

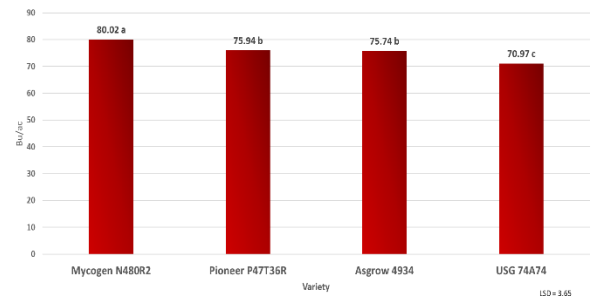
**SC Soybean Quarter 3 Report**  
**December 28, 2017**  
**Mark Freeman**  
**University of Georgia**  
**Department of Crop and Soil Sciences**

**Trial 1: Large Plot Variety Evaluation**

Even with the increased number of growers attempting high input - high yielding soybean production, prior to 2017 no unbiased variety evaluation information existed for Maturity Group IV soybeans in Georgia. Variety trials were planted in replicated large plots to evaluate several commercially available Maturity Group IV indeterminate soybean varieties. Locations for the field trials included Midville, Reidsville, and Cochran, Georgia. Two of these locations, Midville and Reidsville, consisted of four glyphosate tolerant varieties (USG 74A74, Mycogen N480R2, Pioneer P47T36R, and Asgrow 4934) and the Cochran location consisted of three glufosinate tolerant varieties (HBK LL4953, CZ 5150LL, SH 4817KLL). A randomized complete block design consisting of three replications was used at each location to ensure statistical accuracy. Although the Midville and Reidsville locations consisted of the same variety group, environmental conditions and lack of adequate irrigation during pod-fill resulted significant differences in yield among the two locations. Therefore, statistical analysis for each location was done separately.

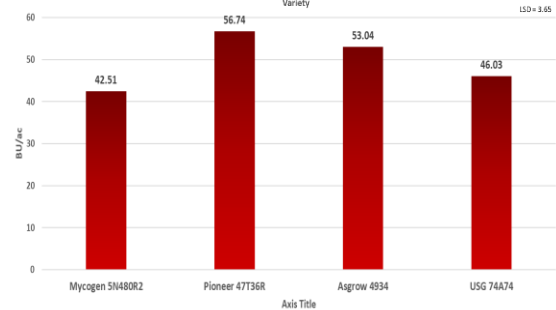
*Location 1 – Midville, Ga*

This location was planted on April 26<sup>th</sup> and harvested September 27<sup>th</sup>. Significant differences were seen among varieties and separated into three statistical groupings. The graph at right illustrates yield (Bu/ac) differences with letters representing statistical similarities and differences.



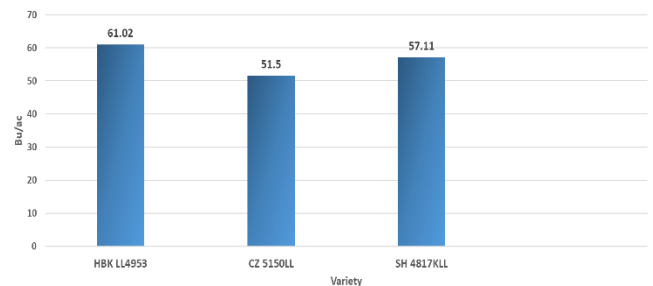
*Location 2 – Reidsville, Ga*

Although numerical differences occur among varieties, these differences were not statistically significant.



