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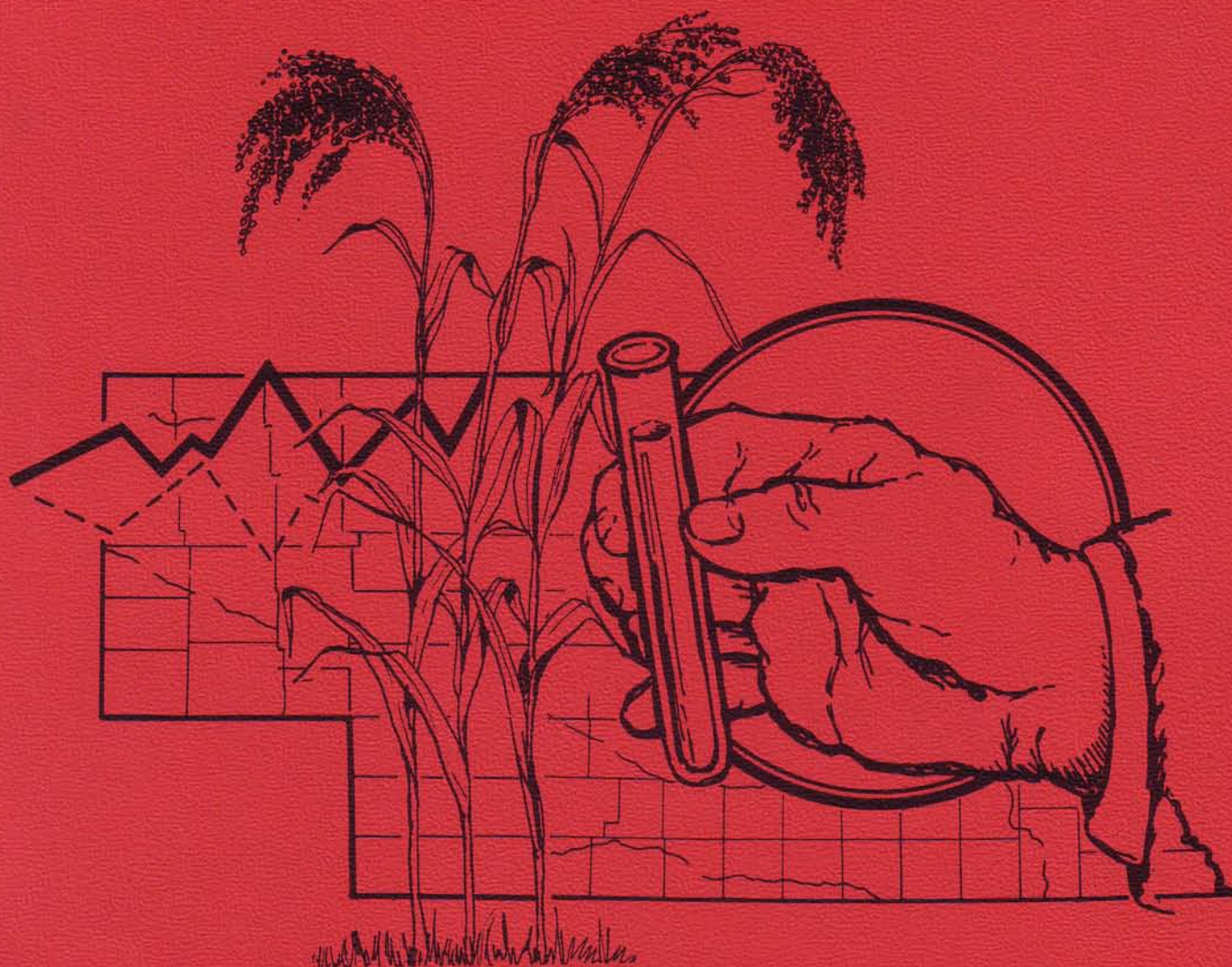
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NEBRASKA PROSO VARIETY TESTS 1985



University of Nebraska—Lincoln
Institute of Agriculture and Natural Resources
Agricultural Research Division
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EXTENSION CIRCULAR 85-107

NEBRASKA PROSO VARIETY TESTS

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This circular is a progress report of variety trials conducted by personnel of the Panhandle Research and Extension Center and the High Plains and Northwest Agriculture Laboratories. Conduct of experiments and publication of results is a joint effort of the Agriculture Research Division and Cooperative Extension Service. Special acknowledgment is made to Joe Godell who furnished land for the experiment in Scotts Bluff County and to the Extension Agents in the Panhandle.

