**230-3 Can Narrow Row Spacing be Used to Manage Higher Planting Densities of Corn?.**

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**Brad Bernhard** and Frederick E. Below, University of Illinois-Urbana-Champaign, Urbana, IL

## Abstract:

The average U.S. corn (*Zea mays L.*) plant density has increased 988 plants $ha^{-1}$ $year^{-1}$. As this trend continues, narrow row spacings can be used to increase the distance between plants within a row and provide greater plant spacing across a given area. The overall goal of this study was to understand the relationship between row spacings and planting densities across different hybrids on corn growth and grain yield. The experiment was conducted in Champaign, IL to evaluate the interactions of hybrid, row spacing, and planting density. Commercial hybrids DKC58-06, DKC60-67, DKC61-54, DKC62-08, DKC63-60, DKC63-71, DKC64-87, and DKC66-40 were planted at 79,000, 94,000, and 109,000 plants $ha^{-1}$ in a 76 cm row spacing and 94,000, 109,000, and 124,000 plants $ha^{-1}$ in a 51 cm row spacing. Canopy coverage was 7% greater in the narrower row spacing compared to the wider row spacing at the V8 growth stage. At the R2 growth stage, leaf area $plant^{-1}$ significantly decreased as planting density increased for both row spacings. However, when expressed on a land area basis, leaf area index was greater at the higher planting densities but unrelated to row spacings. When averaged across hybrids, root weight $plant^{-1}$ significantly decreased as planting density increased and tended to be greater in the narrower row spacing. Corn grain yield, when averaged across all hybrids, significantly increased as planting density increased at a given row spacing. The narrower row spacing yielded 0.32 Mg $ha^{-1}$ greater at a given planting density compared to the wider row spacing. Hybrids varied greatly in their yield response to increased planting densities and narrower row spacing. Planting 124,000 plants $ha^{-1}$ in a 51 cm row achieved the greatest yield of 15.4 Mg $ha^{-1}$.