

Early soybeans in Kentucky

Chad Lee, John Grove and Dennis Egli, University of Kentucky

In Kentucky, Maturity Group IV (also referred to as 'group 4') soybean varieties typically yield better than soybean varieties in other maturity groups. Early group 5 soybean varieties in the southern and western part of Kentucky and late group 3 varieties in central and northern Kentucky typically yield well, also.

Group 4 soybean varieties planted in May will be filling seed during August, which is typically a dry month in Kentucky. If water becomes limiting during seed filling, yields can be reduced. Group 2 soybean varieties may have a very good fit on drought-prone soils by going through seed filling early enough to avoid the typical dry period of August. So, on these drought-prone soils, group 2 soybean varieties may actually yield evenly with or better than group 4 soybean varieties.

Studies were conducted at the University of Kentucky for the past three years to determine if group 2 soybeans could yield as well as group 4 soybeans. Different landscapes were evaluated in the test. Since the backslope and shoulder have shallower soils than the footslope and toeslope, the backslope and shoulder are more prone to drought. The Kentucky Soybean Board funded this project for one year. However, the studies did not experience any extended dry period in 2003 and 2004. In 2005, the only month with surplus precipitation was August! So, the past three years did

not follow the long-term weather trends of a dry August in Kentucky.

Field landscape did not significantly affect yield during all three years. Group 4 soybean varieties yielded about 10% better than group 3 and 20% better than group 2 varieties (Table 1). Group 4 soybeans yielded about 10% better than group 5 soybean varieties the first two years, but group 5 soybean varieties yielded about 12% better than group 4 soybeans in 2005. The yield advantage of the group 5 soybean varieties in 2005 was likely due to the late season rainfall. The earlier-maturing varieties did not benefit from the late-season rainfall.

The expectation of group 2 soybean varieties out-yielding group 4 soybeans on shallow soils is speculation at this point. However, farmers considering group 2 soybeans for harvest and market advantages should try to plant group 2 soybean varieties on drought-prone soils when possible. No single farm operation should have more than about 10 to 20% of the total soybean acreage in group 2 soybeans. One other concern over raising group 2 soybean varieties is that these varieties have not been fully tested in a variety trial in Kentucky. As long as farmers understand these risks with group 2 soybean varieties, these varieties can be a viable option as part of a total soybean production system.

Table 1. Average yields of two soybean varieties from each maturity group across landscape near Lexington, KY.

Year	Maturity Group	Landscape Position						difference ¹	
		summit	shlder	back	foot	toe	average	bu/a	%
		Yield							
		bu/a	bu/a	bu/a	bu/a	bu/a	bu/a		
2003	II	33.7	43.7	41.4	42.3	54.4	40.7	-10.9	-21
	III	45.5	49.7	44.3	46.4	45.9	46.4	-5.2	-10
	IV	47.9	54.0	51.4	56.2	47.6	51.7	0.0	0
	V	40.7	41.7	36.2	43.6	39.5	40.2	-11.5	-22
2004	II	31.2	29.2	33.0	32.3	32.4	31.3	-14.6	-32
	III	41.4	35.7	42.4	40.4	40.5	39.9	-6.0	-13
	IV	49.1	49.9	39.7	41.1	47.8	45.9	0.0	0
	V	36.1	40.7	37.0	35.6	31.4	37.1	-8.8	-19
2005	II	21.2	29.0	26.9	42.2	48.6	30.9	-7.8	-20
	III	28.8	36.3	31.2	45.4	45.3	35.8	-2.9	-8
	IV	34.6	32.9	36.9	49.5	53.1	38.8	0.0	0
	V	41.7	41.1	41.3	55.9	36.5	43.4	4.6	12

¹ Comparison between average yield from Maturity Group IV soybean yield and each other maturity group.