

## Oat

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Proper selection of oat varieties requires consideration of the anticipated growing conditions, the pests that might be encountered in a specific production situation, the purpose for growing the crop and its eventual usage. Specific growing situations will dictate the priority and emphasis given to each trait included in the tables. While crown rust usually is the most important disease, in 2008 there was little crown rust in the state except in the southeast quarter because the weather elsewhere in mid-2008 was not favorable for rust infection in spite of ample inoculum and many susceptible varieties in production.

A detailed interpretation of our crown rust data follows. Because of several changes in rust races in recent years, many of the varieties currently grown are now susceptible to crown rust. In the disease data table, the crown rust rating is a combination of the quantity of pustules and their relative size. The scores range from susceptible to moderately susceptible. Three varieties, Souris, Stallion and Beach, are less likely to suffer severe damage than the other seven varieties in the table.

Treated seed should be used for smut-susceptible varieties, and those with BYDV (red leaf) susceptibility (score of 6.0 or higher) should be chosen carefully.

Earlier varieties may perform relatively better in more southerly parts of the state; later varieties usually have an advantage in the north. Taller varieties generally tend to produce more forage and/or straw. Lodging can be site-specific; varieties with lodging scores above 2.0 should be chosen cautiously, especially if your soil is highly fertile. Groat percent is an important consideration for grain production, perhaps equal to grain yield, whether the crop is intended for food or feed. This year we have again added the calculated trait, groat yield, a combination of bushels per acre and groat percent.

Descriptions of oat varieties covered by the U.S. Plant Variety Protection Act include a PVP designation. When PVP is followed by the notation (94), seed of that variety may not be sold by a grower, not even to a relative or neighbor, without the expressed permission of the variety's developer/owner. If the PVP designation is followed by (pending), consider the variety as having PVP (94) protection.

### General-Purpose Varieties

Many of these varieties have been tested three years or more; they usually are not grown for a specific special purpose.

### Oat traits, 2007-2009.

Variety	Days After Planting To Heading	Height, Inches	Lodging, 1 = Erect 5 = Flat	Test Weight, Lb/Bu	Groat %	Groat Yield, Bu/Acre
Beach	64	37	1.7	44.2	73.6	82.7
Buckskin	61	32	1.8	43.4	72.5	79.4
Esker	59	31	2.0	41.6	73.2	79.5
Excel	59	31	2.2	40.8	69.2	76.3
Kame	58	30	2.2	39.0	72.2	70.7
Morton	64	36	1.9	41.3	71.5	71.5
Rockford <sup>1</sup>	64	36	1.5	44.5	74.3	91.4
Souris	63	32	1.5	43.3	74.6	82.8
Spurs <sup>2</sup>	61	28	1.4	43.6	71.5	78.9
Stallion	63	36	2.4	42.8	72.3	81.5
Winona	58	31	1.9	42.0	73.3	65.3
Average	62	33	1.8	42.4	72.4	78.8

<sup>1</sup> 2008-09 data only, adjusted for 3 years.

<sup>2</sup> 2007 and 2009 data only, adjusted for 3 years.

## Oat yield, percent of mean, by location, 2007-2009.

Variety	Rosemount	Waseca	Lamberton	Morris <sup>1</sup>	Crookston	Average of 5 locations
Beach	95	101	104	117	102	103
Buckskin	98	89	103	109	104	101
Esker	102	99	107	90	98	100
Excel	103	95	105	102	100	101
Kame	90	83	97	87	90	90
Morton	81	89	93	104	94	92
Rockford <sup>2</sup>	109	122	104	NA	113	113
Souris	104	105	101	90	107	102
Spurs <sup>3</sup>	100	86	104	95	100	97
Stallion	107	101	104	111	98	104
Winona	89	77	88	78	77	82
Location Mean (bu/acre)	98	95	116	114	123	109
LSD 0.05 (% of mean)	6.5	6.7	7.5	8.1	5.8	3.3

<sup>1</sup> 2007 and 2009 data only.

<sup>2</sup> 2008-09 data only, adjusted for 3 years.

<sup>3</sup> 2007 and 2009 data only, adjusted for 3 years.

