Form No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

FOR NPS USE ONLY

RECEIVED

DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
Morrow Plots

AND/OR COMMON
Morrow Plots

2 LOCATION

STREET & NUMBER
northwest corner of Gregory Dr. and Mathews Ave. __NOT FOR PUBLICATION

CITY, TOWN
Urbana __ VICINITY OF

CONGRESSIONAL DISTRICT
021 (twenty-first)

STATE	CODE	COUNTY	CODE
Illinois	17	Champaign	019

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
__DISTRICT	X PUBLIC	X OCCUPIED	X AGRICULTURE	__MUSEUM
__BUILDING(S)	__PRIVATE	__UNOCCUPIED	__COMMERCIAL	__PARK
__STRUCTURE	__BOTH	__WORK IN PROGRESS	__EDUCATIONAL	__PRIVATE RESIDENCE
X SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	__ENTERTAINMENT	__RELIGIOUS
__OBJECT	__IN PROCESS	__YES: RESTRICTED	__GOVERNMENT	__SCIENTIFIC
	__BEING CONSIDERED	__YES: UNRESTRICTED	__INDUSTRIAL	__TRANSPORTATION
		X NO	__MILITARY	__OTHER:

4 OWNER OF PROPERTY

NAME
(University of Illinois) R.W. Howell, Head, Dept. of Agronomy, College of Agriculture

STREET & NUMBER

CITY, TOWN
Urbana __ VICINITY OF

STATE	
Illinois	61801

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC. Champaign County Courthouse

STREET & NUMBER

CITY, TOWN
Urbana

STATE
Illinois

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
Historic Sites Survey

DATE

X FEDERAL __STATE __COUNTY __LOCAL

DEPOSITORY FOR SURVEY RECORDS Historic Sites Survey

CITY, TOWN
Washington

STATE
D.C.

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
_EXCELLENT	_DETERIORATED	_UNALTERED	_ORIGINAL SITE
_GOOD	_RUINS	_ALTERED	_MOVED DATE_____
_FAIR	_UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

There were ten original Morrow Plots, three of which were laid out in 1876 and the rest three years later. They were each ½ acre in size. In 1903 all but three of the plots were discontinued. The following year each of these was reduced to about 1/5 acre and was divided in half, making a total of six 1/10-acre plots. That is how they remain today. The fenced-in area measures 208 x 282 feet.

The plots follow three cropping systems. The two north plots have grown corn continuously since 1876. The two middle plots have been cropped to a corn-oats rotation. Since 1904 catch crops have been seeded in the oats on the southern of these two plots, and plowed down the following spring for corn. Since 1901 the two plots at the south have been cropped to a corn-oats-red clover rotation. Before then, the rotation was corn-corn-oats-meadow-meadow-meadow. Since 1904 one plot of the two in each rotation has received a manure-limestone-phosphorus (MLP) treatment.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION	
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE	
__1500-1599	X AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE	
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN	
__1700-1799	__ART	__ENGINEERING	__MUSIC	__THEATER	
X 1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION	
X 1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)	
		__INVENTION			

SPECIFIC DATES 1876 BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

Begun in 1876 and enlarged in 1879, the Morrow Plots at the University of Illinois were the first field experiment plots established by a college in the United States. They were reduced in number from 10 to three in 1904. Of great importance in proving that prairie soil could be depleted by the continuous cropping of corn, they continue to provide data on the effect of crop rotation and the impact of organic and chemical nutriments on plant yields.

History

Prof. Manly Miles of the University of Illinois laid out the first soil experiment plots in 1876. They were named after George E. Morrow, Miles' strongest supporter at the University. Three in number, they were each one-half acre in size. The purpose of the experiment was to prove that the continuous growing of corn would deplete prairie soil and, conversely, that crop rotation would increase plant yields. Three years later Prof. George E. Morrow increased the number of plots to 10.

During the early years, university officials periodically reported the results of experimentation to the State Horticultural Society of Illinois, which in turn made it available to farmers throughout the State. Information concerning the experiment also appeared in the college catalogue, but it was not until 1888 that the university began keeping accurate records of crop yields and that knowledge of the testing became widely known. By 1904 the value of the investigation had become conclusively apparent. It was evident beyond a doubt that the depletion of prairie soil was indeed possible and that crop rotation was an effective method of preventing soil exhaustion.

