

2001

Row Width and Hybrid Effects on Corn Yield in Iowa

Dale E. Farnham
Iowa State University

Jason Myli
Iowa State University

David Rueber
Iowa State University, drueber@iastate.edu

Follow this and additional works at: http://lib.dr.iastate.edu/farms_reports

 Part of the [Agricultural Science Commons](#), [Agriculture Commons](#), and the [Agronomy and Crop Sciences Commons](#)

Recommended Citation

Farnham, Dale E.; Myli, Jason; and Rueber, David, "Row Width and Hybrid Effects on Corn Yield in Iowa" (2001). *Iowa State Research Farm Progress Reports*. 1806.
http://lib.dr.iastate.edu/farms_reports/1806

This report is brought to you for free and open access by Iowa State University Digital Repository. It has been accepted for inclusion in Iowa State Research Farm Progress Reports by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

Row Width and Hybrid Effects on Corn Yield in Iowa

Abstract

In Iowa, corn historically has been grown in row widths of 30 inches or wider. During the last decade, many Iowa producers developed a renewed interest in the productiveness of corn in narrower rows. Much of this renewed interest was a result of the observed yield benefits of planting soybeans in rows narrower than 30 inches. In addition, the advancements made in farm machinery today have established effective means by which farmers can plant and harvest these narrow rows. As a result, research is needed to evaluate the effect of row spacing and related planting decisions on the yield of modern, high-yielding corn hybrids. The designed purpose of this study was to test the responses of different hybrids (based on relative maturity) to narrow row spacings. This study was conducted over three years, 1997-1999. In addition to this site, this study has been conducted at five other university research farms.

Keywords

Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences

Row Width and Hybrid Effects on Corn Yield in Iowa

Dale E. Farnham, assistant professor and
extension agronomist
Jason Myli, research associate, agronomy
Dave Rueber, superintendent

Introduction

In Iowa, corn historically has been grown in row widths of 30 inches or wider. During the last decade, many Iowa producers developed a renewed interest in the productiveness of corn in narrower rows. Much of this renewed interest was a result of the observed yield benefits of planting soybeans in rows narrower than 30 inches. In addition, the advancements made in farm machinery today have established effective means by which farmers can plant and harvest these narrow rows. As a result, research is needed to evaluate the effect of row spacing and related planting decisions on the yield of modern, high-yielding corn hybrids. The designed purpose of this study was to test the responses of different hybrids (based on relative maturity) to narrow row spacings. This study was conducted over three years, 1997-1999. In addition to this site, this study has been conducted at five other university research farms.

Materials and Methods

The experimental design was a randomized complete block design with split plots and three replicates. Whole plot treatments were hybrids and split plot treatments were row widths (15- or 30-inch). Hybrids used were MAX23 and N4242Bt (96- to 103-days relative maturity), N4640Bt and MAX21 (102- to 110-days relative maturity), and MAX454 and N6800Bt (109- to 114-days relative maturity). A harvest stand density of 28,000 plants per acre was

established for all plots. Individual plots were 6 rows (30-inch) or 11 rows (15-inch) wide by 40 feet long. A White 6100 series corn planter outfitted with a 6900 series splitter attachment was used to plant all plots. Planting dates were 12 May 1997, 4 May 1998, and 5 May 1999. Plots were mechanically harvested on 16 October 1997, 21 October 1998, and 11 October 1999. Reported plot yields (corrected to 15.5% moisture) are shown in Table 1.

Results and Discussion

Summarized in Table 1 are the results from 1997-1999. When averaged across hybrids and years, 30-inch rows produced a 4% yield advantage over 15-inch rows. All six hybrids tested yielded better in 30-inch rows; however only MAX23 showed a significant yield difference (11%). Overall yield response to narrow rows did seem to vary among hybrids. In addition, maximum yields in both row widths were obtained when planted to N4640Bt. These results suggest that a hybrid with a high yielding potential in 30-inch rows will also respond favorably in 15-inch rows. Finally, grain moistures were influenced by hybrids, but not by row widths.

In summary, decreasing the row width from 30 inches to 15 inches did not produce any yield benefit. Furthermore, selecting a high yielding hybrid for your region will likely optimize yields in either 15- or 30-inch rows.

Acknowledgments

We would like to thank John Harker and Syngenta Seeds for providing the seed used in this study.

Table 1. Effect of row width and hybrid on corn grain yield and moisture at Kanawha, IA (1997-1999).

Hybrid	1997		1998		1999		Average	
	15-inch	30-inch	15-inch	30-inch	15-inch	30-inch	15-inch	30-inch
	-----Grain yield (bu./acre)-----							
MAX23	112	149	161	165	136	150	136	154*
N4242Bt	141	146	167	150	127	144	145	146
N4640Bt	152	167	174	169	140	147	155	161
MAX21	130	137	--	--	137	151	133	144
MAX454	145	145	--	--	153	159	149	152
N6800Bt	160	167	138	152	157	145	151	154
Average	140	152	160	159	142	149	144	151
	-----Grain moisture (%)-----							
MAX23	17.8	18.0	18.5	17.6	16.2	16.5	17.5	17.3
N4242Bt	17.6	18.1	17.7	17.1	15.1	16.0	16.8	17.0
N4640Bt	17.4	17.2	17.7	17.1	17.8	15.5	17.6	16.6
MAX21	21.1	21.8	--	--	17.2	16.5	19.1	19.1
MAX454	23.4	22.7	--	--	18.1	21.2	20.7	21.9
N6800Bt	24.0	23.3	19.3	20.0	17.5	22.0	20.2	21.7
Average	20.2	20.1	18.3	17.9	16.9	17.9	18.6	18.9

*Differences between bold faced average yield means were statistically significant ($P < 0.05$).