Host Suitability in Soybean Cultivars for the Reniform Nematode, 1999 Tests¹

R. T. ROBBINS, L. RAKES, L. E. JACKSON,² E. E. GBUR,³ AND D. G. DOMBEK⁴

Abstract: Two hundred twenty-six soybean cultivars were tested in greenhouse pot experiments during summer 1999 to determine their suitability as hosts for the reniform nematode, Rotylenchulus reniformis. The cultivars included new entries into the Arkansas and Mississippi soybean variety testing programs and entries submitted by extension nematologists from Auburn University and Louisiana State University. Also included in the R. reniformis tests were the resistant cultivars Forrest and Hartwig, the susceptible control Braxton, and fallow infested soil that served as controls. Total number of eggs + nematodes extracted from the soil and roots per pot, reproductive indices (Pf/Pi) based on the number of nematodes extracted from the soil and roots/initial inoculum level, calculated for each cultivar, and the ratio of the Pf/Pi of each cultivar to the Pf/Pi of Forrest are reported. Cultivars with reproduction not significantly different from Forrest were not suitable hosts, whereas those with greater reproductive indices were considered suitable hosts. One of the 12 cultivars of the relative maturity group (RMG) \leq 4.4 was not a suitable host. For the 4.5 to 4.9 RMG, 24 of 72 cultivars were not suitable hosts, whereas 9 of 41 cultivars in RMG 5.0 to 5.4 were not suitable hosts. In the 5.5 to 5.9 RMG cultivars, 11 of 66 were not suitable hosts; for the 6.0 or greater RMG, 11 of 35 were not suitable hosts. These data will be useful in the selection of soybean cultivars to use in rotation with cotton or other susceptible crops to help control the reniform nematode.

Key words: Glycine max, nematode, reniform nematode, reproductive index, rotation, Rotylenchulus reniformis, soybean.

In 1998, all 282 cultivars and lines entered in the Arkansas and Mississippi soybean variety testing programs were screened for resistance to reniform nematode (*Rotylenchulus reniformis* Lindford and Oliveira, 1940) and 93 of the cultivars were classed as resistant (Robbins et al., 1999). Tests previous to 1998 by various authors reporting reniform nematode resistance in soybean, the history of the spread of reniform nematodes on soybean, the relationship of reniform resistance in soybean to that of soybean cyst nematode (*Heterodera glycines*), and effect on seed yield were discussed and summarized (Robbins et al., 1999).

The soybean cultivars and lines entered in the 1999 Arkansas and Mississippi soybean variety testing programs, as well as several submitted by extension nematologists from Auburn University and Louisiana State University, were tested in a greenhouse pot study to determine the reproductive capacity of *R. reniformis*. The objective of the study was to identify current soybean cultivars that have reniform nematode resistance comparable with that of the reniform-resistant standard cultivar Forrest. Soybean cultivars with resistance to *R. reniformis* would be useful for rotation with cotton or other susceptible crops in reniform nematode-infested fields.

MATERIALS AND METHODS

The soybean cultivars and lines tested were from both private and public sources in the relative maturity groups (RMG): 4.4 or earlier, 4.5 to 4.9, 5.0 to 5.4, 5.5 to 5.9, and 6.0 or later. Seeds of all cultivars were germinated in vermiculite and transplanted into 10-cm-diam. clay pots containing 500 cm³ of pasteurized fine sandy loam soil (ca. 91% sand, 5% silt, 4% clay, <1% O.M.). Inoculum was obtained by washing the soil from the roots of the susceptible cultivar Braxton grown in the greenhouse for at least 10 weeks, suspending the nematodes in

Received for publication 22 May 2000.

¹ Published with the approval of the Director of the Arkansas Agricultural Experiment Station. This research was supported in part by a grant from Arkansas soybean growers through the Soybean Promotion Board.

Soybean Promotion Board. ² Professor and Research Assistants, Department of Plant Pathology, Nematology Laboratory, University of Arkansas, Fayetteville, AR 72701.

³ Professor, Agricultural Statistics Laboratory, University of Arkansas, Fayetteville, AR 72701.

⁴ Director, Arkansas Crop Improvement Program, 313 Cassatt Road, Fayetteville, AR 72704.

E-mail: rrobbin@comp.uark.edu This paper was edited by T. L. Kirkpatrick.

water, and pouring the nematode solution through nested 841- and 38-µm-pore sieves. The material on the 38-µm-pore sieve was placed on a tissue in a Baermann funnel. All vermiform stages of R. reniformis were collected after 16 hours, and a total of 3,540 nematodes were injected with an autopipet into three 2.5-cm-deep holes made in the soil in each pot containing a single seedling in the dicotyledonary stage. All pots were inoculated the same day. Pots were arranged in a randomized complete-block design, each block containing all maturity groups, with five replications per treatment. Soybean cultivars Forrest and Hartwig were included as resistant controls and Braxton as a susceptible control. Reniform nematodeinfested fallow soil was included as a survival baseline control in the absence of a host. The experiment was conducted in a greenhouse with the ambient temperature maintained at 28 to 34 °C. All test pots were watered twice daily (8 a.m. and 4 p.m.) and fertilized each week with 20-20-20 (N-P-K) fertilizer.

After 9 weeks (June 29–August 30), the number of reniform nematode eggs and vermiform stages in egg masses on the roots and the numbers of vermiform nematodes in the soil of each pot were determined. The eggs and vermiform nematodes in the egg masses on roots were extracted with a 0.525% sodium hypochlorite solution (Hussey and Barker, 1973), and numbers were recorded. To calculate the final reniform nematode soil population (Pf), a 100-cm³ aliquot of well-mixed soil from each pot was suspended in water and poured through nested 841- and 38-µm-pore sieves to remove plant debris and extract the nematodes. Nematodes caught on the 38-µm-pore sieve were separated from soil with sucrose centrifugal-flotation (Jenkins, 1964), counted, and multiplied by 5 to give the number per pot. The total number of reniform nematode eggs and vermiform nematodes per pot was calculated by adding the number from the soil to the number from the roots. A reproductive index (RI), defined as the number of eggs + vermiform nematodes at test termination/initial inoculation level, was calculated for each cultivar. In addition, the relative reproduction on each cultivar in relation to the reproduction on the standard cultivar Forrest (reproduction on the cultivar/reproduction on Forrest) was calculated.

Data used to calculate the ratio of repro-

TABLE 1. Reproduction of *Rotylenchulus reniformis* on 11 selected soybean cultivars in relative maturity group ≤ 4.4 .

Cultivar ^a	Final population per pot ^b	Reproductive index (Pf/Pi) ^c	Ratio of cultivar reproduction to Forrest ^d
Forrest (Check)	3,736	1.06	1.00
Pioneer Variety 94B45	42,398	11.98	11.35
DEKALB CX 444 CRR	44,366	12.53	11.87
Southern States Coop RT 3975	50,611	14.30	13.54
Southern States Coop RTExp88401N	55,952	15.81	14.97
Southern States FFR 447	57,744	16.31	15.45
Wilfarm WF Exp 400RR	65,663	18.55	17.57
Wilfarm WF Exp 429RR	66,880	18.89	17.90
Southern States Coop HT 381 STS	70,791	20.00	18.94
Southern States FFR 439	71,364	20.16	19.90
Wilfarm WF Exp 419	75,188	21.24	20.12
Asgrow Seed AG 4402	97,927	27.66	26.21
Novartis Seeds NK S 38-L5	125,176	35.36	33.50
Braxton (Check)	132,549	37.44	35.47

^a Forrest = resistant check; Braxton = susceptible check. Five replications per entry.

^b Final population of eggs from roots and vermiform nematodes from 500 cm³ soil in pots inoculated with 3,540 vermiform nematodes.

^c Reproductive Index = final population/initial population (Pf/Pi).

^d Ratio of cultivar reproduction to Forrest values from transformed data ($\log_{10} [x + 1]$). Values ≥ 11.52 are significantly greater ($P \leq 0.05$) than Forrest.

616 Supplement to the Journal of Nematology, Volume 32, No. 4S, December 2000

TABLE 2.Reproduction of Rotylenchulus reniformis on 72 selected soybean cultivars in relative maturity group4.5-4.9.

