

1983

EC83-107 Proso Variety Tests 1982

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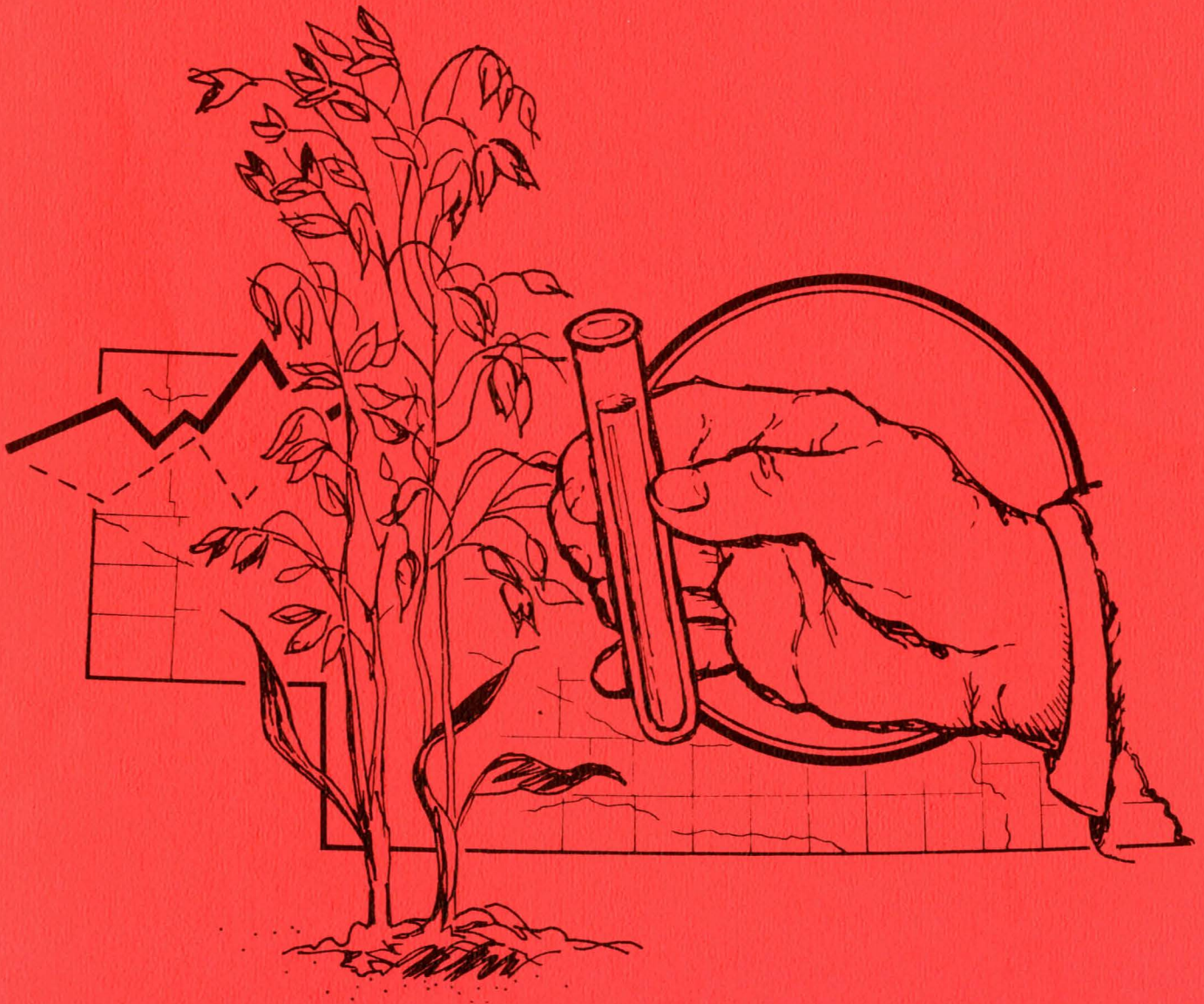
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PROSO VARIETY TESTS

1982

L. A. NELSON



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EXTENSION CIRCULAR 83-107

February 1983

FOREWORD

This circular is a progress report of proso variety trials conducted by the Panhandle Station, High Plains Agricultural Laboratory, and Northwest Agricultural Laboratory. These Extension Circulars replace the Outstate Testing Series. Conduct of experiments and publication of results is a joint effort of the Agricultural Experiment Station and the Cooperative Extension Service.

