	28	1.0	2.0	2719
Public	Probst	61.0	10-04	31	1.0	2.0	2580
Wilken	3447	59.7	10-04	30	1.0	2.0	2702
Public	Resnik	56.0	10-04	30	1.0	2.0	2752
Wilken	3418	59.2	10-05	31	1.0	2.0	2785
Garst	D358	61.9	10-06	33	1.2	2.0	2340
Public	General	60.3	10-06	31	1.0	2.0	3290
Wilken	3442	58.9	10-06	28	1.0	2.0	2686
Wilken	3472	58.6	10-06	30	1.0	2.0	2768
Chemgro	3444STS	58.3	10-06	31	1.0	2.0	2735
Dynagro	3336	60.9	10-07	29	1.0	2.0	2855
Wilken	3468	64.7	10-08	32	1.2	2.0	2735
Agway	APK392	63.8	10-08	31	1.2	2.0	3175
Agway	APK364	62.6	10-08	32	1.2	2.0	2735
Mid-Atlantic	MA3420	60.2	10-09	32	1.2	2.0	2655
Dynagro	3395	65.5	10-10	33	1.8	2.0	2640
Wilken	WE858	63.3	10-10	38	1.2	2.0	2609
Mid-Atlantic	MA3555	61.4	10-10	30	1.2	2.0	2948
Public	Williams 82	57.0	10-10	38	1.5	2.0	2671
NK	S38-T8	65.4	10-11	40	1.2	2.0	2624
Wilken	WE872	61.8	10-11	40	1.8	2.0	3047
Wilken	3476N	64.0	10-12	40	1.0	2.0	3197
Dynagro	3369N	62.5	10-12	38	1.5	2.0	3088
Wilken	3494	61.3	10-12	33	2.0		