Cultivar ^a	Final population per pot ^b	Reproductive index (Pf/Pi) ^c	Ratio of cultivar reproduction to Forrest ^d
Forrest (Check)	3,736	1.06	1.00
Delta Grow 4850RR	20,522	5.80	5.49
Hartz Variety H4998 RR (L)	24,521	6.93	6.56
AgriPro Seeds AP 4510RR	31,704	8.96	8.48
Unisouth Genetics USG 7499RR	35,781	10.11	9.58
FFR Seeds FFR RT 517	45,940	12.98	12.29
FFR Seeds FFR 514	46,336	13.09	12.40
Riverside 490	49,410	13.96	13.22
Manokin	50,413	14.24	13.49
Asgrow Seed AG 4902	54,921	15.51	14.70
AgriPro AP 4602RR	56,552	15.98	15.13
Asgrow Seed AG 4602	57,062	16.12	15.27
Hornbeck Seed HBK R4660	61,396	17.34	16.43
Hornbeck Seed HBK 4890	62,812	17.74	16.81
Progeny Ag. Products EK XP4910	63,064	17.81	16.88
Asgrow Seed AG 4702	63,260	17.87	16.93
FFR Seeds FFR HT 4985	63,412	17.91	16.97
Deltapine Seed DP 4690RR	64,636	18.26	17.30
Unisouth Genetics USG 7478nRR	64,688	18.27	17.31
Terra International Terra TS 466RR	65,099	18.39	17.42
Hartz Variety H 4994	65,792	18.59	17.61
R95-3235 (U of AR)	66,443	18.77	17.78
Terral Seed TVS 4589 RR	68,464	19.34	18.32
FFR Seeds FFR 495	68,464	19.34	18.32
Terral Seed TVX4881	68,844	19.45	18.42
Terral Seed TV 4890 RR	69,428	19.61	18.58
UAP Midsouth Dyna-Gro 3468NRR	69,672	19.68	18.64
AgriPro Seeds AP 4888 RR	69,779	19.71	18.67
Hartz Variety H 4998RR (M)	70,560	19.93	18.88
Deltapine Seed DP 4909	72,858	20.58	19.50
Asgrow Seed AG 4901	73,128	20.66	19.57
AgriPro Seeds APX 94546	73,369	20.73	19.63
Wilfarm WF Exp 470	74,456	21.03	19.93
Terra International Terra RVS 499	74,850	21.14	20.03
Hartz Variety H4994RR	75,248	21.26	20.14
Delta King Seed XTJ974	75,572	21.35	20.22
MFA Inc. MFA Morsoy RT 4809	75,608	21.36	20.23
Triumph Seed TR 4718RR	75,736	21.39	20.27
Genesis Ag. Ltd. M473RR	78,772	22.25	21.08
Cache River Valley Seed Dixie X4803	79,032	22.33	21.15
Terral Seed TVX 4787 RR	80,488	22.74	21.54
Hyperformer AP 4880	82,619	23.34	22.11
Terral Seed TV4975	83,640	23.63	22.38
Progeny Ag. Products EK XP4700RR	83,984	23.72	22.47
Terral Seed TVX 4787RR	84,636	23.91	22.65
Wilfarm WF 480 RR	85,392	24.12	22.85
Terra International TS 490	86,368	24.40	23.11
Delta King Seed XTI784	86,854	24.54	23.24
Willcross 2467	87,800	24.80	23.50
Deltapine Seed DPX 8S47RR	89,320	25.23	23.90
Pioneer Variety 9492	89,352	25.24	23.91
Asgrow Seed AG 4601	93,648	26.45	25.06
Cache River Valley Seed Dixie X4888	94,048	26.57	25.17
Hornbeck HBK 4891	95,036	26.85	25.43
Unisouth Genetics USG 7489RR	95,864	27.08	25.65
AgriPro Seed AP 4882	97,436	27.52	26.07
Hartz Variety H 4994RR	98,876	27.93	26.46

Cultivar ^a	Final population per pot ^b	Reproductive index (Pf/Pi) ^c	Ratio of cultivar reproduction to Forrest ^d
Delta King Seed DK XT J894 RR	101,196	28.59	27.08
DT 97-4318 (USDA)	101,916	28.79	27.27
Deltapine Seed DP 4750RR	103,016	29.10	27.57
Delta King Seed XTJ584RR	103,816	29.33	27.78
Delta King Seed XTJ894RR	103,900	29.35	27.80
Hornbeck Seed HBK R4855	104,492	29.52	27.96
DT 97-4290 (USDA)	112,616	31.81	30.14
Cache River Valley Seed Dixie X4883	114,608	32.38	30.67
Terra International TS 4979RR	125,264	35.39	33.52
Pioneer Variety 9482	126,528	35.74	33.86
Braxton (Check)	132,549	37.44	35.47
Unisouth Genetics USG 7499	145,694	41.16	38.99
Sure-Grow Seed SG 498RR	158,056	44.65	42.30
Delta King Seed XT[684	177,372	50.11	59.30
Md92-5769 (U of MD)	179,552	50.72	48.05
Progeny Ag. Products EK XP4900	201,168	56.83	53.83
Hornbeck Seed HBK 4890	264,903	74.83	70.89

^a Forrest = resistant check; Braxton = susceptible check. Five replications per entry.

^b Final population of eggs from roots and vermiform nematodes from 500 cm³ soil in pots inoculated with 3,540 vermiform nematodes.

^c Reproductive Index = final population/initial population (Pf/Pi).

^d Ratio of cultivar reproduction to Forrest values from transformed data ($\log_{10} [x + 1]$). Values ≥ 18.44 are significantly greater ($P \leq 0.05$) than Forrest.

duction on each cultivar to the reproduction on the resistant standard (Forrest) were transformed by $\log_{10} (X + 1)$ and analyzed as a randomized complete-block design using analyses of variance. Cultivar means were separated using a protected LSD at P = 0.05, where appropriate. Cultivars were considered significantly better hosts than Forrest if their means were significantly larger than $\log_{10} (2) \approx 0.301$. Means were transformed back to the original scale for presentation. All statistical analyses were carried out using SAS version 7 (SAS Institute, Cary, NC) (Tables 1–5).

RESULTS

All cultivars supported some reniform nematode reproduction. Mean survival of reniform nematode in the infested fallow pots was 1,122 or 30% of the number found on Forrest. The mean total of eggs + vermiform nematodes and the RI (in parentheses) of the resistant control cultivars Forrest and Hartwig were 3,736 (1.08) and 3,348

(0.97), respectively, and for the susceptible control cultivar Braxton were 132,549 (38.42). Relative reproduction as a ratio of the reproduction on Forrest was used to determine host suitability. Of the 12 cultivars in RMG 4.4 or earlier, only Pioneer Variety 94B45 was not a suitable host (not different from Forrest); the remaining 11 cultivars were suitable hosts (Table 1). Of the 72 cultivars in RMG 4.5 to 4.9, 24 were not suitable hosts (Table 2). The 41 in RMG 5.0 to 5.4 included nine that were not suitable hosts (Table 3). Eleven of 66 cultivars in RMG 5.5-5.9 were not suitable hosts (Table 4). Among the 35 cultivars with an RMG of 6.0 or greater, 11 were not suitable hosts (Table 5). In all cultivars tested, only UAP Midsouth Dyna-Gro 3682 and Deltapine Seed Dp 7375 RR supported numerically less reniform nematode reproduction than Forrest (Table 5).

Hartz 4998 RR and Hartz 5000 RR were inadvertently included twice. Both cultivars were from different sources (H 4998 RR from Mississippi and Louisiana [Table 2], H 5000 RR from Louisiana and Arkansas

618 Supplement to the Journal of Nematology, Volume 32, No. 4S, December 2000

TABLE 3.Reproduction of *Rotylenchulus reniformis* on 41 selected soybean cultivars in relative maturity group5.0–5.4.

