

South Dakota State University
**Open PRAIRIE: Open Public Research Access Institutional
Repository and Information Exchange**

Agricultural Experiment Station Agronomy
Pamphlets

SDSU Agricultural Experiment Station

12-1-1952

Progress Report of South Dakota Fertilizer Experiments 1952

South Dakota Agricultural Experiment Station

Follow this and additional works at: http://openprairie.sdstate.edu/agexperimentsta_agronomy

Recommended Citation

South Dakota Agricultural Experiment Station, "Progress Report of South Dakota Fertilizer Experiments 1952" (1952). *Agricultural Experiment Station Agronomy Pamphlets*. 22.
http://openprairie.sdstate.edu/agexperimentsta_agronomy/22

This Other is brought to you for free and open access by the SDSU Agricultural Experiment Station at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Agricultural Experiment Station Agronomy Pamphlets by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

Agronomy Department

Pamphlet No. 24
LINCOLN MEMORIAL LIBRARY
South Dakota State College, Brookings, South Dakota
December 1952

PROGRESS REPORT
OF
SOUTH DAKOTA
FERTILIZER EXPERIMENTS
1952

Agricultural Experiment Station
South Dakota State College
Brookings, South Dakota

630.7
5087
No. 24

Progress Report of South Dakota Fertilizer Experiments in 1952
Leo F. Fuhr, Burton Brage, Paul L. Carson, Fred E. Shubeck, Gene Gresham

In 1952 field experiments were conducted on private farms in order to determine the effect of the application of plant food in the form of fertilizer on the yields of crops. Soil fertility plots were located in eighteen counties. The fertilizer trials were so distributed that the locations would be representative of the major crop and soil areas.

The climatic conditions in 1952 were generally favorable for the small grain crop with the exception of the spring wheat area. In this area a deficiency of rain in the spring greatly reduced the yields of wheat. The weather conditions throughout the growing season were favorable for the growth and development of the corn crop but there was a shortage of midsummer moisture in most areas. In the following tables the results of the fertilizer treatments on the various crops are presented.

Effect of Nitrogen Fertilizer on Corn Applied by
Broadcasting at Time of Second Cultivation

Treatment Lbs/Acre*	Brookings County Bu/A.	Minnehaha County Bu/A.	Moody County Bu/A.
0-0-0	41.71	48.56	50.03
20-0-0	47.08	53.90	51.51
40-0-0	54.22	51.93	54.72
60-0-0	55.90	53.18	54.40

* The first figure refers to the lbs. of N, second to lbs. P₂O₅ and third to lbs. K₂O per acre.

Effect of Fertilizer Treatment on the Yield
of Corn (fertilizer plowed under)
Yield in Bu/Acre

Treatment lbs/Acre	Bon Homme County Bu/A.	Brookings County Bu/A.	Clay County Bu/A.	Lincoln County Bu/A.	Minnehaha County Bu/A.	Moody County Bu/A.
0-0-0	43.13	56.32	76.28	69.95	81.15	45.13
0-40-0	41.43	49.95	77.10	58.82	87.34	42.60
40-0-0	47.34	61.42	85.32	76.48	85.57	57.24
20-40-0	45.33	58.96	75.68	69.78	84.81	45.13
40-40-0	51.56	64.07	81.71	76.20	85.57	55.79
60-40-0	54.07	65.71	86.69	75.91	84.18	61.76

Effect of Fertilizer Treatment on the Yield of Corn
(Nitrogen fertilizer applied at the time of the second cultivation)*
Yield in Bu/Acre

Treatment Lbs/Acre	Bon Homme County Bu/A.	Brookings County Bu/A.	Clay County Bu/A.	Lincoln County Bu/A.	Minnehaha County Bu/A.	Moody County Bu/A.
0-0-0	43.13	56.32	76.28	69.95	81.15	45.13
20-40-0	48.48	57.54	78.58	76.25	90.24	49.76
40-40-0	52.69	60.09	86.42	80.58	82.37	49.64
60-40-0	55.02	70.36	93.05	83.06	81.63	54.82
80-40-0	50.49	62.43	87.79	79.52	83.17	58.68

* P₂O₅ applied by plowing under.