In 1903, officials reduced the number of experimental plots to three in order to provide space for college expansion. Of the remaining plots, only one dated from 1876. The following year, the plots were reduced about one-fifth of an acre and divided in half to make siz plots one-tenth of an acre in size. This arrangement has survived to the present day. Also in 1904, college agronomists broadened the scope of investigation by treating the south half of each of the plots with animal fertilizers and other nutriments.

The Morrow Plots show the comparative value of three kinds of cropping systems. The two northern plots have been planted in corn continuously since 1876, the middle plots have been cropped on a corn and oats rotation since 1879, and the two southern plots have been sown alternately with corn, oats, and red clover since 1901. Among other things, experimentation has demonstrated and/or verified that continuous planting of the same crop lowers the productive power of prairie soil, that crop rotation is an effective preventative of soil exhaustion, and that depleted soil can be regenerated by chemical treatment.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

(The University of Illinois Agricultural Experiment Station Bulletin is cited as UIB.)

Cyril G. Hopkins, "The Fertility in Illinois Soils," UIB 123 (1908).
C. G. Hopkins, "Crop Rotation for Illinois Soils," UIB 141 (1910).
Hopkins, "Thirty Years of Crop Rotations on The Common Soils of Illinois," UIB 125 (1908).
L. M. Smith, "An Experiment in Selecting Corn for Yield," UIB 271 (1925).
Ernest DeTurk, "Lessons from the Morrow Plots," UIB 300 (1927).
A. C. True, A History of Agricultural Education in the U.S., 1785-1925 (1929) (cont'd)

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 1.3 acres

UTM REFERENCES

	ZONE	EASTING	NORTHING
A	16	395520	4439860
B			
C			
D			

VERBAL BOUNDARY DESCRIPTION

At present there are six 1/10 acre plots in cultivation at the Morrow Plots. The entire fenced-in area consist of 1.319 acres. This rectangular area, 208 x 282 feet, at the northwest corner of Gregory Drive and Matthews Avenue, comprises the landmark site.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE
Stephen Lissandrello, Historian, Landmarks Survey Project

ORGANIZATION
Historic Sites Survey, National Park Service

DATE
August 8, 1975

STREET & NUMBER
1100 L Street, N.W.

TELEPHONE
(202) 523-5464

CITY OR TOWN
Washington

STATE
D.C.

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

Landmark
Designated: MAY 23, 1968
date
Boundary Certified:
Mary F. Rogers
Nov. 22, 1977 date

FEDERAL REPRESENTATIVE SIGNATURE

TITLE DATE

FOR NPS USE ONLY
I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION DATE 12/7/77

ATTEST:

KEEPER OF THE NATIONAL REGISTER

(NATIONAL HISTORIC LANDMARKS)

(NATIONAL HISTORIC LANDMARKS)

(NATIONAL HISTORIC LANDMARKS)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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DATE ENTERED

Although the University of Illinois was the first to establish field experiment plots in the United States, the knowledge gained there in the early years was not widely disseminated. No accurate records of crop yields were kept until after the establishment of the University of Illinois Agricultural Experiment Station in 1888. By that time many colleges had agricultural experiment stations or were conducting informal experiments of a similar kind. Agronomists at Pennsylvania State College were the first to perform field experiments with fertilizers in 1881. The Jordon Plots, however, were destroyed in 1958. At Sanborn Field, established at the University of Missouri in 1888, similar experiments in crop rotation and soil depletion were performed on a somewhat larger scale. Sanborn Field became a National Historic Landmark in 1965.

