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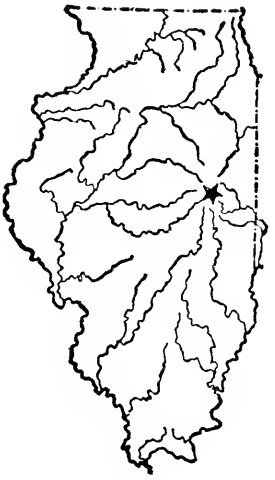
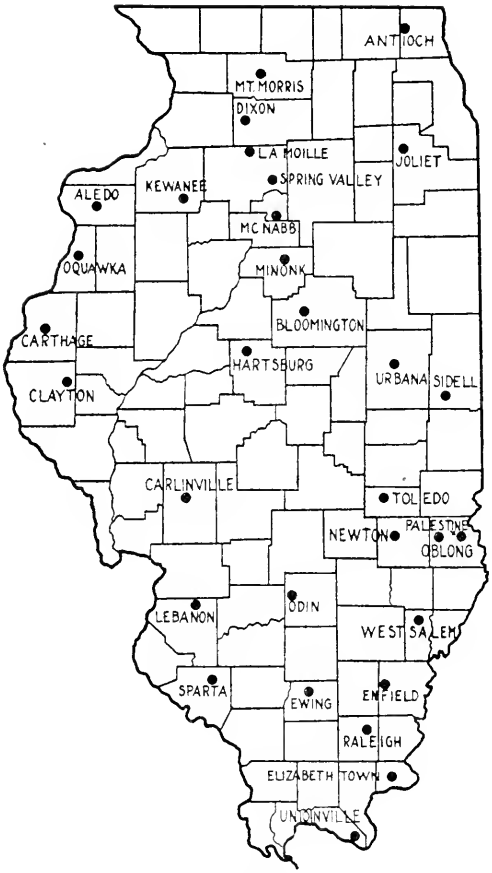
CROP YIELDS FROM ILLINOIS SOIL EXPERIMENT FIELDS IN 1928

By F. C. Bauer



URBANA, ILLINOIS, MAY, 1929



Location of the Thirty-One Experiment Fields in Illinois From Which Data Are Presented in This Bulletin

CROP YIELDS FROM ILLINOIS SOIL EXPERIMENT FIELDS IN 1928

By F. C. Bauer, Chief, Soil Experiment Fields

Variation in crop producing power is a natural characteristic of agricultural soils. It is evident not only between soils in different locations, but also on the same soil in different seasons. Frequently it is quite marked. With some soils their productive power assumes a gradual upward trend, while with others it assumes a gradual downward trend. Obviously, the causes of these variations and the control of them are matters of considerable importance in the successful management of farm lands.

The crop-producing powers of soils, in a broad sense, vary because of the natural differences between soils and the systems of farming practiced upon them. Altho nature tends to work in accordance with natural laws, the influence of natural conditions on soil productivity may be accelerated or retarded by the work of man. The best use of farm lands, therefore, will depend to considerable extent upon the knowledge which farmers possess concerning the soils upon their farms and the cropping and treatment practices which they will use upon them. In general, the farmer is interested in the simplest things he may do that will give him the maximum benefits from the use of his land.

In order to furnish the farmers of the state with information that would be helpful to them in planning systems of soil treatment for their farms, the Illinois Agricultural Experiment Station for a number of years has conducted field investigations in all sections of the state on extensive soil types, varying widely in productiveness, to test the effectiveness of different systems of soil treatment on the yield of farm crops. Altho some investigations along this line had been in progress at Urbana since 1876, the first outlying soil experiment fields were not established until the fall of 1901. Some of the original fields are still in operation. In all more than fifty soil experiment fields have been established in Illinois. Some have been abandoned at one time or another for various reasons. During the crop season of 1928 thirty-one of these fields were in operation. The location of them within the state may be ascertained by referring to the accompanying map.

The complete results from all the Illinois soil experiment fields up to and including 1924 were reported in Bulletin 273. Subsequent results have been reported in Bulletins 280, 296, and 305. The present bulletin is a continuation of this series of publications, being a record of the yields for the year 1928.

In these publications the crop yields are presented as a matter of record without comment or discussion. In a broad sense, of course, the results speak for themselves, and carry definite lessons to those who have been following the investigations of the station. Discussions of these investigations have appeared from time to time in former station publications and further discussion of an interpretative nature will appear in future publications.

Explanation of Tables and Symbols

The results reported on the following pages are for the individual fields arranged alphabetically rather than by location or by soil types. All yields, except those in parentheses, indicate acre yields in bushels. Yields in parentheses indicate acre yields in tons.

The following symbols have been used in this bulletin to denote the soil treatments applied:

0 = No treatment	rP = Rock phosphate
M = Manure	sP = Superphosphate
R = Crop residues	bP = Bone phosphate
Le = Legume catch crop	S = Flowers of sulfur
L = Limestone	KCl = Muriate of potash
K = Potash	

The crop residues are chiefly cornstalks and sweet clover plowed down as a green manure. In some cases the second crop of clover and other legume residues have also been plowed down.

When legumes are used as a catch crop, they are seeded in small grain to be plowed down the following year for succeeding crops.

TABLE 1.—ALEDO FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 100 Stubble clover (hubam)	Series 200 Second-year corn	Series 300 First-year corn	Series 400 Wheat	Series 400 Stubble clover (sw. cl.)
			WEST HALF				
1	0	73.4	(0)	61.4	54.2	28.3	....
2	M	79.7	(0)	73.6	71.2	41.0	....
3	ML	81.6	(.59)	73.2	69.4	42.7	....
4	MLrP	90.0	(.69)	75.4	70.6	43.3	....
5	0	64.7	(0)	58.6	54.4	35.0	....
6	R	73.4	(0)	64.6	68.6	37.7	(0)
7	RL	77.2	(.52)	70.6	74.6	41.3	(1.93)
8	RLrP	82.8	(.80)	74.2	73.4	39.7	(2.07)
9	RLrPK	85.0	(.57)	73.6	77.6	44.2	(2.42)
10	0	70.9	(0)	59.8	59.6	30.8	....
			EAST HALF				
1	RL	70.3	(.37)	67.2	69.6	38.0	(.78)
2	MrP	84.4	(0)	76.2	69.8	41.7	....
3	MLbP	92.2	(.61)	74.6	69.8	44.3	....
4	MLrP	91.9	(.69)	67.0	70.6	41.3	....
5	RsP	76.9	(0)	65.8	64.4	38.2	(0)
6	RrP	80.9	(0)	72.8	70.6	39.3	(0)
7	RLsP	81.9	(.55)	71.0	72.8	40.5	(1.93)
8	RLrP	81.3	(.63)	70.4	77.2	36.8	(1.86)
9	RLrPK	84.4	(.59)	71.6	80.2	42.7	(2.51)
10	RLrP	76.6	(.62)	69.8	69.0	38.3	(2.19)

Note.—In 1924 the plots on these series were divided into east and west halves in order to provide for additional phosphorus studies. The plots on the west halves of all series continue under the original soil treatment but the plots on the east halves receive the treatment designated above. No more rock phosphate will be applied to the phosphate plots on the west halves for an indefinite period, these plots having received a total of 8,000 pounds an acre.

On the east halves all phosphorus fertilizers will be applied twice in the rotation, ahead of the wheat crop and the first corn crop, at the following annual acre rates: rock phosphate 500 pounds, superphosphate 200 pounds, bone meal 200 pounds. The minimum amount of limestone necessary for the successful growth of the clover green-manure crop will be applied to Plots 1-E and 10-E, 4,000 pounds an acre having been applied in 1924.

TABLE 2.—ALEDO FIELD: MINOR SERIES

Serial plot No.	Series 500 Soil treatment	Corn	Series 600 Soil treatment	Corn
1	R	69.8	R	71.3
2	RbP	71.7	RsP	73.2
3	RLbP	78.3	RLsP	74.9
4	RL	72.0	RL	74.4

(Table concluded on page 214)

TABLE 2.—*Concluded*

	Series 700 Soil treatment	Corn	Series 800 Soil treatment	Corn
1	R	72.3	R	70.4
2	RrP	74.3	R, slag P	69.3
3	RLrP	76.5	RL, slag P	71.0
4	RL	74.6	RL	75.1

TABLE 3.—ANTIOCH FIELD: SERIES 100

Plot No.	Soil treatment	Oats	Plot No.	Soil treatment	Oats
1	0	53.8	6	LRbP	76.3
2	LrP	62.5	7	LRK	52.2
3	LRrP	71.3	8	LKbP	72.5
4	LbP	75.9	9	LRKbP	66.3
5	LKrP	60.0	10	RKbP	73.4

Note.—At Antioch, beginning with 1924, rock phosphate has been applied to Plots 2, 3 and 5 at the annual acre rate of 500 pounds; one-half of the rotation application is made ahead of the oats crop and one-half ahead of the wheat crop. The soil treatment remains unchanged on the other plots.