Response of Winter Wheat to Fertilizer in Lyman County

Treatment	Yield per acre in bushel		
	Location 1	Location 2	Location 3
0-0-0	10.9	11.2	16.4
0-40-0	12.7	13.0	20.0
20-0-0	18.8	17.8	23.5
20-40-0	20.0	20.1	24.5
40-40-0	27.3	24.6	32.9
60-40-0	32.2	28.1	34.7
20-0-0*	17.8	19.1	23.9
20-40-0*	17.4	20.1	24.4
40-40-0*	21.3	23.1	24.9
60-40-0*	22.0	24.6	25.4

* The nitrogenous fertilizer for these plots was put on in the spring. All other fertilizer was broadcast the fall before.

Fertilizer effect on Alfalfa

Treatment	Yield forage in lbs/acre	
	Tripp County	Bennett County
0-0-0	2810	2423
Minor elements*	3413	2788
0-20-0	3577	2586
0-40-0	4233	1984
0-60-0	4295	2747
0-0-40	3175	2487
0-40-40	4255	2069
0-40-0 plus minor elements	4466	2682
0-20-0**	3422	2442
0-60-0**	4061	2512

* Minor elements were borax, MnSO_4 , ZnSO_4 , and CaSO_4 at 20, 25, 10 and 20 lbs. per acre respectively.

** Fertilizer for these plots broadcast in the spring, the remainder of plots were fertilized the fall before.

Effect of Fertilizer Treatment on the Yield of Spring Wheat - 1952
Yield in bushels per acre

Treatment Lbs./Acre	Day County	Brown County	Edmunds County	Hand County	Faulk County	Potter County	Sully County	Spink County	Spink County
	Bu/A	Bu/A	Bu/A	Bu/A	Bu/A	Bu/A	Bu/A	Bu/A	Bu/A
0-0-0	17.8	12.8	11.2	3.5	8.0	10.6	13.4	8.8	7.7
40-0-0	20.1	19.5	13.4	5.9	10.0	12.0	12.8	11.7	8.0
0-40-0	18.0	10.7	11.4	3.9	8.8	10.9	13.3	8.2	9.0
20-40-0	21.2	16.0	12.7	5.3	9.4	10.9	15.7	12.2	8.9
40-40-0	22.1	19.3	13.8	6.1	11.7	13.9	13.1	13.2	7.6
60-40-0	22.7	20.2	14.9	6.2	12.4	10.4	13.0	13.3	9.4
40-20-0	22.3	19.6	12.0	6.4	10.2	13.1	14.3	12.7	8.7
40-60-0	21.5	20.9	12.4	6.5	11.3	10.1	15.1	12.2	10.6

Effect of Fertilizer Treatment
on the Yield of Flax - 1952
Yield in bushels per acre

Treatment Lbs./Acre	Brookings County Bu/A.
0-0-0	17.9
40-0-0	20.7
0-40-0	15.7
20-40-0	18.5
40-40-0	17.9
60-40-0	20.4
40-20-0	20.5
40-60-0	18.6

Effect of Fertilizer Treatment on the
Yield of Barley - 1952
Yield in bushels per acre

Treatment Lbs./Acre	Brookings County Bu/A.	Davison County Bu/A.
0-0-0	26.9	26.9
40-0-0	34.5	38.6
0-40-0	30.3	30.1
20-40-0	40.9	42.6
40-40-0	39.4	50.5
60-40-0	41.6	48.1
40-20-0	41.7	49.4
40-60-0	38.8	54.2

Effect of Fertilizer Treatment on the
Yield of Potatoes - 1952
Yield in Bu/Acre

Treatment Lbs/Acre	Clark County Bu/A.
0-0-0	122.5
0-50-0	124.1
50-50-0	136.5
50-50-60	136.2
0-50-60	134.0

Effect of Fertilizer Treatment on the Yield of Oats - 1952
Yield in bushels per acre

Treatment Lbs./Acre	Bon Homme County Bu/A.	Brookings County Bu/A.	Deuel County Bu/A.	Clay County Bu/A.	Lincoln County Bu/A.	Minnehaha County Bu/A.	Moody County Bu/A.
0-0-0	37.1	62.6	67.2	81.3	9.7	25.7	72.6
40-0-0	50.5	59.4	61.0	81.4	23.1	41.6	78.7
0-40-0	41.7	57.9	68.4	77.9	13.9	23.5	83.3
20-40-0	48.6	65.5	77.2	86.2	22.2	44.1	86.6
40-40-0	54.1	66.8	67.7	75.9	32.0	51.4	87.8
60-40-0	60.0	64.1	64.9	83.1	43.4	66.9	77.2
40-20-0	52.6	68.8	71.8	86.2	34.0	60.5	92.4
40-60-0	54.5	66.3	66.2	74.9	26.5	58.7	84.0