

## 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 effects of different methods of commercial fertilizer application in such a rotation on crop yield, and to determine the residual accumulation, if any, of commercial fertilizer applied to the land annually. Initial soil tests made in 1955 indicated a need for drill application of 75 pounds of ammonium phosphate (8-32-0) on the corn in these trials.

In these trials, fertilizer was applied to the wheat by means of 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 the 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 used 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 yields for 1960. Tables 6 and 7 summarize results from this trial for the past six years.

Table 4 - Wheat Yields - Corn - Wheat Rotation Fertilizer Series - 1960							
Wheat Yields On:	Plot No.			Yield Bushels Per Acre			
				1	2	3	Average
DD Cornland, Fertilized	59	113	117	19.6	13.4	12.4	15.1
DD Cornland, Corn Fertilized In 1959	55	111	115	16.5	13.7	12.1	14.1

DD Cornland, Check	57	109	119	13.5	13.5	8.0	11.1
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Table 5 - Silage Yields - Corn - Wheat Rotation Fertilizer Series - 1960							
Corn Silage Yields On:	Plot No.			Green Weight Tons/Acre @ 70% Moisture			
				1	2	3	Average
SP Wheat Stubble, Fertilized	54	110	114	2.53	1.07	1.84	1.81
SP Wheat Stubble, Fertilized In 1959	58	112	116	2.14	1.61	2.77	2.17
SP Wheat Stubble, Check	56	108	118	2.86	1.26	2.53	2.22

Table 6. Wheat Yields - Corn - Wheat Rotation Series - 1955-1960							
	Yield - Bushels Per Acre						6 Yr. Average
	1955	1956	1957	1958	1959	1960	
DD Cornland, Fertilized	27.8	3.3	14.7	25.7	9.9	15.1	16.1
DD Cornland, Corn Fertilized Previous Year	25.5	3.1	12.3	25.6	7.7	14.1	14.7
DD Cornland, Check	17.2	2.7	10.4	24.1	9.7	11.1	12.5

Table 7. Silage Yields - Corn -Wheat Rotation Fertilizer Series - 1955-1960

Corn Silage Yields On	Yield in Tons Per Acre - Green Weight @ 70@ Moisture						6 Yr. Average
	1955	1956	1957	1958	1959	1960	
SP Wheat Stubble, Fertilized	2.98	3.14	8.50	1.80	1.42	1.81	3.28
SP Wheat Stubble, Fertilized Previous Year	2.96	3.49	9.30	2.30	1.34	2.17	3.59
SP Wheat Stubble, Check	2.89	3.22	8.70	2.50	1.77	2.22	3.55

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