TABLE 4.—BLOOMINGTON FIELD: SERIES 100

Plot No.	North Half Soil treatment	Corn	South Half Soil treatment	Corn
1	R	49.0	0	33.4
2	RLbP	52.2	RL	35.2
3	RLrP	64.6	RLsP	59.6
4	RLbP	49.6	RLbP	60.0
5	RLKrP	56.2	RLKsP	55.6
6	RLbP	55.8	RLbP	60.4
7	RLKrP	58.4	RLKsP	62.8
8	RLKbP	56.2	RLKbP	63.0
9	RLKbP	60.4	RLKbP	62.6
10	RKbP	51.2	RKbP	58.0
11	RrP	47.4	RsP	57.2

Note.—At Bloomington in 1924 an additional plot was laid out at the east end of the series. All plots were divided into north and south halves and the soil treatment planned as follows: Residues (cornstalks, the second crop of red clover, legume green-manure crops) to be turned under on all plots except Plot 1-S. Different phosphorus carriers to be applied at the following acre rates per rotation: bone meal, 1,000 pounds, to Plots 2-N, 4-N, 6-N, 8-N, 9-N, and 10-N; rock phosphate, 2,500 pounds, to Plots 3-N, 5-N, 7-N, and 11-N; superphosphate, 1,000 pounds, to Plots 3-S, 5-S, 7-S, and 11-S. Two-fifths of the rotation application of these phosphates is to be made ahead of the oats crop, two-fifths ahead of the wheat crop, and one-fifth ahead of the first corn crop.

TABLE 5.—CARLINVILLE FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Corn	Series 200 Oats	Series 300 Oats[1]	Series 400 Clover-alfalfa
1	0	32.5	30.2	39.5	(1.51)
2	M	42.9	40.8	51.3	(2.27)
3	ML	60.2	43.1	60.5	(3.94)
4	MLrP	61.5	44.2	59.5	(4.28)
5	0	22.0	31.7	52.0	(1.92)
6	R	22.7	25.6	53.6	(1.99)
7	RL	46.1	35.0	60.5	(3.29)
8	RLrP	48.7	38.0	59.2	(3.85)
9	RLrPK	59.1	41.1	60.9	(4.69)
10	0	26.9	34.1	47.5	(1.87)

[1]Wheat winterkilled; oats grown as a substitute crop.

TABLE 6.—CARLINVILLE FIELD: MINOR SERIES

Serial plot No.	Series 700 Soil treatment[1]	Oats[2]	Series 800 Soil treatment[1]	Oats[2]
1	LeL (1,000)	40.9	LeL (5,000)	43.1
2	LeL (4,000)	40.9	LeL (20,000)	53.4
3	LeL (2,000)	39.1	LeL (10,000)	57.5
4	LeL (2,000), treble sP	17.5	LeL (10,000), treble sP	59.1
5	LeL (2,000), sP	17.8	LeL (10,000), sP	62.5
6	LeL (2,000), rP	46.3	LeL (10,000, rP	60.3
7	L (2,000)	37.2	L (10,000)	54.1

[1]The figures in parentheses refer to the total amounts of limestone per acre since 1921. [2]Oats grown as a substitute for winter wheat.

TABLE 7.—CARTHAGE FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Wheat	Series 300 Stubble clover (sw. cl.)	Series 400 Clover
1	0	43.8	38.4	24.6	....	(1.04)
2	M	60.6	58.1	18.3	....	(1.70)
3	ML	68.8	70.2	30.4	....	(2.45)
4	MLrP	72.7	67.9	37.1	....	(2.78)
5	0	48.8	37.8	15.8	....	(.89)
6	R	56.6	54.8	17.5	(.0)	(.37)
7	RL	62.2	60.8	30.0	(.82)	(1.04)
8	RLrP	62.5	61.7	32.9	(1.06	(.94)[1]
9	RLrPK	63.3	69.9	37.1	(1.30)	(1.70)
10	0	39.8	46.0	22.1	....	(1.05)

[1]The clover on Plot 408 was damaged by water standing on the plot in the early spring.

TABLE 8.—CARTHAGE FIELD: MINOR SERIES

Serial plot No.	Soil treatment[1]	Series 500 First-year corn West	Series 500 First-year corn East	Series 600 Oats	Series 600 Stubble clover[2] West	Series 700 Second-year corn West	Series 700 Second-year corn East
1	RL	60.0	60.0	45.0	(1.40)	46.4	42.4
2	RLrP (100)	64.0	61.2	43.4	(1.30)	47.6	50.4
3	RLrP (100), gypsum (100)	59.6	71.6	44.1	(1.30)	48.4	45.6
4	RLrP (200)	64.4	72.4	42.5	(1.00)	43.6	53.6
5	RLrP (200), gypsum (200)	63.6	66.4	46.6	(1.10)	38.0	56.4
6	RLrP (400)	68.6	78.0	47.2	(.90)	46.0	46.0
7	RLrP (400), gypsum (400)	74.0	74.0	48.8	(.90)	45.2	45.2
8	RL	70.4	72.0	47.2	(.90)	51.6	49.2

[1]The figures in parentheses indicate the annual acre rates (pounds) at which rock phosphate and gypsum are applied. [2]The fall growth of sweet clover is regularly removed from the west halves of the series and the corn following is harvested by half plots.

TABLE 9.—CLAYTON FIELD

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Wheat	Series 300 Stubble clover (sw. cl.)	Series 400 Clover
1	0	41.3	46.6	23.3	....	(.45)
2	M	56.3	81.7	34.0	....	(.90)
3	ML	72.5	91.2	42.7	....	(1.69)
4	MLrP	76.6	89.6	45.4	....	(1.76)
5	0	51.3	40.7	19.8	....	(.45)
6	R	53.8	54.8	27.5	(0)	(.08)
7	RL	73.8	71.5	39.0	(1.09)	(1.04)
8	RLrP	74.4	67.9	39.6	(1.15)	(.87)[1]
9	RLrPK	75.0	86.4	41.4	(1.74)	(1.56)
10	0	52.8	46.9	18.9	....	(.41)

[1]Clover on Plot 408 was damaged in spring by standing water.

(See opposite page for Table 10)

TABLE 11.—DIXON FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Alfalfa	Series 600 Second-year corn	Series 700 First-year corn	Series 800 Oats
1-N	K	(0)	49.6	53.6	50.3
1-S	0	(0)	47.2	49.4	62.5
2-N	MK	(0)	55.6	65.2	54.1
2-S	M	(0)	62.2	59.0	60.0
3-N	MLK	(1.74)	67.2	67.8	70.0
3-S	ML	(1.50)	65.6	63.2	54.1
4-N	MLrPK	(2.56)	68.2	69.8	70.0
4-S	MLrP	(2.29)	63.4	56.6	57.5

TABLE 10.—DIXON FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Wheat	Series 400 Soybeans[1]
		SOUTH HALF			
1	0	41.4	47.6	14.7	(1.66)
2	M	60.9	65.8	23.5	(1.62)
3	ML	71.9	74.2	36.7	(1.67)
4	MLrP	71.9	74.6	39.0	(1.68)
5	0	45.6	38.2	22.3	(1.66)
6	R	37.8	35.8	25.5	(1.72)
7	RL	56.3	58.2	32.2	(1.59)
8	RLrP	54.1	61.2	31.2	(1.56)
9	RLrPK	54.1	66.0	36.8	(1.49)
10	0	41.6	36.8	20.0	(1.48)
		NORTH HALF			
1	RL	43.8	49.2	19.3	(1.55)
2	MrP	62.8	69.4	32.3	(1.71)
3	MLbP	67.8	73.8	35.8	(1.43)
4	MLrP	60.0	78.4	37.2	(1.59)
5	RsP	49.4	52.8	27.0	(1.63)
6	RrP	43.8	58.6	26.5	(1.59)
7	RLsP	52.5	66.0	31.8	(1.56)
8	RLrP	48.8	66.2	35.5	(1.47)
9	RLrPK, gypsum	53.1	72.6	41.3	(1.40)
10	RLrP	49.7	47.2	27.5	(1.58)

Note. In 1924 the plots on these series were divided into north and south halves, and some additional investigations were begun. The plots on the south halves of all series continue under the original soil treatment, but the plots on the north halves receive the treatment designated above. No more rock phosphate will be applied to the phosphate plots on the south halves for an indefinite period, these having received a total of 8,000 pounds an acre. The same holds true for the north half of Plot 9 of all series.

