REPORT OF AGRONOMIC INVESTIGATIONS - 1961
BY THOMAS J. CONLON

THE SEASON OF 1961

The season of 1961 was characterized by below average precipitation and above average temperatures in May, June, July and August.

Above average precipitation in September of 3.05 inches raised the total annual precipitation figure to 13.90 inches which was still 1.60 inches below average for the year. The September precipitation was too late for any crop except pasture in 1961 but provided excellent conditions for fall seeding of winter grains.

Daily precipitation figures for 1961 are given in Table 1.

Table 2 summarizes the important climatic data.

Table 1. Daily Precipitation - 1961

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	T	.11	0	0	0	.01	0	.02	.07	0	0	0
2	T	.05	.03	.10	0	0	0	1.03	.53	0	0	0
3	0	0	0	T	0	0	0	0	.01	0	T	0
4	0	0	.02	.05	T	0	0	0	0	0	T	0
5	0	0	.03	.10	.37	0	T	0	T	0	0	0
6	0	0	T	T	.16	T	T	0	0	0	0	.01
7	0	0	0	0	.09	0	T	.06	0	0	0	0
8	0	0	0	0	.04	T	0	0	.02	.03	0	.02
9	0	0	0	0	0	0	0	0	0	0	0	.05
10	0	0	0	.03	.02	.12	.06	0	.33	0	0	0
11	0	0	T	T	0	0	.11	.15	.22	0	0	0
12	0	T	0	0	.03	T	0	0	.47	.07	T	0
13	0	T	.25	T	0	0	.56	0	.49	0	0	0

14	0	0	0	T	0	.67	0	0	.05	0	0	T
15	0	T	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	T	0	0	0	0	0	0	0
17	0	T	.10	0	.37	0	T	.01	0	0	0	0
18	T	0	0	0	0	0	0	0	0	0	0	T
19	0	T	0	0	.22	.15	0	.05	.29	0	0	T
20	T	0	0	.15	T	0	.05	0	.20	0	0	T
21	T	0	0	0	0	0	T	T	0	T	T	0
22	0	0	.02	0	0	0	0	0	.16	0	0	.03
23	0	.40	0	.90	0	0	T	0	0	0	T	0
24	0	.01	0	.50	.10	0	0	0	.17	0	0	0
25	0	0	T	0	0	0	T	0	0	.01	0	0
26	T	.02	.05	.06	0	0	0	0	.03	0	T	0
27	0	0	T	T	0	0	.18	.30	.01	0	0	0
28	0	0	T	T	.04	0	.02	.06	0	0	0	0
29	T		0	0	0	.05	.17	0	0	0	0	0
30	.05		0	0	0	1.82	.43	0	0	0	0	T
31	0		0		0		.08	0		0		0
Sums	.05	.59	.50	1.89	1.44	2.82	1.66	1.68	3.05	.11	T	.11
Total Annual Precipitation - 13.90												

Table 2. Climatic Data Summary - Dickinson Experiment Station - 1961

Climatic Data	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Precipitation													
1961 Monthly	.05	.59	.50	1.89	1.44	2.82	1.66	1.68	3.05	.11	T	.11	13.90
68-Year Average	.44	.44	.74	1.24	2.20	3.50	2.17	1.78	1.19	.85	.55	.40	15.50

Mean Temperature - Degrees Fahrenheit													
1961				37.0	52.5	68.3	70.1	72.6	51.2				
68-Year Average				41.7	52.8	61.8	69.0	67.0	56.2				
Wind Velocity - Miles Per Hour													
1961				5.5	5.6	3.5	4.0	3.0	3.6				
34-Year Average				6.7	6.7	5.6	4.7	4.9	5.2				

Last Killing Frost in the Spring		First Killing Frost in the Fall	
1961	May 2	1961	September 15
55-Year Average	May 18	55-Year Average	September 17

Frost-Free Season	
1961	136 days
55-Year Average	119 days

Table 3. Maximum Temperatures - Degrees F. - 1961

	June	July	August
1.	70	88	84
2.	76	77	87
3.	69	81	90
4.	82	92	97
5.	86	86	93
6.	88	85	92
7.	88	87	94
8.	88	91	86
9.	91	92	90
10.	95	92	81

11.	88	91	68
12.	93	79	79
13.	89	68	96
14.	66	72	92
15.	70	76	95
16.	75	88	100
17.	83	93	95
18.	90	98	88
19.	86	79	81
20.	74	81	88
21.	84	78	89
22.	85	72	84
23.	71	80	92
24.	88	88	96
25.	83	96	94
26.	91	95	92
27.	97	75	79
28.	95	82	87
29.	99	93	90
30.	96	80	99
31.		80	83

CROP ROTATION AND TILLAGE STUDIES AT DICKINSON

In southwestern North Dakota, the tillage method and cropping history of the land during the previous year have a most important effect on crop production. Crop yields in this area are dependent upon the moisture provided by seasonal rainfall plus the moisture which is stored in the soil at seeding time, and any farming practice that will aid in holding and storing moisture in the soil, and which will make maximum

use of that moisture for crop production is recommended practice for this area.

In recent years the recognition of the importance of the use of commercial fertilizer on some crops has resulted in the inclusion of several trial designed to study the effects of commercial fertilizer on crop production when used along with different crop rotation and tillage methods.

In these experiments, tillage in preparation for seeding usually is begun within two or three days of the earliest work on farms in the community. The average seeding date is about the middle of April. Average harvest time is the first week in August.

Grain yields in these experiments are no better than yields harvested on the better farms in the area, and for the most part reflect fairly well the annual yields for this area.

USE OF COMMERCIAL FERTILIZER IN A TWO-YEAR CORN-WHEAT ROTATION

In 1955 a series of two-year corn-wheat rotations were planned to determine the effects of commercial fertilizer application on crop yields in such a rotation, and also, to determine the residual accumulation, if any of commercial fertilizer applied to the land annually. Soil tests made in 1955 indicated a need for drill application of 75 pounds of ammonium phosphate (11-48-0) on the wheat and 100 pounds of ammonium phosphate (8-32-0) on the corn in these trials.

In these trials fertilizer was applied to the wheat with a conventional fertilizer attachment to the grain drill. The first two years of the trial, 1955 and 1956, fertilizer was applied to the corn crop with a split boot applicator. In 1957, 1958, and 1959, an applicator which placed the fertilizer about two inches to the side and at the same level as the seed was used. The important point regarding both of these methods of fertilizing corn is that the fertilizer was placed at the same level or above the seed but neither device placed it below seed level. In 1960 we began work with a fertilizer attachment which places the fertilizer two inches to one side and two inches below the seed level.

Tables 4 and 5 give the 1961 yields from this trial. Tales 6 and 7 summarize results from this trial for the past seven years.

Wheat Yields - Corn-Wheat Rotation Fertilizer Series - 1961

Wheat Yields On:	Plot No.			Yield-Bushels Per Acre			
				1	2	3	Average
DD Cornland, Fertilized	58	112	116	0.0	1.0	1.0	.67
DD Cornland, Corn Fertilized in 1960	54	110	114	0.0	1.5	1.8	1.1
DD Cornland, Check	56	108	118	0.0	1.9	1.0	1.0

Table 5. Silage Yields - Corn-Wheat Rotation Fertilizer Series - 1961

Corn Silage Yields On:	Plot No.			Green Weight in Tons/Acre @ 70% Moisture			
				1	2	3	Average
S. P. Wheat Stubble, fertilized	55	111	115	3.7	4.9	3.8	4.1
S. P. Wheat Stubble, fertilized in 1960	59	113	117	3.3	3.7	3.1	3.4
S. P. Wheat Stubble , Check	57	109	119	4.0	3.3	4.5	3.9

Table 6. Wheat Yields - Corn-Wheat Rotation Fertilizer Series - 1955 - 1961

Wheat Yields On:	Yield-Bushels Per Acre							
	1955	1956	1957	1958	1959	1960	1961	Average
DD Cornland, fertilized	27.8	3.3	14.7	25.7	9.9	15.1	0.67	13.9
DD Cornland, corn fertilized previous year	25.5	3.1	12.3	25.6	7.7	14.1	1.1	12.7
DD Cornland, Check	17.2	2.7	10.4	24.1	9.7	11.1	1.0	10.9