Yet the investigations made at the University of Illinois loom large in early agricultural research, especially in the area of prairie soils. Most college texts in agronomy mention the experiments conducted there.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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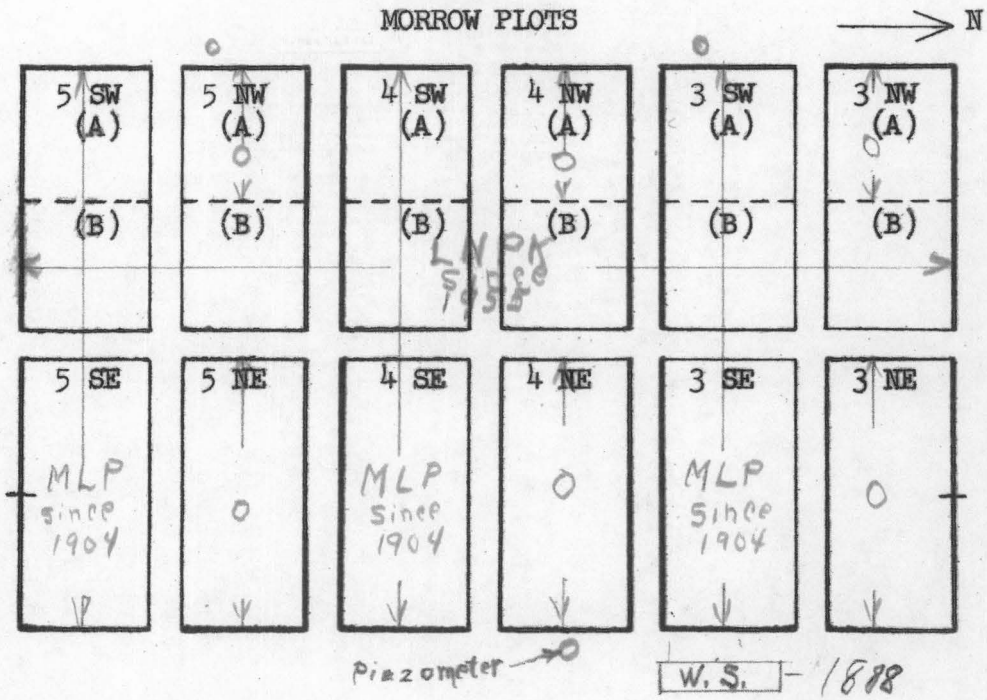
Milton Whitney, Soil and Civilization (1925).
James T. Jardine, "The Rise, Development, and Value of the Agricultural Experiment Station," Oregon Agricultural College, State Agricultural Experiment Station Circular 26 (1922).
Arthur Harris, "Further Studies on the Permanence of Differences in the Plots of an Experimental Field," Journal of Agricultural Research 36 (1928).
The Morrow Plots: UBI 777 (1957).
U.S. Department of Agriculture, Soils and Men (1938)
T. Swam Harding, Two Blades of Grass, A History of Scientific Development in the U.S. (1947).
C. G. Hopkins, Soil Fertility and Agriculture (1910).
Interview of Associate Dean Karl E. Gardner of the College of Agriculture; Dr. Fred H. Turner, Chairman of the University of Illinois Centennial; and Professors Larry B. Miller and M. D. Thorne of the Department of Agronomy of the University of Illinois by John D. McDermott, January 10, 1968, Urbana, Illinois.
McDermott, John D., "The Morrow Plots, Urbana, Illinois," HSS Special Report, March 12, 1968.

1967



Pictures Taken July 1966

Property Morrow Plots

State ILL. Working Number NHL

BOUNDARY DEFINITION
RECEIVED 4.12.76

TECHNICAL

Photos _____
Maps _____

CONTROL

pl
OK 1.27.77

HISTORIAN

ok
B. Grosvenor
2/3/77

ARCHITECTURAL HISTORIAN

more appropriately 6/10 acres rather than 1.3 acres but as fence is at 1.3 acres it provides more easily recognized boundary photo ten years old - why not current one?

LE Bowen
2/10/77

ARCHEOLOGIST

OTHER

HAER

Inventory _____
Review _____

REVIEW UNIT CHIEF

BRANCH CHIEF

KEEPER

12/7/77

National Register Write-up _____ Send-back _____ Entered _____
Federal Register Entry _____ Re-submit _____