On the north halves the phosphatic fertilizers and gypsum are applied twice in the rotation, one-half of the rotation quota ahead of wheat, and one-half ahead of corn, at the following annual acre rates: rock phosphate 500 pounds, superphosphate 200 pounds, bone meal 200 pounds, gypsum 200 pounds.

The minimum amount of limestone necessary for the successful growth of clovers will be applied to Plots 1-N and 10-N on all series, 1,000 pounds an acre having been applied in 1924.

[1]Soybeans were grown on Series 400 as a substitute for clover.

TABLE 12.—ELIZABETHTOWN FIELD: MAIN SERIES

Serial[1] plot No.	Soil treatment	Series 100 Corn	Series 200 Wheat	Series 300 Clover-alfalfa	Series 400 Wheat	Series 500 Alfalfa
1	0	14.5	.2	(0)	1.7	(0)
2	M	11.8	.2	(.60)	2.9	(0)
3	ML	29.8	2.4	(1.39)	6.5	(1.37)
4	MLrP	33.1	7.2	(1.88)	6.8	(2.32)
5	0	3.5	.4	(0)	1.7	(0)
6	R	2.6	.7	(0)	1.2	(0)
7	RL	21.0	4.9	(1.01)	3.2	(.76)
8	RLrP	30.7	11.1	(1.85)	3.5	(1.50)
9	RLrPK	30.9	10.2	(2.28)	4.3	(2.36)
10	0	15.2	4.5	(0)	1.6	(0)

[1]Plot 1 on Series 100, 300, and 400, and Plot 10 on Series 100 and 200, lie on lower ground and are naturally more productive.

TABLE 13.—ELIZABETHTOWN FIELD: MINOR SERIES

Soil treatment	Plot A Corn	Plot B Soybeans	Plot C Barley[1]
RLsP	38.0	(1.63)	7.1
RLrP	41.0	(1.52)	4.6

[1]Barley was grown on Plot C as a substitute for wheat.

TABLE 14.—ENFIELD FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Oats[1]	Series 400 Timothy-hubam
1	0	10.5	.5	24.8	(.60)
2	M	17.2	1.8	28.9	(.82)
3	ML	35.9	35.6	57.8	(2.04)
4	MLrP	40.6	50.2	57.2	(2.29)
5	0	13.1	.6	25.2	(.57)
6	R	13.3	1.1	28.1	(.64)
7	RL	38.8	38.6	55.2	(1.95)
8	RLrP	41.4	42.4	55.2	(1.77)
9	RLrPK	56.1	44.1	67.2	(2.37)
10	0	12.5	1.7	25.3	(.61)

[1]Oats were grown on Series 300 as a substitute for wheat.

TABLE 15.—ENFIELD FIELD: MINOR SERIES

Serial plot No.	Soil treatment[1]	Series 700 Oats[2]	Series 800 Corn
1-W	L	24.4	19.4
1-E	L	30.0	19.5
2-W	LrP (2,000) sP (100), sweet clover	30.6	19.9
2-E	LrP (2,000) sP (100), red clover	40.0	19.9
3-W	LrP (2,000), sweet clover	24.4	18.8
3-E	LrP, (2,000), red clover	40.6	20.0
4-W	LrP (2,000) sP (200), sweet clover	23.8	16.5
4-E	LrP (2,000), sP (200), red clover	38.8	18.4
5-W	LrP (2,000), sweet clover	23.1	16.9
5-E	LrP (2,000), red clover	33.8	17.7
6-W	L, sweet clover	19.4	12.4
6-E	L, red clover	26.2	16.3

[1]The figures in parentheses indicate the total applications of phosphates since 1923. [2]Oats were grown on Series 800 as a substitute for wheat.

TABLE 16.—EWING FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Oats[1]	Series 400 Hubam clover
1	0	.5	.4	8.0	(0)
2	M	7.7	1.4	12.8	(0)
3	ML	33.9	50.1	35.9	(1.38)
4	MLrP	35.9	50.0	40.5	(1.58)
5	0	4.1	.1	15.5	(0)
6	R	2.3	.3	13.3	(0)
7	RL	26.6	27.0	38.3	(.90)
8	RLrP	28.4	17.5	34.5	(1.13)
9	RLrPK	38.8	45.3	48.6	(1.54)
10	0	1.6	.5	15.5	(0)

[1]Oats were grown on Series 300 as a substitute for wheat.

TABLE 17.—EWING FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500-N Oats[1]	Series 500-S Oats	Series 600 Corn
1	MLrPK, no clover	27.0	16.8	22.4
2	MLrPK, white biennial sweet clover	30.1	17.0	35.2
3	MLrPK, red clover	34.8	19.2	28.8
4	MLrPK, hubam clover	33.8	19.5	24.3
5	MLrPK, alsike clover	33.0	22.0	30.1
6	MLrPK, yellow biennial sweet clover	31.2	28.0	28.2

Note.—These series were replotted from what were formerly Plots A and B. Prior to 1917 fertilizers had been applied as follows: manure 8 tons, limestone 8 tons, rock phosphate 6,000 pounds, and kainit 2,400 pounds per acre. With the exception of limestone used when necessary to grow the clovers, no more fertilizing materials will be added. A study will be made of relative value of different clovers as the source of organic manure in a rotation of corn, oats, and wheat (clover catch crop).

[1]Oats were grown on Series 500-N as a substitute for wheat.

TABLE 18.—EWING FIELD: MINOR SERIES

Serial plot No.	Soil treatment[1]	Series 700 Oats[2]	Series 800 Corn	Series 900 Oats
1	Le	15.9	1.4	2.8
2	LeL	20.6	6.6	4.4
3	LeLsP (100)	27.5	6.0	13.1
4	LeLrP (200)	31.3	8.2	19.4
5	LeL	23.4	5.8	3.1
6	LeLsP (200)	26.6	6.1	9.7
7	LeLrP (400)	24.7	8.0	6.9

[1]The figures in parentheses indicate the annual acre rate at which the phosphates are applied. [2]Oats were grown on Series 700 as a substitute for wheat.

TABLE 19.—HARTSBURG FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Second-year corn	Series 300 First-year corn	Series 400 Barley[1]
		WEST HALF			
1	0	63.1	53.4	36.8	35.4
2	M	64.1	63.6	63.2	44.2
3	ML	60.3	66.2	71.0	50.0
4	MLrP	62.2	64.2	71.2	50.0
5	0	56.9	55.2	43.0	42.7
6	R	46.6	57.0	78.0	47.5
7	RL	45.9	58.4	79.4	53.3
8	RLrP	58.8	64.6	82.0	46.9
9	RLrPK	52.2	64.0	68.8	55.6
10	0	54.1	52.2	57.2	45.8
		EAST HALF			
1	RL	51.3	55.0	72.8	40.6
2	MrP	58.4	65.4	68.2	48.1
3	MLbP	67.2	68.4	67.6	45.8
4	MLrP	64.7	70.2	69.4	49.0
5	RsP	52.2	57.8	82.0	51.9
6	RrP	53.1	66.2	85.0	51.2
7	RLsP	56.6	65.6	88.4	54.2
8	RLrP	56.9	63.6	83.4	47.9
9	RLrPK, gypsum	55.0	61.4	80.0	54.2
10	RLrP	50.9	63.6	76.6	42.9

Note. In 1924 the plots on these series were divided into west and east halves and additional investigations were begun. The plots on the west halves of all series continue under the original soil treatment but the plots on the east halves receive the treatment designated above. No more rock phosphate will be applied to the phosphate plots on the west halves for an indefinite period, these plots having received a total of 8,000 pounds an acre. The same holds true for the east half of Plot 9 on all series.