Table 7. Silage Yields - Corn-Wheat Rotation Fertilizer Series - 1955 - 1961

Corn Silage Yields On:	Yield in Tons Per Acre @ 70% Moisture							
	1955	1956	1957	1958	1959	1960	1961	Average
S. P. Wheat Stubble, Fertilized	2.98	3.14	8.50	1.80	1.42	1.81	4.10	3.39
S. P. Wheat Stubble, Fertilized previous year	2.96	3.49	9.30	2.30	1.34	2.17	3.40	3.57
S. P. Wheat Stubble, Fertilized	2.89	3.22	8.70	2.50	1.77	2.22	3.90	3.60

Table 8. Corn Silage Yields on Different Fertilizer Application Methods - 1960 - 1961

	Yield in Tons Per Acre @ 70% Moisture

Treatment	1	2	3	1960 Av.	1	2	3	1961 Av.	2-Yr. Av.
Starter Application at Seeding of 100# 8-32-0 Per Acre	2.53	1.07	1.84	1.81	3.70	4.90	3.80	4.10	2.96
Broadcast and Plowdown 100# 8-32-0 Per Acre	1.57	1.57	1.60	1.58	2.67	2.72	3.57	2.99	2.29
Check	2.86	1.26	2.53	2.22	4.00	3.30	4.50	3.90	3.06

COMPARISON OF WHEAT YIELDS ON CONTINUOUS CROPPING, CORNLAND AND FALLOW, FERTILIZED AND UNFERTILIZED

This trial was begun in 1959 to compare long time results from commercial fertilizer application on three different cropping systems.

The fertilizer requirements, determined by means of a soil test are: 25 pounds N and 36 pounds of P_2O_5 per acre on non-fallow land and 8 pounds N and 36 pounds P_2O_5 per acre on fallow land.

Yields in this trial for the three year period 1959 through 1961 are summarized in Table 9.

Table 9. Wheat Yields on Continuous Cropping, Cornland and Fallow, Fertilized and Unfertilized

Treatment	1961 Yield BPA				1960 Av.	1959 Av.	3-Year Average
	1	2	3	Av.			1959-1961
S. P. Continuous	3.5	5.9	4.9	4.8	10.8	6.7	7.4
S. P. Continuous, fertilized	5.6	3.6	2.5	3.9	12.5	8.1	8.2
Fallow	5.6	6.3	6.7	6.2	15.3	11.1	10.9
Fallow, fertilized	7.4	7.4	9.4	8.1	22.0	12.9	14.3
Disked Cornland	0.0	0.0	0.0	0.0	10.6	7.3	6.0
Disked Cornland, fertilized	0.0	0.0	0.0	0.0	13.6	8.6	7.4

WHEAT-SORGHUM, WHEAT-CORN AND WHEAT-SUDAN COMPARED IN TWO-YEAR ROTATION

Sorghum, sudan grass and corn are compared as silage crops in this trial. Grain sorghum is also included, and is harvested as silage and for grain in years when grain matures.

In 1960 the varieties planted were Reliance grain sorghum, Ranches forage sorghum, Piper sudan grass and Nodakhybrid 301 corn. In 1961 the same varieties were used except for the substitution of MS323 grain sorghum instead of Reliance.

Yields for 1960 and 1961 are given in Tables 10 and 11.

In a separate trial sorghum was seeded on July 5 on land that had earlier been seeded to sudan grass but which was considered to be a failure. This late seeding was also a failure, with only a very short growth resulting from this late seeding. The use of sorghum and sudan for late seeding is often promoted as an emergency crop to provide feed after failures have resulted from spring and early summer drought. These seedings are successful only if precipitation is adequate germination and growth during July. During this period rainfall in this area usually comes in the form of showers.

Table 10. Wheat-Sorghum, Wheat-Corn and Wheat-Sudan in Two-Year Rotation.

Treatment								
Wheat after forage sorghum:	Plot No.	60	90	92	121	Av.	1960 Yield	2-Year Av.
Wheat Yield-Bushels Per Acre		6.0	1.4	6.1	6.7	5.1	10.2	7.7
Wheat after corn:	Plot No.	56	63	88	95			
Wheat yield-bushels per acre		0.0	0.0	0.0	0.0	0.0	11.4	5.7
Wheat after grain sorghum	See footnote[1]							
Cultivated rows:	Plot No.	23	25	27				
Wheat yield-bushels per acre		1.2	1.0	1.6		1.3	11.4	6.4
Solid Drilled:	Plot No.	22	24	26				
Wheat yield-bushels per acre		1.1	1.0	1.2		1.1	13.2	7.2
Wheat after Sudan:	Plot No.	2	4	120				
Wheat yield-bushels per acre		1.0	1.0	6.4		2.8	8.3	5.6

[1]Solid drilled sorghum plots were a total failure in 1959 and were plowed in July. Grain yields in 1960 reflect the effect of this midsummer tillage.

Table 11. Wheat-Sorghum, Wheat-Corn and Wheat-Sudan in Two-Year Rotation

Treatment

Forage sorghum after wheat:	**Plot No.**	**61**	**91**	**93**	**122**	**Av.**	**1960 Av.**	**2-Yr. Av.**
Silage Yield-Tons/Acre @ 70% moisture		2.58	.54	2.40	.48	1.50	2.49	2.00
Corn after wheat:	Plot No.	57	62	89	94			
Silage Yield-Tons/Acre W 70% moisture		3.96	4.26	3.90	4.95	4.27	1.98	3.13
Grain sorghum after wheat:								
Cultivated Rows	Plot No.	28	30	32				
Silage Yield-Tons/Acre @ 70% moisture		.42	.41	.15		.33	1.71	1.02
Grain Yield - Lbs. Per Acre		0.0	0.0	0.0		0.0	260	130
Solid drilled:	Plot No.	29	31	33				
Silage Yield-Tons/Acre @ 70% moisture		0.0	0.0	0.0		0.0	0.0	0.0
Sudan after Wheat:	Plot No.	1	3	5				
Silage Yield- Tons/Acre @ 70% moisture		.85	.53	.44		.61	2.39	1.50

SORGHUM ALMUM

This crop was included in the Dickinson trials for the first time in 1960. The trial includes seedings in cultivated rows and in solid drilled planting with a conventional 6 x 14 press drill.

The solid drilled planting was a total failure in both 1960 and 1961. Yields from the planting in cultivated rows are given in Table 12.

We experience the same difficulty in growing sorghum almum that we have in growing sorghum and sudan grass.

Table 12. Sorghum Almum Yields - 1960 1961			
Treatment	**Average Yields-Tons/Acre @ 70% Moisture**		
Silage Yields on Spring Plowed Wheat Stubble	1961	1960	2-Yr. Av.
	.54	1.61	1.08

DIFFERENT METHODS OF PLANTING CORN

This trial is designed to compare 38-inch row spacing, 42-inch row spacing and 42-inch wheel track planting of corn.

Results from this trial for the past three years are summarized in Table 13. Present plans are to continue this trial for at least another five years.

Table 13. Yields from Three Methods of Planting Corn							
Corn Silage Yields On:	**Yield-Tons Per Acre @ 70% Moisture**						
	1	**2**	**3**	**Av.**	**1960 Av.**	**1959 Av.**	**3-Yr. Av.**
38-Inch Spacing	2.77	2.57	3.60	2.98	1.57	1.98	2.18
42-Inch Spacing	2.45	2.75	4.02	3.07	1.98	1.62	2.22
42-inch Wheel Track Planting	2.18	2.97	2.81	2.65	1.71	1.26	1.87

YIELDS ON CONTINUOUSLY CROPPED LAND COMPARED WITH YIELDS FROM ALTERNATE CROP AND FALLOW

The Continuously cropped series of plots set up in 1908 have been continued without interruption for fifty-five years. Yields from this year's trial and average yields for the fifty-five year period, 1908-1961, are summarized in Table 14.

This experiment has shown spring plowing to be a better tillage method for this area than fall plowing. When spring plowing is practiced, the grain stubble is left standing during the winter months to catch and hold snow which helps provide moisture for germination and early

growth of the crop in the spring. This is perhaps one of the biggest reasons for differences in production from these two tillage methods.

Local spots of gumbo or heavy clay soil and small areas of river bottom land that dry out slowly in the spring are the exceptions that may require fall plowing in western North Dakota.