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THE METRIC SYSTEM

Metric equivalents and conversions are as follows:

1 centimeter (cm = 0.394 inches)	cm = inches x 2.54
1 hectare (ha) = 2.471	ha = acres x 0.405
1 kilogram (kg) = 2.205 pounds	kg = pounds x 0.454
1 kilogram/hectare (kg/ha) = 0.892 pounds per acre	kg/ha = lb/A x 1.121
1 kilogram/hectare (kg/ha) = 0.892 pounds per acre	kg/ha = cwt/A x 112.1

EXTENSION CIRCULAR 85-107

CONTENTS

Introduction.	1
Table of Contents and Production levels.	2
Description of Trials.	3
List of locations & conditions.	5
Five-year yield data 1981-1985.	5
Variety characteristics.	6
Grain yield and other data, 1985	
Proso yields, 6 locations.	7
Heading date, test weight, and seed weight.	8

PROSO MILLET PRODUCTION

Proso acreage in Nebraska was at a low point in 1980. Although there was some recovery from 1981 through 1983, the acreage did not expand greatly until 1984:

<u>Year</u>	<u>Yield (lb/A)</u>	<u>Area (acres)</u>
1980	1350	27,000
1981	1950	33,000
1982	1700	44,000
1983	1500	43,000
1984	1650	64,500

As evidenced by this table, yields in 1984 were only average. Because of the larger acreage grown, there was a greater production of proso in 1984 than in any of the previous 4 years. The larger acreage is primarily a reflection of the government program. The statistics for 1985 are not available due to cutbacks in the Federal Crop and Livestock Reporting Service. Observation would indicate a similar acreage and better yield than in 1984.

PROSO VARIETY TRIALS

1985

The 1985 proso test contained 22 entries of which eight were named varieties used as check varieties. The other 14 entries were selections and crosses from the proso breeding program at the Panhandle Research and Extension Center. All of these selections and crosses involve the variety Dawn and the primary purpose of this trial is to identify a tall, improved "Dawn type" plant. Rise is the first release from the Dawn crosses. A large number of the experimental lines had improved yields over the named varieties.

The following is a description of the eight varieties included as check varieties. All are available from their states of origin if they are not available locally.

Abarr is a 1974 release from Colorado. It is a white seeded variety with good yield potential. It is similar to Panhandle with improved seed type.

Cope is a 1978 Colorado release. It is much later maturing than the other varieties. It has yielded well in Nebraska, especially when planted early.

Dawn is a 1976 Nebraska release. It is shatter resistant and ripens uniformly to make it suitable for direct combining. It has a large seed with good white color and has been well accepted in the bird seed trade. Its early maturity and short stature have made it less suitable under environmental stress conditions. Its yield potential is good when fertilizer and moisture are favorable.

Minco is a joint Minnesota-Colorado release. It is slightly taller and later than Panhandle. It has a good white seed color and good yield potential.

Minsum is a 1980 release from Minnesota. It is quite early and medium in height. Its most noticeable characteristic is an extremely loose panicle (effusum). It has a good yield potential and may have some potential in Nebraska.

Panhandle is a 1968 Nebraska release. It is the first variety selected from the common white proso grown in western Nebraska. It has a good yield record and has white seeded grain. It has set the yield standard for many years.

Red Leonard is a 1983 release from Colorado. It is selected from a cross of Leonard x Akron. It has red seed, a loose head, and is very late maturing. It has slightly better yield record than Cerise. It may be a good replacement for Cerise.