**Excel** – Early-medium maturity, high yield, shorter, average lodging resistance, below average test weight and groat percentage. Yellow seed. Susceptible to crown rust and smut, very good tolerance to red leaf. Selected at Purdue AES. Released in 2007. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

**HiFi** – Late maturity, high yield, tall, good lodging resistance, high test weight, medium groat percentage. White seed. Resistant to crown rust, moderately susceptible to smut, some tolerance to red leaf. Selected at N.D. AES. Released in 2001. **PVP (94)**

**Kame** – Early maturity, below average yield, short, good lodging resistance, poor test weight, average groat percentage. Yellow seed. Susceptible to crown rust, moderately

resistant to smut, susceptible to red leaf. Selected at Wis. AES. Released in 2004. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

**Moraine** – Medium maturity and yield, short, fair lodging resistance, good test weight, high groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, some tolerance to red leaf. Selected at Wis. AES. Released in 2001. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

**Morton** – Late maturity, below average yield, tall, average lodging resistance, below average test weight, fair groat percentage. Ivory seed. Susceptible to crown rust, resistant to smut, susceptible to red

leaf. Selected at N.D. AES. Released in 2001. **PVP (94)**

**Reeves** – Early maturity, fair yield, medium height, poor lodging resistance, high test weight and groat percentage. Ivory seed. Susceptible to crown rust, moderately susceptible to smut, susceptible to red leaf. Selected at S.D. AES. Released in 2002.

**Richard** – Early-medium maturity, medium yield, tall, good lodging resistance, high test weight, medium groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, some tolerance to red leaf. Selected at Minn. AES. Released in 2000. **PVP (94)**

**Riser** – Early maturity, lower yield, short, fair lodging resistance, high test weight and groat percentage. Yellow seed. Some resistance to crown rust and smut, susceptible to red leaf. Selected at S.D. AES. Released in 1998.

## Disease data in a single year, 2009.

Variety	Crown Rust (Buckthorn Nursery)		Smut Score <sup>3</sup>	BYDV Score <sup>4</sup>
	Amount <sup>1</sup>	Reaction Type <sup>2</sup>		
Beach	50	S	MR	5
Buckskin	45	S	S	4
Esker	45	S	R	4
Excel	60	S	MS	3
Kame	45	S	R	6
Morton	40	S	R	6
Rockford	25	MS	MR	3
Souris	30	S	R	3
Spurs	50	S	MR	4
Stallion	30	MS	MS	5
Winona	50	S	R	4

<sup>1</sup> Relative proportion of rust spores that will achieve a successful infection.

<sup>2</sup> R = resistant, MR = moderately resistant, MS = moderately susceptible and S = susceptible.

<sup>3</sup> Artificially inoculated, R = resistant, MR = moderately resistant, MS = moderately susceptible and S = susceptible.

<sup>4</sup> Barley Yellow Dwarf Virus score from Urbana, Illinois, with 1 = no symptoms and 9 = dead.

## Oat yield, (percent of mean) off-station locations, 2009 only.

Variety	Stephen	Winona
Beach	97	NA
Buckskin	107	NA
Esker	122	125
Excel	96	114
Kame	96	87
Morton	91	NA
Rockford	113	NA
Souris	112	NA
Spurs	105	135
Stallion	106	72
Winona	103	100
Location mean (bu/acre)	139	91
LSD 0.05 (%)	13.1	26.4

**Sesqui** — Late maturity, lower yield, average height, fair lodging resistance, fair test weight, poor groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, good tolerance to red leaf. Selected at Minn. AES. Released in 2001.

**Souris** — Medium-late maturity, medium yield, shorter, very good lodging resistance, good test weight, very good groat percentage. Ivory-white seed. Some resistance to crown rust. Resistant to smut and susceptible to red leaf. Selected at North Dakota AES. Released in 2006. **PVP (94)**

**Spurs** — Early-medium maturity, good yield, short with good lodging resistance. Good test weight, average groat percentage. Ivory-white seed. Susceptible to crown rust, smut, and red leaf. Released by Ill. AES in 2005. **PVP (94)**

**Stallion** — Late maturity, high yield, tall with poor lodging resistance. Good test weight, average groat percentage. White seed. Some resistance to crown rust, susceptible to smut and red leaf. Released by S.D. AES in 2006. **PVP (94)**

**Wabasha** — Medium maturity and height; lower yield, fair lodging resistance and test weight, high groat percentage. White seed. Susceptible to crown rust, resistant to smut and tolerant to red leaf. Selected at Minn. AES. Released in 2001.

**Winona** — Early, low yield, short, average lodging resistance, average test weight, good groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut and red leaf. Selected at Minn. AES. Released in 2005.

**Special-Purpose Variety**

This variety has also been tested three years or more, and has special attributes that differentiate it from general-purpose varieties or is intended for a specific end use.

**Buff** — Hulless. Medium maturity, good yield for hulless variety. Medium height, good lodging resistance, very high test weight. Susceptible to crown rust, resistant to smut, susceptible to red leaf. Selected at S.D. AES. Released in 2002.

**Test Plot Research**

Test plot establishment and management were supervised by Tom Hoverstad, George Nelson, Steve Quiring and John Weirsma.

<b>Oat</b>	
<b>Planting Rate and Date</b>	
Bushel Weight, Pounds.....	32
Seeds/Pound.....	16,200
Planting Rate, Pounds/Acre.....	80
Planting Rate, Seeds/Sq. Ft.....	28
Planting Date.....	Early Spring