At the present time, continuous cropping of small grain is neither recommended or practiced to any extent in this area. Alternate cropping and fallow is a common practice over much of the region, but in the past few years this practice has been replaced by many farmers with a corn-grain rotation which is a more productive cropping sequence if the corn crop is utilized as silage.

Table 14. Small Grain Yields on Continuous Cropping - 1961

Crop	Spring Plowed		Fall Plowed		Alternate Fallow	
	1961	55-Year Av.	1961	55-Year Av.	1961	55-Year Av.
Wheat	2.5	11.2	0.0	10.2	5.9	18.5
Oats	4.1	25.7	1.5	23.4	14.7	43.1
Barley	0.0	16.7	0.0	15.3	4.9	23.7

YIELDS OF CORN ON CONTINUOUS CROPPING

Table 15 summarizes the data on the continuous corn experiment for the fifty-five year period, 1908-1961.

Table 15. Corn Yields on Continuous Cropping

Corn Silage Yields On:	Yield in Tons/Acre @ 70% Moisture	
	1961	55-Year Average 1908 - 1961
Spring Plowing	3.60	3.14
Fall plowing	2.00	3.05
Alternate Fallow	6.35	3.63
Corn Grain Yields On:	**Yield in Bushels of Shelled Corn Per Acre**	

Corn Grain Yields On:	Yield in Bushels of Shelled Corn Per Acre
	52-Year Average 1908 - 1959
Spring Plowing	18.1
Fall Plowing	18.0
Alternate Fallow	21.9

SPRING MOISTURE AND YIELDS ON STANDING STUBBLE VS. SPRING MOISTURE AND YIELDS ON STUBBLE LAND TILLED IN THE FALL

Crops in western North Dakota depend upon the moisture provided by seasonal rainfall plus the moisture stored in the soil at seeding time. It is important that we use only those tillage practices that will conserve soil moisture.

Fall tillage of stubble land is not an uncommon practice in western North Dakota. Except for minor localized spots of heavy clay and gumbo soils, fall tillage probably is unnecessary. In fact, in some years fall tillage may be detrimental to yields of small grain the following season.

This trial, begun in the fall of 1957, compares soil moisture at seeding time and yields of wheat stubble land: Where the stubble is not tilled in the fall, where the stubble is tilled with the one-way disk in the fall, and, where the stubble is tilled with wide sweeps in the fall.

Data from this trial for 1958 and 1959 crop seasons show no significant differences among these three treatments at the 5 per cent level of significance for soil moisture to a depth of 36 inches at seeding time or for yield of wheat for either year. In 1960, however, there was a significant difference of 4.5 bushels of wheat per acre in favor of standing stubble compared with one-way disked stubble and 3.3 bushels of wheat per acre in favor of standing stubble compared with stubble tilled in the fall with wide sweeps. In 1961, the difference in yield was 6.3 bushels per acre more on standing stubble compared with one-way disked stubble and 1.9 bushels per acre more on standing stubble when compared with yields on stubble tilled in the fall with wide sweeps.

Yields from this trial for 1960-61 are given in Table 16. Moisture determinations are summarized in Table 17.

Table 16. Wheat Yields on Fall Tillage Trial - 1961

	Yield-Bushels Per Acre	1960	Av.

Treatment	1	2	3	4	Av.	Yield	1960-61
Standing Stubble	7.2	8.4	4.5	5.3	6.3	12.7	9.5
Wide Blade	3.5	6.1	2.9	4.9	4.4	9.4	6.9
One-Way Disk	0.0	0.0	0.0	0.0	0.0	8.1	4.1

Table 17. Percent Moisture at Seeding on Fall Tillage Trial - 1961

Treatment	Depth of Moisture Sample					
	0-6"	6"-12"	12"-18"	18"-24"	24"30"	30"-36"
Standing Stubble	15.0	13.2	8.9	8.9	8.5	5.9
Wide Blade	14.6	10.5	7.7	8.9	7.6	9.5
One-Way Disk	9.4	9.4	7.2	7.0	8.3	7.2

EXPERIMENTS WITH CORN - 1961

The corn silage production trial and a corn maturity rating trial were conducted at the Dickinson Experiment Station again this year in addition to the corn work included in the rotation, tillage and fertilizer trials which are summarized under the rotation and tillage sections of this report.

Data from the corn silage production trial are given in Tables 18 and 19. The corn maturity trial for 1960 is summarized in Table 20.

Table 18. Corn Silage Production Trial - 1961

Description	Yield-Tons/Acre @ 70% Moisture			
	1	2	3	Av.
Nodak 301	3.4	1.5	2.3	2.4
Mandan Rainbow flint	5.3	1.5	3.3	3.4
Falconer	5.8	1.6	2.7	3.4
Morden 77	7.1	2.4	2.1	3.9

Kingscrost KF	4.6	2.9	2.3	3.3
Nodak 306	4.9	2.4	2.4	3.2
AES 101	2.7	1.7	1.7	2.0
Kingscrost KC3	3.9	2.9	2.3	3.0
Nodak 307	2.8	2.3	3.0	2.7
Nodak 403	3.2	2.3	3.1	2.9
Trojan B42	3.1	2.0	2.8	2.6
Trojan C-55	2.4	1.9	2.9	2.4
UM 164	2.5	2.6	3.0	2.7
Trojan D62	3.3	1.9	3.5	2.9
Jacques 820	3.5	2.0	3.5	3.0
Jacques 850	1.9	2.5	2.9	2.4
Nodak Multicross 85	3.1	3.1	4.2	3.5
Pfister 26	5.6	2.7	3.3	3.9
Pfister 28	5.3	1.9	3.2	3.5
Pfister 32	5.3	2.2	2.8	3.4
Pfister Dwarf	2.1	2.8	1.7	2.2
Jacques Sib bred 1 E	1.8	4.4	2.4	2.9

Table 19. Corn Silage Production Trial - 1954 - 1961

Description	Yield in Tons Per Acre[1]								8-Year Av.	4-Year Av.
	1954	1955	1956	1957	1958	1959	1960	1961		
Nodak 301	6.9	4.8	4.3	5.2	3.4	1.9	2.7	2.4	4.0	2.6
Rainbow flint	6.5	5.0	4.9	6.9	3.7	2.8	3.1	3.4	4.5	3.0
Falconer	6.4	4.9	4.4	6.0	4.4	2.3	2.9	3.4	4.3	3.3
Morden 77	4.3	4.5	5.1	3.8	3.7	2.5	3.3	3.9	3.9	3.4

Kingscrost KF	8.6	5.6	4.8	6.1	3.9	2.5	3.4	3.3	4.8	3.3
Nodak 306	---	5.1	5.3	4.8	3.3	2.5	3.0	3.2	---	3.0
AES - 101	---	---	4.8	4.2	3.9	2.6	3.5	2.0	---	3.0
Kingscrost KC3	---	---	5.3	6.8	3.9	3.0	3.3	3.0	---	3.3
Nodak 307	---	---	---	4.3	5.3	2.2	3.3	2.7	---	3.4
Nodak 403	---	---	---	5.9	4.3	2.5	2.9	2.9	---	3.2
U. M. 164	---	---	---	---	4.4	2.7	4.2	2.7	---	3.5
Jacques 820	---	---	---	---	---	2.0	2.4	3.0	---	---
Pfister 26	---	---	---	---	---	---	4.0	3.9	---	---
Pfister 28	---	---	---	---	---	---	3.9	3.5	---	---

[1]Yields through 1958 on green weight basis. From 1959 on 70% moisture basis.

Table 20. Corn Maturity Yield Trial - 1961

Relative maturity and Description		Yield- Tons/Acre @ 70% Moisture					% Moisture At Harvest
		1	2	3	Av.	% Protein	
Kingscrost KF1	80 day	3.0	2.8	3.3	3.0	3.40	77.2
Jacques 850	85 day	3.2	2.5	3.9	3.2	3.80	77.7
Trojan D62	90 day	3.5	2.8	4.7	3.7	2.70	75.4
Pfister 28	95 day	3.0	2.8	3.3	3.0	3.30	79.3
Pfister 32	100 day	4.4	3.2	4.0	3.9	3.50	74.6
Pfister 43	105 day	3.7	3.5	4.9	4.0	3.70	77.8
Pfister 44	110 day	2.5	3.7	4.6	3.6	3.50	80.8
Pfister Dw.	115 day	2.1	3.2	3.7	3.0	4.40	78.0
Pfister 323	120 day	2.8	4.6	4.7	4.0	2.90	78.8

EXPERIMENTS WITH BARLEY - 1961

Experiments with barley in 1961 included the varietal field plot trials, the Great Plains nursery planting and a special nursery of material furnished by Dr. Glenn S. Peterson, North Dakota State University.