On the east halves the phosphatic fertilizers and gypsum are applied twice in the rotation, one-half ahead of the wheat crop and one-half ahead of the first corn crop, at the following annual acre rates: rock phosphate 500 pounds, superphosphate 200 pounds, bone meal 200 pounds, gypsum 200 pounds.

The minimum amount of limestone necessary to secure successful growth of the legume catch crop will be applied to Plots 1-E and 10-E on all series, 4,000 pounds an acre having been applied in 1924.

[1]Barley was grown on Series 400 as a substitute for wheat.

TABLE 20. HARTSBURG FIELD: SERIES 500

Plot No.	Soil treatment	Oats	Plot No.	Soil treatment	Oats	Plot No.	Soil treatment	Oats
501	0	63.6	506	R	57.5	511	LeM	57.7
502	M	60.6	507	RL	53.0	512	LeML	61.4
503	ML	70.2	508	RLrP	56.9	513	LeMLrP	68.4
504	MLrP	69.2	509	RLrPK	56.9	514	LeMrP	61.7
505	0	60.2	510	0	54.5	515	0	47.7

TABLE 21.—JOLIET FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Alfalfa[1]	Series 300 Second-year corn	Series 400 First-year corn	Series 500 Wheat	Series 600 Mixed hay
1	0	57.3	(0)	26.8	19.3	2.5	(.97)
2	M	59.4	(0)	32.6	46.3	8.7	(1.16)
3	ML	72.2	(.44)	51.0	59.9	12.2	(1.36)
4	MLrP	72.5	(1.34)	52.2	60.0	24.2	(2.19)
5	0	49.7	(0)	19.6	17.9	6.7	(.96)
6	R	48.9	(0)	20.0	23.6	8.4	(1.02)
7	RL	63.4	(.04)	34.6	31.3	10.2	(1.00)
8	RLrP	67.5	(1.60)	47.6	32.9	33.6	(1.63)
9	RLrPK	70.3	(2.53)	50.6	47.7	40.0	(1.92)
10	0	54.2	(.88)	25.6	20.7	7.2	(.93)

[1]Alfalfa was badly winterkilled.

TABLE 22.—JOLIET FIELD: MINOR SERIES

Serial plot No.[1]	Soil treatment	Series 700 Oats[2]	Series 800 Barley	Series 900 Corn	Series 1000 Legume hay
1	L, red clover	43.1	23.1	43.2	(0)
2	LrP, red clover	54.1	28.5	57.4	(0)
3	LrP, gypsum, red clover	49.7	34.8	62.2	(0)
4	L, red clover	43.8	26.5	55.8	(0)
5	L, alfalfa	41.6	29.0	48.6	(.73)
6	LrP, alfalfa	48.8	30.6	54.8	(1.60)
7	LrPL (8,000), alfalfa	49.4	32.1	57.6	(1.36)
8	LrP, KCl, alfalfa	49.1	34.6	57.0	(1.50)
9	L, KCl, alfalfa	44.7	35.2	43.8	(.68)
10	L, alfalfa	43.4	29.2	50.0	(0)
11	L, red clover	45.6	....	54.8	....
12	LsP, red clover	47.8	....	55.4	....
13	LrP, red clover	51.3	....	51.6	....

Note.—In 1924 the rotation on the minor series at Joliet was changed to corn, barley, wheat, and biennial legumes (red clover on Plots 1 to 4 on all series and on Plots 11, 12, and 13 on Series 700 and 900, alfalfa on Plots 5 to 10). All plots had received limestone at the rate of 5,000 pounds an acre prior to 1924. At that time Plot 7 on all series received 8,000 pounds of limestone an acre. Fertilizers as designated in Table 22 are applied at the following annual acre rates: rock phosphate 400 pounds, potassium chloride 100 pounds, gypsum 100 pounds. These fertilizers are applied twice in the rotation, ahead of the wheat and corn crops. Superphosphate is applied for the wheat crop at the rate of 250 pounds an acre.

[1]Plots 11, 12, and 13 appear only on Series 700 and 900.

[2]Oats were grown on Series 700 as a substitute for wheat.

TABLE 23.—KEWANEE FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Wheat	Series 400 Clover
1	0	55.0	62.4	19.9	(1.64)
2	M	79.1	78.2	21.8	(1.93)
3	ML	75.3	91.6	29.2	(2.30)
4	MLrP	79.1	94.6	34.3	(2.68)
5	0	62.5	74.0	16.7	(1.17)
6	R	64.4	74.6	17.0	(.59)
7	RL	67.3	83.6	23.8	(1.01)
8	RLrP	77.7	86.2	29.6	(1.00)
9	RLrPK	75.9	90.4	35.1	(1.30)
10	0	65.0	56.6	16.7	(.43)

TABLE 24.—KEWANEE FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Oats	Series 600 Corn	Series 700 Wheat	Series 800 Clover
1	RrP	82.3	88.0	35.2	(.64)
2	RsP	76.9	85.5	33.2	(.50)
3	RLrP	68.6	96.1	27.0	(.49)
4	RLsP	78.8	104.1	40.0	(.58)

TABLE 25.—LA MOILLE FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Second-year corn	Series 300 First-year corn	Series 400 Wheat	Series 400 Stubble clover (sw. cl.)
1	0	66.6	68.1	41.0	24.0	....
2	M	73.8	71.6	73.5	32.6	....
3	ML	69.1	74.5	73.6	38.7	....
4	MLrP	65.9	68.1	70.6	40.4	....
5	0	55.8	54.1	56.0	34.8	....
6	R	61.6	61.0	60.8	35.1	(.12)
7	RL	68.0	65.6	67.3	45.2	(1.69)
8	RLrP	69.4	69.2	69.1	43.5	(1.77)
9	RLrPK	69.4	69.7	69.8	40.0	(2.03)
10	0	53.0	54.1	17.6	24.8	....

TABLE 26.—LEBANON FIELD: MAIN SERIES

Serial Plot No.	Soil treatment	Series 100 Soybeans	Series 200 Corn	Series 300 Wheat	Series 300 Stubble clover (sw. cl.)	Series 400 Wheat	Series 400 Stubble clover (hubam)
1	0	(.50)	17.6	2.8	....	.2	(0)
2	M	(1.16)	27.0	4.6	....	.6	(0)
3	ML	(1.52)	37.4	24.1	....	9.5	(1.32)
4	MLrP	(2.38)	38.2	26.4	....	11.6	(1.30)
5	0	(2.16)	22.2	3.3	....	1.1	(0)
6	R	(2.61)	25.8	2.4	(0)	.9	(0)
7	RL	(2.25)	57.2	11.7	(1.40)	10.3	(1.10)
8	RLrP	(2.68)	55.8	18.3	(1.06)	12.8	(1.29)
9	RLrPK	(2.61)	71.4	15.6	(1.26)	12.2	(1.53)
10	0	(2.18)	26.6	1.2	....	.7	(0)

TABLE 27.—LEBANON FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Corn	Series 600 Oats	Series 700 Oats[1]
1-W	Le	43.0	38.8	41.3
1-E	LesP	27.8	39.1	41.6
2-W	LeM	49.0	45.3	44.4
2-E	LeMsP	39.8	48.4	43.4
3-W	LeML	53.8	50.0	45.0
3-E	LeMLsP	56.0	56.6	63.1
4-W	LeMLrP	52.6	49.1	42.5
4-E	LeMLrP	64.6	53.1	54.4

[1]Oats were grown on Series 700 as a substitute for wheat.

(See opposite page for Table 28)

TABLE 29.—McNABB FIELD

Serial plot No.	Soil treatment	Series 100 Corn	Series 200 Clover	Series 300 Wheat	Series 400 Oats
1	R	75.8	(2.09)	38.3	75.6
2	RrP	77.2	(1.94)	42.0	84.7
3	0	88.4	(2.93)	42.8	78.4
4	MrP	86.0	(3.34)	45.7	92.5
5	M	84.2	(3.11)	46.5	91.3

TABLE 28.—LEBANON FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 800 Wheat	Series 900 Potatoes
1	LcM	24.7	112.7
2	LesP	26.3	118.0
3	LcrP	26.0	98.0
4	LesPK	23.0	100.0
5	LcrPK	24.3	107.3
6	Lc, straw	17.7	195.7
7	LesP, straw	19.0	230.3
8	LcrP, straw	18.7	207.7
9	Lc, treble superphosphate	26.7	95.0
10	Lc, potassium phosphate	22.3	102.7

Note.—In 1925 Series 800 and 900 were laid out on land which had received 8,000 pounds of limestone, 2,000 pounds of rock phosphate, and 15 tons of manure an acre in 1911. The land grew alfalfa almost continuously from 1911 to 1925. A rotation of wheat (sweet-clover catch crop) and potatoes is planned. Fertilizers are applied as indicated in Table 28. The phosphates are supplied annually, rock phosphate 400 pounds, superphosphate 200 pounds, treble superphosphate 100 pounds and potassium phosphate 200 pounds an acre. Kainit 200 pounds an acre is applied for each potato crop. Two tons of manure an acre is applied for potatoes. Straw is applied as a mulch when the potatoes are coming thru the ground.

