

June, 1922

Circular No. 260

UNIVERSITY OF ILLINOIS
AGRICULTURAL COLLEGE AND EXPERIMENT STATION

URBANA, ILLINOIS

RECENT CROP YIELDS FROM
SOIL EXPERIMENT FIELDS IN ILLINOIS

BY H. J. SNIDER, ASSISTANT CHIEF, IN CHARGE
OF SOIL EXPERIMENT FIELDS

In this circular are presented the recent results obtained from a number of soil experiment fields located in different parts of the state. The fields here considered are twenty-two in number, including only those in which the experiments are so arranged as to afford ready comparison.

In the following tables these fields are grouped according to their geographical location within the state, and also with reference to the various soil types which they represent. The figures show for each field the average yields obtained for the crop rotation ending with the season of 1921, which represents from three to five years' results according to the duration of the rotation. These crop yields are presented as a matter of information without discussion or comment. For complete records of these fields up to 1917, see Illinois Agricultural Experiment Station Bulletin 219.

EXPLANATION OF DATA AND SYMBOLS

Crop Rotation

Twelve of the fields mentioned have the rotation of wheat, corn, oats, and clover. The other ten fields have variations of this rotation.

Soil Treatment

0 = Land untreated except for crop rotation.

M = Manures, consisting of excreta from animals mixed with stable litter, added to the respective plots in amounts proportionate to previous crop yields.

- R = Residues, the treatment including the return to the land of wheat and oat straw, corn stalks, chaff of sweet clover when grown for seed, and soybean chaff when beans are a regular crop in the rotation. In addition, a green manure crop of biennial sweet clover is seeded in small grain, usually wheat, and the spring growth is plowed under for corn. On plots without limestone, this sweet clover survives on only a few of the fields.
- L = Limestone, applied in amounts sufficient to grow clovers and alfalfa.
- () Parenthesis marks inclosing figures in the tables indicate tons of hay, as distinguished from bushels of seed.
- P = Phosphorus, in the form of rock phosphate on all fields except Odin, where bone meal is used. The rock phosphate is applied at the rate of 1 ton every four years until a total of 4 to 6 tons has been applied, after which it is added in amounts sufficient to replace the phosphorus removed by crops.
- K = Potassium (kalium), applied in the form of kainit, or its equivalent in other potassium salts. The kainit is applied at the rate of 200 pounds per acre per year, but is applied only once in the rotation.

NORTHERN ILLINOIS
Fields Representing Brown Silt Loam, Prairie

TABLE 1.—WHEAT YIELDS
Bushels per acre

Soil treatment	Aledo (4-yr. av.)	Dixon (4-yr. av.)	Joliet (5-yr. av.)	Kewanee (4-yr. av.)	La-Moille (4-yr. av.)	Mt. Morris (4-yr. av.)	General average
O.	36.0	21.7	21.5	29.3	32.9	25.1	27.8
M.	39.2	26.7	26.2	31.2	38.2	30.2	32.0
ML.	37.8	30.8	30.8	30.0	38.9	33.6	33.7
MLP.	40.1	34.2	38.0	33.9	38.5	35.2	36.7
R.	34.6	24.3	20.2	33.2	38.4	25.6	29.4
RL.	35.4	26.2	25.7	32.2	40.1	32.1	32.0
RLP.	41.4	30.6	35.4	37.0	40.5	35.3	36.7
RLPK.	39.0	31.1	37.8	36.9	39.3	35.2	36.6

TABLE 2.—CORN YIELDS
Bushels per acre

Soil treatment	Aledo (4-yr. av.)	Dixon (4-yr. av.)	Joliet (5-yr. av.)	Kewanee (4-yr. av.)	La-Moille (4-yr. av.)	Mt. Morris (4-yr. av.)	General average
O.	66.5	42.3	32.0	59.0	52.5	46.9	48.2
M.	79.1	58.5	39.5	68.2	64.4	60.3	61.7
ML.	77.9	64.4	42.0	72.9	64.9	65.2	64.6
MLP.	79.2	68.0	43.5	72.2	65.7	65.3	65.7
R.	72.5	52.7	34.4	62.3	57.9	54.5	55.7
RL.	82.7	64.0	38.9	72.1	60.5	66.4	64.1
RLP.	80.6	64.7	43.0	72.4	63.2	71.5	65.9
RLPK.	80.6	68.3	46.5	76.5	60.8	70.2	67.2

