A Comparison of Roundup-Ready Soybean with Non-Roundup-Ready Varieties: Yield, Yield Components, and Weed Biomass. (C02-mentreddy082014-Oral)

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Abstract:

Genetically modified (GM) Roundup resistant soybean cultivars promise to reduce herbicide usage and environmental pollution but increase profits. In a field study, Roundup Ready (RR) soybean AG5701, non-RR A5959, and a local cultivar, Benning were compared for yield, yield components and weed control with and without herbicides. The genotypes were planted in randomized complete block with six replications. Herbicides 'Scepter' and 'Storm' were applied once to non-RR plots, and 'Roundup Ultra Max' to RR plots. Control plots did not receive any herbicide. At 91 days after planting, soybean plants and weeds were harvested from 0.5 sq. m area from middle rows of each plot to determine leaf area index (LAI) and above ground biomass. Compared to the treated, the LAI of untreated RR, non-RR and Benning was reduced by 29, 25 and 21%, respectively. Single application of 'Roundup Ultra Max' gave 100% weed control in RR plots whereas 'Scepter' and 'Storm' reduced weeds by only 47% in non-RR plots. Panicum grass emerged in treated non-RR plots as the herbicide effect wore off. The treated RR, non-RR and Benning plants with greater number of filled pods and higher harvest index, produced 3.1, 2.8, and 3.7 t/ha seed yield, compared with 0.8, 1.7, and 2.5 t/ha from control plots, respectively.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 9:00 am

Keywords:
Soybean, Roundup-Ready, weed control, Weed biomass, LAI, seed yield, yield components