INT:2106-74

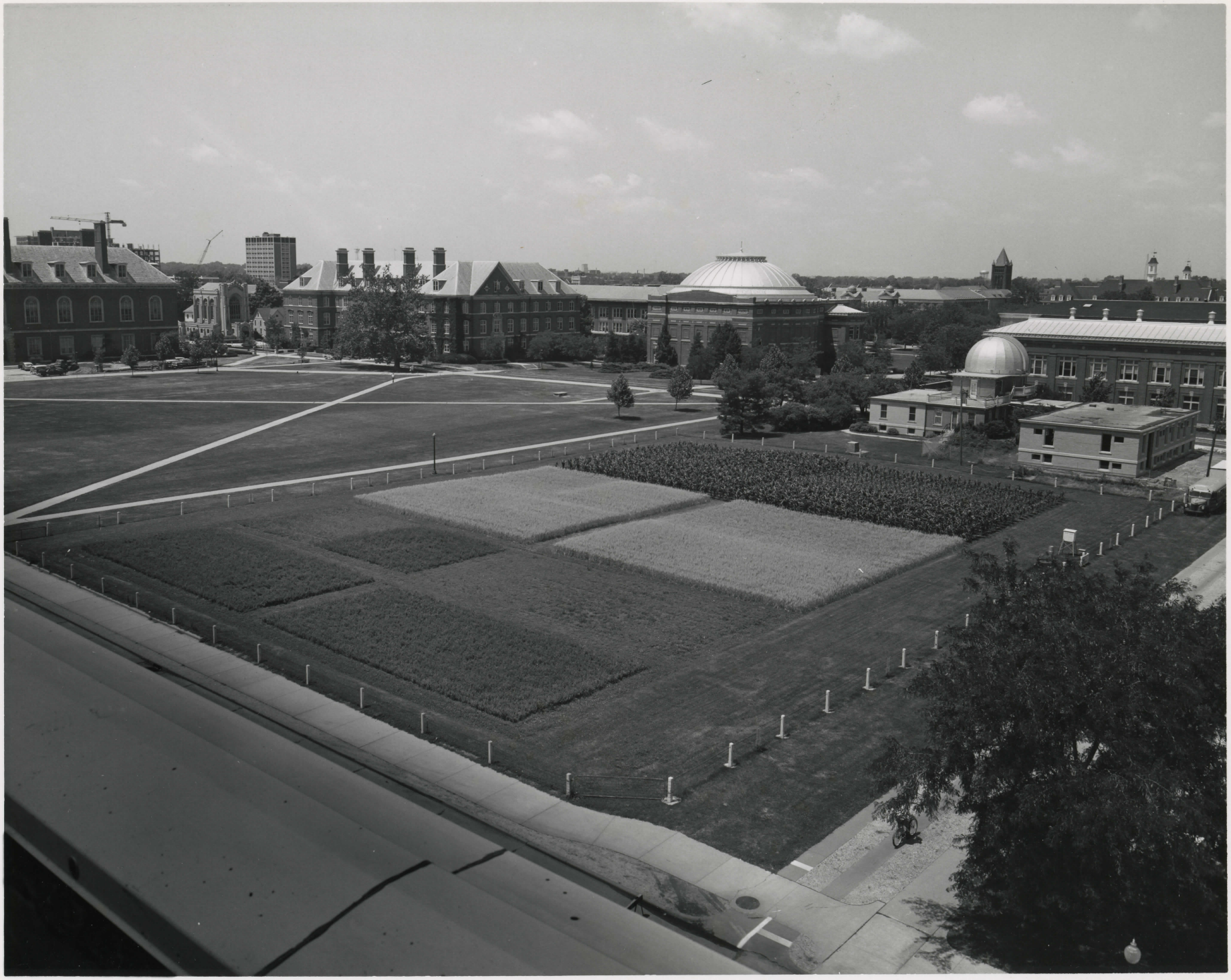


Photo July 1, 1966 - Morrow Plots - Univ. of Illinois

Form No. 10-301a
(Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
PROPERTY PHOTOGRAPH FORM

FOR NPS USE ONLY

RECEIVED

DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES --ENCLOSE WITH PHOTOGRAPH

1 NAME

HISTORIC
Morrow Plots

AND/OR COMMON
Morrow Plots

2 LOCATION

CITY, TOWN
Urbana

___VICINITY OF

COUNTY
Champaign

STATE
Illinois

3 PHOTO REFERENCE

PHOTO CREDIT National Park Service

DATE OF PHOTO 1966

NEGATIVE FILED AT Historic Sites Survey, Washington, D.C.