TABLE 3.—OAT YIELDS
Bushels per acre

Soil treatment	Aledo (4-yr. av.)	Dixon (4-yr. av.)	Joliet (5-yr. av.)	Kewanee (4-yr. av.)	La-Moille (4-yr. av.)	Mt. Morris (4-yr. av.)	General average
O.	60.7	50.0	61.1	50.7	54.3	56.9	55.6
M.	65.4	60.8	67.1	57.0	64.4	66.6	63.6
ML.	62.7	62.1	67.8	60.7	60.8	65.0	63.2
MLP.	64.7	66.6	74.2	59.8	61.7	67.4	65.7
R.	62.4	56.9	62.4	53.3	59.5	59.4	59.0
RL.	63.9	59.8	63.3	53.2	62.3	70.5	62.2
RLP.	64.3	60.7	70.6	56.8	64.9	70.0	64.6
RLPK.	65.4	62.1	69.9	58.4	63.5	67.0	64.4

Field Representing Dune Sand, Terrace

TABLE 4.—CROP YIELDS, OQUAWKA EXPERIMENT FIELD
Bushels or (tons) per acre

Soil treatment	Corn (5-yr. av.)	Soybeans (5-yr. av.)	Wheat (5-yr. av.)	Sweet clover (5-yr. av.)	Rye (5-yr. av.)	Alfalfa hay 4-yr. av.
0.....	17.3	(1.00)	5.6	.17	11.8	(.08)
M.....	22.2	(1.21)	7.1	.22	13.4	(.10)
ML.....	31.1	(1.53)	10.0	1.46	19.5	(1.31)
MLP.....	29.4	(1.43)	10.1	1.44	18.8	(1.45)
R.....	19.4	5.9	6.6	(.20)	13.4	(.09)
RL.....	42.0	9.1	9.9	(1.92)	22.9	(1.45)
RLP.....	41.9	9.2	9.4	(1.79)	23.2	(1.32)
RLPK.....	47.7	8.8	9.4	(2.15)	22.6	(1.42)

Field Representing Brown Silt Loam over Gravel, Terrace

TABLE 5.—CROP YIELDS, UNION GROVE EXPERIMENT FIELD
Bushels or (tons) per acre

Soil treatment	Corn (4-yr. av.)	Barley (2-yr. av.)	Clover hay (2-yr. av.)
0.....	32.5	25.9	(1.63)
L.....	35.8	28.9	(2.94)
LP.....	39.0	35.4	(3.27)
ML.....	71.1	41.9	(3.79)
MLP.....	69.4	41.7	(3.49)
MLPK.....	72.6	42.3	(3.78)
RL.....	63.4	38.9	(2.69)
RLP.....	61.9	43.9	(2.76)
RLPK.....	71.9	42.5	(3.03)
R.....	49.7	39.6	(1.98)
RP.....	52.3	36.1	(2.23)
RPK.....	62.0	40.5	(2.91)
RLNPK...	68.4	45.2	(3.09)

CENTRAL ILLINOIS

Fields Representing Brown Silt Loam, Prairie

Urbana Field Representing Heavy Phase; Carthage and Clayton Fields
Representing Light Phases

TABLE 6.—WHEAT YIELDS
Bushels per acre

Soil treatment	Urbana (4-yr. av.)	Carthage (4-yr. av.)	Clayton (4-yr. av.)	General average
O.....	30.9	26.2	22.3	26.5
M.....	34.7	31.4	27.3	31.1
ML.....	37.3	35.6	30.3	34.4
MLP.....	39.7	36.9	32.6	36.4
R.....	30.8	24.8	22.3	26.0
RL.....	35.3	32.7	28.4	32.1
RLP.....	41.0	34.2	31.0	35.4
RLPK.....	36.1	37.0	30.4	34.8

