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Corn Planting Date

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Abstract
Producers attempt to plant corn earlier every year. For example, in 2006, 50% of the statewide crop was planted by approximately April 25. Earlier planting dates are attributed to several causes: larger acreage per producer, less spring tillage, advancements in hybrids, and seed treatments. However, in contrast to this, Iowa producers in 2008 did not have half of Iowa's corn acreage planted until May 13 due to weather; this is eighteen days later than 2006. Planting the crop during the optimum window is one management practice that is generally important in achieving high yields.

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Introduction

Producers attempt to plant corn earlier every year. For example, in 2006, 50% of the statewide crop was planted by approximately April 25. Earlier planting dates are attributed to several causes: larger acreage per producer, less spring tillage, advancements in hybrids, and seed treatments. However, in contrast to this, Iowa producers in 2008 did not have half of Iowa's corn acreage planted until May 13 due to weather; this is eighteen days later than 2006. Planting the crop during the optimum window is one management practice that is generally important in achieving high yields.

Previous Iowa State University (ISU) recommendations for 100% maximum yield, relative to planting date, were identified as April 20 to May 19 (refer to Corn Planting Guide, PM 1885). We believe that this planting window can be earlier while still achieving high yields. Planting date research requires multiple years and locations to identify overall trends and manage risk. Research has been conducted at this location since 2006 (refer to Corn Planting Date report ISRF06-29, 31). Research will continue in the future so that sound recommendations can be made for agronomists and producers. In this report only 2008 results are highlighted.

Materials and Methods

Five planting dates were evaluated, in approximately 10-day increments: April 23, April 30, May 8, May 19, and May 28. This research was conducted on a corn-soybean and continuous corn rotation. Two different 104-day hybrids (Pioneer 36V75 and 36Y86) were selected and planted at 35,600 seeds/acre in 30 in. row spacing. In the fall, stalks on the corn residue were chopped, and all residue was chiseled and disked. The field was tilled in the spring prior to planting, and weeds were controlled with pre- and post-emergent herbicide applications.

Individual plots were 20 ft wide (eight rows) by 44 ft long, with rows 3, 4, 5, and 6 harvested for yield. Plant population (measured October 23) and grain yield (harvested October 29) were collected. Grain yield was adjusted to 15% moisture basis. SAS PROC MIXED was the statistical program used in analyzing the data, with a significance level of $P \leq 0.05$.

Results and Discussion

Plant populations were reduced from the May 28 planting date, than with the earlier planting dates (Table 1). Factors such as increased seed mortality, seedling stress, and planter adjustments can sometimes cause differences in plant populations as in this study.

Although there was a difference in plant population relative to the planting date, the populations of the hybrids were similar, with Pioneer 36V75 at 31,900 plants/acre and Pioneer 36Y86 at 33,250 plants/acre. Plant populations were similar in both cropping systems as well.

Overall, the response to the various planting dates were similar regardless of cropping system or hybrid used. Therefore, grain yield data is summarized across these variables.

Grain yield differed based on the planting date (Table 1). Grain yield of the first four planting dates was greater than that of the last planting date. The fact that yields of the first four planting dates did not differ contradicts what

we normally expect but is not surprising given the 2008 growing season. It is also possible that the reduced plant population associated with the last planting date may have caused the yield variation observed at this location in 2008.

Our normal expectation is to have higher yields associated with late April and early May planting dates. However, excellent weather during the growing season, including a late frost, can result in high yields from late planting. Consider this data as 'preliminary' as it is only one location and one year; more data are needed before adjusting management practices related to planting date.

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Table 1. Planting date influence on final plant population and grain yield.

Planting date	Final plant population	Plant population significance[1]	Grain yield adjusted to 15% moisture	Grain yield significance[1]
	plants/acre		bushels/acre	
April 23	32,100	a	206	a
April 30	33,400	a	204	a
May 8	33,500	a	211	a
May 19	34,000	a	207	a
May 28	29,800	b	186	b

[1]Treatments means with any letter in common are not significantly (NS) different from one another.