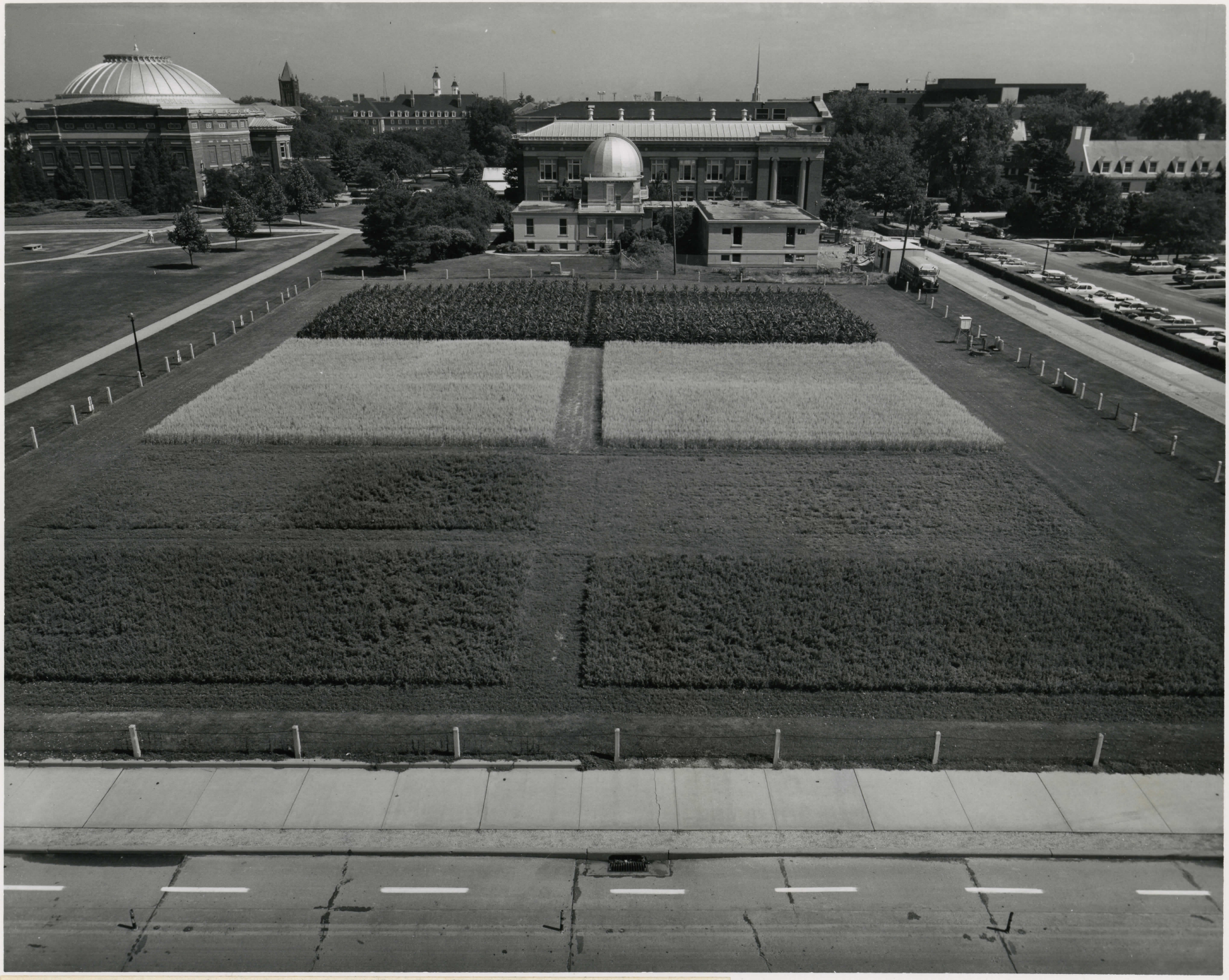
4 IDENTIFICATION

PHOTO NO.

DESCRIBE VIEW, DIRECTION, ETC. IF DISTRICT, GIVE BUILDING NAME & STREET

Facing northwest to Morrow Plots, University of Illinois

INT: 2983-75



Morrow Plots, University of Illinois (1966). Looking North.

Photo July 1, 1966. - Morrow Plots - Univ. of Illinois

Morrow Plots, University of Illinois (1966), looking North (2)

(6)

14morr.eps

Morrow Plots, University of Illinois. Looking West.