TABLE 7.—CORN YIELDS
Bushels per acre

Soil treatment	Urbana (4-yr. av.)	Carthage (4-yr. av.)	Clayton (4-yr. av.)	General average
O.....	61.2	36.4	37.0	44.7
M.....	69.9	40.2	54.7	54.9
ML.....	79.0	51.8	62.0	64.3
MLP.....	79.5	56.5	59.1	65.0
R.....	59.1	45.1	50.3	51.5
RL.....	72.8	51.2	58.3	60.8
RLP.....	78.0	52.8	59.4	63.4
RLPK.....	78.0	53.2	66.8	66.0

TABLE 8.—OAT YIELDS
Bushels per acre

Soil treatment	Urbana (4-yr. av.)	Carthage (4-yr. av.)	Clayton (4-yr. av.)	General average
O.....	46.8	33.7	36.0	38.8
M.....	58.1	37.2	45.7	47.0
ML.....	60.3	41.2	44.3	48.6
MLP.....	62.5	44.3	45.8	50.9
R.....	47.2	38.3	42.2	42.6
RL.....	53.1	44.9	46.8	48.3
RLP.....	62.1	51.0	54.2	55.8
RLPK.....	68.1	46.3	53.9	56.1

Field Representing Black Clay Loam, Prairie

TABLE 9.—CROP YIELDS, HARTSBURG EXPERIMENT FIELD
Bushels or (tons) per acre

Soil treatment	Wheat	Corn	Oats	Legumes, hay equivalent ¹	Alfalfa hay
	(4-yr. av.)	(4-yr. av.)	(4-yr. av.)	(4-yr. av.)	(4-yr. av.)
0.....	29.1	58.4	42.2	(1.78)	(3.00)
M.....	26.6	65.6	43.3	(2.17)	(3.08)
ML.....	35.0	68.0	48.7	(2.13)	(3.37)
MLP.....	38.1	69.5	50.8	(2.40)	(3.74)
R.....	33.0	68.0	48.7	(2.13)	(3.35)
RL.....	31.0	71.4	48.7	(2.13)	(3.12)
RLP.....	35.7	67.7	52.6	(2.07)	(4.01)
RLPK.....	33.8	65.7	49.8	(2.04)	(4.06)

¹ Includes clover hay and seed, and soybean hay and seed, from the various plots, expressed as the equivalent in value of clover hay.

SOUTHERN ILLINOIS

Fields Representing Gray Silt Loam on Tight Clay, Prairie

TABLE 10.—WHEAT YIELDS
Bushels per acre

Soil treatment	Ewing	Newton	Oblong	Odin	Toledo	General average
	(3-yr. av.)	(3-yr. av.)	(4-yr. av.)	(4-yr. av.)	(3-yr. av.)	
0.....	4.3	1.4	9.7	8.7	5.4	5.9
M.....	4.8	2.1	13.2	....	7.1	6.8
ML.....	20.5	10.1	18.6	....	15.1	16.1
MLP.....	21.0	15.0	23.9	....	18.7	20.4
R.....	2.5	2.0	13.4	10.5	7.5	7.2
RL.....	18.1	7.4	23.0	22.8	16.2	17.5
RLP.....	22.1	14.4	27.1	27.9	17.3	21.8
RLPK.....	24.9	15.9	28.2	28.7	19.4	23.4

TABLE 11.—CORN YIELDS
Bushels per acre

Soil treatment	Ewing	Newton	Oblong	Odin	Toledo	General average
	(4-yr. av.)	(3-yr. av.)	(4-yr. av.)	(4-yr. av.)	(4-yr. av.)	
0.....	8.6	11.6	17.7	9.2	18.0	13.0
M.....	18.0	15.5	23.3	....	29.3	21.5
ML.....	28.4	27.1	37.0	....	40.2	33.2
MLP.....	30.5	29.5	38.5	....	39.8	34.6
R.....	10.0	12.5	21.7	10.4	18.4	14.6
RL.....	23.6	17.4	35.4	13.0	31.2	24.1
RLP.....	23.3	20.3	37.8	13.0	34.4	25.8
RLPK.....	33.7	25.5	37.6	21.0	43.6	32.3

