

Feed Wheat Variety and Rate of Planting Demonstration in Graham County, 1988

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ABSTRACT

Three varieties of feed wheat were compared in an on-farm demonstration in the Safford valley. AC79-97, developed by the University of Arizona for the Safford area, produced the largest amount of high protein feed. Comparing 200 and 300 pound per acre seeding rates, both AC79-97 and Super-X yielded slightly more grain at the 200 pound rate than at the 300 pound rate. Yolo, a feed wheat variety that has done well in the Sacramento valley in California, yielded slightly lower than the Super-X.

INTRODUCTION

Several grain growers in the Safford valley are the end user of their grain, through their hog operations. They need the largest possible production per acre, but a better quality grain is worth more to the operation. One of these growers, Tommy Clonts, expressed an interest in working with us to see if we could find a variety that would do better for him than Super-X. His normal cultural practices are a high seeding rate and high nitrogen input to produce high yields on his sandy ground. We decided to look at a lower seeding rate to evaluate its effect on costs and returns, also.

MATERIALS AND METHODS

The Clonts Farm is along the Gila river at the extreme east end of the Safford valley. Furrows were marked out at the time of planting to aid in irrigation.

Crop History

Elevation: 3100 feet above sea level

Soil type: Complex association of Gila loam, Grabe clay loam, Comoro sandy loam and Brazito sandy loam

Planting date: 16 December 1987

Planting rate: 200 and 300 pounds of seed per acre

Fertilizer: 200 lbs/ac 16-20-0 and 350 lbs/ac anhydrous NH₃ preplant

Herbicide: None

Insecticide: None

Harvest date: 9 June 1988

Experimental design: Split design with 2 replicates

Plot size: 12 feet by 438 feet

The varietal selection on the Clonts farm included: 1) Super-X, the standard variety; 2) AC79-97, bred by Rex Thompson for the Safford valley, and the top-yielding common feed wheat variety in tests at the Safford Agricultural Center in 1984 (1) and 1985 (2); and 3) Yolo, a variety of feed wheat that has topped many trials in the Sacramento valley in California (3). Because of the small amount of seed, Yolo was only planted at one rate and in one replicate.

RESULTS AND DISCUSSION

Table 1. Seeding Rate in Pounds/acre, Yields, Percent Moisture, Plant Heights, Heads per Square Foot, Percent Protein and Percent Dark Hard Vitreous Kernels for Varieties Planted on the Clonts Farm in Graham County, 1988.

Variety	Seed Rate	Yield* (lbs/ac)	% M	Pl Ht (in)	Heads/sq ft	% Prot#	DHV**
AC79-97	300	5787.5	13.3	36.8	62.5	13.9	96
Super-X	300	5661.6	14.8	40.5	63.0	13.8	90
AC79-97	200	6595.8	16.2	37.8	52.5	--	-
Super-X	200	5744.5	17.3	41.3	59.0	--	-
Yolo	200	5635.8	13.8	39.0	90.0	--	-

* Yields are corrected to 10% moisture.

Percent protein

** Percent dark hard vitreous kernels

At both seeding rates, AC79-97 yielded higher than Super-X, even though the average yield of the AC79-97 was depressed at the higher seeding rate because it had one poor replicate. Super-X is slightly taller than AC79-97 and had slightly more moisture at harvest. Yolo matured before the other varieties and yielded very close to Super-X. It had many more heads than the other varieties, but they were smaller.

Both AC79-97 and Super-X had greater yields at 200 pounds per acre seeding rate than at the 300 pound per acre rate. Both varieties compensated for the lower seeding rate with extra tillers or more of the seeds produced stems with heads (Table 1, 'Heads/sq ft' column). The seeding rate reduction was 33.3%, whereas the heading reduction was only 16% and 6.3%, respectively for AC79-97 and Super-X. This evidence would indicate that the seeding rate could be decreased with no loss in yield.

The percent protein was essentially the same for AC79-97 and Super-X, even though the former had more dark hard vitreous kernels. Their value as feed should be about the same.

One year's data is insufficient on which to base major changes in varieties, but this data, along with the information from previous years at Safford Agricultural Center, would indicate that growers should be acquiring AC79-97 seed to test under their particular farming conditions.

REFERENCES

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3. Williams, Jack. 1985. Winter Cereals...Production and Trials, 1982 to 1985. Extension publication, Sutter/Yuba Counties, University of California, Yuba City, California.