Cultivar ^a	Final population per pot ^b	Reproductive index (Pf/Pi) ^c	Ratio of cultivar reproduction to Forrest ^d
Forrest (Check)	3,736	1.06	1.00
Unisouth Genetics USG 7539	6,729	1.90	1.80
Hartz Variety HX 5062087 RR	7,512	2.12	2.01
Hartz Variety H 5000 RR (A)	25,926	7.32	6.94
UAP Midsouth Dyna-Gro 3541NRR	29,443	8.32	7.88
Willcross 2549NRR	35,512	10.03	9.50
Willcross 2549N	37,337	10.55	9.99
Unisouth Genetics USG 7547RR	39,768	11.23	10.64
Unisouth Genetics USG 7548nRR	44,085	12.45	11.80
Terral Seed TV5486RR	47,544	13.43	12.72
Unisouth Genetics USG 7509RR	49,756	14.06	13.32
Genesis Ag. Ltd. M541RR	51,339	14.50	13.74
AgriPro Seed APX 9519RR	53,247	15.04	14.25
TN 4-94 (U of TN)	53,784	15.19	14.39
Novartis Seeds X9952	57,181	16.15	15.30
Asgrow Seed AG 5401	61,172	17.28	16.37
Hartz Variety HX5061870RR	62,176	17.56	16.64
Cache River Valley Seed Dixie X5888	65,621	18.54	17.56
TN 95-53 (U of TN)	71,691	20.25	19.19
Delta Grow Seed 5550RR	71,833	20.29	19.22
FFR Seed FFR RT5485	72,168	20.39	19.31
Pioneer Variety 95B32	72,836	20.58	19.49
Terra International Seed Terra TS 520	83,040	23.46	22.22
UAP Midsouth UAPX 0005RR	83,568	23.61	22.36
Progeny Ag. Products EK XP 5000RR	84,260	23.80	22.55
MFA Incorp. MFA Morsoy 5389SCN	89,296	25.22	23.90
Willcross 2520 RRN	90,672	25.61	24.27
Terra International Seed Terra TS520	91,688	25.90	24.54
Novartis Seeds S51-T1	96,000	27.12	25.69
Progeny Ag. Products EK XP 5400	98,600	27.85	26.39
Asgrow Seed AG 5001	99,608	28.14	26.66
Progeny Ag. Products EK XP 5120N	104,068	29.40	27.85
Asgrow Seed A5404	111,888	31.61	29.94
Pioneer Variety 95B41	120,784	34.12	40.28
Hutcheson	123,296	34.83	33.00
Hartz Variety H5088RR	125,840	35.55	33.68
Essex RSV4 (VPI)	127,680	36.07	34.17
Unisouth Genetics USG 7528RR	131,400	37.16	35.16
Braxton (Check)	132,549	37.44	35.47
Hartz Variety H5000RR (L)	132,552	37.44	35.47
Pioneer Variety 95B33	136,848	38.66	36.62
TN 96-68 (U of TN)	160,368	45.30	42.92
Cache River Valley Seed Dixie X5151	166,064	46.91	44.44

^a Forrest = resistant check; Braxton = susceptible check. Five replications per entry.

^b Final population of eggs from roots and vermiform nematodes from 500 cm³ soil in pots inoculated with 3,540 vermiform nematodes.

^c Reproductive Index = final population/initial population (Pf/Pi).

^d Ratio of cultivar reproduction to Forrest values from transformed data ($\log_{10} [x + 1]$). Values ≥ 12.92 are significantly greater ($P \leq 0.05$) than Forrest.

[Table 3]), and they gave mixed reactions one as a non-suitable host and the other as a suitable host. The RI of H 4998 RR from Louisiana varied from 1.78 to 11.59 (mean = 6.93), whereas that from Mississippi varied from 11.71 to 32.49 (mean = 19.93). The RI of H 5000 RR from Arkansas varied from 0.12 to 25.82 (mean = 7.32), whereas that from Louisiana varied from 5.49 to 77.68 (mean = 37.44).

TABLE 4.Reproduction of *Rotylenchulus reniformis* on 66 selected soybean cultivars in relative maturity group5.5–5.9.