TABLE 12.—OAT YIELDS
Bushels per acre

Soil treatment	Ewing (4-yr. av.)	Oblong (3-yr. av.)	Toledo (4-yr. av.)	General average
O.....	14.5	15.7	18.1	16.1
M.....	18.1	17.4	23.1	19.5
ML.....	30.5	25.2	30.8	32.2
MLP.....	28.4	25.3	34.3	29.3
R.....	13.6	21.0	28.9	17.8
RL.....	30.9	23.5	36.0	30.1
RLP.....	29.7	25.9	39.1	31.6
RLPK.....	34.5	25.3	37.2	32.3

Fields Representing Yellow-Gray Silt Loam, Formerly Timbered

TABLE 13.—WHEAT YIELDS
Bushels per acre

Soil treatment	Enfield (3-yr. av.)	Raleigh (3-yr. av.)	Union- ville (4-yr. av.)	West Salem (5-yr. av.)	General average
O.....	8.0	9.8	7.7	1.8	6.8
M.....	7.8	11.6	9.2	....	9.5
ML.....	16.3	25.1	14.7	9.1	16.3
MLP.....	18.2	27.2	18.9	13.3	19.4
R.....	9.0	12.2	8.8	....	10.0
RL.....	18.5	23.1	17.9	9.7	17.3
RLP.....	21.8	27.0	21.0	14.8	21.2
RLPK.....	22.2	27.9	21.3	18.7	22.5

TABLE 14.—CORN YIELDS
Bushels per acre

Soil treatment	Enfield (4-yr. av.)	Raleigh (4-yr. av.)	Union- ville (4-yr. av.)	West Salem (5-yr. av.)	General average
O.....	18.8	14.5	13.9	12.5	14.9
M.....	24.1	21.3	22.1	....	22.5
ML.....	34.0	33.7	28.5	31.9	32.0
MLP.....	33.9	38.5	30.3	33.6	34.1
R.....	18.2	17.6	16.4	....	17.4
RL.....	30.2	33.8	28.3	24.5	29.2
RLP.....	29.2	38.7	31.4	30.9	32.6
RLPK.....	35.1	46.1	38.6	39.4	39.8

TABLE 15.—OAT YIELDS
Bushels per acre

Soil treatment	Enfield (4-yr. av.)	Raleigh (4-yr. av.)	West Salem (5-yr. av.)	General average
O.....	13.3	11.4	11.7	12.1
M.....	14.8	14.0	....	14.4
ML.....	23.8	22.3	31.2	25.8
MLP.....	25.6	22.4	36.4	28.1
R.....	14.6	14.8	....	14.7
RL.....	29.0	26.1	29.9	28.3
RLP.....	33.6	26.6	35.6	31.9
RLPK.....	35.3	26.5	38.0	33.3

Field Representing Light Gray Silt Loam on Tight Clay,
Formerly Timbered

TABLE 16.—CROP YIELDS, SPARTA EXPERIMENT FIELD
Bushels or (tons) per acre

Soil treatment	Corn (4-yr. av.)	Soybeans (4-yr. av.)	Wheat (4-yr. av.)	Alsike hay (4-yr. av.)
O.....	9.5	5.5	6.5	(.13)
M.....	13.0	8.5	10.2	(.23)
ML.....	17.9	13.0	19.7	(1.30)
MLP.....	18.1	12.8	20.2	(1.50)
R.....	13.1	4.6	7.1	(.00)
RL.....	11.2	8.0	17.9	(1.31)
RLP.....	10.3	8.3	19.2	(1.36)
RLPK.....	14.8	8.5	20.4	(1.59)