CONTENTS

Introduction	2
List of locations & conditions	4
Five-year yield data 1977-1981	4
Variety characteristics	5
Grain yield and other data, 1982	
Proso yields, 5 locations	6
Heading date, harvest date, test weight, and seed weight	7

PROSO VARIETY TRIALS

1982

L. A. NELSON^{1/}

Proso acreage in Nebraska took a sharp decline in 1980. Although there was some recovery in 1981, there was an even greater increase in 1982, but acreage has never reached the 1979 level^{2/}.

<u>Year</u>	<u>Yield (lb/A)</u>	<u>Area (acres)</u>
1978	1200	50,000
1979	1360	63,000
1980	1350	27,000
1981	1950	33,000
1982	1700	44,000

As evidenced by this table, yields in 1981 were excellent, but the yields experienced in 1982 also were good. Although the production in 1982 was good, there was a considerable drop in the prices of the grain from \$5.50 down to 3.80/cwt.

The varieties changed some in 1982. The two varieties that gained the most acreage were 'Abarr' and 'Panhandle'. White Proso and 'Dawn' lost considerable acreage while 'Minco' remained unchanged and 'Cope' gained. No variety had more than 20% of the millet acreage.

The 1982 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 Station. 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.

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.

Cerise is a 1974 release from Nebraska. It is the only red seeded variety included in this year's yield trial. It is about one day earlier than Turghai, the variety it replaced, and has a yield and height similar to Panhandle. Cerise is probably a better forage than the other varieties. There is some demand for red seed in the bird seed trade but it generally is easier to keep pure if raised outside the normal proso producing areas.

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.

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^{2/}Nebraska Crop & Livestock Reporting Service.

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.

Rise is a new variety just released in 1983 from the Nebraska Experiment Station. It is much like Dawn in head type but is about 6 inches taller than Dawn. It is slightly later and has slightly smaller seed size than Dawn but has been the highest yielding variety for the past four years. It was tested as 76004-3-8 in previous years.

Six proso variety trials were conducted in 1982. Three were located at the High Plains Ag. Lab. near Sidney and three at the Northwest Ag. Lab. near Alliance. The three at High Plains Ag. Lab. were early black fallow, late black fallow, and ecofallow. The three tests at Northwest Ag. Lab. were black fallow, ecofallow, and irrigated planted the same day. The black fallow test was not harvested because of drought which was unevenly distributed through the plot. Thus, only 5 trials are reported in 1982. The yields from the irrigated trial were relatively low due to the delay of that plot to mature and the wait till after a hard freeze to harvest the plot.

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.

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

Table 1. List of 1982 locations and conditions.

<u>Location</u>	<u>Designation</u>	<u>Planting date</u>	<u>Stand</u>	<u>Weed control</u>	<u>Av. yield cwt/A</u>
HPAL (Sidney)	Early (black)	May 26	Good	Good	29.8
HPAL (Sidney)	Ecofallow	June 7	Fair	Good	21.6
HPAL (Sidney)	Late (black)	June 22	Good	Good	25.7
NWAL (Alliance)	Black	June 8	Good	Good	N/A
NWAL (Alliance)	Ecofallow	June 8	Good	Fair	19.1
NWAL (Alliance)	Irrigated	June 8	Exc.	Good	21.2

Table 2. Five year yield summary of varieties included in test.

<u>Variety</u>	<u>5 yr. average</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>
Abarr	17	20	23	15	11	14
Cerise	15	20	19	11	13	13
Cope	19	25	26	14	16	14
Dawn	16	22	15	14	14	15
Minco	19	26	25	16	14	16
Minsum	18	20	25	14	14	17
Panhandle	18	22	24	16	11	15
Rise	23	26	29	19	19	--

Table 3. Agronomic characteristics of lines and varieties tested in 1982.