Morrow Plots, University of Illinois. Looking West


MORROW PLOTS WEATHER STATION
ILLINOIS STATE WATER SURVEY

Form No. 10-301
(Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES PROPERTY MAP FORM

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SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- ENCLOSE WITH MAP

1 NAME

HISTORIC
Morrow Plots

AND/OR COMMON
Morrow Plots

2 LOCATION

CITY, TOWN
Urbana

___VICINITY OF

COUNTY
Champaign

STATE
Illinois

3 MAP REFERENCE

SOURCE U.S.G.S. 7.5 minute series--Urbana, Ill. quadrangle

SCALE 1:24,000 DATE 1970

4 REQUIREMENTS

TO BE INCLUDED ON ALL MAPS

1. PROPERTY BOUNDARIES
2. NORTH ARROW
3. UTM REFERENCES

INT: 2986-75

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION
GEOLOGICAL SURVEY DIVISION
URBANA, ILLINOIS

URBANA QUADRANGLE
ILLINOIS—CHAMPAIGN CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
SW/4 URBANA 15' QUADRANGLE

MORROW PLOTS
URBANA, ILL.
U.S.G.S. 7.5 minute series
Urbana, Ill. (1970)
UTM REFERENCE: 16/395520/4439860

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Planimetry by photogrammetric methods from aerial photographs taken 1955. Topography by planetable surveys 1949–50 and 1957 Revised from aerial photographs taken 1969. Field checked 1970

Polyconic projection. 1927 North American datum
10,000-foot grid based on Illinois coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

Red tint indicates area in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Primary highway, all weather, hard surface
Secondary highway, all weather, hard surface
Light-duty road, all weather, improved surface
Unimproved road, fair or dry weather
Interstate Route · U. S. Route · State Route

URBANA, ILL.
SW/4 URBANA 15' QUADRANGLE
N4000—W8807.5/7.5

1970

AMS 3364 II SW—SERIES V863

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1972

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE

ORVILLE G. BENTLEY, DEAN

URBANA, ILLINOIS 61801

RR JAN 4 1967

DR Bradford

December 29, 1966

Director George B. Hartzog, Jr.
National Park Service
U. S. Department of the Interior
Washington, D. C.

Dear Mr. Hartzog:

The College of Agriculture, with the concurrence of the University of Illinois administrative officials, requests that the Morrow Plots on the University of Illinois campus be designated as a Registered National Historic Landmark.

From February 28, 1967, through March 11, 1968, the University of Illinois is celebrating the centennial of its founding, and it would be most appropriate if designation of the landmark could be made during the centennial year so that ceremonies could be carried out before termination of the celebration.

The Morrow Plots were laid in 1876 and are considered to be the oldest soil experiment field in America. Originally there were ten plots, each one-half acre in size, but these have been reduced to six plots, one-tenth acre each in size. Two of these plots have grown corn continuously since 1876. The plots are located in a centralized, prominent place on the campus with the University Library, Smith Music Hall, Mumford Hall (the administrative center for the College of Agriculture), the College of Commerce, and the home economics building surrounding it. It is particularly significant to see these plots growing corn and other crops right in the middle of a campus having 29,000 students. It gives evidence to all the faculty, students, and visitors of the importance attached to the soil and its productivity in the State of Illinois. There has never been any agitation to have these plots torn up and "planted" to university buildings, even though space is sorely needed and heavy expenditures are made to purchase land near by for buildings. We are enclosing other information about the plots.

It is our understanding that a survey staff of the National Park Service will review this request on the site and that we shall await information as to the scheduling of such a visit. We will appreciate your assistance in furthering this project.

Sincerely,

Orville G Bentley

OGB*Gmc
enc

THE MORROW PLOTS
A NATIONAL HISTORIC LANDMARK

Early records indicate that the Morrow Plots were established in 1876. This makes them the oldest field experimental plots in the United States, and they include what is believed to be the oldest continuous corn plots in the world. A request that the plots be officially recognized was submitted by Professor George E. Morrow to the University of Illinois Board of Trustees on March 9, 1890. The Illinois Agricultural Experiment Station was begun in 1888.

According to the first reference in Illinois' Agricultural Experiment Station Bulletin No. 37 "Corn Experiments," 1894, "the plots begun in 1876 were continued as usual." Yields were reported for several years.

"Lessons from the Morrow Plots," Bulletin 300, was published in 1927. Current reports (attached) include Circular 777, "The Morrow Plots" (with supplement giving corn yields to date) and mimeograph AG 1850 "Lessons from the Morrow Plots: The Oldest Experimental Plots in the United States."

The plots have attracted the attention of agronomists and farmers from all parts of the world. Visitors from far away places stop to see them and request follow-up information on current tests.