Cultivar* per jor* index (Pt/Pi)* reproduction to Forcet* Forrest (Check) 3,736 1.06 1.00 UAP Midsout UAPX 0055RR 6,108 1.73 1.64 Deltapine DS 5608 RX 32,252 9,11 8,63 AgriPro Seeds APX 9563 32,911 9,30 8,81 Deltapine DF 5606 RR 33,808 9,55 9,05 Unisouth Genetics USG 7577RR 34,553 9,76 9,05 DEKALB Seed CX556CR 37,466 10,58 10,03 Terra International Seed T8556 41,860 11,83 11,20 Unisouth Genetics USG 7575RR 44,490 12,57 11,91 Cache River Valley Seed Dixic X5757 47,008 13,28 12,28 Paral International Seed T8556RR 51,224 14,448 13,72 R95-708 (U of AR) 57,622 16,28 15,42 R95-210 (U of AR) 57,622 16,28 15,42 R95-2210 (U of AR) 57,622 16,28 15,42 R95-210 (U of AR) 57,632 16,63		Final population	Reproductive	Ratio of cultivar
Forrest (Check) 3,736 1.06 1.00 UAP Midsouth UAPX 0055RR 6108 1.73 1.64 Deltapine Seed DP 5644RR 15,744 4.45 4.21 AgriPro Seeds APX 9663 32,911 9.30 8.81 Deltapine DP 5806 RR 33,808 9.55 9.05 Unisouth Genetics USC 7577RR 34,553 9.76 9.05 DEKALB Seeds CX556GCR 37,466 10.58 10.03 Terra Intermational Seed TS556 41,860 11.83 11.20 Unisouth Genetics USC 7557RR 44,409 12.57 11.91 Cache River Valley Seed Dixix X3757 47,008 13.28 12.38 Terra Intermational Seed TS556RR 51,264 14.48 13.72 AgriPro Seed AP588UC of AR 57,622 16,28 15.42 R95-78 (U of AR) 57,622 16,28 15.42 R95-202 (U of AR) 57,822 16.34 15.48 TerraIntermational Seed TS56RR 60,320 17.04 16.14 AgriPro Seed AP5090RNTS 59,020	Cultivar ^a	per pot ^b	index (Pf/Pi) ^c	reproduction to Forrest ^d
UAP Midsouth UAPX 0055RR 6,108 1.73 1.64 Deltapine Sects AP 560R/N 32,252 9,11 8,63 AgriPro Sects AP 560R 32,921 9,30 8,81 Deltapine DP 5806 RR 33,808 9,55 9,05 Unisouth Genetics USC 5757RR 34,553 9,76 9,05 DEKALE Secds CX556CRR 37,466 10,58 10,03 Terra International Secd TS556 41,800 11,83 11,20 Unisouth Genetics USC 7557R 47,008 13,28 12,28 Terra International Secd TS556RR 51,264 14,48 13,72 R95-798 (U of AR) 56,700 16,03 15,19 Mifarm WF590RR 57,622 16,28 15,42 R95-210 (U of AR) 57,822 16,34 15,48 TerraI International Secd TS56RR 60,320 17,04 16,14 Agror Secd AC 5602 60,068 18,38 17,41 Delta King Secd X15057RR 60,320 17,04 16,14 Agror Secd AC 5602 60,608 18,33	Forrest (Check)	3,736	1.06	1.00
Deltapine Seed DP 5644R 15,744 4.45 4.21 AgriPro Seeds AP 5608RN 32,252 9.11 8.63 AgriPro Seeds APK 9563 32,911 9.30 8.81 Deltapine DP 5606 RR 33,808 9.55 9.05 Unisouth Genetics USC 7577RR 34,553 9.76 9.06 DEKALB Seeds CX556CRR 37,466 10.58 10.03 Cache River Valley Seed Disis X5757 44,090 12,57 11.91 Cache River Valley Seed Disis X5757 44,090 12,57 11.91 Cache River Valley Seed Disis X5757 47,008 13,28 12,58 Terra International Seed TS556RR 51,264 14,48 13,72 AgriPro Seed AP558R KD 57,217 16,16 15,31 Wilfarm WT500RR 57,832 16,34 15,42 R95-281 (U of AR) 57,832 16,40 15,53 Wilfarm WT500RR 65,030 17,04 16,14 Agrow Seed ATK 579RR 69,020 17,04 16,14 Agrow Seed ATG 5002 72,377 19,4	UAP Midsouth UAPX 0055RR	6,108	1.73	1.64
AgriPro Secch AP 560R/N 32,252 9.11 8.63 AgriPro Secch APX 9563 32,911 9.30 8.81 Deltapine DP 5806 RR 33,808 9.55 9.05 Unisouth Genetics USC 7577RR 34,553 9.76 9.05 Discuth Genetics USC 7557RR 34,653 9.76 9.05 Unisouth Genetics USC 7557RR 44,490 12.57 11.91 Cache River Valley Seed Dixie X3757 47,008 13.28 12.28 Terra International Seed TS556RR 51,264 14.48 13.72 R95-798 (U of AR) 57,622 16.63 15.19 AgriPro Seed AP558RR 57,217 16.16 15.31 Wilkrow S2900 RNNSTS 59,020 16.67 15,73 Wilkrows 2500 RNN 68,032 19.22 18.31 Wilkrows 2500 RNN 68,032 19.20 18.18 Wilkrows 2500 RNN 68,032 19.22 18.21 Delta King Seed XTJ[675RR 69,020 19.26 19.34 Optica King Seed TDK 5915R 69,020 19.27	Deltapine Seed DP 5644RR	15,744	4.45	4.21
AgriPro Sects APX 9563 32,911 9.30 8.81 Delrapine DP 5866 RR 33,808 9.55 9.05 Unisouth Genetics USC 7577RR 34,553 9.76 9.05 DEKALB Seeds CX556CRR 37,466 10.58 10.03 Terra International Sect TS557 44,490 12.57 11.91 Cache River Valley Seed Disix S757 47,008 13.28 12.38 Terra International Sect TS556RR 51,264 14.48 13.72 Sp5-788 (U of AR) 56,760 16.63 15.19 AgriPro Sect APES8RR 57,822 16.28 15.42 R95-2210 (U of AR) 57,822 16.34 15.48 Villcross 2590 RNSTIS 59,020 16.67 15.79 Delta King Sect X1J675RR 60,320 17.04 16.14 Agrov Sect AG 5062 65,068 18.38 17.41 DeltaKing Sect X1J675RR 68,200 19.22 18.21 DEKALB Seed CX 550 RR 68,376 19.32 18.30 DeltaKing Sect X1J665RR 68,576 19.37	AgriPro Seeds AP 569RR/N	32,252	9.11	8.63
Deltapine DP 5806 RR 33,808 9.55 9.05 Unisonth Genetics USG 5757RR 34,555 9.76 9.05 DEKALB Seeds CN556CR 37,466 10.58 10.03 Terra International Seed TS556 41,860 11.83 11.20 Unisouth Genetics USG 7557RR 44,490 12.57 11.91 Cache River Valley Seed Dixic X5757 47,008 13.28 12.58 Terra International Sect TS556RR 51,264 14.48 13.72 R95-798 (U of AR) 57,622 16.28 15.42 Wilkram WF590RR 57,622 16.28 15.42 R95-2210 (U of AR) 57,822 16.34 15.48 Terral Seed TVX 5794RR 58,038 16.40 15.53 Wilkross 2590 RRNSTS 59,020 16.67 15.79 Delta King Seed XTJ 6751R 60,320 17.04 16.14 Agrow Seed AG 56002 65,068 18.38 17.41 Deltapine Seed TDX 5915R 67,951 19.20 18.18 Wiltroxox 2500 RR 68,376 19.32	AgriPro Seeds APX 9563	32,911	9.30	8.81
Unisonth Genetics USG 7577RR 34,553 9.76 9.05 DEKALB Seeds CX556CRR 37,466 10.58 10.03 Terra International Seed TS556 41,860 11.83 11.20 Unisouth Genetics USG 7557RR 44,490 12.57 11.91 Cache River Valley Seed Disix X5757 47,008 13.28 12.58 Terra International Seed T5556RR 51,264 14.48 13.72 R95-788 (U of AR) 56,760 16.03 15.19 AgriPro Seed AP588RR 57,217 16.16 15.31 Willarm WF590RR 57,832 16.34 15.48 Terral Seed TVX 57944RR 58,038 16.40 15.79 Delta King Seed X1J6758R 60,320 17.04 16.14 Aggrow Seed AG 5602 65,068 18.38 17.41 Deltaking Seed XTJ675RR 68,206 19.22 18.21 DEKALB Seed CX 550 RR 68,206 19.27 18.25 DT96680 (SDA-ARS) 68,600 19.33 18.36 Hornbeck Seed HBK St920 72,377 20	Deltapine DP 5806 RR	33,808	9.55	9.05
DEKALB Seeds CX556CR 37,466 10.58 10.03 Terra International Seed TS556 41,860 11.83 11.20 Unisouth Genetics USG 7557RR 44,490 12.57 11.91 Cache River Valley Seed Dixic X5757 47,008 13.28 12.58 Terra International Seed TS556RR 51,264 14.48 13.72 R95-798 (U of AR) 56,760 16.03 15.19 AgriPto Seed AF588RR 57,217 16.16 15.31 Wilkrow WE900R 57,632 16.34 15.42 R95-2210 (U of AR) 57,632 16.34 15.43 Wilkross 2590 RRNSTS 59,020 16.67 15.79 Delta King Seed XTJ6754R 60,332 19.22 18.21 Dicka King Seed XTG6554R 68,362 19.22 18.21 Dicka King Seed CX 50 RR 68,200 19.27 18.30 Direla King Seed TR 59154R 68,500 19.38 18.36 Hilrows 2580 RRN 68,200 19.27 18.25 Direla King Seed TS S157 70.40 19.43	Unisouth Genetics USG 7577RR	34,553	9.76	9.05
Terra International Seed TS556 41,860 11.83 11.20 Unisouth Genetics USG TS57R 44,400 12.57 11.91 Cache River Valley Seed Dixie X5757 47,008 13.28 12.58 Terra International Seed TS550R 51,204 14.48 13.72 R95-788 (U of AR) 56,760 16.03 15.19 AgriPro Seed AP588RR 57,217 16.16 15.31 Wilfarm WF590RR 57,622 16.28 15.42 R95-281 (U of AR) 57,832 16.34 15.48 Terral Seed TVX 5794RR 58,038 16.40 15.53 Wilcross 2590 RRNTS 59,020 16.67 15.79 Delta King Seed XTJ675RR 60,320 17.04 16.14 Agrow Seed AC 5602 65.068 18.38 17.41 Delta King Seed XTJ665RR 68,200 19.22 18.21 DF64.840 (USDA-ARS) 68,366 19.38 18.36 Hornbeck Seed HBK R5920 72,377 20.45 19.37 Wilfarm WF590RR 72,272 21.83 <	DEKALB Seeds CX556CRR	37,466	10.58	10.03
