Winter Wheat Variety Trial in Cochise County, 1987

Lee Clark

ABSTRACT

Sixteen winter wheat varieties (including three hybrids) were evaluated in a randomized, complete block experiment, with four replications. Stephens, the standard variety grown in the area, was outyielded by four of the winter wheat cultivars, including two of the hybrids. The highest yielding cultivar was a hybrid, Bounty 100, which yielded 5853 pounds per acre (23% higher than Stephens).

INTRODUCTION

Ten years have passed since the last winter wheat variety trial. Farmers have conducted testing on their own resulting in a switch from Nugaines to Stephens wheat as the predominantly winter wheat. Many new varieties developed during the past ten years needed to be compared with Nugaines and Stephens. Sixteen of the available varieties (including three hybrids) were tested.

MATERIALS AND METHODS

The seed used in this trial was provided by Rex Thompson of the Plant Science Department of the University of Arizona. The seed was planted with a Kincaid Precision Drill with 6 inches between disk openers

Location: Haas Farm, Coon Hollow circle #2

Elevation: 4,300 feet above sea level

Previous crop: Corn

Insecticide: Di-syston

Fertilizer: 250 lbs/ac 18-46-0 preplant, 172 units of N from UN32 and 1.1 Qts of 10% Zn in the irrigation water

Irrigation: Overhead sprinklers

Planting date: 18 November 1986

Planting rate: 150 lbs per acre

Harvest date: 21 July 1987

Plot size: 4 feet by 25 feet

Replications: 4

The plots were harvested with a Chain small plot harvester, which is ideal for the small plots but leaves some chaff with the grain and loses some grain over the screens. So, the bushel weights might be slightly lower than they should be, and the actual yields may be smaller than what farmers realized.

RESULTS

Table 1. Sixteen Winter Wheat Varieties grown in Cochise County in 1987, their Yields and Characteristics.

Variety	Yield* lbs/ac	% M	Bu Wt lbs	Pl Ht in	% Lodging
Bounty 100	5853 a**	9.3	55.5	43.3	2.5
Nk 812	5403 ab	8.6	54.3	36.3	1.3
TAM 107	5278 abc	9.2	56.8	40.0	11.3
Bounty 205	4750 abcd	9.6	55.8	38.8	35.0
Stephens	4490 abcd	8.9	52.0	36.8	0.0
Bounty 202	4447 abcd	9.7	54.3	43.5	33.8
Frontiersman	4280 abcd	10.4	57.3	39.0	6.7
Phoenix	4125 bcd	8.5	54.3	37.5	0.0
TAM 105	4061 bcd	9.1	55.0	40.5	63.8
Plainsman V	4004 bcd	9.5	55.3	41.8	28.8
Nugaines	3727 bcd	8.5	52.8	40.5	27.5
Hill 81	3650 bcd	7.5	52.3	41.3	6.3
Dusty	3494 cd	9.0	52.5	37.0	2.5
Malcom	3492 cd	8.1	50.8	39.8	3.8
TAM 108	3385 d	9.5	53.8	38.8	67.5
Daws	2926 d	8.6	49.5	38.8	1.3

* Yields are corrected to 10 % moisture.
** Values with the same letter are not significantly different at the 5% level of probability using the Student-Newman-Keuls test.

DISCUSSION

The yield data is presented in Table 1. It is interesting to note that two of the Bounty hybrids and two other varieties outyielded the standard variety (Stephens). The biggest challenge to growing wheat in the heavy clay soils in Coon Hollow is applying enough nitrogen to produce a three-ton crop without the wheat lodging. With this in mind, a wheat cultivar that is resistant to lodging is important. Bounty 100 and Northrup King 812 both yielded well and were quite resistant to lodging, even though their heights were very different.

Because of the cost of hybrid seed, Bounty hybrids were planted at the same rate as the other varieties, even though the recommended planting rate is half that much. The cost of the seed of the hybrids needs to be taken into consideration to see if any additional yield would pay the extra cost of the seed.

A correlation analysis was performed on the data listed in Table 1. All correlations between variables non-significant except between bushel weight and yield and between percent moisture and bushel we Interestingly, there was no significant correlation between plant height and percent lodging.