A Comparison of Recombination Rates Between Adapted Soybean Cultivars, and Random Lines. (C01-stefaniak081612-Poster)

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Abstract:

It has been estimated that in the period between 1930 and 1980 soybean yields in America increased 93% due to the introduction of superior cultivars. However, it is unclear what source of genetic variation has been utilized for this improvement. The objective of this study was to investigate the possible contribution of genetic variation from meiotic recombination in the improvement of soybean cultivars. Crossing-over events were detected using 88 SSR markers spanning 13 of soybeans linkage groups. The two populations consisted of 10 adapted high yielding cultivars and 156 Random Recombinant Inbred Lines from the cross Williams x Essex. The calculated recombination rates were standardized for potential crossovers. For total recombination the rates for the 10 cultivars were significantly greater than those of the RRILs. These rates were 0.24 and 0.36 for the RRILs and the cultivars respectively. The population by linkage group interaction was non-significant. These results indicate that breeding progress has been accomplished in part utilizing the genetic variation resulting from recombination.

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