Unisouth Genetics USG 7557R 44,490 12.57 11.91 Cache River Valley Seed Dixie X5757 47,008 13.28 12.58 Terra International Seed TS556R 51,264 14.48 13.72 R95-798 (U of AR) 56,760 16.03 15.19 Agirbro Seed AP588R 57,217 16.16 15.31 Wilkarm WF590R 57,622 16.28 15.42 R95-2210 (U of AR) 57,832 16.34 15.53 Wilcross 2590 RNNSTS 59,020 16.67 15.79 Delta King Seed XTJG75RR 60,320 17.04 16.14 Agrow Seed AG 5602 65,068 18.38 17.41 Deltapine Seed DYS 5915RR 67,951 19.20 18.18 Wilcross 2580 RN 68,200 19.27 18.25 DT96.6440 (USDA-ARS) 68,376 19.32 18.30 Delta King Seed XTJG65RR 68,600 19.38 18.36 Hornbeck Seed HBK K5990 69,162 19.54 18.51 Hornbeck Seed HBK K5990 72,377 20.45 19.37 Wilfarm WF590RR 72,2377 20.45 19	Terra International Seed TS556	41,860	11.83	11.20
Cache River Valley Seed Dixie X5757 47,008 13.28 12.58 Terra International Seed T5556R 51,264 14.48 13.72 R95-788 (U of AR) 56,760 16.03 15.19 AgriPro Seed AP588RR 57,217 16.16 15.31 Willarm WF590RR 57,622 16.28 15.42 R95-2210 (U of AR) 58,038 16.40 15.53 Willcross Z590 RNNSTS 59,020 16.67 15.79 Delta King Seed XTJ675RR 60,320 17.04 16.14 Aggrow Seed AG 5602 65,068 18.38 17.41 Deltapine Seed DYS 5915RR 67,951 19.20 18.18 Willcross 2580 RRN 68,200 19.27 18.25 DT96-6840 (USDA-ARS) 68,600 19.38 18.36 Hornbeck Seed HBK 5990 69,162 19.54 18.51 Hornbeck Seed HBK 75920 72.377 20.45 19.37 Wilfarm WF590RR 72.835 20.57 19.49 DT96-16809 (USDA-ARS) 74.640 21.08 29.97 <td>Unisouth Genetics USG 7557RR</td> <td>44,490</td> <td>12.57</td> <td>11.91</td>	Unisouth Genetics USG 7557RR	44,490	12.57	11.91
Terra International Seed TS556RR 51,264 14.48 13.72 R95-798 (U of AR) 56,760 16.03 15.19 AgriPro Seed AP588RR 57,217 16.16 15.31 Wilkarn WE590RR 57,622 16.28 15.42 R95-2210 (U of AR) 57,832 16.34 15.53 Wilkross 2590 RNNTS 59,020 16.67 15.79 Delta King Seed XTJ675RR 60,320 17.04 16.14 Agrow Seed AG 5602 65,068 18.38 17.41 Deltapine Seed DYS 9015RR 67,951 19.20 18.18 Willcross 2580 RN 68,032 19.22 18.21 DF64.840 (USDA-ARS) 68,376 19.32 18.30 Delta King Seed XTJ665RR 68,600 19.38 18.36 Hornbeck Seed HBK K5920 72,377 20.45 19.37 Wilfarm WE590RR 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed S02 78.168 22.08 20.92 Progeny Ag. Products EK XP 5700 82.504 23.31 22.08 </td <td>Cache River Valley Seed Dixie X5757</td> <td>47,008</td> <td>13.28</td> <td>12.58</td>	Cache River Valley Seed Dixie X5757	47,008	13.28	12.58
R95-798 (U of AR) 56,760 16.03 15.19 AgriPro Seed AP588RR 57,217 16.16 15.31 Wilfarm WF590RR 57,622 16.28 15.42 R95-2210 (U of AR) 57,832 16.34 15.48 Terral Seed TVX 5794RR 58,038 16.40 15.53 Wilcross 2500 RNSTS 59,020 16.67 15.79 Delta King Seed XT[675RR 60.320 17.04 16.14 Agrow Seed AG 5602 65.068 18.38 17.41 Deltapine Seed DYX 5915RR 67,951 19.20 18.18 Wilcross 2500 RN 68.032 19.22 18.30 Delta King Seed XT[665RR 68.600 19.38 18.36 Hornbeck Seed HBK K5920 72,377 20.45 19.37 Wilfarm WF590RR 72,835 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed HFK K5920 72,377 20.45 19.37 Wilfarm WF590RR 72,22 21.83 20.68 De	Terra International Seed TS556RR	51,264	14.48	13.72
AgriPro Seed AP588RR 57,217 16.16 15.31 Wilfurm WF590R 57,622 16.28 15.42 R95-2210 (U of AR) 57,832 16.34 15.45 Terral Seed TVX 5794RR 58,038 16.40 15.53 Willcross 2590 RNNTS 59,020 16.67 15.79 Delta King Seed XTJ675RR 60,320 17.04 16.14 Agrow Seed AG 5602 65.068 18.38 17.41 Deltapking Seed XTJ675RR 68,202 19.22 18.21 Diffected DYX 550 RR 68,200 19.22 18.30 Delta King Seed XTJ665RR 68,600 19.38 18.36 Hornbeck Seed HBK 75900 69,162 19.54 18.51 Hornbeck Seed HBK 75900 72,377 20.45 19.37 Wilfarm WF5900RR 72,835 20.57 19.49 D176-16809 (USDA-ARS) 74,640 21.08 19.97 Terra Intermational TS 5879RR 77,922 22.03 20.87 Agrow Seed AG 5802 78,992 22.03 20.87 Agrow Seed AG 5802 78,992 24.31 22.08	R95-798 (U of AR)	56.760	16.03	15.19
Wilfarm WF590RR 57,622 16.28 15.42 R95-2210 (U of AR) 57,832 16.34 15.48 R95-2210 (U of AR) 58,038 16.40 15.53 Willcross 2590 RRNSTS 59,020 16.67 15.79 Delta King Seed ATJ675RR 60,320 17.04 16.14 Agrow Seed AG 5602 65.068 18.38 17.41 Deltapine Seed DYX 5915RR 67.951 19.20 18.18 Willcross 2580 RRN 68.032 19.22 18.21 DEKALB Seed CX 550 RR 68.576 19.32 18.36 Hornbeck Seed HBK 5990 69,162 19.54 18.51 Hornbeck Seed HBK 5990 72,377 20.45 19.37 Wilfarm WF590RR 72,825 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFK Seed FR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed S580 73,858 23.80 22.55	AgriPro Seed AP588RR	57.917	16.16	15.31
R95-2210 (U of AR) 57,832 16.34 15.48 Terral Seed TVX 5794RR 58,038 16.40 15.53 Willcross 2500 RRNSTS 59,020 16.67 15.79 Delta King Seed XTJ675RR 60,320 17.04 16.14 Asgrow Seed AG 5602 65,068 18.38 17.41 Deltapine Seed DPX 5915RR 67,951 19.20 18.18 Willcross 2580 RRN 68,032 19.22 18.21 DEKALB Seed CX 550 RR 68,376 19.32 18.30 Delta King Seed XTJ665RR 68,600 19.38 18.36 Hornbeck Seed HBK 75900 72,377 20.45 19.37 Wilfarm WF990RR 72,385 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FRR Sed FFR 594 74,640 21.08 19.97 Terra Intermational TS 5879RR 77,922 21.83 20.68 Agrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terra Intermational TS 557 RR 86,372 24.40 <td< td=""><td>Wilfarm WF590RR</td><td>57.622</td><td>16.28</td><td>15.42</td></td<>	Wilfarm WF590RR	57.622	16.28	15.42
Terral Seed TVX 5794R 58,038 16,40 15.53 Willcross 2590 RRNSTS 59,020 16,67 15.79 Delta King Seed XT[675RR 60,320 17.04 16.14 Asgrow Seed AG 5602 65,068 18.38 17.41 Delta King Seed XT[675RR 67,951 19.20 18.18 Willcross 2580 RRN 68,032 19.22 18.21 DEKALB Seed CX 550 RR 68,376 19.32 18.30 Delta King Seed XT[655RR 68,600 19.38 18.36 Hornbeck Seed HBK K5920 72,377 20.45 19.37 Wilfarm WF590RR 72,335 20.57 19.49 DT96-6809 (USDAARS) 74,632 20.91 19.81 FrR Seed FR 594 74,640 21.08 19.97 Terra International TS 5879R 77,972 21.83 20.68 Delta King Seed TV5666R 84,268 23.80 22.95 Novariis Seeds S995R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Novariis Seeds S9955R 86,372 24.40 23.11	R95-9210 (U of AR)	57 832	16.34	15.48
Number Display Display Display Willcross 2590 RNNSTS 59,020 16.67 15.79 Delta King Seed XTJ[675RR 60,320 17.04 16.14 Asgrow Seed AG 5602 65,068 18.38 17.41 Deltapine Seed DYX 5915RR 67,951 19.20 18.18 Willcross 2580 RN 68,032 19.22 18.21 Diffeed CX 550 FR 68,200 19.32 18.30 Delta King Seed XTJ[655RR 68,600 19.38 18.36 Hornbeck Seed HBK R5920 72,377 20.45 19.37 Wilfarm WF590RR 72,835 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral International TS558 87,828 24.40 23.11 Progeny Ag. Products EK XP 5500 87,680	Terral Seed TVX 5794RR	58 038	16.40	15.10