*Location 3 – Cochran, Ga*

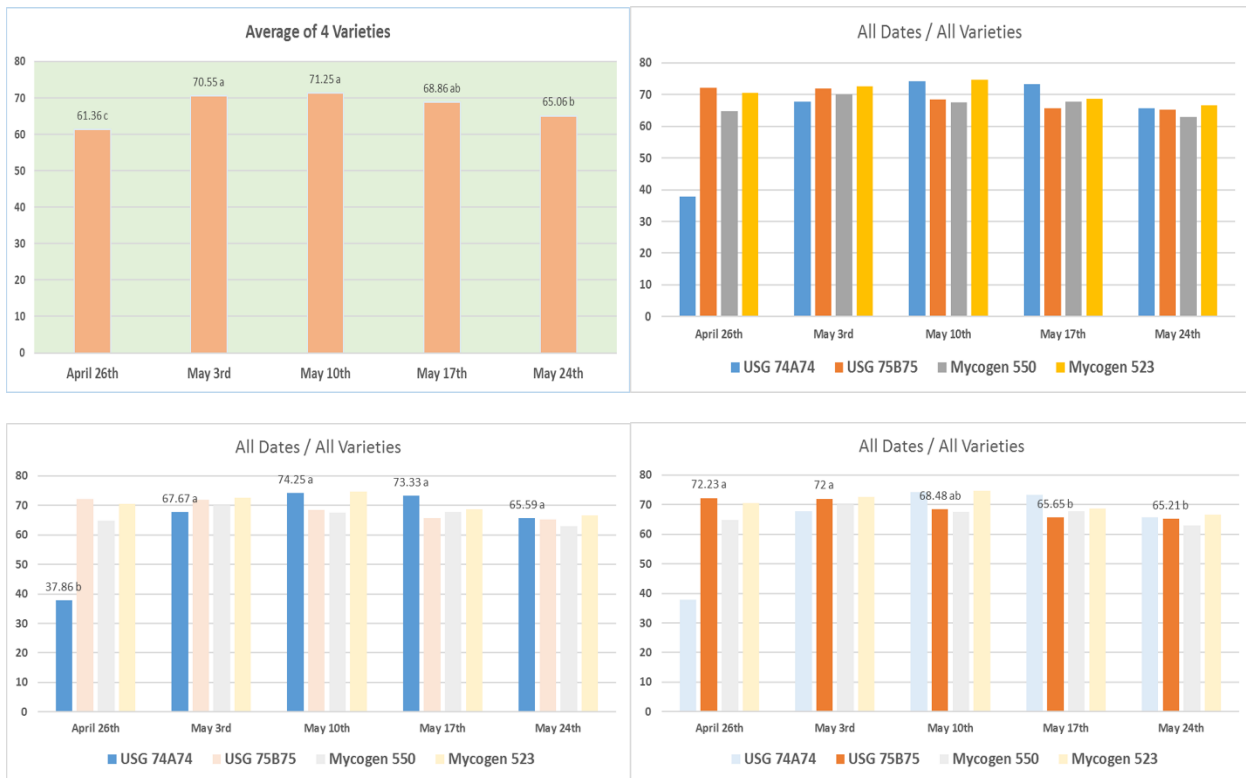
Three varieties with tolerance to Liberty herbicide were evaluated at this location. No statistical differences in yield among the varieties were seen.



### Trial 2 – Early Soybean System Planting Date

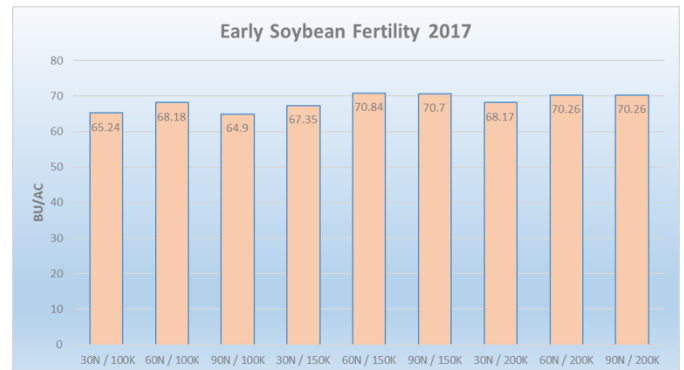
This trial was conducted to try and quantify the optimal planting date in the early soybean system. Four varieties (1 MG IV, 3 MG V) were planted across five planting dates starting April 26<sup>th</sup> through May 24<sup>th</sup>. The trial was arranged in a split block design consisting of four replications. When varieties were grouped together statistical differences were seen and means broken down into three statistical categories. (Graph 1) One item of note is the first planting date may be low due to shattering of the MG IV variety by the time of planting as this variety at the same planting date yielded much higher in the large plot variety evaluation plot. Graph 2 shows these five planting dates separated by variety.

