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An Evaluation of Twelve Maturity Group II Soybean Varieties at Lexington, Kentucky

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AN EVALUATION OF TWELVE MATURITY GROUP II SOYBEAN VARIETIES AT LEXINGTON, KENTUCKY

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In 1993, an on-farm study funded by the Kentucky Soybean Promotion Board showed that the best Maturity Group (MG) II variety tested was quite competitive with the best available MG IV variety. However, other MG II varieties did not fare as well, indicating that careful variety selection will be essential for on-farm success with this MG II cropping system. MG II varieties used in past University of Kentucky tests have been chosen based on their performance in university variety trials where they are normally grown, for example, in Iowa, Illinois, Indiana, and Ohio. Such tests include relatively large numbers of MG II varieties. For example, Iowa routinely tests up to 200 such varieties at multiple locations. Thus, it would seem that Kentucky growers ought to be able to simply use the Iowa results to choose MG II varieties to plant in Kentucky. However, some growers have expressed interest in obtaining yield performance data for MG II varieties grown under Kentucky conditions. Some suspect that our warmer temperatures, heavier insect and disease pressures, and more prevalent soybean cyst nematodes might alter the relative yield ranking of varieties moved well south of their intended growing area. However, recent cooperative work between the University of Kentucky and the University of Minnesota showed no evidence that some early maturing varieties are better suited to "move south" than other varieties. Thus, northern data ought to be suitable for use in MG II variety selection in Kentucky.

Unfortunately, interpreting that data is sometimes a complicated task. For example, no single university trial from Iowa, Illinois, Indiana, or Ohio includes all of the MG II varieties which are currently being offered for sale in Kentucky. For example, SS-FFR 298 is widely available in Kentucky, but is only tested in Ohio. That makes yield comparisons with varieties only tested in Iowa (for example, Stine 2250) difficult. In addition, many of the higher-yielding MG II varieties from northern tests are quite difficult to obtain in Kentucky. Seed companies often choose to market their varieties in specific geographic areas. For example, an outstanding MG II variety tested in Iowa may only be available west of the Mississippi River. Therefore, the objective of this study was to collect preliminary yield performance data for a group of twelve MG II varieties which either have been grown in Kentucky or are available for use in coming seasons.

Materials and Methods

Of the twelve MG II varieties grown, eight were from private companies and four were from public institutions. In addition to the four MG II varieties grown in the 1993 on-farm tests in Kentucky (Pioneer 9273, Stine 2250, Jack, and IA 2008), Elgin 87 and Burlison were added from the public sector. Elgin 87 had been used in many of our past University of Kentucky tests. Burlison had done well in whole field tests in Ohio County. The other six varieties [Agripro 2880, Asgrow A2396 and A2506, Lynk's 5297, Callahan 1290, and Southern States (SS) FFR 298] were from firms interested in the MG II system in Kentucky, but whose varieties had not been chosen for the on-farm Kentucky tests. Rather than use multiple locations, we chose to test at one location and to use four planting dates to get four different sets of growing season conditions. Planting was done in 15 inch rows on April 29, May 24, June 14, and July 13, 1993, on a Maury silt loam soil on the University of Kentucky's experiment station farm near Lexington. Seeding rates were 210,000 seeds/A for the April and July planting dates, and 175,000 seeds/A for the May and June planting dates. Harvesting was done using a small plot combine; and yields were converted to a 13% moisture basis. Four replications were used for each planting date.

Results and Discussion

Averaged across all 12 varieties, the June 14 and May 24 planting dates had the best yields (Table 1). Apparently, the combination of moisture availability and air temperatures favored those planting dates over the other two planting dates. Averaged across all four planting dates, variety performance differed substantially (Table 1). Pioneer 9273 produced significantly more grain than did any of the other 11 varieties tested. Agripro 2880, Asgrow A2396, Stine 2250, Callahan 1290, and Lynk's 5297 fell into the next group. Yield did not differ significantly among these five varieties. Elgin 87, an older variety, could not compete with the newer private varieties. IA 2008 ranked last. Clearly, variety selection must be emphasized as a critical factor for growers considering this MG II cropping system. Interestingly, the relative rankings of the four varieties also used in the 1993 Kentucky on-farm test sponsored by the Kentucky Soybean Promotion Board closely corresponded to the rankings of the same four varieties in the on-station tests.

When the data were presented for individual planting dates, separation of varieties became more difficult (Table 1). For the April planted soybeans, six of the 12 varieties broke the 40 bushel/A mark. Yield did not differ significantly among those six varieties. For the May planted soybeans, one variety (Pioneer 9273) yielded significantly more than any other variety. Seven of the remaining varieties yielded from 44 to 49 bushels/A, and did not differ significantly from the second highest ranking variety (Agripro 2880) for that planting date. For the June planted soybeans, the top group included seven of the twelve varieties. For the July planted soybeans, the top group included eleven of the twelve varieties. Using yield data from multiple environments would appear to be a better variety selection strategy than using yields from a single environment.

Since this test only included 12 of the many MG II varieties potentially available for production in Kentucky, growers must recognize that many other good MG II varieties exist. If grower interest in MG II

varieties continues, perhaps a summary of northern university trials should be provided each year.

Conclusions

Variety selection is a critical factor in the success of the MG II cropping system for Kentucky. Growers should collect as much information as possible about variety performance. Since it is impractical for the University of Kentucky to test all available MG II varieties, producers will need to continue to rely on yield performance data from Iowa, Illinois, Indiana, and Ohio. Perhaps an annual summary of MG II variety performance in those states ought to be made available by the University of Kentucky.

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Table 1. Yield of 12 Maturity Group II soybean varieties from four different planting dates in Lexington in 1993.

	Planting date				
	April 29	May 24	June 14	July 13	Variety
Variety		bushels/A			average
Agripro 2880	44	49	49	34	44
Asgrow A2396	43	44	53	36	44
Asgrow A2506	38	38	49	33	40
Burlison	41	46	44	31	41
Lynk's 5297	38	44	49	36	42
Elgin 87	34	38	45	37	38
IA 2008	34	34	44	33	36
Jack	34	47	49	34	41
Callahan 1290	40	46	46	34	42
Pioneer 9273	45	56	53	37	48
SS-FFR 298	35	40	45	33	38
Stine 2250	40	44	50	35	42
Planting date average	39	44	48	34	41

LSD(0.10) for comparing planting date averages was 4 bushels/A, for variety averages was 2 bushels/A, and for varieties within a planting date was 5 bushels/A.