FIELD PLOT TRIALS

Betzes, highest yielding variety in this year's trial produced only 16.3 bushels per acre on fertilized summer fallow. These are the lowest barley yields recorded from this trial since 1949.

Data from the field plot trials are summarized in Tables 21 and 22.

NURSERY TRIALS

Results from the 1961 Great Plains nursery planting are given in Table 23.

Material grown in the special nursery for Dr. Peterson was harvested and forwarded to him.

Table 21. Agronomic data from the Barley Variety Trial - 1961

Description	Yield in Bushels Per Acre				Test Wt.	Dates		Height Inches
	1	2	3	Av.		Head	Ripe	
Kindred	8.3	8.3	12.9	9.8	48.5	6-20	7-20	19
Titan	8.0	9.4	12.4	9.9	48.0	26	22	17
Traill	6.9	10.7	13.2	10.3	48.0	26	24	17
Parkland	6.9	10.5	11.8	9.7	48.5	26	25	19
Tregal	8.5	11.8	14.0	11.4	48.5	26	24	16
Vantage	9.4	9.1	10.7	9.7	47.0	26	25	17
Swan	6.1	5.5	6.9	6.2	46.5	25	26	16
York	8.3	9.6	11.3	9.7	48.0	20	18	19

Sioux	5.5	7.7	11.0	8.1	48.0	28	24	16
Trophy	8.3	11.0	13.8	11.0	48.0	26	22	14
Larker	10.2	12.4	15.7	12.8	48.5	24	22	18
B 113	9.9	7.4	14.9	10.7	45.0	19	17	18
Husky	8.5	7.4	14.9	10.3	50.0	24	24	15
Betzes	13.8	12.7	22.3	16.3	48.0	25	24	15
Unitan	14.9	8.5	14.3	12.6	45.0	21	18	18
Herta	5.5	6.6	9.1	7.1	48.5	25	25	17
Jubilee	6.9	8.5	9.6	8.3	48.0	28	28	14
Keystone	14.0	11.8	16.5	14.1	45.5	22	24	17
Std. error % 16.4 LSD @ 5% 2.8 bu.; Seeded April 19, 1961 on summerfallow; Fertilized at 86 pounds per acre with 11-48-0								

Table 22. Comparative Yields - Barley Variety Trial - 1961

Description	Yield in Bushels Per Acre						Averages		Av. Test Wt.
	1956	1957	1958	1959	1960	1961	'56-'61	'57-'61	'56-'61
Titan	21.5	59.0	66.2	35.9	39.4	9.9	38.7	42.1	46.0
Kindred	16.4	30.3	33.7	22.8	43.6	9.8	26.1	28.0	47.6
Traill	21.2	48.8	62.4	31.2	53.6	10.3	37.9	41.3	48.1
Tregal	23.7	47.0	56.5	34.5	53.5	11.4	37.8	40.6	48.0
Husky	26.4	56.6	60.2	29.6	42.6	10.3	37.6	39.9	47.2
Vantage	24.6	55.4	63.4	27.8	42.7	9.7	37.3	39.8	46.6
Parkland	18.5	43.5	52.8	25.6	50.2	9.7	33.4	36.4	48.6
Betzes		53.3	65.3	31.7	56.0	16.3		44.5	48.9
Trophy						11.0			

Larker						12.8			

Table 23. Agronomic data from the Uniform Great Plains Barley Nursery - 1961

Description	C.I. No.	Yield-Bu. Per Acre				Test Wt.	Dates		Height Inches
		1	2	3	Av.		Head	Ripe	
Flynn 1	5911	10.8	12.3	17.3	13.5	43.5	6-27	7-18	16
Munsing	6009	13.0	13.8	16.3	14.4	50.5	19	14	16
Otis	7557	16.3	15.5	18.8	16.9	47.0	20	15	14
Hiland	9530	7.8	7.0	11.8	8.9	43.0	20	18	13
P.I. 168250	7837	12.8	11.0	15.8	13.2	48.0	20	15	14
Dekap	3351	11.5	8.3	15.5	11.8	49.0	25	15	14
Trebi x Spartan	10003	11.8	10.0	12.8	11.5	47.5	20	15	18
C.I. 7114 x Velvon II	10006	9.8	7.0	11.0	9.3	40.0	19	15	15
Korol	6300	11.3	12.8	11.8	12.0	49.0	24	17	14
Piroline	9558	7.3	10.8	8.3	8.8	47.0	24	18	13
Unitan	10421	2.5	5.0	9.8	5.8	47.0	24	18	11
Velvon II x Spartan	10422	4.0	13.0	7.8	8.3	47.5	24	18	13
Betzes	6398	12.5	16.3	14.3	14.4	49.4	24	18	15
Palliser	10860	13.0	18.3	15.0	15.4	44.5	24	18	18
36Ab 1991 x Titan	10639	7.5	17.8	9.0	11.4	46.5	24	18	10
Glacier x Compana	10861	7.8	16.8	10.8	11.8	43.5	25	18	12
Arivat x Afghanistan	10076	3.5	8.0	3.5	5.0	46.0	25	18	12
Seeded April 18, 1961									

EXPERIMENTS WITH FLAX - 1961

Experiments with flax at the Dickinson Experiment Station in 1961 included a varietal field plot trial of six varieties seeded on summerfallow on May 8, and the Uniform early-sown flax nursery which was planted on April 20.

FIELD PLOT TRIALS

This year's flax variety trial was a total failure because of the drought.

Yields from the flax variety trial for the past ten years are given in Table 24.

NURSERY TRIALS

Very poor yields were harvested from the nursery planting this year because of the drought. The earlier seeding date of April 20 did not seem to make a difference in this year's production.

Yields from this year's flax nursery planting are given in Table 25.

Table 24. Comparative Yields -Flax Variety Trials - 1952-1961

Description	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Sheyenne	4.1	6.3	0	6.2	0	0	6.8	0	2.6	0
Marine	6.1	4.1	0	7.2	0	0	9.4	0	6.3	0
Linda	5.4	7.3	0	7.7	0	0	9.9	0	5.9	0
Bison	9.3	5.4	0	7.0	0	0	11.0	0	6.8	0
Redwood	4.8	3.2	0	6.2	0	0	9.0	0	7.1	0
B5128	5.7	5.0	0	5.6	0	0	8.5	0	7.9	0
Norland				6.1	0	0	8.1	0	7.5	0
Arny							8.1	0	7.3	0
Bolley							10.6	0	5.6	0

Table 25. Agronomic data from the Uniform Early-Sown Flax Nursery - 1961

Entry No.	Name or Cross	C.I. No.	Yield-bu. Per Acre				Test Wt.	Ht. Inches	Days From Sowing
			1	2	3	Av.			
1	Bison	389	1.1	.5	1.8	1.1	50.0	10	64
2	Redwing	320	.5	.5	1.5	.8	50.0	9	61
3	Redwood	1130	1.2	.5	1.0	.9	50.5	8	61
4	Marine	1135	1.0	.6	1.5	1.0	50.5	8	61
5	Redwood Sel.	1822	1.1	1.1	3.4	1.9	50.5	9	61
6	(Rnw x Bis) (Ko x Rwg) (Rwd	1823	1.2	1.8	1.5	1.5	51.0	13	61
7	Repit 117 x Redson	1825	1.0	1.6	1.2	1.3	51.0	10	54
8	Resel C. I. 1606	1914	1.3	2.1	1.7	1.7	50.0	10	61
9	Dak. x Cryst-B.S.	1915	1.0	1.9	1.3	1.4	49.5	13	61
10	Cryst x Rock (Cree)	1916	1.0	1.8	1.2	1.3	49.5	14	61
11	Rwd x (Val x Raja)	2264	.8	2.3	1.0	1.4	48.5	11	63
12	Redwood X_4	2274	.5	2.2	.8	1.2	49.5	10	63
13	Marine X_4	2275	.5	1.9	.7	1.0	49.0	10	63
14	B-5128 Sel N.D. 2	2278	2.6	.5	.5	1.2	48.5	13	64
15	B-5128 Sel N. D. 4	2279	.5	1.7	.6	.9	46.5	13	64
Seeded April 20, 1961									

EXPERIMENTS WITH OATS - 1961

Experiments with oats at the Dickinson Experiment Station in 1961 included a field plot trial of 12 varieties, the North Central States Uniform Oat nursery planting and a special planting of 1958 Aberdeen selections.