When data were sorted by variety only two demonstrated significant differences in yield across planting dates. These two varieties were USG 74A74 and USG 75B75 shown in Graph 3 and 4 respectively. Again, it must be noted that shattering may have been a significant factor for the USG 74A74.



### Trial 3 – Soybean Fertility with At-Plant Nitrogen and Additional Potassium

In recent years, some high input soybean producers have begun to fertilize soybean with nitrogen and very high amounts of potassium. A trial was conducted to determine the impact that this additional fertilizer had on soybean yields. Three nitrogen rates (30 lbs/ac, 60 lbs/ac, 90 lbs/ac) and three potassium rates (100 lbs/ac [UGA Soil Test Recommendation], 150 lbs/ac, 200

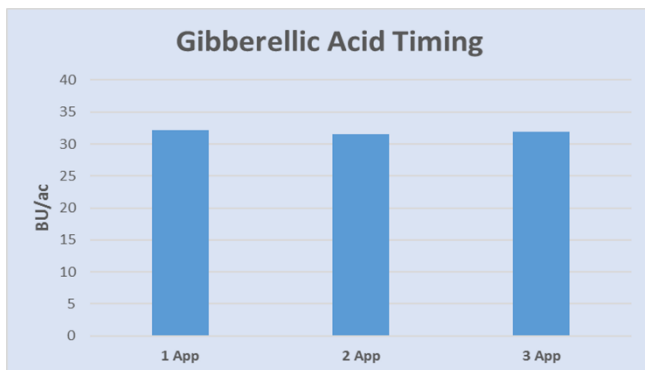
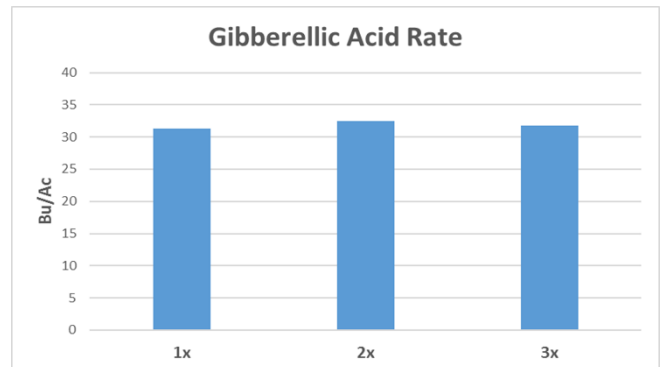
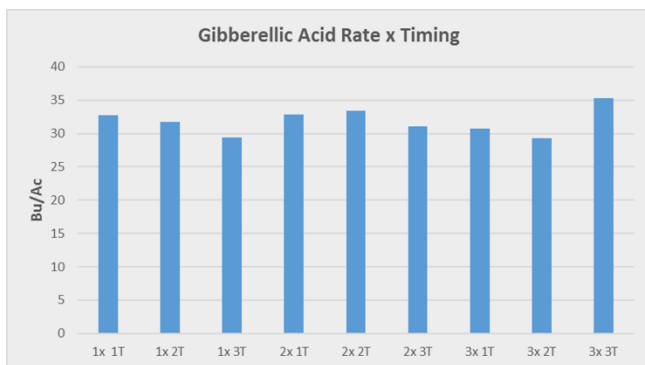


lbs/ac) were applied in a factorial design. Data showed no statistically significant differences in yield among nine individual treatments (As illustrated in graph to right) as well as no differences when treatments were grouped based on nitrogen and potassium rates (no graph shown).

