

INFLUENCE OF SOYBEAN PLANT POPULATIONS AND ROW SPACING TO CURRENT AND FUTURE WEED CONTROL STRATEGIES. Jeffrey A. Bunting, Thomas J. Hunsley, Douglas J. Maxwell, and Aaron G. Hager, Weed Science Technical Manager, Soybean Product Manager, GROWMARK Inc. Bloomington, IL 61701 and Principle Research Specialist, Associate Professor, Department of Crop Sciences, University of Illinois, Urbana, IL 61801.

Field research was conducted at Urbana, IL in 2008 to evaluate the effect of soybean plant population and row spacing on weed control and yield. Three herbicide management strategies were evaluated that included a preemergence followed by a post emergent application, single postemergent application, and a sequential postemergent application. Three plant populations were examined as well as two row spacings to evaluate the impact of canopy development, weed population, and yield. The growing season resulted in less than ideal emergence conditions and planting intention verses actual emergence was around 30% below expected. Fewer weeds emerged in the 38-cm rows, compared with the 76-cm rows. As soybean populations increased, fewer weeds were observed in the study, and increasing the soybean plant population within a row did not influence late-season weed emergence. The low population of soybean resulted in the highest number of weeds (giant foxtail, waterhemp, and ivyleaf morningglory), but there was no difference in the row spacing at the low population. The preemergence applications followed by postemergence application resulted in the lowest number of weeds observed in the study with no difference in row spacing. Ivyleaf morningglory weed count was higher in the 76-cm row width than the 38-cm row width and when only one application of glyphosate was applied. Soybean yields were higher in the 38-cm row width when compared to the 76-cm row width regardless at the low, medium, and high soybean populations. There was no significant advantage between the sequential weed management offerings when looking at soybean yield. Soybean yield was the lowest with the single postemergence application regardless of plant population and row spacing. As input costs increase there's a likelihood that soybean plant populations will decrease. This may challenge some of the new herbicide traits that are coming out in the next couple of years.