FIELD PLOT TRIALS

Yields in the 1961 oat variety trial were the poorest harvested at the Dickinson Station since 1941 when yields of oats were reduced by a severe hail storm. Yields this year rank with the poor oat years of 1931, 1933, 1934, 1936 and 1937.

Data from the oat variety trials are summarized in Tables 26 and 27.

NURSERY TRIALS

Yields in the 1961 nursery plantings were the poorest recorded for many years because of the drought.

Data from this year's nursery plantings are given in Tables 28 and 29.

Table 26. Agronomic data from the Oats Variety Trial - 1961

Description	Yield in Bushels Per Acre				Test Wt.	Dates		Height Inches
	1	2	3	Av.		Head	Ripe	
Ransom	13.4	21.8	12.8	16.0	41.5	6-18	7-16	20
Minhafer	13.4	18.5	12.4	14.8	35.0	18	16	25
Clintland 60	14.8	16.9	13.4	15.0	33.5	19	17	23
Burnett	17.1	14.4	11.5	14.3	35.0	19	19	25
Marion	23.7	21.2	18.5	21.1	34.5	20	18	23
Ajax	23.7	23.3	23.3	23.4	33.0	25	21	23
Gopher	27.2	28.8	27.2	27.7	35.5	21	19	21
Sauk	24.3	29.9	27.2	27.1	36.0	25	22	23
Garry	11.1	25.5	20.6	19.1	30.0	25	26	21
Rodney	20.6	23.9	22.7	22.4	33.0	26	26	24
Nodaway	10.3	10.7	6.6	9.2	34.0	19	16	24
Vicar Hulles[1]	16.1	16.7	14.4	15.7	42.0	26	28	26

[1]Yields adjusted for 30% hull.

Table 27. Comparative Yields - Oat Variety Trial 1961

Description	Yield in Bushels Per Acre						Averages		Av. Test Wt.
	1956	1957	1958	1959	1960	1961	'56-'61	'58-'61	'58-'61
Ransom	25.2	55.6	63.8	34.2	49.3	16.0	40.7	40.8	37.0
Ajax	21.4	74.4	63.3	32.5	51.4	23.4	44.4	42.7	33.9
Gopher	21.4	75.9	80.4	35.9	59.5	27.7	50.1	50.9	35.0
Rodney	22.5	63.9	64.3	39.8	53.0	22.4	44.3	44.9	35.8
Garry	19.5	61.3	64.9	37.2	51.8	19.1	42.3	43.3	33.9
Marion	20.3	78.8	65.6	33.2	54.1	21.1	45.5	43.5	34.8
Sauk	23.0	77.0	68.5	38.1	58.8	27.1	48.8	48.1	34.1
Minhafer		63.4	63.6	26.8	40.5	14.6		36.4	36.1
Burnett		77.3	63.2	28.7	43.9	14.3		37.5	35.8
Vicar Hulless[1]			68.0	41.4	37.5	15.7		40.7	43.1

[1] Yield adjusted for absence of hull. Estimated 30%; Average test weight is for 1958-1961

Table 28. North Central States Oat Nursery Yields - 1961

1961 Entry No.	Yield-Bushels Per Acre				Dates		Height Inches	Test Wt.
	1	2	3	Av.	1st-Hd.	Ripe		
1	16.0	18.4	16.0	16.8+	6-15	7-16	25	32.0
2	10.6	18.0	16.0	14.9+	19	18	21	32.0
3	12.8	20.8	18.4	17.3+	20	18	24	37.0

4	21.0	27.6	24.4	24.3+	26	26	21	33.0
5	20.4	20.4	22.0	20.9+	22	20	21	32.0
6	14.8	22.0	18.0	18.3+	21	20	22	29.0
7	16.8	28.8	18.4	21.3+	19	20	22	33.5
8	20.0	23.6	16.0	19.9+	18	19	19	34.0
9	15.0	16.4	13.2	14.9+	18	16	18	31.0
10	13.2	9.2	11.2	11.2+	19	16	19	32.0
11	17.2	15.2	17.6	16.7+	18	15	22	33.5
12	13.2	12.8	13.6	13.2+	19	18	16	35.0
13	20.8	18.4	24.0	21.1+	19	19	20	34.0
14	12.0	14.8	12.4	13.1+	19	19	18	33.5
15	10.8	12.8	9.6	11.1+	19	19	21	32.0
16	14.0	14.8	9.2	12.7+	15	19	21	32.0
17	18.4	16.0	12.0	15.5+	15	19	19	32.5
18	11.6	13.6	6.4	10.5+	15	19	21	32.0
19	17.6	17.6	7.2	14.1+	19	19	21	32.0
20	14.4	17.2	5.2	12.3+	15	19	21	32.0
21	22.0	21.6	12.0	18.5+	16	19	21	32.5
22	17.2	18.0	8.4	14.5+	19	19	22	33.0
23	17.2	16.8	6.8	13.6+	20	21	15	32.0
24	18.0	19.2	8.4	15.2+	19	20	15	34.0
25	15.2	18.4	14.4	16.0+	20	19	16	35.0
26	18.0	18.0	10.0	15.3+	20	19	21	32.5
27	26.4	27.2	12.0	21.9+	25	22	22	27.5
28	26.0	23.6	11.2	20.3+	25	20	23	34.0
29	24.8	22.8	8.0	18.5+	25	20	23	33.5
30	21.2	22.0	10.2	17.8+	23	20	20	31.5

31	17.6	12.0	6.4	12.0+	20	20	21	32.0
32	36.8	24.0	14.8	25.2+	21	21	21	31.5
33	19.6	12.0	10.0	13.9+	20	20	20	32.0
34	12.8	8.0	12.8	11.2+	14	20	24	32.0
35	22.4	18.0	8.4	16.3+	22	19	22	26.5
36	31.2	22.8	9.6	21.2+	24	20	19	35.0
37	25.2	25.6	9.6	20.1+	24	20	19	33.0
38	18.0	20.8	13.2	17.3+	19	22	22	36.5
39	11.6	13.6	12.0	12.4+	15	23	23	32.0
40	19.2	20.8	14.4	18.1+	20	21	21	33.5
41	16.5	21.2	22.0	19.9+	26	20	20	28.5
42	18.0	18.4	18.0	18.1+	19	25	25	33.5
43	14.0	16.0	16.0	15.3+	19	24	24	32.5
44	11.6	16.0	16.0	14.5+	15	22	22	32.5
45	21.2	25.2	14.8	20.4+	26	23	23	30.5
46	16.4	20.0	8.4	14.9+	22	22	22	33.0
47	12.4	17.2	7.2	12.3+	20	20	20	31.5
48	19.2	21.2	14.4	18.3+	23	22	22	32.5
49	12.8	14.8	12.0	13.2+	15	19	19	32.0
50	12.4	17.6	9.6	13.2+	23	21	21	32.0

Description of Material Included in the 1961 North Central States Uniform Oat Performance Nursery