**Trial 4 – Effect of Gibberellic Acid on Ultra-Late Soybean in Georgia.**

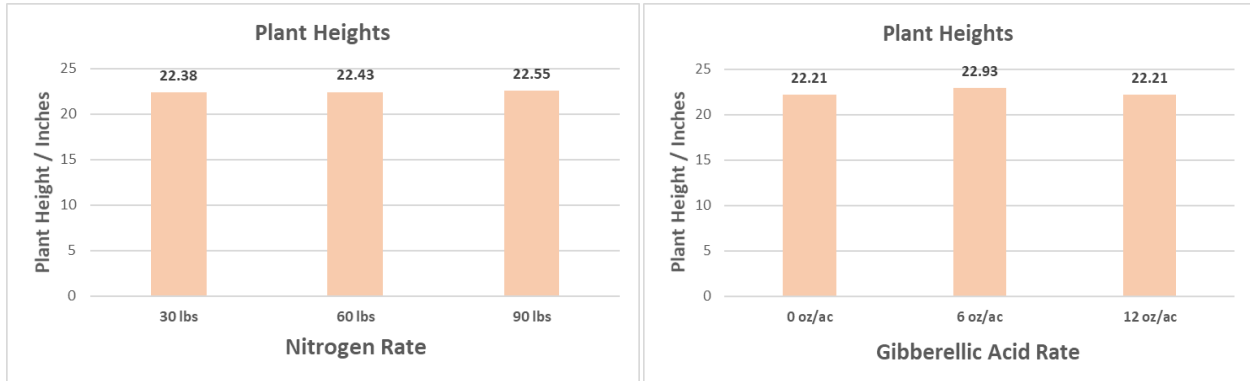
In recent years growers in Southern Georgia have experimented with a new cropping system titled “Ultra-Late Soybean” where soybean are planted following silage or grain corn harvest in late July or early August. Initially this cropping system was isolated to extreme Southwest Georgia, however research since 2013 has been conducted at the Southeast Georgia Research and Education Center in Midville, Georgia. In 2017 on-farm yields from the ultra-late system surpassed 50 bu/ac in the Upper Coastal Plain of Georgia (Washington, County).

A field trial was conducted in Midville, Ga to evaluate the effect of gibberellic acid on ultra-late soybean. Ultra-late soybean yields may be limited by the height of the plants as combines may not harvest the lowest position pods. Gibberellic acid is a plant growth hormone thought to possibly increase plant height and therefore increase harvestability. This trial was a factorial design evaluating three gibberellic acid rates (4% solution – 6oz/ac, 12 oz/ac, 18oz/ac) as well as three application timings (1 application, 2 applications, 3 applications). Data showed no significant differences among any of the 9 individual treatments as well as no differences when grouped by rate or applications.



A second field trial was conducted in Midville, ga to evaluate the effect of nitrogen rate and gibberellic acid application. This trial was also a factorial design evaluating three nitrogen rates (30 lbs, 60 lbs, and 90 lbs/ac) and three gibberellic acid rates (4% solution – 0 oz/ac, 6 oz/ac, and 12 oz/ac). Nitrogen

treatments were applied at plant and gibberellic acid treatments were applied on August 30<sup>th</sup> approximately 28 days after planting. Unfortunately due to mechanical problems yields were not able to be harvested. However, the main objective of the gibberellic acid application is to potentially increase plant heights. Plant heights were taken at the end of the growing season (November 30<sup>th</sup>). Data showed no significant differences among any of the 9 individual treatments as well as no differences when grouped by N rate or gibberellic acid rate.



**Soybean Short Course** – The 2018 UGA Soybean Short Course was held on March 5<sup>th</sup> in Statesboro, Georgia. The event featured eight speakers from the UGA Soybean Team, UGA Water Educators, and Clemson University. The event was attended by growers and County Agents from both Georgia and South Carolina.