

2007 Proso Millet Trials

This is the fifth year in which experimental waxy lines have been tested along with the common millet varieties. Several of these waxy lines have exhibited yield comparable to the checks for three years running.

What is 'Waxy'?

Most starch (in wheat, corn, barley, etc) is composed of around 75% amylopectin and around 25% amylose. Waxy starch is essentially amylose free. What does this mean? Well, waxy starch has many applications in food and industrial use, but for proso it means that the cooked product is sticky and easily eaten with chopsticks. Whereas most proso is now used in birdseed production, or for animal feed, we hope that the introduction of lines with the waxy trait has the potential to expand the market for proso as human food, primarily for export to Asian markets.

Plot Techniques

Three proso trials were planted in 2007. Two dryland trials were planted at the University of Nebraska High Plains Agricultural Lab near Sidney, NE, and one at the USDA Central Great Plains Research Center near Akron, CO.

New this year was an organic trial, planted in an organic field at High Plains Ag Lab.

While rainfall was above average at the Sidney trials, it was untimely, and yields were about average. Hard rain following planting reduced stands, this was followed by a dry spell. The proso was very stressed by the time it rained, so it had limited response to the moisture. Weeds then also were a problem.

Plots were seeded with small plot drills, in various configurations according to the equipment available at that location. Dryland plots were seeded at the rate of 15 lbs/acre. Four replications were planted at each location.

Location		Planting Date	Harvest Date
Akron, CO	No till	June 15	Sept. 29
Sidney, NE	No till	June 11	Sept. 13
Sidney, NE	Organic tilled	June 10	Sept. 18

PROSO TRIALS 2007

AVERAGES OF THREE DRYLAND TRIALS

entry #	ENTRY	YIELD Lbs/Acre	HT Inches	TEST WT Lbs/bu	Seed Weight (milligrams)
1	Huntsman	2260	27	53.7	6.1
3	Sunrise	2060	23	53.7	6.3
4	Earlybird	2030	24	52.6	6.4
13	177-9-13	1980	30	51.0	5.8
2	Sunup	1970	26	54.2	5.9
5	Horizon	1910	21	52.7	6.1
6	Plateau	1910	24	50.1	5.4
12	177-3-13	1780	30	52.8	5.3
14	182-4-24	1670	23	51.2	5.9
10	172-2-B	1670	28	51.0	5.3
11	174-7-13	1650	28	51.5	5.6
15	182-5-18	1620	28	50.6	5.7
9	177-8	1320	22	50.5	5.2
7	Dawn	1230	22	53.2	6.1
8	10107	900	17	47.7	5.2
	Average	1731	25	51.7	5.8
	LSD (.05)	239	2	1.4	0.3

SIDNEY NE NO-TILL

YIELD Lbs/Acre	HT Inches	TEST WT Lbs/bu	Seed Weight (milligrams)
2380	28	51.9	6.1
2560	24	52.0	6.5
2360	24	50.7	6.5
2120	32	49.3	5.9
2360	28	52.5	5.9
2170	22	51.0	6.1
2170	25	47.6	5.4
2320	32	52.2	5.7
2440	28	50.1	6.7
2150	27	49.4	5.3
1790	29	49.3	5.6
2150	30	49.1	5.9
1660	25	48.6	5.2
1820	22	51.2	6.2
1530	19	48.5	5.3
2119	26	50.4	5.9
570	5.0	2.5	0.9

SIDNEY NE ORGANIC

YIELD Lbs/Acre	HT Inches	TEST WT Lbs/bu	Seed Weight (milligrams)
2270	29	53.3	5.8
2160	25	53.7	5.8
2050	28	53.6	6.1
2130	32	50.8	5.4
1740	28	54.6	5.4
1980	22	53.0	5.9
1860	26	51.0	5.1
1740	35	51.6	4.9
1460	24	50.2	5.3
1480	31	50.2	5.1
1770	31	51.9	5.4
1540	31	49.1	5.2
1500	25	49.8	5.2
1260	25	54.8	6.0
960	19	.	5.2
1725	28	52.0	5.4
348	4	2.0	0.4

AKRON CO

YIELD Lbs/Acre	HT Inches	TEST WT Lbs/bu	Seed Weight (milligrams)
2110	24	56.0	6.5
1460	21	55.6	6.6
1680	20	53.7	6.7
1690	27	53.0	6.1
1810	23	55.5	6.2
1590	19	54.1	6.4
1720	21	51.8	5.6
1300	23	54.5	5.5
1120	18	53.4	5.6
1370	25	53.4	5.6
1390	23	53.4	5.9
1160	22	53.5	6.0
800	18	53.1	5.4
600	19	53.7	6.3
200	12	44.3	5.2
1334	21	53.7	6.0
323	3	2.8	0.2

Six year summary for waxy and non-waxy Proso yield trials, with respective rankings.

Variety	Starch type	6-Yr Mean	6-Yr Rank	2007	Rank	2006	Rank	2005	Rank	2004
		CWT/ACRE		CWT/ACRE		CWT/ACRE		CWT/ACRE		CWT/ACRE
Huntsman	non-waxy	20.5	1	22.6	1	10.4	7	24.9	6	13.9
Earlybird	non-waxy	18.7	2	20.3	3	11.4	4	21.3	8	14.2
177-9-13	waxy	18.6	3	19.8	4	11.1	5	23.3	2	16.3
Horizon	non-waxy	18.5	4	19.1	6	9.2	13	22.9	4	14.8
182-5-18	waxy	18.3	5	16.2	12	10.1	9	24.9	1	17.0
Sunrise	non-waxy	18.2	6	20.6	2	11.0	6	20.7	12	15.1
172-2-9	waxy	18.0	7	19.1	7	11.5	3	21.3	7	12.0
Sunup	non-waxy	17.9	8	19.7	5	13.4	1	22.5	5	13.8
182-4-24	waxy	17.7	9	16.7	9	12.6	2	21.2	9	13.8
174-7-13	waxy	17.6	10	17.8	11	10.0	10	21.1	11	15.8
172-2-B	waxy	17.6	11	16.7	10	10.2	8	21.1	10	15.6
177-3-13	waxy	16.7	12	17.8	8	9.1	14	20.0	13	13.7
Dawn	non-waxy	16.0	13	12.3	14	9.4	12	23.0	3	16.7
177-8	waxy	15.5	14	13.2	13	9.9	11	19.1	14	12.1
10107	waxy	10.9	15	9.0	15	6.7	15	14.0	16	7.5
	Mean	17.4		17.3		10.4		20.5		13.0
	LSD (0.05)			2.4		2.1		2.9		1.7

Rank	2003	Rank	2002	Rank
	CWT/ACRE		CWT/ACRE	
9	25.4	1	25.5	1
8	23.5	2	21.8	4
3	22.4	4	18.8	14
7	22.2	6	23.0	2
1	21.7	8	19.8	8
6	22.3	5	19.7	9
14	21.5	9	22.5	3
11	19.4	13	18.8	13
10	20.7	11	21.3	5
4	21.3	10	19.7	10
5	21.8	7	19.9	7
12	20.6	12	19.1	12
2	17.2	17	17.5	17
13	19.4	14	19.2	11
18	16.8	18	11.5	19
	19.9		18.5	
	3.0		8.7	