1961 Entry No.	Cl. No.	Variety or Cross
1	7552	Ajax x Ransom
2	4170	Andrew: Bond x Rainbow (ck)

3	7669	(Beacon x Hawkeye-Victoria) x Rodney
4	7670	[(Beaver-Garry x Clinton) x Clintland] x Minor
5	7671	[(Beaver-Garry x Clinton) x Clintland] x Minor
6	7672	(Beaver-Garry x Clinton) x Waubay x [(Bonda x Hajira-Joanette) x Santa Fe]
7	7673	[(Bond-Rainbow x Hajira-Joanette) x Landhafer] x Andrew^{3}
8	7674	[(Bond-Rainbow x Hajira-Joanette) x Landhafer] x Andrew^{3}
9	7675	[(Bonda x Hajira-Joanette) x Santa Fe] x Marion x (Roxton-R.L. 1276 x Ajax-R.L. 1276)
10	7563	Bonham^{5} x (Cherokee^{2} x R.L. 2105)
11	7676	(Cherokee x Ark 674) x Newton
12	7677	Clintland x (Clinton^{2}-Ark 674 x Milford)
13	7678	Clintland x (Garry x Hawkeye-Victoria)
14	7453	Clintland x (Garry x Hawkeye-Victoria)
15	7555	Clintland^{8} x [Victoria x (Hajira x Banner)] x (Victory x Hajira) x Roxton
16	7462	Clintland 60^{2} x Mo. 0-205
17	7679	Clintland 60^{2} x Mo. 0-205
18	7680	Clintland 60^{2} x Mo. 0-205
19	7681	Clintland 60^{2} x Mo. 0-205
20	7556	Clinton x Garry
21	7454	Clinton x [(Victoria x Hajira-Banner) x Victory]
22	4259	Clinton 59: D69 x Bond (ck)
23	7640	Clinton 59 x [(Hajira-Joanette x Bond-Rainbow) x Santa Fe] x Andrew-Landhafer
24	7463	Clinton 59^{7}-Landhafer x Milford
25	7461	Clinton 59^{6}-Landhafer x [(Victoria x Hajira-Banner) x (Victory-Hajira x Roxton)]
26	7269	Dodge: Clintland x (Garry x Hawkeye-Victoria)
27	6662	Garry: Victory x (Victoria x Hajira-Banner) (ck)

28	7472	[Garry x (Santa Fe x R.L. 1942)] x R.L. 2228
29	7473	[Garry x (Santa Fe x R.L. 1942)] x R.L. 2228
30	2027	Gopher: Sixty-Day Selection (ck)
31	7467	[Landhafer x (Mindo x Hajira-Joanette)] x Andrew x Clintland
32	7682	[Landhafer x (Mindo x Hajira-Joanette)] x Andrew^2 x Rodney
33	7683	[Landhafer x (Mindo x Hajira-Joanette)] x Andrew x Clinton x Rodney
34	7685	Logan x (Beacon x Hawkeye-Victoria)
35	7684	Marne^2 x [(Beaver-Garry x Clinton) x Clintland]
36	7680	Minor x [Beaver-Garry x Clinton) x Clintland]
37	7687	Minor x [Beaver-Garry x Clinton) x Clintland]
38	7560	Minton x (Beacon x Hawkeye-Victoria)
39	7466	Mo. o-205 x (Clinton 59^7-Landhafer)^3 x [(Clinton x Boone-Cartier) x R.L. 2105]
40	7688	Newton x Garry
41	7528	Niagara: Garry x [(Goldwin x Victoria-Rainbow) x Branch]
42	7690	Putnam x [Landhafer x (Mindo x Hajira-Joanette)] x Andrew
43	7691	Putnam^4 x [Landhafer x (Mindo x Hajira-Joanette)] x Andrew
44	7531	Putnam 61: Putnam4 x [Landhafer x (Mindo x Hajira-Joanette)] x Andrew
45	7561	Richland-Bond x (Garry x Hawkeye-Victoria)
46	7387	Rodney Selection
47	7464	[Roxton x (Victoria x Hajira-Banner)] x [Ajax x (Victoria x Hajira-Banner)] x (Clinton 59^7 x Landh)
48	7524	Tioga: Garry x Goldwin-Clinton
49	7448	[(Victoria x Hajira-Banner) x (Victory x Hajira-Ajax)] x Mo. 0-205^2
50	7689	Waubay x [(Bonda x Hajira-Joanette) x Santa Fe]

R.L. 1276 = (Banner x Hajira) x Victoria
R.L. 1942 = [Victoria x (Hajira x Banner)] x Ajax
R.L. 2105 = [Victoria x (Hajira x Banner)] x (Victory x Hajira) x Roxton
R.L. 2228 = (Santa Fe x R.L. 1942) x Garry

Table 29. Coffmans 1958 Aberdeen Oat Selections - 1961

Entry No.	Description	C.I. No.	Yield-Bushels Per Acre				Test Wt.
			1	2	3	Av.	
1	58 ab 2774	7589	14.5	16.0	15.0	15.2	25.0
2	58 ab 2776	7590	13.0	14.0	13.5	13.5	25.0
3	58 ab 2778	7592	17.5	20.0	11.5	16.3	24.0
4	58 ab 2779	7593	14.0	19.0	16.5	16.5	23.5
5	58 ab 2780	7571	11.0	16.0	16.5	14.5	23.0
6	58 ab 2781	7572	12.5	13.5	15.5	13.8	25.0
7	58 ab 2783	7574	14.0	14.5	19.5	16.0	24.5
8	58 ab 2785	7576	14.0	13.0	13.0	13.3	25.0
9	58 ab 2786	7577	18.0	15.0	19.0	17.3	25.5
10	58 ab 2787	7578	18.5	16.5	19.0	18.0	25.0
11	58 ab 2788	7579	16.0	15.5	19.0	16.8	25.5
12	58 ab 2789	7580	15.5	17.5	17.5	16.8	25.0
13	58 ab 2790	7581	24.5	9.0	18.0	17.2	25.5
14	Mo 0-205		10.5	7.5	11.5	9.7	25.0
15	Garry		9.5	17.5	16.0	14.3	25.0
16	Rodney		20.5	14.0	18.5	17.7	27.0
17	Gopher		10.0	14.5	14.0	12.8	25.0
18	Marion		11.0	13.5	10.0	11.5	25.0

EXPERIMENTS WITH WINTER RYE - 1961

Fairly good yields of winter rye were harvested in 1961 considering the droughty growing conditions. Elk was the poorest winter survivor and was disappointing in this respect.

Data on the winter rye variety trial are given in Tables 30 and 31.

Table 30. Agronomic data from the Rye Variety Trial - 1961

Description	Yield-Bushels Per Acre				Test Wt.	Dates		% Stand	Height Inches
	1	2	3	Av.		Head	Ripe		
Dakold	8.1	6.8	12.3	9.1	53.0	6-14	7-21	70	29
Antelope	6.8	10.4	10.8	9.3	53.0	15	24	70	29
Caribou	7.5	9.7	9.7	9.0	52.5	15	24	70	27
Elk	2.1	6.5	7.0	5.2	51.0	18	24	40	30

Table 31. Comparative Yields - Winter Rye Variety Trial - 1961

Description	Yield in Bushels Per Acre						Averages		Av. Test Wt.
	1956	1957	1958	1959	1960	1960	'56-'61	'60-'61	'56-'61
Dakold	2.0	24.5	10.3	13.3	17.9	9.1	12.9	13.5	53.8
Caribou	2.9	19.2	12.2	14.1	18.2	9.0	12.6	13.6	54.0
Antelope	2.0	21.8	12.1	13.9	17.5	9.3	12.8	13.4	53.0
Elk					20.7	5.2		13.0	53.5[1]

[1]Average test weight for Elk is for 1960-1961.

EXPERIMENTS WITH SAFFLOWER - 1961

Highest yield in this year's regional safflower planting at Dickinson was 3.0 bushels per acre.

Safflower is not a particularly good crop under droughty growing conditions and yields were poor this year for this reason.

Data on this year's safflower trial are given in Tables 32 and 33.

Iodine and oil percentage determinations were made by John E. Bear, USDA.

Table 32. Agronomic data on the Regional Safflower Nursery - 1961

	Yield-Bushels Per Acre							Test Wt.	Height Inches	Date 90% Bloom
	1	2	3	4	5	6	Av.			
U. S. 10	2.1	3.1	1.5	4.7	3.3	2.7	2.9	36.2	7	7-19
N 10	1.7	1.9	1.0	2.2	2.0	1.3	1.7	40.4	9	19
Gila	3.6	3.2	2.3	1.7	1.7	1.8	2.4	41.2	5	17
A-5731	4.4	3.5	1.1	4.0	1.9	1.9	2.8	36.6	8	21
N4055	3.1	2.6	2.6	3.3	2.2	1.9	2.6	41.2	8	23
N4051	4.0	3.3	.8	3.9	3.5	2.2	3.0	46.5	9	28

Table 33. Determinations of Oil Percentage and Iodine Number - 1961 Regional Safflower Trial

Description	Iodine Number	% Oil
N-10	143	28.4
A-5731	144	29.4
US-10	143	27.6
N-4055	143	29.6
N-4051	146	26.0
Gila	145	30.8

EXPERIMENTS WITH WINTER WHEAT - 1961

The Hard Red Winter Wheat Regional Performance Nursery was seeded September 20, 1960 on summerfallow and emergence and fall growth was fairly good. Spring survival was zero for all entries.

