

RELATION BETWEEN PLANTING TIME AND YIELD COMPONENTS OF MEXICAN WHEATS

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Four varieties of Mexican wheats were sown at different times, starting from the middle of October to January 1, in order to investigate the best planting time. The planting done during the first fortnight of November gave maximum grain yield. Mexi-pak-65, outyielded the other varieties, i.e., Mangla, Sonora and Nortino, when planted from the middle of October to the first week of January, suggesting that under favourable seasonal conditions, it may even out-yield the varieties recommended for late sown conditions.

INTRODUCTION

Of the climatic factors influencing the development of yield of crop, temperature has a dominating influence. The temperature during the emergence and subsequent growth period is considerably altered by the planting date. Hutcheson and Quantz (1917) concluded that seedling emergence in wheat took place in 7 days in a temperature range of 16.6 - 22.2°C and in 10 days when the temperature fall to 14.4°C. Anant and Singh (1958) reported that November was the optimum sowing date for wheat, because temperature during growing period was favourable for grain development resulting in increased grain weight. Mexican wheats are very sensitive to planting time ranging between second week of September to early December (Tomar and Mathur 1966; El-Shamma, 1967; Chatha, 1967; Watton, 1967; Ashraf, 1968; and Khan, 1969). Planting of Mexican variety, Penjamo, during the first week of November appears better than October sowing or later planting, commencing from the 3rd week of November under the conditions obtaining at Lyallpur (Khan, 1969). Similarly, Khan (1967-68) reported that Mexi-pak gave the highest yield, when planted during the last week of October and its yield progressively decreased as the sowing time was extended beyond the first week of November, suggesting that this variety is not suitable for sowing after the middle of November and short-duration varieties may be more suitable, especially after the third week of November.

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In this study an attempt was made to determine optimum sowing time of Mexican wheat varieties commensurate with the yield maxima under the conditions obtaining at Lyallpur.

MATERIALS AND METHODS

In this study four Mexican varieties, namely, Mexi-pak-65, Mangla, Sonora and Nortino were sown at different times varying from 15th October to 1st January (Table 1). The experiment was laid out in a split plot design with four replications and a net plot size was 1/144th of an acre. The sowing dates were randomized in the main plots and the varieties in the sub-plots.

The crop was sown in 9-inch apart rows with a single row hand drill, using a seed rate of 40 seers to an acre. Four irrigations were given during the growing period of the crop and, in addition, a natural precipitation of 1.18 inches was also received. The weed population was eradicated by hand hoeing. The crop was harvested on April 4, April 15 and April 21, 1970, and grain yield was recorded.

Statistical analysis of the data was performed by the analysis of variance method. When a significant F value was obtained for treatment effects, Duncan's Multiple Range test at 5 per cent probability was applied to the treatment means.

RESULTS AND DISCUSSION

The data in Table 1, reveal that the effect of sowing dates and varieties on different yield components of wheat were highly significant. The whole month of November appeared to be the optimum sowing time. Within this range, November 15, appeared to be the best planting date to obtain maximum yield. Within the varieties, Mexipak-65, gave the highest grain yield, while Mangla, Sonora and Nortino were similar yielders.

Optimum grain and straw yields were obtained from the crop sown in November, with a maximum return when planted in the middle of November. Mexi-pak-65 outyielded all other varieties. This higher yield was due to its relatively better spiking, greater grain number and grain weight. Poor growth and yield responses under delayed sowing have also been reported by Sharif and Khalid (1961), Tomar and Mathur (1966), and Watton (1967).

These results differ from those of Khan (1967-68), who reported that Mexi-pak-65 gave the highest yield when planted during the last week of

October and its yield progressively decreased as the sowing time was extended beyond the first week of November. This difference in results could be due to the seasonal variation, under which these investigations and those of Khan (1969) were carried out. It is also interesting to note that Mexi-pak-65, out-yielded the other three varieties, when planted from the middle of October to the 1st of January, suggesting that under favourable seasonal condition, it may even outyield the varieties recommended for late sown conditions. This investigation warrants a further study of its comparative yield response with other varieties under very late sown conditions extending beyond January 1.

TABLE 1. *Average performance of the Mexican wheat varieties at different planting times.*

Sowing dates	Seedling density per unit area (2'x2')	Av. No. of grains per spike	Av. weight of 1000-grains (gms)	Av. yield (Mds/acre)	
				Grain	Straw
October-15	87.70 b ¹	35.37 d	49.93 a	20.81 d	28.06 c
November-1	86.70 b	49.55 b	44.37 a	34.29 b	46.56 b
November-15	102.00 a	52.62 a	41.76 a	42.22 a	57.72 a
December-1	97.00 a	54.72 a	41.60 a	34.92 b	47.17 b
December-15	56.20 c	47.74 c	38.46 b	25.37 c	29.12 c
January-1	45.70 a	49.06 bc	34.65 c	19.63 d	23.38 d
S.E.	2.89	1.30	1.04	0.31	1.20
Varieties					
Mexi-pak-65	88.00 a	55.83 a	47.32 a	34.42 a	49.08 a
Mangla	78.00 b	39.77 d	37.70 c	28.50 b	40.17 b
Sanora	75.30 b	47.56 c	36.29 c	25.94 b	30.61 d
Nartino	79.50 b	49.67 b	41.87 b	29.31 b	34.80 c
S.E.	2.36	0.51	0.76	0.43	0.57

1. Duncan's Multiple Range Test at 5 per cent probability. Any two means not sharing a letter differ significantly.

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