TABLE 30.—MINONK FIELD

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Second-year corn	Series 300 First-year corn		Series 400 Wheat	
				North half[1]	South half	North half[2]	South half
1	O	58.1	54.6	55.8	49.4	5.7	2.3
2	M	57.2	61.2	75.4	67.4	14.2	16.0
3	ML	53.1	64.0	70.2	69.0	21.7	20.7
4	MLrP	47.5	60.6	73.1	70.1	27.0	25.3
5	O	48.1	52.6	54.6	47.3	18.3	15.7
6	R	57.8	57.8	66.5	68.6	19.7	20.5
7	RL	60.9	52.6	69.7	70.6	21.5	19.8
8	RLrP	56.6	57.8	69.7	72.0	24.3	24.2
9	RLrPK	57.8	57.6	68.8	66.7	28.7	27.5
10	O	42.5	11.2	51.9	43.9	23.0	20.2

[1]The north halves of all plots of Series 300 received nitrogen fertilizers as follows: 75 pounds ammonium sulfate per acre hill-dropped at planting time and 125 pounds sodium nitrate per acre as a side dressing when the corn was about 12 inches high. [2]Early in March 200 pounds of sodium nitrate per acre was applied to the north halves of all plots of Series 100 as a top dressing for the wheat.

TABLE 31.—MT. MORRIS FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Wheat	Series 400 Clover
1	0	48.4	36.0	13.2	(0)
2	M	63.8	58.8	16.0	(0)
3	ML	72.2	74.5	22.1	(2.26)
4	MLrP	71.3	71.9	23.7	(2.26)
5	0	49.5	35.7	11.0	(0)
6	R	50.9	46.4	16.6	(0)
7	RL	66.4	64.7	27.5	(.56)
8	RLrP	69.1	70.0	28.3	(.68)
9	RLrPK	76.6	71.1	33.1	(1.13)
10	0	49.4	45.3	7.7	(0)

TABLE 32.—MT. MORRIS FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Alfalfa	Series 600 Barley	Series 700 Corn	Series 800 Mixed hay
1	0	(0)	32.3	57.6	(2.64)
2	M	(0)	36.7	72.2	(3.19)
3	ML	(1.86)	47.1	79.4	(3.90)
4	MLrP	(2.38)	47.1	77.6	(3.89)

TABLE 33.—NEWTON FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Corn	Series 200 Mixed hay	Series 300 Spring wheat	Series 400 Oats
1	0	13.2	(.43)	.5	15.3
2	M	25.2	(.50)	.8	28.8
3	ML	49.0	(1.13)	14.3	40.0
4	MLrP	53.8	(1.95)	14.7	33.4
5	0	19.2	(.45)	.3	9.7
6	R	17.4	(.47)	.5	14.1
7	RL	29.6	(1.29)	7.2	37.8
8	RLrP	34.6	(1.46)	6.7	37.8
9	RLrPK	48.4	(2.06)	17.7	36.3
10	0	13.0	(.50)	.2	14.4

TABLE 31.—NEWTON FIELD: LIME EXPERIMENT

Serial plot No.	Soil treatment	Limestone fineness (meshes per inch)	High-calcium Lime				Dolomitic lime				
			Series 500 Corn	Series 700[1]		Series 900	Series 600 Corn	Series 800[1]		Series 1000	
				Timothy	Sweet clover	Spring wheat		Timothy	Sweet clover	Spring wheat	Stubble clover
1	RrPK		20.6	.42	0	7.0	(0)	19.6	.42	0	6.8	(0)
2	RrPKL	1 down	36.8	1.67	.28	10.3	(.11)	37.4	2.08	.20	12.3	(.22)
3	RrPKL	4 to 10	38.0	2.29	.10	9.7	(.21)	49.8	2.08	.20	12.5	(.21)
4	RrPKL	10 down	34.6	1.67	.20	11.5	(.50)	45.4	1.88	.20	13.0	(.23)
5	RrPKL	50 down	28.0	2.08	.20	12.2	(.29)	47.0	1.88	.20	11.5	(.24)
6	RrPKL	Burnt	28.0	1.67	.20	13.2	(.23)	31.8	2.08	.20	11.7	(.24)
7	RrPK		14.2	.63	0	6.2	(0)	16.6	.83	0	7.5	(0)
8	RrPKL	1 down	35.8	3.54	.28	15.0	(.74)	37.6	3.75	.50	15.7	(.67)
9	RrPKL	4 to 10	42.4	2.92	.28	14.2	(.69)	39.2	3.75	.50	15.0	(.67)
10	RrPKL	10 down	45.6	3.33	.50	15.0	(.67)	39.0	3.54	.50	16.8	(.63)
11	RrPKL	50 down	39.0	2.92	.40	14.7	(.64)	34.8	2.92	.50	16.2	(.63)
12	RrPKL	Burnt	36.8	2.50	.68	14.3	(.44)	35.0	2.92	.50	14.5	(.60)
13	RrPK		11.4	.21	0	9.2	(0)	17.8	1.01	0	10.8	(0)
14	RrPKL	4 down	49.2	2.29	1.38	14.2	(1.22)	43.4	3.54	.78	15.0	(.68)
15	RrPKL	4 to 10	49.0	2.50	1.18	14.3	(1.12)	51.2	3.75	.68	17.0	(.90)
16	RrPKL	10 down	50.8	2.50	1.08	17.2	(1.26)	50.8	3.54	1.38	19.0	(1.11)
17	RrPKL	50 down	48.4	2.71	.98	18.3	(.98)	51.4	3.75	1.38	20.0	(.99)
18	RrPKL	Burnt	39.8	2.50	1.57	20.2	(1.26)	46.2	4.17	1.77	18.8	(1.29)
19	RrPK		7.6	.42	0	9.2	(0)	12.2	.83	0	9.8	(0)

Note.—Lime materials have been applied in amounts equivalent to pure calcium carbonate as follows: to Plots 2 to 6, 500 pounds an acre a year; to Plots 8 to 12, 1,000 pounds; to Plots 14 to 18, 2,000 pounds. The total amounts applied since 1913 are 3,000 pounds, 6,000 pounds and 12,000 pounds respectively. No more will be applied until there appears to be need for it.

[1]A mixture of timothy and sweet clover on Series 700 and 800 was threshed and the seed separated after threshing.

TABLE 35.—NEWTON FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 1100-N Redtop		Series 1100-S	Series 1200
		Seed	Hay	Oats[1]	Soybeans
1	LeLrP	4.36	(1.34)	36.6	(2.02)
2	LeL	3.66	(1.00)	36.9	(1.68)
3	LeLrP	3.67	(1.12)	37.2	(1.80)
4	LeL	3.68	(.98)	36.9	(1.90)
5	LeLrP	4.34	(.96)	33.4	(2.18)

Note.—Prior to 1923 these series were used in plant-breeding projects and all plots had received uniform soil treatment. From 1923 to 1926 wheat, soybeans, and timothy were grown. In 1927 the rotation was changed to wheat (sweet clover), soybeans, and redtop, the redtop to occupy a given series for three years while wheat and soybeans are grown alternately on the other two series. The plan of fertilization is as follows: Limestone in sufficient amounts to grow sweet clover. Rock phosphate: Plot 1 received an application sufficient to bring the phosphorus content of the surface soil up to 2,000 pounds per acre by analysis. Plot 3 will receive phosphate at the annual acre rate of 200 pounds (400 pounds applied for wheat and 600 pounds for redtop). Plot 5 to receive phosphate at the annual acre rate of 400 pounds (800 pounds for wheat and 1,200 pounds for redtop).

[1]Oats were grown on Series 1100-S as a substitute for wheat.

