

Oat and Cereal Rye Variety Trials in Southwest Iowa

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Introduction

Careful management and proper variety selection can make small grains profitable in crop rotations due to low input requirements and beneficial effects on succeeding crops. When grown as a cash crop, oats can be marketed for cover crop seed, grain, straw, forage, hay, or haylage. Their mid-summer harvest allows for a myriad of field management options for the remainder of the season, such as mid-season manure application or the establishment of a perennial forage crop.

Practical Farmers of Iowa has been collaborating with Iowa State Research Farms to trial small grain varieties since 2015. This past year, oats were trialed at the Armstrong and Neely-Kinyon Research and Demonstration Farms. This was the first year oats were trialed in this location.

Materials and Methods

Eighteen varieties of oats were trialed in 2020. Management information for each trial can be found in Table 1. No herbicides or insecticides were applied. Data were analyzed using JMP Pro 15 (SAS Institute Inc., Cary, NC). Statistical significance is determined at $P \leq 0.10$ level (unless otherwise noted) and means separations are reported using Tukey's least significant difference (LSD).

Results and Discussion

Oat yields ranged from 58 to 144 bushels/acre. Test weight ranged from 33.1 to 45 lb/bushel. The two highest yielding varieties were Saddle and Natty. Streaker, a hullless variety, had the lowest yield but the highest test weight (Table 2).

Further information about the trials, such as the characteristic of each variety and its source, can be found on Practical Farmers of Iowa website:

<https://practicalfarmers.org/research/oat-variety-trial-2020/>

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Table 1. Management information for the oat variety trials at the Armstrong and Neely-Kinyon Farms in 2020.

Previous crop	Soybean
Replications	3
Harvested plot size	5 ft x 55 ft
Fertilizer applied	70 lb N/ac as Urea
Tillage	Disked Apr. 2
Planting date	Apr. 7, followed by a cultipacker
Row spacing	7.5 in.
Seeding rate	4 bu/ac
Seeding depth	1 in.
Harvest date	July 30

Table 2. Yield, test weight, plant height, and percent lodging of oat varieties. Varieties with a test weight meeting food grade specification (≥ 38 lb/bu) are highlighted.

Variety	Yield		Test weight (lb/bu)	Plant height at harvest (in.)	Lodging at harvest (%)
	(bu/ac)	(% of site avg.)			
Saddle	144	118	37.1	33	38
Natty	143	117	37.4	34	95
MN Pearl	142	116	34.6	33	88
Esker 2020	141	116	34.3	33	93
Saber	140	115	36.3	31	93
Rushmore	140	114	38.2	33	90
Shelby 427	139	114	39.5	34	93
Ogle	134	110	33.1	32	93
Reins	134	110	39.0	29	67
Sumo	129	105	39.5	34	45
Antigo	125	103	37.9	33	93
Deon	124	102	34.7	34	93
Morton	117	96	34.2	35	95
Warrior	113	93	34.3	31	57
Hayden	111	91	35.3	32	93
Goliath	88	72	35.4	36	95
Jerry	87	71	36.8	33	93
Streaker	58	48	45.0	33	95
Mean	122	--	36.8	33	--
LSD ^a	52	--	2.3	2	--

^aBy response variable, if the difference between any two entries is greater than the least significant difference (LSD) the entries are considered statistically different with 90% confidence.