Introls 250 10,13 10,13 10,13 Delta King Seed XT [675RR 60,320 17,04 16,14 Asgrow Seed AG 5602 65,068 18,38 17,41 Deltapine Seed DY 5915R 67,951 19,20 18,18 Willcross 2580 RRN 68,032 19,22 18,21 DEKALB Seed CX 550 RR 68,032 19,22 18,23 DP46,6840 (USDA-ARS) 68,376 19,32 18,30 Delta King Seed XT [665RR 68,600 19,38 18,36 Hornbeck Seed HBK N5920 72,377 20,45 19,37 Wilfarm WF590RR 72,835 20,57 19,49 DT96-16809 (USDA-ARS) 74,032 20,91 19,81 FFR Seed FFR 594 74,640 21.08 19,97 Terra International TS 5879RR 77,272 21.83 20,68 Asgrow Seed AG 5802 78,168 22.08 20,92 Progeny Ag. Products EK XP 5700 82,504 23.31 22,05 Novarti Seeds S995R 86,372 24.40 23.11 <td>Willcross 2590 RENSTS</td> <td>59,030</td> <td>16.67</td> <td>15.55</td>	Willcross 2590 RENSTS	59,030	16.67	15.55
Define Ming Sect AG 5602 65,068 18.38 17.41 Deltapine Seed DPX 5915RR 67,951 19.20 18.18 Willcross 2580 RRN 68,032 19.22 18.21 DEKALB Seed CX 550 RR 68,030 19.27 18.25 DT96-6840 (USDA-ARS) 68,376 19.32 18.30 Hornbeck Seed HBK 5990 69,162 19.54 18.51 Hornbeck Seed HBK 7990 72,377 20.45 19.37 Wilfarm WF500R 72,835 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 Frex Seed FIR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Agrow Seed AG 560R 84,268 23.80 22.55 Novarits Seeds X955R 86,372 24.40 23.11 Progen Ag. Products EK XP 5600 87,882 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 23.60 <td>Delta King Seed XTI675RR</td> <td>60 320</td> <td>17.04</td> <td>16.14</td>	Delta King Seed XTI675RR	60 320	17.04	16.14
Agrow Seed A 5002 05,003 10.503 17.41 Deltapine Seed DPX 5915RR 67,951 19.20 18.18 Willcross 2580 RRN 68,032 19.22 18.21 DEKALB Seed CX 550 RR 68,200 19.27 18.25 DT96-6840 (USDA-ARS) 68,376 19.32 18.30 Delta King Seed XTJ665RR 68,600 19.38 18.36 Hornbeck Seed HBK 5990 69,162 19.54 18.51 Hornbeck Seed HBK 5920 72,377 20.45 19.37 Wilfarm WF590RR 74,032 20.91 19.81 FFK Seed FFK 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed JCS660R 79,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terra International TS558 87,828 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24,77	Asgrow Seed AC 5609	65.068	18.28	17.41
Delta finite Seco DAX 5915KK 0,391 19.20 18.10 Willcross 2580 RNN 68,032 19.22 18.21 DEKALB Seed CX 550 RR 68,376 19.32 18.30 Delta King Seed XTJ665RR 68,600 19.38 18.36 Hornbeck Seed HBK 5990 69,162 19.54 18.51 Hornbeck Seed HBK 5920 72,377 20.45 19.37 Wilfarm Wr590RR 72,835 20.57 19.49 DT96-16809 (USDAARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Tertra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5800 77,992 22.03 20.87 Agrow Seed AG 5802 78,168 22.08 29.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terra International TS558 87,828 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.41 23.60 V92:0254 (VPI) 88,688 26.57 <td< td=""><td>Asgrow Seed AG 5002</td><td>67.051</td><td>10.30</td><td>17.41</td></td<>	Asgrow Seed AG 5002	67.051	10.30	17.41
Wintrobs 2300 KNN 00,052 19,22 16,21 DEKALB Seed CX 550 RR 68,376 19,32 18,25 DT96-66840 (USDA-ARS) 68,600 19,38 18,36 Hornbeck Seed HBK 5990 69,162 19,54 18,51 Hornbeck Seed HBK 5990 72,377 20,45 19,37 Wilfarm WF590RR 72,835 20,57 19,49 DT96-16809 (USDA-ARS) 74,032 20,91 19,81 FFR Seed FFR 594 74,640 21.08 19,97 Terra International TS 5879RR 77,92 21.03 20,87 Asgrow Seed AG 5802 78,168 22.08 20,92 Progeny Ag. Products EK XP 5700 82,504 23,31 22.08 Terral Seed TV5660R 84,268 23,80 22,55 Novartis Seeds X9955R 86,372 24,40 23,11 Progeny Ag. Products EK XP 5600 87,680 24,77 23,46 Unisouth Genetics USG 599nRR 92,628 26,17 24,79 Agrow Seed A5570 94,960 26,82 25,41	Willeroge 9580 DDN	68 029	19.20	10.10
Dirknich Seed Obs. 200 19.27 16.25 Dirbéc6840 (USDA-ARS) 68,376 19.32 18.30 Delta King Seed XTJ665RR 68,600 19.38 18.36 Hornbeck Seed HBK 5990 69,162 19.54 18.51 Hornbeck Seed HBK K5920 72,377 20.45 19.37 Wilfarm WF590RR 72,337 20.45 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progen Ag. Products EK XP 5700 82,554 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novaritis Seeds X9955R 86,372 24.40 23.11 Progen Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 25.60 V92-0254 (VPI) 88,688 25.05	DEKALP Sood CV 550 PD	68 900	19.22	10.21
D190040 (USDAARS) 06,370 19.32 18.36 Hornbeck Seed HBK 5990 69,162 19.54 18.36 Hornbeck Seed HBK 5990 72,377 20.45 19.37 Wilfarm WF590RR 72,835 20.57 19.49 D196-16609 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,727 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 V92-0254 (VPI) 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Vailey Seed Dixie X5799 96,780 27.34	DERALD SEEU GA 550 KK	08,200	19.27	10.25
Detit Ating Seed A 1 j050KK 05,000 19.35 18.30 Hornbeck Seed HBK 85900 69,162 19.54 18.51 Hornbeck Seed HBK 85920 72,377 20.45 19.37 Wilfarm WF590RR 72,835 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed JS60 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.	D190-0840 (USDA-AKS)	08,370	19.32	18.30
HOTIDECK Seed HBK K5990 09,102 19.34 18.51 HOTIDECK Seed HBK K5920 72,377 20.45 19.37 Wilfarm WF590RR 72,835 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Isced TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Hartz Variety HX560167RR 88,168 24.91 23.60 V92-0254 (VPI) 88,688 25.05 23.73 Unisouth Genetics USG 599nR 92,628 26.17 24.79 Asgrow Seed AG 5701 98,672 27.87 26.41 Gache River Valley Seed Dixie X5799 96,780 27.3	Lenghach Seed A 1 J005KK	08,000	19.58	18.30
HOTDBCK Seed HBK R5920 72,37 20.45 19.37 Wilfarm WF590RR 72,885 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879R 77,722 21.83 20.68 Delta King Seed 5800 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 23.60 V92-0254 (VPI) 88,682 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed A5701 98,672 27.87 26.41 Cache River Valley Seed Dixie X5799 96,780 27.34 </td <td>Hornbeck Seed HBK 5990</td> <td>09,102 70,977</td> <td>19.54</td> <td>18.51</td>	Hornbeck Seed HBK 5990	09,102 70,977	19.54	18.51
Willarm WF9500K 72,855 20.57 19.49 DT96-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed A5579 94,960 26.82 25.41 Cache River Valley Seed Dixie X5799 96,780 27.87 26.41 Pioneer Variety 95B53 99,455 28.09 27.96 Deltapine Seed DP 5960 RR 100,376	Hornbeck Seed HBK K5920	72,377	20.45	19.37
D190-16809 (USDA-ARS) 74,032 20.91 19.81 FFR Seed FFR 594 74,640 21.08 19.97 Ferra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 23.60 V92-0254 (VPI) 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Vailey Seed Dixie X5799 96,780 27.34 25.90 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Variety 95B53 99,455 28.0	Wilfarm WF590RR	72,835	20.57	19.49
FFR Seed FFR 594 74,640 21.08 19.97 Terra International TS 5879RR 77,272 21.83 20.68 Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Variety 95B53 99,455 28.09 27.96 Deltapine Seed DP 5960 RR 100,376 28.35 26.86 Progeny Ag. Products EK XP 5900RR 100,512 29.24 27.70 Deltapine Seed DP 5960 RR 103,725 29.30 27.76 Pioneer Variety 95B95 104,	D196-16809 (USDA-ARS)	74,032	20.91	19.81
Terra International TS 5879RR77,27221.8320.68Delta King Seed 558077,99222.0320.87Asgrow Seed AG 580278,16822.0820.92Progeny Ag. Products EK XP 570082,50423.3122.08Terral Seed TV5666RR84,26823.8022.55Novartis Seeds X9955R86,37224.4023.11Progeny Ag. Products EK XP 560087,68024.7723.46Terra International TS55887,82824.8123.50Hartz Variety HX560167RR88,16824.9123.60V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DF 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,57629.3027.76Deltapine Seed DF 5960RR103,72529.3027.76Progeny Ag. Products EK XP 5900RR103,72529.3027.76Poltapine Seed DF 5960RR103,72529.3027.76Poneer Variety 95B55104,46429.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety 95B95104,46829.5127.96Hartz Variety 95B95104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55 <tr<< td=""><td>FFR Seed FFR 594</td><td>74,640</td><td>21.08</td><td>19.97</td></tr<<>	FFR Seed FFR 594	74,640	21.08	19.97