Variety or line (parentage)	Seed color	Height in inches	Straw strength	Maturity
Abarr	White	41	Weak	Medium
Cerise	Lt. red	47	Weak	Early
Cope	White	44	Fair	Late
Dawn	White	34	Good	Early
Dawn select	White	33	Good	Early
Minsum	White	37	Weak	Early
Minco select	White	40	Fair	Medium
Panhandle	White	40	Weak	Early
Rise	White	38	Good	Medium
Tall Dawn	White	44	Fair	M. late
76001-10-7 (Dawn x common white)	White	42	Good	Late
76003-9-6 (Dawn x Abarr)	White	41	Weak	M. late
76003-9-6 Select	White	45	Fair	Late
76004-3-2 (Dawn x Minn 402)	White	40	Weak	Medium
76004-3-6 (Dawn x Minn 402)	White	41	Fair	Medium
76004-3-8 Select	White	39	Good	Medium
76004-19-1 (Dawn x Minn 402)	White	43	Good	Late
76004-19-12 (Dawn x Minn 402)	White	39	Good	M. late
76010-6-3 (Dawn x Panhandle)	White	36	Good	Medium
76010-10-8 (Dawn x Panhandle)	White	35	Weak	Medium
76010-10-8 Select	White	35	Weak	Medium
76010-16-8 (Dawn x Panhandle)	White	37	Weak	Medium

Table 4. Yields of proso lines and varieties at all locations in 1982.

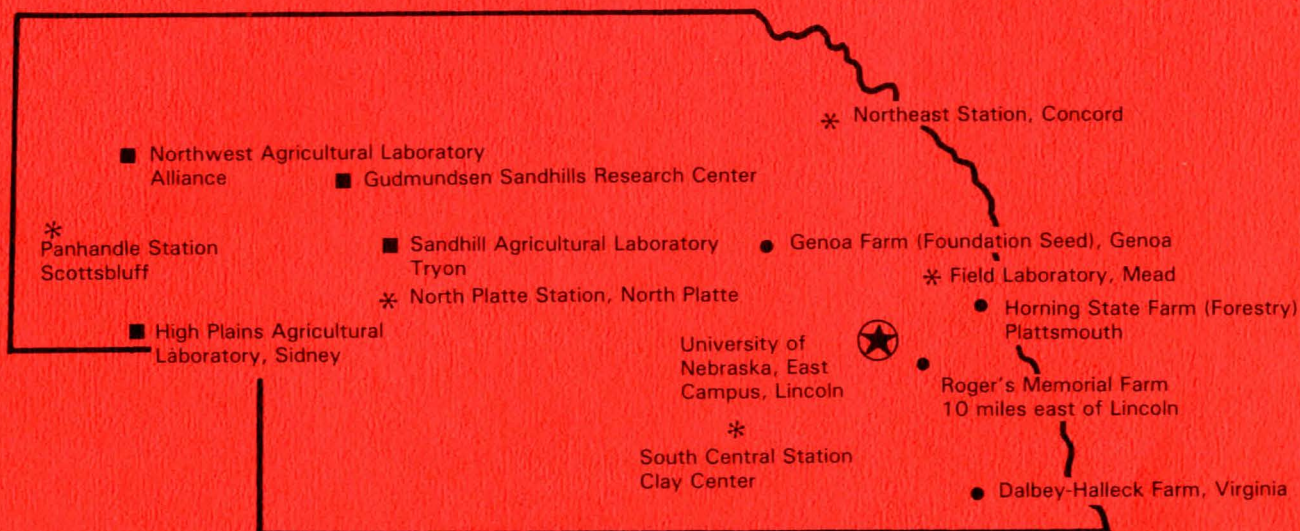
Variety	HPAL Early	HPAL Eco.	HPAL Late	NWAL Eco.	NWAL Irr.	AVG. 5 Loc.
Abarr	24.3	16.5	19.1	16.0	21.9	19.5
Cerise	23.1	19.4	21.0	16.6	20.0	20.0
Cope	30.3	20.8	32.2	19.3	20.5	24.6
Dawn	25.7	18.6	27.4	14.8	22.1	21.7
Dawn Select	23.1	18.3	26.7	13.8	20.4	20.5
Minsum	25.0	19.7	12.9	20.3	20.3	19.7
Minco Select	31.5	24.7	27.2	22.0	23.7	25.8
Panhandle	25.7	19.3	24.9	17.7	20.6	21.6
Rise	32.0	25.4	31.5	22.0	21.6	26.5
Tall Dawn	30.0	19.7	24.5	20.6	17.7	22.5
76001-10-7	30.7	22.0	32.0	21.0	18.9	24.9
76003-9-6	33.5	23.9	21.7	17.7	14.4	22.2
76003-9-6 Select	28.6	21.4	22.5	17.6	15.9	21.2
76004-3-2	33.7	24.7	25.1	23.0	21.9	25.7
76004-3-6	32.4	21.5	28.9	19.7	21.2	24.7
76004-3-8 Select	33.5	26.1	27.6	23.4	24.1	27.0
76004-19-1	38.9	24.9	27.0	22.7	25.4	27.8
76004-19-12	36.6	25.4	28.9	13.6	22.9	25.5
76010-6-3	30.3	19.3	30.1	16.8	22.6	23.8
76010-10-8	27.5	21.2	23.9	20.8	22.9	23.2
76010-10-8 Select	31.5	24.6	23.8	23.2	22.6	25.1
76010-16-8	28.0	16.8	26.9	19.2	24.1	23.0
Average	29.8	21.6	25.7	19.1	21.2	23.5
L.S.D. .05	3.8	3.4	9.1	4.3	5.1	3.6

