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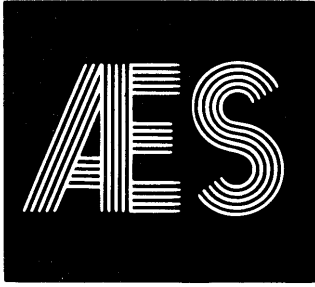
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Keeping
Up With
Research

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EVALUATION OF LATE PLANTING OPPORTUNITIES FOR WINTER WHEAT

Merle Witt*

Winter wheat in the Great Plains is not always planted at the optimum time for several reasons. Sometimes unwanted circumstances occur, including necessary replanting following stand loss to wind, pests, or winter killing. In other cases, the seedbed may be too dry or too wet to plant at a normal time. Additionally, planting may be delayed purposely in order to avoid diseases or insects, to pre-irrigate, or to accommodate a double-cropping sequence. This study was conducted to quantify the relative grain yields of winter wheat that might be expected over the wide range of potentially usable dates.

Procedure

In order to identify wheat yield and related responses to delayed establishment, sequential monthly planting dates from October 1 to April 1 were used during the 7 years from 1985 to 1991 at Garden City, Kansas. TAM 107 was seeded at a constant heavy rate of 80 lbs/a in bordered drill-strip plots in a randomized complete block design.

AGRICULTURAL EXPERIMENT STATION

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Results

Grain yields declined progressively with increased planting delay following the optimum planting date of October 1 (Table 1). Dates that allowed production of half or more of full yields extended through January 1. Wheat planted on all dates through March 1 headed and produced significant grain yields each year. Wheat planted on April 1 did not receive enough cold winter weather and so failed each year to head out or produce grain.

The grain filling period was progressively shortened and delayed into warmer weather with advancing planting dates. This period was hastened by an average of 1.7 days with each monthly delay. The average daily temperature during this grain filling period increased by an average of 1.5°F per monthly planting delay and became progressively less favorable for plant productivity. Thus, general declines occurred in mature plant height, number of heads per plant, number of kernels per plant, and grain test weight.

Summary

Resulting relative grain yields tapered off with progressive planting dates as follows: October 1 = 100%, November 1 = 77%, December 1 = 59%, January 1 = 57%, February 1 = 41%, and March 1 = 16%. Although wheat yields decline with planting delays, considerable flexibility is available for planting winter wheat.

Table 1. Wheat responses to delayed planting dates 1985-1991.

Planting Date	Grain Yield bu/a	Test Weight lb/bu	Date Headed	Date Ripe	Mature Height inches	# Heads per Plant	# Kernels per Plant
Oct. 1	46.1	56.1	5-12	6-17	27.2	3.4	56.4
Nov. 1	35.6	55.1	5-18	6-21	25.6	2.8	54.2
Dec. 1	27.4	53.7	5-22	6-24	25.5	2.9	47.9
Jan. 1	26.3	53.5	5-25	6-35	25.5	2.7	44.1
Feb. 1	18.9	51.5	5-29	6-27	24.4	2.3	31.4
Mar. 1	7.2	22.8	6-6	7-4	21.8	1.4	15.0
Apr. 1	0	-	-	-	-	0	0
LSD (5%)	1.5	0.4	0.1	0.1	0.5	0.3	5.3

Trade names are used to identify products. No endorsement is intended, nor is any criticism implied of similar products not named.

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