(See opposite page for Table 36)

TABLE 37.—ODIN FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100	Series 200	Series 300	Series 400
		Oats[1]	Sweet clover	Corn	Soybeans
1	0	7.8	0	2.0	15.2
2	R	13.4	0	4.3	16.6
3	RL	21.4	.01	9.8	30.1
4	RLbP	17.5	.09	8.3	18.4
5	RLbPK	19.4	0	14.9	25.5
6	0	6.9	0	1.5	9.6
7	R	16.9	.33	7.3	13.3
8	RL	34.4	2.17	16.9	18.0
9	RLbP	42.0	.62	14.4	17.7
10	RLbPK	35.8	1.55	25.5	30.2

[1]Oats were grown on Series 100 as a substitute for wheat.

TABLE 38.—ODIN FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Light lime		Heavy lime	
		Series 500	Series 600	Series 700	Series 800
		Corn	Oats[1]	Corn	Oats[1]
1	LeLbPK	26.0	16.9	25.0	23.4
2	LeLK	26.6	25.9	24.2	31.3
3	LeLsPK	20.0	12.8	19.2	24.7
4	LeLrPK	24.6	16.6	15.6	19.7
5	LeLK	23.4	28.4	25.2	25.9
6	LeL, slag P, K	27.8	25.3	17.2	17.8

[1]Oats were grown on Series 600 and 800 as a substitute for wheat.

TABLE 36.—OBLONG FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Oats[1]	Series 400 Mixed hay
		SOUTH HALF			
1	0	15.0	12.0	41.3	(.64)
2	M	40.6	26.4	46.6	(1.11)
3	ML	40.0	60.0	55.3	(2.08)
4	MLrP	35.9	63.6	56.9	(2.12)
5	0	19.1	22.8	45.6	(.94)
6	R	24.4	23.6	50.3	(1.17)
7	RL	43.4	36.2	51.3	(1.71)
8	RLrP	43.8	40.6	53.8	(2.23)
9	RLrPK	45.0	66.4	51.6	(2.41)
10	0	20.3	18.2	45.0	(.77)
		NORTH HALF			
1	RLsP	17.5	22.0	50.9	(1.15)
2	MLrP	27.6	42.0	62.8	(1.45)
3	MLbP	37.5	62.8	50.6	(1.91)
4	MLrP	40.9	58.6	67.2	(2.12)
5	RL, underacidulated P.	18.8	21.0	54.1	(1.45)
6	RLrP	20.9	35.8	60.9	(1.29)
7	RLbP	46.6	40.8	54.7	(1.71)
8	RLrP	47.2	38.4	52.2	(2.00)
9	RLrPK	44.7	60.4	46.6	(2.23)
10	RL, potassium P.	21.9	32.6	50.0	(1.35)

NOTE.—In 1925 these series were divided into north and south halves for the purpose of studying the relative values of different phosphorus carriers. The plots on the south halves of all series, as well as Plots 4, 8, and 9 on the north halves, continue under the original soil treatment.

On the north halves the new soil treatment is as follows: An initial application of 4,000 pounds of limestone an acre to Plots 1, 2, 5, 6, and 10; subsequent applications to be governed by the clover requirements. Rock phosphate to Plots 2 and 6; 4,000 pounds an acre ahead of wheat and 600 pounds ahead of corn. Bone meal to Plots 3 and 7; 500 pounds an acre ahead of wheat and 300 pounds ahead of corn. Superphosphate to Plot 1; underacidulated phosphate to Plot 5, and potassium phosphate to Plot 10; all in the same amounts and applied for the same crops as the bone meal. Residues to be turned under on Plots 4, 5, and 10 as on the original residue plots.

[1]Oats were grown on Series 300 as a substitute for wheat.

TABLE 39.—ODIN FIELD: SWEET CLOVER EXPERIMENT

Rotation	Soil treatment[1]	Corn	Soybeans	Oats[1]	Sweet clover
3-year sweet-clover rotation	RLbP	4.1	17.8	32.3	...
4-year sweet-clover rotation	RLbP	50.3	22.8	22.9	.33

[1]Oats were grown as a substitute for wheat.

TABLE 40.—OQUAWKA FIELD

Serial plot No.	Soil treatment	Series 100 Sweet clover	Series 200 Alfalfa[1]	Series 300 Rye	Series 400 Soy-beans	Series 500 Corn	Series 600 Wheat
1	0	0	(1.78)	11.2	11.6	13.0	8.3
2	M	0	(4.14)	13.3	19.7	36.0	10.7
3	ML	1.80	(4.35)	18.8	25.2	68.4	21.8
4	MLrP	1.37	(4.38)	19.5	23.8	63.6	22.3
5	0	0	(3.92)	11.6	13.4	8.8	5.3
6	R	0	(4.00)	13.4	14.2	21.8	1.8
7	RL	.73	(4.20)	13.8	18.6	71.2	13.2
8	RLrP	1.25	(4.39)	14.5	20.7	71.4	13.5
9	RLrPK	1.18	(4.42)	14.5	27.1	61.8	15.8
10	0	0	(3.15)	8.8	15.4	28.0	1.3

[1]After the first crop of alfalfa had been removed, rock phosphate was applied as a top dressing for the alfalfa, 500 pounds per acre to Plots 4, 8, 9 and 1,000 pounds per acre to Plot 10.

TABLE 41.—PALESTINE FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Sweet clover	Series 200 Oats	Series 300 Corn	Series 400 Spring wheat	Series 500 Alfalfa
1	LeL	.87	19.4	26.0	8.5	(3.67)
2	LeLM	.48	21.3	34.0	13.3	(4.06)
3	LeLMsP	.38	23.1	25.8	15.0	(4.08)
4	LeLMrP	.48	25.6	26.6	16.7	(3.83)
5	LeL	.58	23.1	26.4	13.0	(4.27)
6	LeL, KCl	.70	18.1	26.8	13.7	(4.20)
7	LeLsP, KCl	1.17	19.2	25.8	13.0	(3.83)
8	LeLrP, KCl	.97	23.4	27.2	16.3	(4.21)
9	LeLrP, kainit	1.17	22.5	26.4	18.3	(4.67)
10	0	.10	11.6	19.0	6.3	(3.14)

Note.—In 1928 the rotation was changed to wheat (standard mixture catch crop), corn (hairy vetch seeded at last cultivation), oats, red clover-alfalfa mixture, and alfalfa. KCl is applied at the rate of 250 pounds per acre for the corn crop; kainit, at the rate of 500 pounds per acre for wheat and 500 pounds for corn; superphosphate, at the rate of 300 pounds per acre for wheat, 300 pounds for oats, and 150 pounds for corn; rock phosphate, at the rate of 600 pounds per acre for wheat, 600 pounds for oats, and 300 pounds for corn. Limestone has been applied in sufficient amounts to grow clovers and subsequent applications will be governed by the requirement of the legume crops. Plots 2, 3, 4 will receive manure in amounts equivalent to the crops removed from Plot 2 of all series, applied for corn.

TABLE 42.—PALESTINE FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 600 Alfalfa	Series 700 Corn	Series 800 Spring wheat
1	LeLsP	(2.96)	15.9	2.1
2	LeLrP	(3.86)	17.8	1.6
3	LeL	(3.18)	19.1	2.1
4	LeL, flowers of sulfur	(1.46)	20.9	1.6
5	LeLrP, flowers of sulfur	(2.16)	21.6	3.4
6	LeL	(2.51)	17.4	4.3
7	LeL, gypsum	(2.46)	21.8	5.3
8	LeLrP, gypsum	(2.53)	21.9	2.9

Note.—These series were laid out in the fall of 1925. A rotation of wheat (sweet clover), corn, and alfalfa is grown, wheat and corn alternating on two series for three years, while alfalfa occupies the third series for the same period. The following plan of soil treatment was adopted: An initial application of 6,000 pounds of limestone an acre, future applications to be governed by the crop needs. Rock phosphate, 600 pounds an acre for wheat, 300 pounds for corn, and 600 pounds for the second crop of alfalfa. Superphosphate, 300 pounds an acre for wheat, 150 pounds for corn, and 300 pounds for the second crop of alfalfa. Flowers of sulfur, 50 pounds an acre for wheat and 50 pounds for the second crop of alfalfa. Gypsum, 300 pounds an acre for wheat and 300 pounds for the second crop of alfalfa.

