Genetic differences among sources of high protein in soybean seeds. (C01-nelson164421-Poster)

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Abstract:

There is much research that documents the genetic diversity between high and low protein concentration in soybean seeds but almost no information about genetic diversity among lines with high protein concentrations. The objective of this research was to identify germplasm accessions with differences in the genetic control of the high protein phenotype. Seven high protein germplasm accessions (PIs 253666A, 340031A, 407788A, 423948A, 437088A, 437110B, and 437461) were used as parents to make eight crosses. From the F2 through the F4 generations, pedigree selection for low or high protein using near-infrared analysis was conducted based on single plant values. F5 rows were harvested in bulk and after two years of preliminary evalution, 26 maturity group I and II entries and 42 maturity group III and IV entries were selected for testing at two locations for two years with two replications per location. Transgressive segregants were found in most crosses but the low protein progeny were always higher in protein than the commercial cultivars. These results indicate that the parents of each cross shared some of the same genes conditioning high protein but that genetic differences do exit among these high protein accessions.

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