

## USE OF COMMERCIAL FERTILIZER IN A TWO YEAR ROTATION OF CORN AND WHEAT

This experiment was designed to determine the effects of commercial fertilizer application on crop yields in a two year rotation of corn and wheat in western North Dakota.

In this trial corn is grown on spring plowed wheat stubble and wheat is grown on spring plowed corn stubble. Fertilizer application is made on: both corn and wheat; corn only; and wheat only. The trial also includes a planting where no fertilizer is used on either crop.

Rate of fertilizer application is based on soil test. The application rate also depends on soil moisture at seeding time. Fertilizer rates used at different soil moisture levels are shown in the following tabulation.

Fertilizer	Soil Moisture at Seeding		
	Low	Medium	High
Nitrogen on Corn	15 Lbs. Acre	30 Lbs./Acre	30 Lbs./Acre
Nitrogen on Wheat	10 Lbs./ACre	25 Lbs./Acre	40 Lbs./Acre
P <sub>2</sub> O <sub>5</sub> on Corn	35 Lbs./Acre	35 Lbs./Acre	35 Lbs./Acre
P <sub>2</sub> O <sub>5</sub> on Wheat	35 Lbs./Acre	35 Lbs./Acre	35 Lbs./Acre

Tables 27 and 28 summarize yield data from this trial for the period of 1955-65.

**Table 27. Wheat Yields in a Two Year Corn - Wheat Rotation Under Different Systems of Fertilizer Application**

Wheat On:	Yield in Bushels Per Acre											11 Year Average
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	
Cornland, No Fertilizer	17.2	2.7	10.4	24.1	9.7	11.1	1.0	---	25.2	8.2	24.9	12.2
Cornland, Fertilized	27.8	3.3	14.7	25.7	9.9	15.1	.67	---	30.7	12.3	30.1	15.5
Cornland, Corn Fertilized the year Previous	25.5	3.1	12.3	25.6	7.7	14.1	1.1	---	26.3	12.2	21.9	13.6

**Table 28. Corn Yields in a Two Year Corn - Wheat Rotation Under Different Systems of Fertilizer Application.**

Corn On:	Yield in Tons Per Acre @ 70% Moisture											11 Year Average
	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	
Wheat Stubble, No Fertilizer	2.9	3.2	8.7	2.5	1.8	2.2	3.9	6.0	5.3	4.4	6.7	4.3
Wheat Stubble, Fertilized	3.0	3.1	8.5	1.8	1.4	1.8	4.1	7.3	5.8	5.1	7.5	4.5
Wheat Stubble, Wheat Stubble Fertilized Previous Year	3.0	3.5	9.3	2.3	1.3	222	3.4	5.5	4.4	5.0	5.8	4.2

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