TABLE 43.—PALESTINE FIELD: SERIES 900

Plot No.	Soil treatment	Corn	Plot No.	Soil treatment	Corn
1	Le	8.1	5	LerP (400)	6.7
2	LesP (100)	9.3	6	LeL	10.3
3	LerP (200)	6.4	7	LeLsP (100)	10.6
4	LesP (200)	5.3	8	LeLsP (200)	9.1

Note.—This experiment was planned to study the effects of vetch green manure on the following corn crop. Temporarily a single crop system is planned. Corn with a catch crop of hairy vetch will be grown. The vetch will be seeded in the corn late in August and the growth plowed under the following spring.

An initial application of 6,000 pounds of limestone per acre was made on Plots 6, 7, 8. Superphosphate is applied to Plots 2 and 7 at the rate of 100 pounds, and to Plots 4 and 8 at the rate of 200 pounds per acre per year. Rock phosphate is applied to Plots 3 and 5 at the annual acre rates of 200 and 400 pounds respectively.

TABLE 44.—RALEIGH FIELD

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Oats[1]	Series 400 Timothy-hubam
		WEST HALF			
1	0	24.1	.6	8.1	(0)
2	M	31.9	3.2	22.2	(0)
3	ML	45.9	40.8	44.4	(2.00)
4	MLrP	46.9	38.0	42.2	(2.11)
5	0	31.3	.6	10.3	(0)
6	R	25.9	4.0	11.6	(0)
7	RL	37.5	34.2	28.4	(.24)
8	RLrP	41.3	40.6	33.1	(.38)
9	RLrPK	42.2	40.2	39.1	(1.40)
10	0	21.3	3.6	18.8	(0)
		EAST HALF			
1	RL	21.6	3.4	23.4	(.80)
2	MrP	33.4	.1	34.4	(0)
3	MLbP	48.8	35.2	56.3	(1.98)
4	MLrP	49.7	40.0	53.8	(2.63)
5	RsP	13.8	0	21.9	(0)
6	RrP	16.6	0	31.3	(0)
7	RLsP	33.8	41.2	40.0	(.39)
8	RLrP	42.5	44.6	43.8	(.39)
9	RLrPK, gypsum	39.1	49.8	38.1	(2.63)
10	RLrP	21.6	29.2	41.9	(1.62)

Note.—In 1924 the plots on these series were divided into west and east halves and additional investigations were begun. The plots on the west halves of all series continue under the original soil treatment, but the plots on the east halves receive the treatment indicated above.

No more rock phosphate will be applied to the phosphate plots on the west halves for an indefinite period, these plots having received a total of 8,500 pounds an acre. The same holds true for the east half of Plot 9 of all series.

On the east halves the phosphatic fertilizers and gypsum are applied twice in the rotation, one-half the rotation quota ahead of wheat and one-half ahead of corn at the following annual acre rates: rock phosphate 500 pounds, superphosphate 200 pounds, bone meal 200 pounds, gypsum 200 pounds.

The minimum amount of limestone necessary to the successful growth of clovers will be applied to Plots 1-E and 10-E of all series, 4,000 pounds an acre having been applied in 1924 and 2,000 pounds in 1927.

[1]Oats were grown on Series 300 as a substitute for wheat.

TABLE 45. SIDELL FIELD

Serial plot No.	Soil treatment	Series 100 Corn[1]	Series 200 Alfalfa[2]	Series 300 Corn[1]	Series 400 Clover	Series 500 Oats
1	0	47.8	(.62)	23.9	(2.34)	62.2
2	M	39.1	(.73)	29.0	(2.43)	72.0
3	ML	46.0	(.88)	31.5	(2.07)	64.8
4	MLrP	55.1	(1.01)	30.3	(2.24)	71.6
5	0	23.7	(.70)	12.1	(1.76)	55.6
6	R	28.3	(.56)	12.7	(1.85)	60.5
7	RL	36.3	(.88)	23.1	(1.80)	57.2
8	RLrP	37.9	(1.11)	26.0	(2.21)	58.1
9	RLrPK	41.8	(1.13)	31.8	(2.06)	64.1
10	0	29.4	(.82)	14.8	(1.63)	56.3

[1]Series 100 and 300 were planted to different varieties of corn about the middle of June in a study of Corn-borer control. Yields given are the averages of five varieties. [2]Only one crop of alfalfa removed.

TABLE 46.—SPARTA FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Corn	Series 200 Sweet clover	Series 300 Oats[1]	Series 400 Soybeans
1	0	11.0	0	24.4	(.43)
2	M	14.6	0	21.9	(.60)
3	ML	36.8	3.25	39.1	(.97)
4	MLrP	31.2	1.92	40.0	(1.18)
5	0	11.6	0	8.1	(.50)
6	R	12.2	0	16.9	(.50)
7	RL	35.0	2.12	34.4	(.88)
8	RLrP	33.4	1.62	32.5	(.91)
9	RLrPK	38.0	4.03	34.7	(1.09)
10	0	18.4	0	15.0	(.17)

[1]Oats were grown on Series 300 as a substitute for wheat.

TABLE 47. SPARTA FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Corn	Series 600 Cowpeas	Series 700 Soybeans[1]	Series 800 Oats[2]
1	0	13.2	(1.36)	(1.37)	13.8
2	M	26.0	(1.60)	(1.80)	30.0
3	ML	67.0	(1.72)	(1.89)	48.8
4	MLrP	63.6	(1.58)	(1.99)	62.5
5	MLrPK	65.8	(1.38)	(1.74)	62.5
6	0	10.6	(.80)	(.72)	35.6

[1]Soybeans were grown on Series 700 as a substitute for timothy. [2]Oats were grown on Series 800 as a substitute for wheat.

TABLE 48.—SPARTA FIELD: MINOR SERIES

Soil treatment	Plot A Wheat	Plot B Corn	Plot C Alfalfa	Plot D Alfalfa	Plot E Soybeans		Plot F	
					Virginia	Laredo	Cowpeas	Soybeans
MLrPK	10.7	25.2	(1.81)	(1.14)	....	....	....	....
MrPK	0	2.8	(.98)	(.32)	....	....	....	....
LeL	....	....	....	....	(1.14)	(1.37)	(1.26)	(1.50)

TABLE 49.—SPRING VALLEY FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Wheat	Series 400 Soybeans[1]
1	0	19.4	43.6	39.2	(1.83)
2	M	30.0	58.8	45.2	(2.47)
3	ML	48.8	64.2	45.8	(2.55)
4	MLrP	48.1	69.8	49.0	(2.56)
5	0	28.8	32.4	42.7	(2.27)
6	R	44.1	50.2	44.7	(2.28)
7	RL	51.3	57.8	46.5	(2.26)
8	RLrP	43.8	55.0	44.8	(2.14)
9	RLrPK	57.8	60.8	48.5	(2.19)
10	0	43.8	35.0	38.2	(2.28)

[1]Soybeans were grown on Series 400 as a substitute for wheat.

TABLE 50.—SPRING VALLEY FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Oats	Series 600 Soybeans[1]	Series 700 First-year corn	Series 800 Second-year corn
1	0	47.5	(2.88)	47.6	69.0
2	RM	61.3	(2.82)	62.6	78.4
3	RML	60.0	(2.82)	65.4	74.6
4	RMLrP	50.0	(2.73)	70.4	73.4

[1]Soybeans were grown on Series 600 as a substitute for alfalfa.

TABLE 51.—TOLEDO FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Oats	Series 200 Corn	Series 300 Spring wheat	Series 400 Mixed hay
		SOUTH HALF			
1	0	20.0	30.4	3.2	(.43)
2	LeM	24.7	40.0	4.8	(.54)
3	LeML	41.3	61.0	8.5	(2.02)
4	LeMLrP	38.4	60.0	9.5	(1.98)
5	0	17.5	21.0	2.7	(.52)
6	R	28.1	26.0	2.3	(.67)
7	RL	44.7	30.6	7.8	(1.74)
8	RLrP	41.3	31.6	9.0	(1.87)
9	RLrPK	33.8	47.0	17.3	(2.33)
10	0	19.7	20.2	1.3	(.43)
		NORTH HALF			
1	RL	20.3	37.4	5.2	(.88)
2	LeMrP	19.1	43.6	9.7	(.81)
3	LeMLbP	30.0	57.0	9.5	(2.02)
4	LeMLrP	34.1	54.8	11.0	(2.15)
5	RsP	7.2	16.2	2.7	(.50)
6	RrP	11.9	24.0	5.2	(.65)
7	RLsP	38.8	37.8	8.0	(1.61)
8	RLrP	36.9	33.8	7.5	(1.84)
9	RLrPK, gypsum	37.2	58.4	20.2	(2.33)
10	RLrP	19.1	32.6	7.8	(2.36)

Note.—In 1924 the plots on these series were divided into north and south halves and additional studies were begun. The plots on the south halves of the series continue under the original soil treatment but the plots on the north halves receive the soil treatment designated above. No more rock phosphate will be applied to the phosphate plots on the south halves for an indefinite period, these plots having received a total of 8,000 pounds. The same holds true of the north half of Plot 9 of all series. Both halves of Plots 2, 3, and 4 will receive the sweet-clover catch crop in the same manner as the residue plots.