Table 34 lists entries in this year's planting.

Minter winter wheat planted with the winter rye in field plot trials was considered a total failure this spring.

Work with winter wheat is being expanded at this Station to include seedings made with hoe or furrow-type drills on both fallow and stubble land.

Table 34. Northern Regional Hard Red Winter Wheat Performance Nursery - 1961

Entry No.	Pedigree	C.I. No.	Source
1	Kharkof	1442	---
2	Minter	12138	---
3	Yogo	8033	---
4	Nebred	10094	---
5	Cheyenne	8885	---
6	Cheyenne Selection	13193	Wyoming
7	Nebred x Red Chief	13195	Nebraska
8	Yogo x (Tk x Oro 221)-117	13542	Montana
9	(Yogo x Rescue 21) x Marmin-1065	13544	Montana
10	Marmin x (Yogo x Rescue 5)-342	13545	Montana
11	Minnesota Selection	13280	Minnesota
12*	Nebred-Hope-Tk x Cnn-Pnc (N. 56178)	13546	Nebraska
13*	Tk-Cheyenne x Hope-Cheyenne^2 (N. 57167)	13547	Nebraska
14	South Dakota Selection	13526	South Dakota

15	South Dakota Selection	13528	South Dakota
16	South Dakota Selection	13198	South Dakota

EXPERIMENTS WITH SPRI NG WHEAT - 1961

Experiments with spring wheat in 1961 included field plot trials of 14 varieties of hard red spring and six varieties of durum wheat, the Uniform Regional Nursery, the Uniform Bunt Nursery, and nurseries of material produced at Dickinson. Most of this material is early generation material for purposes of selection and yield data were not recorded on this material this year.

Yields and other agronomic data recorded from the 1961 trials with wheat are given in Table 35 through 40.

In addition to the field plot and nursery trials, this year the Dickinson Station cooperated in growing 12 bushel lots of four varieties and smaller lots of two other varieties for the Crop Quality Council milling and baking quality tests.

Table 35. Agronomic data from the Hard Red Spring Wheat Variety Trial - 1961

Description	Yield in Bushels Per Acre				Test Wt.	Dates		Height Inches
	1	2	3	Av.		Head	Ripe	
Lee	9.9	9.4	12.4	10.6	55.0	6-20	7-22	19
Selkirk	9.9	10.5	12.1	10.8	51.5	22	24	19
Pembina	8.5	9.9	12.1	10.2	51.0	23	24	19
ND 102 Sib	10.2	12.1	13.5	11.9	56.0	25	24	20
Minn II-53-404	10.5	11.0	12.9	11.5	57.0	23	24	20
ND 102	11.0	11.3	14.6	12.3	57.0	25	24	21
Canthatch	9.9	11.3	12.9	11.4	56.5	23	24	19
ND 137	6.1	8.3	12.9	9.1	57.5	22	24	19
Thatcher	7.2	8.8	6.9	7.6	55.5	24	26	19
Mida	9.1	11.3	12.9	11.1	59.0	25	27	21
Conley	6.3	8.0	11.6	8.6	57.5	26	27	20

Marquis	8.3	10.7	13.8	10.9	57.0	25	28	20
Rushmore	6.6	11.8	13.2	10.5	57.0	23	24	20
Chinook	8.0	12.9	14.0	11.6	59.5	22	24	21

Table 36. Comparative Yields - Hard Red Spring Wheat Variety Trial - 1961

Description	Yield in Bushels Per Acre						Averages		Av. Test Wt.
	1956	1957	1958	1959	1960	1961	'56-'61	'58-'61	'56-'61
Lee	11.4	32.6	22.8	15.0	26.4	10.6	19.8	18.7	57.8
Rushmore	10.3	25.7	28.8	14.5	22.7	10.5	18.8	19.1	58.5
Selkirk	12.2	23.0	28.6	13.3	26.0	10.8	19.0	19.7	56.8
Mida	11.9	27.2	28.2	14.2	25.0	11.1	19.6	19.6	59.7
Thatcher	12.4	30.1	29.9	14.0	23.9	7.6	19.7	18.6	58.2
Conley	11.9	25.3	28.4	12.4	22.3	8.6	18.2	17.9	57.8
Chinook	10.9	26.4	28.6	14.0	22.0	11.6	18.9	19.1	59.4
Marquis	12.5	27.8	29.5	16.2	24.3	10.9	20.2	20.2	58.5
Canthatch			34.2	15.2	25.5	11.4		21.6	57.0*
Pembina					25.7	10.2			54.0*
Minn. II-53-404					25.4	11.5			57.0*

*Average test weights are for years yields are given

Table 37. Agronomic data from the Durum Wheat Variety Trial - 1961

Description	Yield in Bushels Per Acre				Test Wt.	Dates		Height Inches
	1	2	3	Av.		Head	Ripe	
Mindum	9.9	12.4	15.4	12.6	60.0	6-26	7-28	26

Ramsey	8.3	11.0	10.2	9.8	61.5	25	28	25
Langdon	10.2	11.3	15.4	12.3	60.0	24	27	23
Sentry	10.2	11.6	14.6	12.1	60.5	22	24	21
Lakota	11.0	13.2	17.9	14.0	58.0	22	24	21
Wells	12.1	12.9	13.5	12.8	60.5	23	24	22

Table 38. Comparative Yields - Durum Variety Trial - 1961

Description	Yield in Bushels Per Acre						Averages		Av. Test Wt.
	1965	1957	1958	1959	1960	1961	'56-'61	'58-'61	'58'-'61
Mindum	10.8	31.5	29.0	14.8	23.4	12.6	20.4	20.0	59.0
Sentry	9.8	30.8	28.6	14.0	27.8	12.1	20.5	20.6	60.4
Langdon	10.7	32.8	28.1	15.4	25.8	12.3	20.9	20.4	59.6
Ramsey	7.5	36.6	30.2	15.5	24.8	9.8	20.7	20.1	60.0
Wells			34.3	17.7	26.4	12.8		22.8	59.4
Lakota			34.7	15.5	27.2	14.0		22.9	57.0

Table 39. Agronomic data from the Uniform Regional Spring Wheat Nursery - 1961

Description	C.I. No.	Yield-Bu. Per Acre				Test Wt.	Dates		Ht. Inches
		1	2	3	Av.		Head	Ripe	
Marquis	3641	4.8	8.6	7.0	6.8	59.5	6-23	7-27	20
Thatcher	10003	8.8	7.6	12.4	9.6	59.0	22	24	20
Selkirk	13100	11.0	7.6	10.4	9.7	57.5	22	24	21
Lee	12488	9.8	9.0	12.2	10.3	59.5	20	24	18
Conley	13157	9.4	10.0	17.2	12.2	58.0	24	28	18