Rise is a 1983 Nebraska release. It the result of a Dawn X Minn. 402 cross made in 1975. It is later and taller than Dawn with many of the same characteristics in head type and lodging resistance. It has had a good yield record in the time it has been tested. It does not have the large seed size of Dawn. In comparison to Panhandle, it is slightly shorter and earlier.

Six proso variety trials were conducted in 1985. Three were located at the High Plains Ag. Lab. near Sidney and two at the Northwest Ag. Lab. near Alliance. The three at High Plains Ag. Lab. were early black fallow, late black fallow, and ecofallow. The two tests at Northwest Ag. Lab. were black fallow, and ecofallow planted the same day. The sixth trial was conducted on Joe Goodell farm in Scotts Bluff County near Stegall, Nebraska.

Plots were seeded with a 6-row double disc drill. Each plot was 22 feet long and six feet wide. The center 4 by 15 foot segment was harvested from each plot with a self-propelled combine when the variety was mature. Four replications of each variety in each location were planted and harvested. The plots at High Plains Ag. Lab. were treated preemergence with atrazine for weed control. The plots at Northwest Ag. Lab. were treated with 2,4-D for weed control.

Table 1. List of 1985 locations and conditions.

Location	Designation	Planting date	Stand	Weed control	Ave Yield cwt/A
HPAL (Sidney)	Early (black)	June 7	good	good	29.8
HPAL (Sidney)	Ecofallow *	June 7	good	good	10.2
HPAL (Sidney)	Late (black)	Jun 28	good	good	18.0
NWAL (Alliance)	Black	May 30	good	good	17.2
NWAL (Alliance)	Ecofallow *	May 30	good	good	6.3
Scotts Bluff Co.	Black	May 29	poor**	good	12.8

* Ecofallow plots followed wheat harvest by 10 months while black fallow followed wheat by 23 months.

** Devastating winds one day after planting caused some plots to have poor stands.

Table 2. Five year summary of yields of varieties included in test. (cwt/a)

Variety	5 year average	1985	1984	1983	1982	1981
Abarr	16	10	12	17	20	23
Cope	20	15	14	18	25	26
Dawn	15	12	13	15	22	15
Minco	21	16	15	22	26	25
Minsum	18	13	13	18	20	25
Panhandle	17	12	10	18	22	24
Red Leonard	--	13	15	17	--	--
Rise	23	18	18	22	26	29

Table 4. Yields of proso lines and varieties at all locations in 1985.
(cwt/A)

Variety	High Plains Ag Lab.			NW Ag Lab.		S.B.Co.	Ave.
	Early	Eco	Late	Black	Eco	Black	6 loc.
Abarr	16.3	4.5	15.1	10.9	5.0	8.7	10.1
Cope	23.6	10.7	19.4	18.0	8.6	11.3	15.2
Dawn	35.1	10.1	12.4	4.8	1.5	7.8	12.0
Minco	26.9	8.0	23.6	15.3	6.4	12.9	15.5
Minsum	19.8	8.3	20.9	12.8	4.5	10.5	12.8
Panhandle	23.1	6.9	15.4	13.2	5.2	8.8	12.1
Red Leonard	23.3	8.3	14.8	11.9	4.8	12.6	12.6
Rise	34.2	12.1	19.5	21.6	7.4	14.9	18.3
76004-18-4	32.4	11.8	18.5	18.2	7.3	12.7	16.8
76004-3-2	33.3	11.2	21.3	20.9	7.4	13.8	18.0
76004-3-8S	33.0	12.6	18.1	21.0	6.8	15.3	17.8
76010-10-8S	35.5	11.5	16.9	23.0	7.0	15.0	18.1
76010-16-6	30.5	11.1	18.2	19.8	5.4	12.0	16.2
76010-3-3-6	35.3	10.9	14.6	19.8	6.0	15.1	16.9
76010-6-4	31.9	11.3	16.5	17.3	6.8	14.2	16.3
79012-9-B-8	33.2	12.1	25.3	20.7	6.7	15.7	18.9
79012-9-16	36.9	12.7	18.7	21.7	10.0	13.0	18.8
79017-4-B-5	36.0	13.0	17.2	20.5	6.7	15.4	18.1
79017-4-8	35.3	12.2	18.4	19.9	6.8	14.0	17.7
82003-2-4	28.7	11.0	20.6	19.8	6.3	13.1	16.6
82006-2-1	22.2	9.1	16.5	13.4	6.8	11.6	13.3
82007-1-4	29.9	5.3	15.0	13.4	7.3	13.7	14.1
Average	29.8	10.2	18.0	17.2	6.3	12.8	15.7
L.S.D. .05	3.6	2.6	4.4	3.1	2.4	2.7	1.6

