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## Progress Report of South Dakota Fertilizer Experiments 1951

South Dakota Agricultural Experiment Station

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Agronomy Department

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PROGRESS REPORT  
OF  
SOUTH DAKOTA  
FERTILIZER EXPERIMENTS  
11  
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PROGRESS REPORT OF SOUTH DAKOTA FERTILIZER EXPERIMENTS IN 1951

Lee F. Puhr, Burton Brage, Paul L. Carson, Daniel Norgaard

In 1951 fertilizer trials were conducted with the major crops in the principal soil areas of the state. It will be the purpose of this report to summarize in tabular form the results of some of the outlying 1951 fertilizer experiments. The planting of the small grain crop over most of the state was done on about the average dates. The June, July, and August temperatures were below normal. The rainfall for the same period was above normal. The weather conditions throughout the growing season were favorable for the growth and development of the small grain crop. The corn crop, especially in the eastern part of the state, was much retarded by the cool summer temperatures and did not reach maturity before the first killing frost. In the following tables the effects of fertilizer treatments on the various crops are presented.

Effect of Fertilizer Treatment on the Yield of Spring Wheat - 1951

Yield in bushels per acre

Treatment lbs/Acre*	Brown	Day	Hand	Edmunds	Lyman	Sully
	Bu/A.	Bu/A.	Bu/A.	Bu/A.	Bu/A.	Bu/A.
0-0-0	12.5	36.2	7.8	11.5	11.2	14.4
20-0-0	17.7	38.1	9.3	16.8	11.7	18.4
0-40-0	14.0	36.2	8.3	12.5	15.7	15.8
20-40-0	20.9	40.9	12.5	18.4	18.1	18.1
40-40-0	25.3	43.0	17.4	18.7	17.2	21.0
60-40-0	31.0	39.2	20.8	22.9	19.8	23.2

\*The first figure refers to the lbs. of N, second to lbs. P<sub>2</sub>O<sub>5</sub> and third to lbs. K<sub>2</sub>O applied per acre.

Effect of Fertilizer Treatment on the Yield of Oats - 1951

Yield in bushels per acre

Treatment lbs/Acre	Bon Homme County Bu/A.	Clay County Bu/A.	Lincoln County Bu/A.	Minnehaha County Bu/A.	Moody County Bu/A.
0-0-0	52.5	36.7	42.3	82.7	33.3
20-0-0	68.5	69.4	69.0	78.2	49.8
0-40-0	49.1	39.7	43.3	75.8	39.8
20-40-0	74.2	64.0	73.3	85.5	59.2
40-40-0	84.0	77.5	91.7	69.5	71.7
60-40-0	80.0	69.7	86.7	79.1	66.0

Effect of Fertilizer Treatment  
on the Yield of Barley - 1951  
Yield in Bu/Acre

Treatment lbs/Acre	Davison County Bu/A.	Deuel County Bu/A.
0-0-0	27.9	36.0
20-0-0	35.7	38.0
0-40-0	28.4	47.0
20-40-0	44.8	40.9
40-40-0	50.5	38.7
60-40-0	53.8	48.2

Effect of Fertilizer Treatment  
on the Yield of Winter Wheat - 1951  
(Fertilizer Applied in Fall)  
Yield in Bu/Acre

Treatment lbs/Acre	Lyman County Bu/A.
0-0-0	22.4
15-0-0	23.8
11-48-0	26.9
26-48-0	30.1
31-48-0	28.8
47-48-0	27.2

Effect of Fertilizer Treatment on the  
Yield of Winter Wheat - 1951  
(Fertilizer Applied in Spring)  
Yield in Bu/Acre

<u>Treatment</u> <u>lbs/Acre</u>	<u>Lyman</u> <u>County</u> Bu/Acre
0-0-0	16.2
33-0-0	32.0
0-48-0	19.2
11-48-0	20.8
22-48-0	28.1
33-48-0	29.9

Effect of Fertilizer Treatment on the  
Yield of Winter Wheat - 1951  
Yield in Bu/Acre

<u>Treatment</u> <u>lbs/Acre</u>	<u>Brookings</u> <u>County</u> Bu/A.
0-0-0	13.9
20-0-0	16.1
0-40-0	14.6
20-40-0	22.1
40-0-0	21.0
40-40-0	26.5

The 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	44.5	35.8	45.6	33.0	31.7	26.8
0-40-0	47.8	37.8	42.3	33.6	33.2	29.3
40-0-0	43.8	38.1	53.6	33.6	33.5	25.6
20-40-0	51.6	39.8	49.3	32.1	34.2	29.5
40-40-0	52.1	44.9	41.3	32.6	38.6	28.8
60-40-0	53.7	42.5	52.5	33.6	38.0	30.5

The 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	44.5	35.8	45.6	33.0	31.7	26.8
20-40-0	39.8	39.6	47.7	34.3	36.3	29.8
40-40-0	38.9	41.2	54.9	34.8	35.8	29.1
60-40-0	38.9	38.5	54.0	37.1	38.2	31.1

\*P<sub>2</sub>O<sub>5</sub> applied by plowing under.

Effect of Fertilizer Treatment on the  
Yield of Potatoes - 1951  
Yield in bu/Acre

Treatment lbs/Acre	Clark County Bu/A.
0-0-0	175
0-50-0	185
50-50-0	218
50-50-60	209
0-50-60	188

Effect of Nitrogen Fertilizer on the Forage Yields  
of Crested Wheat Grass - 1951

Lyman County

Treatment lbs/Acre	Fertilizer applied in fall lbs. forage per acre	Fertilizer applied in spring lbs. forage per acre
0-0-0	1480	1480
20-0-0	1940	2100
40-0-0	2440	2560
60-0-0	2760	2760
120-0-0	3420	3320
40-40-0	2480	2880