Pembina	13332	12.0	7.4	15.0	11.5	59.5	22	24	20
Lathrop	13457	11.0	10.4	15.6	12.3	59.0	23	25	18
Lee[2] x Kenya Farmer	13463	12.8	9.0	14.6	12.1	58.0	26	28	20
(Thatcher[6]-Kenya Farmer) x (Thatcher[7]-Frontana)	13625	11.0	10.8	13.2	11.7	59.0	23	25	19
Conley x N.D. 40-2	13462	12.6	12.2	15.0	13.3	59.0	24	27	21
N.D. 81 x Lee	13349	9.2	8.2	13.8	10.4	57.5	24	26	19
(Lee x N. D. 81 sib) x Lee	13453	9.6	8.6	11.8	10.0	57.5	24	26	18
N. D. 81 sib x N. D. 1	13603	6.6	8.4	14.0	9.7	57.0	26	26	17
N. D. 81 sib x Conley	13608	9.0	9.4	9.2	9.2	59.5	26	28	18
CT231 x Conley	13565	11.8	11.6	12.8	12.1	59.0	23	25	21
CT231 x Conley	13566	8.8	11.0	7.2	9.0	59.0	23	25	19
Conley x N. D. 81	13567	9.2	9.4	9.0	9.2	59.0	22	28	19
ND140 x ND138	13568	6.8	8.0	7.6	7.5	58.0	23	28	18
ND138 x (Lee x FP1186035)	13569	6.8	9.2	10.4	8.8	59.0	22	24	18
ND138 x (Lee x FP1186035)	13570	4.6	8.0	9.0	7.2	60.0	23	24	18
Conley x ND142	13571	9.0	11.0	10.8	10.3	58.0	23	28	19
Frontana x Thatcher[4]	13572	9.0	15.0	11.0	11.7	58.5	25	25	19
(Frontana x Thatcher[2]) x (Il-44-29 x Thatcher[2])	13573	8.6	11.6	10.2	10.1	56.5	23	24	20
Lee x No. 58	13574	10.2	15.0	10.2	11.8	58.0	21	24	19
Lee x No. 58	13575	10.8	11.2	11.8	11.3	57.5	19	24	20
Rival x Il-50-17	13576	11.0	8.0	10.8	9.9	59.5	21	24	22
(Rushmore x Supresa PW36) x (Thatcher-Triumph 630)	13577	9.6	10.8	9.6	10.0	58.0	21	24	20
Selkirk x W250	13584	6.4	10.0	9.4	8.6	56.5	21	24	21
KT-Tc[3] x Il-44-29 x Tc[2]	13465	9.4	5.0	7.0	7.1	59.0	23	26	22

Table 40. Uniform Regional Spring Wheat Bunt Nursery - 1961

Key No.	Description	C. I. No.	Percent Smutty Heads		
			1	2	Av.
1	Marquis	3641	0	0	0
2	Thatcher	10003	0	2	1.0
3	Selkirk	13100	0	0	0
4	Lee	12488	1	1	1.0
5	Conley	13157	0	0	0
6	Pembina	13332	0	0	0
7	Lathrop	13457	4	5	4.5
8	Lee^2 x Kenya Farmer	13463	2	1	1.5
9	($Thatcher^6$-Kenya Farmer) x ($Thatcher^7$-Frontana)	13625	1	0	0.5
10	Conley x N.D. 40-2	13462	1	0	0.5
11	N. D. 81 x Lee	13349	1	2	1.5
12	(Lee x N. D. 81 sib) x Lee	13453	1	2	1.5
13	N. D. 81 sib x N. D. 1	13603	0	2	1.0
14	N. D. 81 sib x Conley	13608	4	5	4.5
15	CT231 x Conley, 55.302 A-4-5-3-2-1-1	13565	1	0	0.5
16	CT231 x Conley, 55.302 A-9-6-5-1-7	13566	1	0	0.5
17	Conley x N. D. 81, 56.51 A-1-2-10-5	13567	2	0	1.0
18	ND140 x ND138, 57.79 A-2-28-4	13568	5	2	3.5
19	ND138 x (Lee x FP1186035), 57.434 A-1-1-1-3	13569	7	1	4.0
20	ND138 x (Lee x FP1186035), 57.434 A-2-3-1-3	13570	1	0	0.5
21	Conley x ND142, 58.82 A-1-1-4	13571	1	2	1.5
22	Frontana x $Thatcher^4$	13572	0	2	1.0
23	(Frontana x $Thatcher^2$) x (Il-44-29 x $Thatcher^2$)	13573	6	0	3.0
24	Lee x No. 58	13574	4	1	2.5

25	Lee x No. 58	13575	2	1	1.5
26	Rival x Il-50-17	13576	2	2	2.0
27	(Rushmore x Sunpresza PW36) x (Thatcher-Triumph 630)	13577	0	2	1.0
28	Selkirk x W250	B584	0	0	0
29	KT-Tc^3 x Il-44-29 x Tc^2	13465	4	1	2.5
30	Canthatch	13345	2	1	1.5
31	Lee x ND34	13322	0	2	1.0
32	K338AA x Ns 3880.191	13302	0	0	0
33	N2350 x 4021-K338AC	---	0	0	0
34	ND4 x Lee	13324	3	2	2.5
35	ND81 x ND1	13451	0	0	0
36	CT231 x Conley	--	1	0	0.5
37	Ftn x Tc^5	---	0	2	1.0
38	Ftn x Tc^5	---	0	0	0
39	Ftn-Tc^3 x (Il-44-29)-Tc^2	---	0	0	0
40	Il-50-25 x Il-44-65^3	---	0	0	0
41	Il-50-17 x Selkirk	---	2	2	2
42	Il-50-72 x Selkirk	---	2	3	2.5
43	Il-50-25 x Selkirk	---	2	4	3.0
44	Il-50-25 x Selkirk	---	0	6	3.0
45	Il-50-23 x Il-42-22	---	10	7	8.5
46	Il-50-17 x Rushmore	---	3	0	1.5
47	Il-50-17 x Rushmore	---	3	4	3.5
48	Il-50-17 x Rushmore	---	2	6	4.0
49	Il-50-17 x Rushmore	---	5	11	8.0
50	Il-50-17 x Rushmore	---	16	5	10.5

51	II-50-17 x Rushmore	---	3	5	4.0
52	II-50-72 x Rushmore	---	0	3	1.5

PUBLICATIONS - 1961

Yields on continuous cropping, cornland and summerfallow, fertilizer and unfertilized; North Dakota Farm Research, Vol. 21 No. 11, May-June, 1961. Conlon, T. J. and Douglas, R. J.

Spring Moisture and Yields Compared; North Dakota Farm Research, Vol. 21 No. 12, July-August, 1961. Conlon, T. J. and Douglas, R. J.

Stubble Tillage Practices - Three methods compared at Dickinson; North Dakota Farm Research, Vol. 21 No. 12, July-August, 1961. Conlon, T. J. and Douglas, R. J.

Results of Clipping Trials with Cool Season Grasses; Whitman, W. C., Peterson, D. R., and Conlon, T. J.; North Dakota Farm Research, Vol. 22 No. 2, November-December, 1961

Winter Wheat Production in North Dakota; Extension Service Circular A-354 April, 1961; Jensen, L. A. and Conlon, T. J.

RADIO PROGRAMS AND NEWS STORIES - 1961

Radio with County Agent, Maurice A. Ellingson:	
January 5	Fall Tillage vs. No Fall Tillage of Stubble
January 26	Winter Wheat Work at Dickinson
March 9	New Trials Planned for 1961
April 20	Small Grain Trials at Dickinson for 1961
May 4	Weed Spraying in 1961
June 15	Insect Damage to Wheat, Trees, and Shrubs
July 6	Crops Field Day
August 3	Results of Wheat Variety Trials at the DES

August 31	Results of Wheat Variety Trials at the DES
September 21	Results of Barley and Oat Variety Trials at the DES
September 28	Winter Wheat Trials at the DES
October 19	Commercial Fertilizer Trials at the DES in 1961
November 9	Roughage Production Trials in 1961
November 30	Livestock Research Roundup Plans
December 21	Summary for 1961

News Story:	
November 4	On material to be discussed at the Twelfth Annual Livestock Research Roundup

Conferences - 1961	
January 10-13	Annual Branch Station Conference

Public Meetings - 1961	**Attendance**
Adams County Crop Imp. Ass'n.	30
Hettinger Station Sheep Day	Attended
Stark County Crop Imp. Ass'n.	35
Slope County Crop Imp. Ass'n.	100
Valley City Winter Show	Grain Judge
Regent PTA	40
Hettinger County Crop Imp. Ass'n.	25
Sixth Grade Dickinson Elementary School	60
Wishek FFA - Tour of the Dickinson Experiment Station	30
Barons Club - Tour of the Dickinson Experiment Station	30

Crops Field Day - Dickinson Experiment Station	225
DSTC Agriculture Class - Tour of DES	30
Rotary Club - Tour of the Dickinson Experiment Station	60
Morton County 4-H Achievement Day	Judge
Richardton 4-H Achievement Day	Judge
Golden Valley 4-H Achievement Day	Judge
Stark 4-H Achievement Day	Judge
Dunn 4-H Achievement Day	Judge
Stark County Soil Conservation Achievement Banquet	75
Dickinson High School Career Day	125