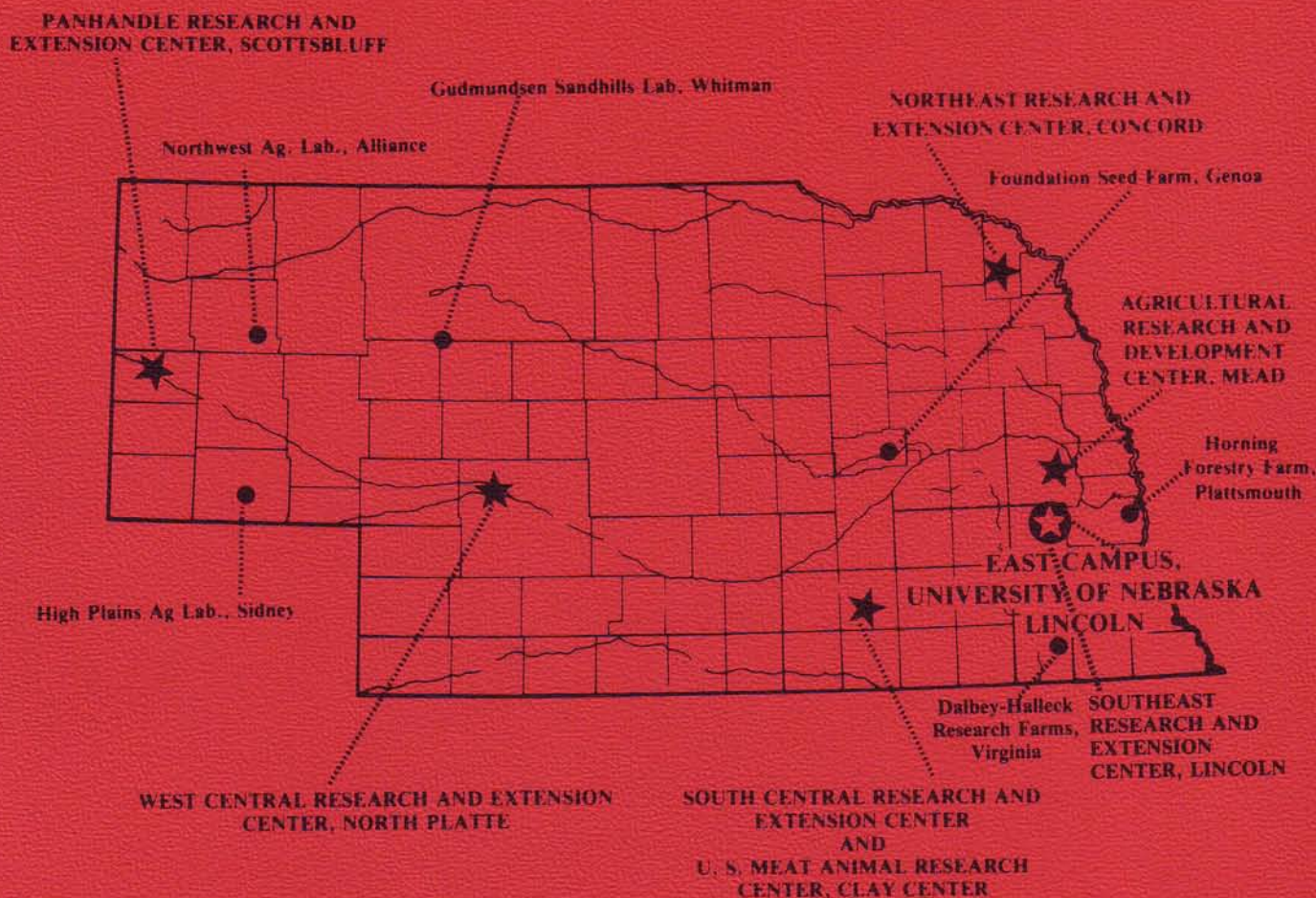
Table 5. Agronomic characteristics of lines and varieties tested in 1985 yield trial.