On the north halves the phosphatic fertilizers and gypsum are applied twice in the rotation, one-half of the rotation quota ahead of corn and one-half ahead of wheat at the following annual acre rates: rock phosphate 500 pounds, superphosphate 200 pounds, bone meal 200 pounds, gypsum 200 pounds.

The minimum amount of limestone necessary to the successful growth of clovers will be applied to Plots 1-N and 10-N, 4,000 pounds having been applied in 1924.

TABLE 52.—UNIONVILLE FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Cotton[1]	Series 200 Corn	Series 300 Wheat	Series 400 Soybeans
		WEST HALF			
1	0	....	0	1.3	(1.36)
2	M	....	1.0	1.3	(2.03)
3	ML	....	6.4	4.3	(2.34)
4	MLrP	....	5.4	5.5	(2.34)
5	0	....	0	1.0	(1.61)
6	R	....	0	.5	(1.42)
7	RL	....	20.0	5.7	(1.47)
8	RLrP	....	24.0	10.3	(1.42)
9	RLrPK	....	30.2	10.0	(1.94)
10	0	....	0	1.7	(1.40)
		EAST HALF			
1	L	....	1.6	3.3	(1.21)
2	MLrP	....	4.0	4.3	(1.32)
3	ML, KCl	....	5.6	6.3	(1.61)
4	MLrP, KCl	....	7.0	8.8	(1.67)
5	LsP	....	.6	5.8	(1.11)
6	L, $NaNO_3$	....	.8	6.7	(1.32)
7	RLsP, KCl	....	18.0	10.2	(1.65)
8	RLrP, KCl	....	22.4	10.8	(1.72)
9	RLrP, kainit	....	33.6	10.3	(1.90)
10	LsP, $NaNO_3$	....	7.6	6.5	(1.30)

Note.—In 1925 these series were divided into west and east halves and new investigations were begun. All plots on the west halves and Plot 9 on the east halves of all series will continue under the original soil treatment; but the plots on the east halves, with the exception of Plot 9, receive the treatment indicated above. No more rock phosphate will be applied to any of the original phosphate plots for an indefinite period, these plots having received a total of 8,000 pounds an acre.

The soil treatment on the east halves is as follows: Limestone to Plots 1, 2, 5, 6, 10 at the rate of 4,000 pounds an acre; subsequent applications to be governed by the requirement of the legume crops. Rock phosphate to Plot 2; 400 pounds an acre for wheat, 500 pounds for cotton, and 300 pounds for corn. Superphosphate, 200 pounds for wheat, 250 pounds for cotton, and 150 pounds for corn. KCl, 150 pounds for cotton and 150 pounds for corn. $NaNO_3$, 200 pounds for cotton. No more residues to Plot 6.

[1]Crop failure.

TABLE 53.—UNIONVILLE FIELD: MINOR SERIES

Serial plot No.	Soil treatment	Series 500 Wheat	Series 700 Cowpeas	Series 800 Timothy
1	0	1.8	(.50)	(.33)
2	MLrP	10.6	(1.17)	(2.23)
3	RLrP	13.4	(1.07)	(1.67)
4	RLrP, kainit	16.4	(1.15)	(1.37)
5	RLrP, shale	12.2	(.97)	(1.74)
6	RLrP, common salt	15.0	(1.00)	(1.55)
7	RLrP, Omaha K	12.8	(.99)	(1.62)
8	0	3.4	(.57)	(.76)

Note.—Due to severe washing and non-uniformity of soil, Series 600 has been dropped from this experiment. A three-crop system will be practiced on Series 500, 700, and 800. Wheat (sweet-clover catch crop) and cowpeas will alternate on two series for three years while a mixture of red clover and timothy will occupy the third series.

TABLE 54.—URBANA, DAVENPORT PLOTS

Serial plot No.	Soil treatment	Series 100 Barley[1]	Series 200 Oats	Series 300 Soybeans[2]	Series 400 Alfalfa	Series 500 Corn
	WEST HALF					
1	0	47.1	63.1	23.1	(.83)	49.6
2	R	50.0	64.2	23.3	(.54)	50.8
3	M	48.7	76.9	26.0	(.49)	63.6
4	RL	48.7	58.1	27.2	(1.16)	60.0
5	ML	48.3	75.0	29.4	(1.40)	74.4
6	RLrP	50.0	73.8	31.6	(1.79)	73.6
7	MLrP	52.1	84.4	36.6	(3.44)	77.6
8	RLrPK	48.7	76.2	38.0	(3.69)	81.2
9	MLrPK	50.0	76.2	39.5	(3.50)	75.2
10	M[2]LrP[2]	55.0	76.2	36.7	(2.75)	78.8
	EAST HALF					
1	0	39.2	60.6	22.4	(1.11)	53.6
2	R	42.5	68.1	22.2	(.84)	47.2
3	M	47.9	80.0	26.0	(.63)	61.2
4	RL	47.1	65.0	27.3	(1.28)	57.6
5	ML	49.2	80.0	28.4	(1.26)	70.4
6	RLbP	49.2	75.0	32.7	(2.49)	74.0
7	MLbP	54.2	82.5	37.8	(3.23)	72.8
8	RLbPK	51.7	75.0	40.0	(3.76)	74.8
9	MLbPK	50.8	76.2	38.2	(3.68)	67.2
10	M[2]LbP[2]	52.1	70.6	36.6	(2.86)	72.4

[1]Barley was grown on Series 100 as a substitute for wheat. [2]Soybeans were grown on Series 300 as a substitute for clover.

TABLE 55.—URBANA, MORROW PLOTS

Section of plot	Soil treatment	Plot 3 (Continuous corn) Corn	Plot 4 (Corn and oats rotation) Oats	Plot 5 (Corn, oats, and clover rotation) Corn
NW	0	15.6	34.4	40.8
SW	MLrP	32.8	73.1	74.4
NE	0	22.0	34.4	47.6
SE	MLbP	32.0	70.6	70.4

TABLE 56.—WEST SALEM FIELD: MAIN SERIES

Serial plot No.	Soil treatment	Series 100 Mixed hay	Series 200 Oats	Series 200 Stubble hay	Series 300 Soybeans	Series[2] 400 Corn	Series[2] 500 Spring wheat
1	0	(0)	7.8	(0)	(.40)	5.0	.2
2	ML[1]	(.51)	28.0	(.29)	(1.18)	15.5	7.9
3	ML	(1.24)	35.2	(.47)	(1.58)	28.5	8.2
4	MLrP	(2.01)	32.5	(.58)	(1.70)	32.4	11.6
5	L[1]	(.35)	5.6	(.01)	(.72)	13.0	4.6
6	RL[1]	(.41)	8.9	(.07)	(.85)	23.8	6.2
7	RL	(1.04)	28.3	(.20)	(1.18)	32.1	7.8
8	RLrP	(1.60)	39.5	(.46)	(1.55)	30.3	12.5
9	RLrPK	(1.98)	42.0	(.64)	(1.80)	35.0	16.7
10	0	(0)	6.9	(0)	(.40)	....	....

[1]Initial application of limestone only. [2]Series 400 and 500 contain only 9 plots each.

TABLE 57.—WEST SALEM FIELD: MINOR SERIES

Soil treatment	Plot A Mixed hay	Plot B Sweet clover	Plot C Spring wheat	Plot D Mixed hay	Plot E Corn	Plot F Spring Wheat
MLrPK	(2.84)	.39	18.2	(2.29)	36.2	10.2
MrPK	(0)	0	5.3	(.12)	16.0	3.4