Delta King Seed 5580 77,992 22.03 20.87 Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 23.60 V92-0254 (VP1) 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed A5959 94,960 26.82 25.41 Cache River Valley Seed Dixie X5799 96,780 27.34 25.90 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Variety 95B53 99,455 28.09 27.96 Deltapine Seed DP 5960 RR 100,376 28.35 26.86 Progeny Ag. Products EK XP 5900RR 100,680 28.44 26.94 DEKALB Seed CX580CRR 103,512 <td>Terra International TS 5879RR</td> <td>77,272</td> <td>21.83</td> <td>20.68</td>	Terra International TS 5879RR	77,272	21.83	20.68
Asgrow Seed AG 5802 78,168 22.08 20.92 Progeny Ag. Products EK XP 5700 82,504 23.31 22.08 Terral Seed TV5666RR 84,268 23.80 22.55 Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag. Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 23.60 V92-0254 (VPI) 88,688 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed A5959 94,960 26.82 25.41 Cache River Valley Seed Dixie X5799 96,780 27.34 25.90 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Variety 95B53 99,455 28.09 27.96 Deltapine Seed DP 5960 RR 100,376 28.35 26.86 Progeny Ag. Products EK XP 5900RR 100,680 28.44 26.94 DEKALB Seed CX580CRR 103,712 29.24 27.70 Deltapine Seed DP 5960RR 103,7	Delta King Seed 5580	77,992	22.03	20.87
Progeny Ag. Products EK XP 570082,50423.3122.08Terral Seed TV5666RR84,26823.8022.55Novartis Seeds X9955R86,37224.4023.11Progeny Ag. Products EK XP 560087,68024.7723.46Terra International TS55887,82824.8123.50Hartz Variety HX560167RR88,68824.9123.60V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,37232.3130.61	Asgrow Seed AG 5802	78,168	22.08	20.92
Terral Seed TV5666RR84,26823.8022.55Novartis Seeds X9955R86,37224.4023.11Progeny Ag. Products EK XP 560087,68024.7723.46Terra International TS55887,82824.8123.50Hartz Variety HX560167RR88,16824.9123.60V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.96Hartz Variety 95B55104,46429.5127.96Hartz Variety 95B95104,46429.5127.96Hartz Variety 95B95104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.61TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Progeny Ag. Products EK XP 5700	82,504	23.31	22.08
Novartis Seeds X9955R 86,372 24.40 23.11 Progeny Ag, Products EK XP 5600 87,680 24.77 23.46 Terra International TS558 87,828 24.81 23.50 Hartz Variety HX560167RR 88,168 24.91 23.60 V92-0254 (VPI) 88,668 25.05 23.73 Unisouth Genetics USG 599nRR 92,628 26.17 24.79 Asgrow Seed A5959 94,960 26.82 25.41 Cache River Valley Seed Dixie X5799 96,780 27.34 25.90 Asgrow Seed AG 5701 98,672 27.87 26.41 Pioneer Variety 95B53 99,455 28.09 27.96 Deltapine Seed DF 5960 RR 100,376 28.35 26.86 Progeny Ag. Products EK XP 5900RR 100,680 28.44 26.94 DEKALB Seed CX580CRR 103,512 29.24 27.70 Deltapine Seed DP 5960RR 103,525 29.30 27.76 Pioneer Variety 95B95 104,464 29.51 27.96 Hartz Variety H5855 104,468 29.51 27.96 Delta Grow Seed 5950RR 105,596 <td>Terral Seed TV5666RR</td> <td>84,268</td> <td>23.80</td> <td>22.55</td>	Terral Seed TV5666RR	84,268	23.80	22.55
Progeny Ag. Products EK XP 560087,68024.7723.46Terra International TS55887,82824.8123.50Hartz Variety HX560167RR88,16824.9123.60V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Novartis Seeds X9955R	86,372	24.40	23.11
Terra International TS55887,82824.8123.50Hartz Variety HX560167RR88,16824.9123.60V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Deltapine Seed DP 5960RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Progeny Ag. Products EK XP 5600	87,680	24.77	23.46
Hartz Variety HX560167RR88,16824.9123.60V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,71229.2427.70Deltapine Seed DP 5960RR104,46429.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety H5855104,46829.5127.96Nearty Variety M585106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Terra International TS558	87,828	24.81	23.50
V92-0254 (VPI)88,68825.0523.73Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Detagrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Hartz Variety HX560167RR	88,168	24.91	23.60
Unisouth Genetics USG 599nRR92,62826.1724.79Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Hartz Variety H5855106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	V92-0254 (VPI)	88,688	25.05	23.73
Asgrow Seed A595994,96026.8225.41Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Unisouth Genetics USG 599nRR	92,628	26.17	24.79
Cache River Valley Seed Dixie X579996,78027.3425.90Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Asgrow Seed A5959	94,960	26.82	25.41
Asgrow Seed AG 570198,67227.8726.41Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Cache River Valley Seed Dixie X5799	96,780	27.34	25.90
Pioneer Variety 95B5399,45528.0927.96Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Asgrow Seed AG 5701	98,672	27.87	26.41
Deltapine Seed DP 5960 RR100,37628.3526.86Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Pioneer Variety 95B53	99,455	28.09	27.96
Progeny Ag. Products EK XP 5900RR100,68028.4426.94DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Deltapine Seed DP 5960 RR	100,376	28.35	26.86
DEKALB Seed CX580CRR103,51229.2427.70Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Progeny Ag. Products EK XP 5900RR	100,680	28.44	26.94
Deltapine Seed DP 5960RR103,72529.3027.76Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	DEKALB Seed CX580CRR	103,512	29.24	27.70
Pioneer Variety 95B95104,46429.5127.96Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Deltapine Seed DP 5960RR	103,725	29.30	27.76
Hartz Variety H5855104,46829.5127.96Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Pioneer Variety 95B95	104,464	29.51	27.96
Delta Grow Seed 5950RR105,59629.8328.26Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Hartz Variety H5855	104,468	29.51	27.96
Asgrow Seed AG 5901106,66830.1328.55UAP Midsouth UAPX 0085RR107,08030.2528.66Novartis Seeds x9857R113,88832.1730.48TN 96-58 (U of TN)114,10132.2330.54Asgrow Seed AG 5801114,37232.3130.61	Delta Grow Seed 5950RR	105,596	29.83	28.26
UAP Midsouth UAPX 0085RR 107,080 30.25 28.66 Novartis Seeds x9857R 113,888 32.17 30.48 TN 96-58 (U of TN) 114,101 32.23 30.54 Asgrow Seed AG 5801 114,372 32.31 30.61	Asgrow Seed AG 5901	106.668	30.13	28.55
Novartis Seeds x9857R 113,888 32.17 30.48 TN 96-58 (U of TN) 114,101 32.23 30.54 Asgrow Seed AG 5801 114,372 32.31 30.61	UAP Midsouth UAPX 0085RR	107.080	30.25	28.66
TN 96-58 (U of TN) 114,101 32.23 30.54 Asgrow Seed AG 5801 114,372 32.31 30.61	Novartis Seeds x9857R	113.888	32.17	30.48
Asgrow Seed AG 5801 114,372 32.31 30.61	TN 96-58 (U of TN)	114 101	32.93	30.54
	Asgrow Seed AG 5801	114,372	32.31	30.61

