Oat Variety Trial in Cochise County, 1988

L. J. Clark and E. Schwennesen

ABSTRACT

Ten varieties of oats were grown in a trial to test grain yield. Five of the varieties produced more than 4,000 pounds per acre; the top-yielding variety, Ogle, from Minnesota, produced 4,578 pounds per acre. Difficulties in establishing a perfect stand with the small plot grain drill would probably mean that a farmer could expect yields higher than these when using full-sized equipment. Considering the premium for oats, oats for grain could be a viable alternative crop.

INTRODUCTION

Raising horses in Arizona has become big business that has resulted in a greater demand for oats for feed. The increased demand translates into higher oat prices and, therefore, into greater interest on the part of farmers for higher yielding varieties. The oat variety trial was initiated in response to this need.

Most of the oats grown in southeastern Arizona are for oat hay or to produce seed to grow oat hay. Searching outside of the state was necessary to find oat varieties that would be good grain producers. Contacts were made with crop improvement people in California and Minnesota where most of the plant materials were acquired.

MATERIALS AND METHODS

A small plot of land was made available on heavy textured soil in Coon Hollow on the Bob Haas farm to plant the oat variety trial. A Kincaid Precision Small Plot grain drill was used to plant the seed.

Crop History

Elevation: 4200 feet above sea level
Previous crop: Corn
Planting date: 4 January 1988
Planting rate: 100 pounds of seed per acre
Herbicide: None
Fertilizer: 200 pounds per acre of 18-46-0 preplant
100 units of nitrogen as UN32 in the irrigation water
Plot size: 6 feet by 27 feet
Harvest date: 12 July

The plots were harvested with a Chain small plot combine; grain from each plot was bagged separately and transported to the Safford Agricultural Center. At that site, the samples were weighed and then recleaned so bushel weights and percent moisture could be determined.

RESULTS

Table 1. Yield, Plant Height, Bushel Weight, Percent Lodging and Percent Moisture for Oat Varieties Grown in Bonita, 1988.

VARIETY	YIELD*	PL HT	BU WT	% LODGING	% M
Ogle	4578 a	44.8 a	33.8 a	6.3 a	10.2 a
Hazel	4572 a	41.5 a	35.5 bc	3.8 a	10.3 a
Montezuma	4370 a	34.0 b	36.5 bcd	1.3 a	9.9 a
Swan	4302 a	39.0 ab	40.3 e	0.0 a	10.2 a
Nora	4128 a	39.0 ab	39.0 cde	8.8 a	10.1 a
Starter	3599 ab	43.0 a	37.3 cde	0.0 a	10.2 a
Bob	3592 ab	34.0 b	39.8 de	0.0 a	10.2 a
Jaycee	3500 ab	45.8 a	36.5 bcd	6.3 a	10.4 a
Dawn	3273 ab	41.5 a	39.0 cde	57.5 b	10.1 a
Sierra	2685 b	42.5 a	31.5 a	87.5 c	9.2 a

* Yields are corrected to 10% moisture.
** Values in a column followed by the same letter are not significantly different at the 5% level using the Student-Newman-Keul's method.

DISCUSSION

The ground preparation left a rough seedbed; the small, precision grain drill did not provide as uniform a stand as the commercial grain drill used by the cooperator. Higher yields probably could be obtained in a normal farming situation. Nevertheless, significant differences were observed in the parameters measured.

The most critical item noted was lodging by two of the varieties. Yields, across all varieties, had a negative correlation with lodging. One variety, Dawn, with a lodging problem, had a correlation coefficient with a value of -0.93. This would indicate that as the grain lodged, the straws broke, cutting off nutrients to the heads and the yield was decreased.

Several of the varieties yielded very well, but one that looked particularly intriguing was Swan, with an extremely high bushel weight and no lodging.