Table 5. Agronomic characteristics of lines and varieties tested in 1982 yield trial.

Variety	Heading date After July 1	Harvest* date After Sept. 1	Test. Wt. lb/bu	Seed Wt. seeds/5g
Abarr	30.4	16.3	54.0	713.8
Cerise	30.8	10.0	55.7	837.3
Cope	34.3	20.7	53.4	742.8
Dawn	28.7	10.0	55.3	701.3
Dawn Select	28.8	10.0	55.2	703.3
Minsum	29.6	16.3	54.4	707.3
Minco Select	30.5	20.7	55.6	776.3
Panhandle	29.1	17.0	53.5	759.3
Rise	31.6	15.9	55.0	767.3
Tall Dawn	33.6	19.6	55.1	724.5
76003-10-7	34.1	16.3	55.2	791.3
76003-9-6	33.4	17.4	53.6	684.5
7600-9-6 Select	35.6	18.5	53.4	721.3
76004-3-2	32.7	18.5	53.5	743.3
76004-3-6	31.5	18.5	55.2	741.5
76004-3-8 Select	31.8	15.7	54.7	757.8
76004-19-1	35.2	20.7	55.7	783.5
76004-19-12	32.4	19.6	55.1	760.3
7600-6-3	31.0	17.0	54.0	705.0
76010-10-8	31.2	14.7	54.0	729.8
76010-10-8 Select	32.7	16.3	53.9	743.3
76010-16-8	31.2	16.3	53.9	745.0
Average	31.8	16.7	54.5	742.7
L.S.D. .05	1.4	3.1	1.0	18.9

*Means are of the three plots at High Plains Ag. Lab.

Agricultural Research for All of Nebraska



The agricultural research division of the Institute of Agriculture and Natural Resources is the Nebraska Agricultural Experiment Station. The Experiment Station relies on its research centers and field laboratories to provide applied knowledge for development of Nebraska's largest industry—agriculture. In addition, many Nebraska farmers cooperate by furnishing land and other facilities for research projects. This provides information from areas not well represented by stations.

The Cooperative Extension Service transmits data to users through District and County Ex-

tension Offices. Area and County Extension Agents are available to provide additional interpretation and more specific recommendations.

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 14 to 40 inches per year, and the soil types vary from sands to heavy clays. The research program thus is broad in subject matter and geography, resulting in the need for various stations and satellite locations.

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