

Durum Wheat Variety and Planting Rate Trial at Marana in 1987

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ABSTRACT

Five varieties of durum wheat were evaluated at two different seeding rates, in cooperation with Pacheco Farm Management in Marana. Significant differences between varieties were observed in grain yield, plant height, lodging, bushel weight and protein level. No significant differences in yellow berry were observed between the varieties. The planting rates did not cause significant differences in grain yield nor in any of the other characteristics that were measured. There were no significant variety x planting rate interactions.

INTRODUCTION

Growers have been offered contract price premiums to produce and deliver Westbred 881, a variety known for its high quality. However, this variety is also supposed to have a lower yield potential than other commercially available durums. Data were needed to measure these differences so that Marana growers could estimate their gross returns per acre with the different varieties.

Wheat seeding rates in the Marana area vary from 100 to 200 pounds per acre. Another objective of this test was to measure any differences between a 120 lb/A and a 160 lb/A seeding rate.

MATERIALS AND METHODS

The cooperator in this test was Pacheco Farm Management. The soil was a Gila loam; the previous crop was cotton. One hundred pounds per acre of 11-53-0 fertilizer was broadcast on the flat before the 40-inch beds were listed and shaped.

The test was planted on January 22, with a 12-foot International Harvester grain drill. For each variety, the seeding rates were adjusted and verified by jacking up one wheel of the grain drill, turning the wheel a known distance, and measuring the amount of seed dispensed. This was to account for differences in seed sizes between varieties.

Plots were four 40-inch by 1,200-foot rows, replicated four times in a randomized complete block design.

The seed was germinated by an irrigation on January 30. Other irrigations were applied on March 11, March 31, April 20, and May 17. A total of 3.38 acre feet of water was applied. About 110 pounds of nitrogen per acre were water-run as UN32. No herbicides or insecticides were used.

Yield data were taken on June 12 by harvesting sub-plots with a plot combine. Yield data were corrected to reflect a 10% grain moisture content.

RESULTS AND DISCUSSION

Significant yield differences were observed between varieties (Table 1). The low yield of "Mexicali" is partly due to lower vigor seed, which emerged later, and to a poor stand. No significant yield differences were observed between the 120 lb/A and 160 lb/A planting rates, nor were there any significant planting rate x variety interactions.

Significant differences between varieties were detected in plant height, lodging, and bushel weight and protein level (Table 2.). There were no significant differences in yellow berry between varieties.

Seeding rates made no significant differences in any of the plant or grain characteristics that were measured (Table 3).

Table 1. Durum Wheat Yields by Variety and Planting Rate.

Variety	-----Grain Yield, lbs/A-----		Variety Average
	---Planting Rate---		
	120 lbs/A	160 lbs/A	
Westbred Turbo	5778	6300	6039a*
Aldura	5060	4992	5026 b
Val Blend 357	4312	4525	4419 c
Westbred 881	4132	3885	4009 cd
Mexicali	3647	3629	3638 d
Planting Rate Average	4586a*	4666a	
C.V. = 8.6%			

*Means followed by the same letter within a row or column do not differ significantly at the 0.05 level.

Table 2. Durum Plant and Grain Characteristics by Variety.

Variety	Plant Height (in.)	Lodging (%)	Yellow Berry (%)	Bushel Weight (lb/bu)	Grain Protein (%)
Westbred Turbo	32.2a*	8.3a*	2.0a*	60.8a*	13.1a
Aldura	26.5 c	0 b	2.7a	61.0a	12.7a
Val Blend 357	31.3a	0.3 b	3.3a	59.0 b	13.9 b
Westbred 881	29.3 b	0.3 b	2.0a	59.2 b	13.9 b
Mexicali	31.3a	0.8 b	2.7a	56.2 c	14.0 b
%C.V.	5.0	110.2	98.3	2.2	2.4

*Means followed by the same letter within a row or column do not differ significantly at the 0.05 level.

Table 3. Durum Plant and Grain Characteristics by Seeding Rate.

Seeding Rate	Plant Height (in.)	Lodging (%)	Yellow Berry (%)	Bushel Weight (lb/bu)	Grain Protein (%)
120 lbs/A	29.9a*	1.3a*	2.8a*	59.0a*	13.5a
160 lbs/A	30.3a	2.6a	2.3a	59.5a	13.5a

*Means followed by the same letter within a row or column do not differ significantly at the 0.05 level.