TABLE 4. (Continued
------------	-----------

Cultivar ^a	Final population per pot ^b	Reproductive index (Pf/Pi) ^c	Ratio of cultivar reproduction to Forrest ^d
Deltapine Seed DP 5655	114,480	32.34	30.64
Deltapine Seed DPX 5718RR	116,160	32.81	31.09
Novartis Seeds S59-V6	118,288	33.41	39.55
TN 94-238 (U of TN)	126,345	35.69	33.81
Delta Grow Seed 5810	129,613	36.61	37.58
Braxton (Check)	132,549	37.44	35.47
Hornbeck Seed HBK58	142,168	40.16	38.05
TN 93-99 (U of TN)	152,456	43.07	40.50
Asgrow Seed AT 5901	160,208	45.26	42.87
Deltapine Seed DP 5989	160,488	45.34	42.95
Hartz Variety H 5999RR	222,680	62.90	59.59

^a Forrest = resistant check; Braxton = susceptible check. Five replications per entry.

^b Final population of eggs from roots and vermiform nematodes from 500 cm³ soil in pots inoculated with 3,540 vermiform nematodes.

^c Reproductive Index = final population/initial population (Pf/Pi).

^d Ratio of cultivar reproduction to Forrest values from transformed data ($\log_{10} [x + 1]$). Values ≥ 14.76 are significantly greater ($P \leq 0.05$) than Forrest.

DISCUSSION

In this study the reproduction index (Pf/ Pi) was higher on the susceptible cultivar check Braxton and the fallow check than in earlier (1998) tests (Robbins et al., 1999), and the ratio of cultivar reproductive indices to the reproductive index of Forrest was much higher in this study than in 1998. Conversely, the Pf/Pi was lower for the resistant checks Forrest and Hartwig in this study than in the 1998 study. Experiment duration of the current study was approximately 2 weeks shorter than 1998, and the inoculation rate was higher. However, the reason for the variation between the two tests remains unknown.

The different reactions for the two varieties (H 4998 RR and H 5000 RR) in this test may be explained in part by their being from different seed sources and by variation in reproduction of reniform nematode on individual plants. Large variations in reniform reproduction were common in many of the cultivars tested and could be attributed to some degree to the fact that the cultivars are not selected for resistance to reniform nematode. Consequently, individual plants within cultivars may vary widely in their degree of suitability as hosts for *R. reniformis*.

In both this study and in the previous study (Robbins et al., 1999), more latermaturing (RMG 4.5 or later) than earliermaturing cultivars were found that were relatively poor hosts for the reniform nematode. This may be due to the greater frequency of occurrence of the soybean breeding line Peking in the backgrounds of southern soybean cultivars. Peking, which is resistant to both the soybean cyst nematode and to the reniform nematode, has been an integral part of many southern breeding programs where soybean cyst nematode resistance was a major focus.

This study demonstrates that while the majority of soybean cultivars that are available to southern growers are good hosts for R. reniformis, some cultivars are available that are relatively poor hosts. In soybean fields where reniform nematode population densities are sufficiently high to be of economic concern, these cultivars may limit yield suppression. In addition, the cultivars that are comparable to the resistant standard Forrest in host suitability may be of considerable value in crop rotation programs by lowering population densities for subsequent highly susceptible crops such as cotton. Limited experience in Arkansas indicates that a 2-year rotation with the soybean cultivar Accomac, which has been shown to be a poor host for the reniform nematode (Robbins et al., 1999), resulted in significant improvement in cotton performance the following year (T. L. Kirkpatrick, pers. comm.). Rotation

Cultivar ^a	Final population per pot ^b	Reproductive index (Pf/Pi) ^c	Ratio of cultivar reproduction to Forrest ^d
UAP Midsouth Dyna-Gro 3682	1,284	0.36	0.34
Deltapine Seed Dp 7375 RR	2,599	0.73	0.70
Forrest (Check)	3,736	1.06	1.00
Boggs	7,720	2.18	2.07
Stonewall	11,498	3.25	3.08
Asgrow Seed AG 6101	29,328	8.28	7.85
Sure Grow Seed SG 678 RR	54,851	15.49	14.68
Pioneer Variety 97b61	58,843	16.62	15.75
Deltapine Seed DPX 8S62RR	59,312	16.76	15.87
Hornbeck Seed HBK XR6020	59,712	16.87	15.98
Buckshot 723	59,940	16.93	16.04
N93-1264 (U of TN)	65,513	18.51	17.53
Terra International TS 608RR	66,684	18.84	17.85
Asgrow Seed AG 6201	70,872	20.02	18.97
Terra International TS 608RR	73,934	20.89	19.79
Asgrow Seed AG 6701	74,851	21.14	20.03
Southern States Coop RT-EXP 47360N	75,424	21.31	20.18
Hartz Variety H 7550 RR	83,572	23.61	22.36
Hartz Variety H 6686 RR	91,272	25.78	24.43
Deltapine Seed DP 6200RR	92,068	26.01	24.64
R93-151 (U or AR)	92,146	26.03	24.66
Carver	94,124	26.59	25.19
Southern States Coop RT-EXP 47058N	95,308	26.92	25.51
Benning	97,950	27.67	26.21
Prichard	100,044	28.26	26.77
Hornbeck Seed HBK 79	121,240	34.25	32.44
Southern States Coop RT-EXP 47355N	121,808	34.41	40.72
Hornbeck Seed HBK 6800	127,216	36.00	34.04
Hornbeck Seed HBK X6020	127,424	36.00	34.10
Haskell	127,816	36.11	34.20
Braxton (Check)	132,549	37.44	35.47
Hartz Variety H 7152 RR	137,032	38.71	36.47
Cook	154,424	43.62	41.33
Pioneer Variety 96B21	164,496	46.47	44.02
Hornbeck Seed HBK 6600	182,200	51.47	48.76
Deltapine Seed 6880 RR	240,880	64.05	64.46
Sure Grow Seed SG 759 RR	259,720	73.37	69.50

TABLE 5. Reproduction of *Rotylenchulus reniformis* on 35 selected soybean cultivars in relative maturity group 6.0 or greater.

^a Forrest = resistant check; Braxton = susceptible check. Five replications per entry.

^b Final population of eggs from roots and vermiform nematodes from 500 cm³ soil in pots inoculated with 3,540 vermiform nematodes.

^c Reproductive Index = final population/initial population (Pf/Pi).

^d Ratio of cultivar reproduction to Forrest values from transformed data ($\log_{10} [x + 1]$). Values ≥ 17.75 are significantly greater ($P \leq 0.05$) than Forrest.

with appropriate soybean cultivars in combination with the use of reniform nematodetolerant cotton cultivars (Cook et al., 1997) may hold considerable promise for managing this nematode in southern cropping systems.

LITERATURE CITED

Cook, C. G., A. F. Robinson, and L. N. Namken. 1997. Tolerance to *Rotylenchulus reniformis* and resistance to *Meloidogyne incognita* race 3 in high-yielding breeding lines of upland cotton. Journal of Nematology 29:322–328.

Hussey, R. S., and K. R. Barker. 1973. A comparison of methods of collecting inocula of *Meloidogyne* spp., including a new technique. Plant Disease Reporter 57: 1025–1028.

Jenkins, W. R., 1964. A rapid centrifugal-flotation technique for separating nematodes from soil. Plant Disease Reporter 48:692.

Robbins, R. T., L. Rakes, L. E. Jackson, and D. G. Dombek. 1999. Reniform nematode resistance in selected soybean cultivars. Supplement to the Journal of Nematology 31:667–677.