Variety	Heading date after July 1	Test wt. lb/bu	Seed wt. seeds/5g
Abarr	35.8	49.5	748
Cope	38.1	48.7	766
Dawn	26.5	43.5	746
Minco	36.8	49.8	784
Minsum	35.4	49.7	751
Panhandle	32.4	49.6	762
Red Leonard	40.2	51.7	848
Rise	33.4	50.6	779
76004-18-4	33.1	51.1	768
76004-3-2	34.4	49.4	756
76004-3-8S	34.2	49.6	776
76010-10-8S	36.7	48.9	745
76010-16-6	32.5	49.3	758
76010-3-3-6	35.8	49.5	725
76010-6-4	32.6	47.6	746
79012-9-B-8	36.0	50.8	780
79012-9-1	34.1	52.1	757
79017-4-B-5	34.4	50.5	757
79017-4-8	38.2	49.5	768
82003-2-4	36.9	49.8	750
82006-2-1	36.6	49.4	782
82007-1-4	37.1	50.4	778
Average	35.0	49.6	765
L.S.D. .05	1.3	1.5	14

Table 3. Agronomic characteristics of lines and varieties tested in 1985.

Variety or line (parentage)	Seed color	Height in inches	Straw strength	Maturity
Abarr	White	31.8	Weak	Medium
Cope	White	34.0	Fair	Late
Dawn	White	22.5	Good	V. Early
Minco select	White	30.7	Weak	Medium
Minsum	White	29.5	Weak	Medium
Panhandle	White	31.3	Weak	Early
Red Leonard	Red	31.4	Fair	V. Late
Rise	White	27.4	Good	Medium
76004-3-2 (Rise Sib.)	White	28.2	Fair	Medium
76004-3-8 select (Rise Sib)	White	27.7	Good	Medium
76004-18-4 (Rise Sib.)	White	29.0	Good	Medium
76010-3-3-6 (Dawn x Panhandle)	White	26.3	Good	Medium
76010-6-4 (Dawn X Panhandle)	White	27.3	Weak	Early
76010-10-8S (Dawn X Panhandle)	White	26.9	Fair	Medium
76010-16-6 (Dawn X Panhandle)	White	27.6	Good	Early
79012-9-B-8 (Dawn x Rise Sib)	White	28.5	Good	Medium
79012-9-16 (Dawn x Rise Sib)	White	27.6	Exc.	Medium
79017-4-B-5 (Dawn x 76010)	White	25.4	Good	Medium
79017-4-8 (Dawn x 76010)	White	27.8	Good	Late
82003-2-4 (Cope X (Dawn X Com Wt))	White	31.0	Good	Medium
82006-2-1 ((Dawn X 72027-1) X (Dawn X Panhandle))	White	30.0	Good	Medium
82007-1-4 ((Dawn X Abarr)X Minco)	White	27.0	Weak	Late

AGRICULTURAL RESEARCH AND EXTENSION FOR ALL OF NEBRASKA



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Nebraska is a large state and has great variation due to topography and the continental type of climate. The elevation ranges from 1,000 feet to near a mile high in the northwest portion of the state, rainfall varies from less than 15 to more than 35 inches per year, and the soil types vary from sands to heavy clays. The research and extension programs thus are broad in subject matter and geography, resulting in the need for various centers, satellite locations, and local offices.