

Evaluation of Soybean Germplasm Under Pennsylvania Conditions

Final Report

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In 2018, Penn State soybean evaluation trials were conducted at three locations: Blair, Centre, and Lancaster Counties. In 2018, we discontinued our Non-Roundup-Ready trials and tested all varieties, regardless of herbicide resistance, into either a late Maturity Group or Early Maturity Group trial at each location. The results from these trials are summarized below.

On May 8th, at the Southeast Agriculture Research and Extension Center in Lancaster County, we planted 48 varieties in the Late Maturity Group (MG 3.4 and later) trial. On May 9th, we planted 20 varieties in the Early Maturity Group (MG 3.3 and earlier) trial at the same location. On June 26th, we planted 30 varieties in our Double-Crop trial in Lancaster County. Both full-season trials were planted into tilled ground and the double-crop trial was no-tilled into an oats cover crop that was terminated prior to planting. On October 10th, the early and late MG trials were harvested and averaged 65.7 and 62.8 bushels per acre respectively. On November 8th, the Double-Crop trial was harvested and averaged 54.7 bushels per acre. Yields in the Early MG trial were nearly identical to the 2017 yields and the Late MG trial yields were down just slightly when compared to 2017. Yields in the Double-Crop trial were among the highest we have ever achieved in this trial and were up over 30% compared to the 2017 double-crop yields.

On May 11th, on a private farm in Blair County, we planted 24 entries in the Early Maturity Group (MG 3.0 and earlier) trial and 23 entries in the Late Maturity Group (MG 3.1 and later) trial. On October 18th we harvested the Early MG trial and averaged 54.3 bushels per acre. On October 19th, we harvested the Late MG trial and averaged 59.3 bushels per acre. In 2017, we were forced to abandon these trials on the same farm due to excessive slug pressure, but during the 2018 season, slug pressure was negligible.

On May 25th, at the Russell E. Larson Agricultural Research Center in Centre County, we planted 31 varieties in the Early Maturity Group (MG 3.0 and earlier) trial and 39 entries in the Late Maturity Group (MG 3.1 and later) trial. On October 9th, the first 2 replications of the early MG trial were harvested, but wet weather delayed harvesting the remaining 2 replications until October 22nd. The average yield in the early MG trial was 48.9 bushels per acre. On October 23rd, the late MG trial was harvested and averaged 50.5 bushels per acre. The yields in the Early and Late MG trials were down by 28% and 20% respectively, when compared to 2017 yields.

Growing conditions at all 3 locations were much wetter than normal. Centre County had record-setting rainfall for the growing season and received over 10 inches of rain during the month of July alone. Conditions at Blair County were similar to Centre County. Lancaster County was especially wet during July, August, and September, which received 10, 12, and 13 inches of rainfall respectively. Most of the September rain occurred on September 1st, when a severe storm brought 7 inches of rain. Many nearby fields were washed out, but fortunately none of our trials were damaged during this event. The unusually wet weather at all 3 locations contributed to taller than normal plant heights and produced an environment conducive to heavy plant disease pressure.

Overall, we feel that we had a successful season, despite the challenging weather conditions we experienced throughout the year. Our yields were down somewhat – except the double-crop trial, which appeared to benefit from the timing of the rain – but we were able to complete all trials and collect valuable information which can be used by producers in our region.

Results of these trials were posted on the Penn State Extension website at:

<https://extension.psu.edu/2018-soybean-variety-trials>

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