The dramatic demonstration of soil depletion and more importantly of soil rejuvenation has had far-reaching effects. As an outdoor laboratory the plots have received the attention of many research workers with studies including soil compaction, bacterial population, corn root penetration, weather as related to crop yield, and effect of soil treatment on grain quality and yield to mention but a few.

We believe the plots will continue to be of great interest and value and should be recognized as a National Historic Landmark.

OGB*Mmc
12-29-66

MLP - Manure, Limestone, Phosphate fertilizer

CORN YIELDS ON THE MORROW PLOTS, 1888-1965

(Bushels per acre; details of treatments are in Circular 777)

Year	Continuous corn				Corn-oats				Corn-oats-clover			
	Not treated	LNPK after 1954 (untreated before)	MLP	MLP 1904-54 +LNPK after 1954	Not treated	LNPK after 1954 (untreated before)	MLP	MLP 1904-54 +LNPK after 1954	Not treated	LNPK after 1954 (untreated before)	MLP	MLP 1904-65 +NPK after 1954
1888	54.3				49.5							
1889	43.2				....							
1890	48.7				54.3							
1891	28.6				33.2							
1892	33.1				....				70.2			
1893	21.7				29.6				34.1			
1894	34.8				....				....			
1895	42.2				41.6				....			
1896	62.3				....				....			
1897	40.1				47.0				....			
1898	18.1				....				....			
1899	50.1				44.4				53.5			
1900	48.0				....				....			
1901	23.7				33.7				34.3			
1902	60.2				....				....			
1903	26.0				35.9				....			
1904	21.5		17.1		....				55.3		72.7	
1905	24.8		31.4		50.0		44.9		....		....	
1906	27.1		....		....		....		....		....	
1907	29.0		48.7		47.8		87.6		80.5		93.6	
1908	13.4		28.0		....		....		....		....	
1909	26.6		31.6		33.0		64.8		....		....	
1910	35.9		54.6		....		....		58.6		83.3	
1911	21.9		31.5		28.6		46.3		....		....	
1912	43.2		64.2		....		....		....		....	
1913	19.4		32.0		29.2		25.0		33.8		47.8	
1914	31.6		39.4		....		....		....		....	
1915	40.0		66.0		49.0		81.2		....		....	
1916	11.2		10.8		....		....		27.8		40.6	
1917	40.4		67.0		48.4		81.4		....		....	
1918	13.6		32.6		....		....		....		....	
1919	24.0		43.4		30.8		66.2		52.2		70.8	
1920	28.2		54.4		....		....		....		....	
1921	19.8		42.2		30.6		68.4		....		....	
1922	24.6		38.9		....		....		49.2		70.2	
1923	15.0		31.4		17.2		46.4		....		....	
1924	28.0		38.0		....		....		....		....	
1925	19.1		45.4		26.7		39.5		42.1		58.7	
1926	21.4		35.4		....		....		....		....	
1927	25.8		41.0		29.4		75.8		....		....	
1928	18.8		32.4		....		....		44.2		72.4	
1929	17.6		36.0		23.6		65.2		....		....	
1930	17.1		31.1		....		....		....		....	
1931	24.8		49.2		33.5		57.9		45.4		59.1	
1932	32.9		54.0		....		....		....		....	
1933	7.9		27.9		8.4		27.4		....		....	
1934	16.7		51.0		....		....		13.0		45.2	
1935	44.6		62.9		52.0		54.1		....		....	
1936	14.0		16.6		....		....		....		....	
1937	43.1		60.8		44.0		76.4		67.4		87.1	
1938	36.3		62.3		....		....		....		....	
1939	22.0		50.3		31.0		84.7		....		....	
1940	18.7		43.7		....		....		47.0		62.9	
1941	24.9		63.1		32.0		70.4		....		....	
1942	26.5		61.3		....		....		....		....	
1943	16.4		59.9		26.3		83.8		52.9		100.4	
1944	18.8		62.2		....		....		....		....	
1945	30.4		70.7		45.8		107.7		....		....	
1946	23.1		84.7		....		....		75.8		121.3	
1947	12.6		37.9		22.8		75.9		....		....	
1948	27.1		74.7		....		....		....		....	
1949	20.0		63.8		32.1		107.4		72.7		103.9	
1950	19.1		50.8		....		....		....		....	
1951	12.6		65.3		31.9		119.9		....		....	
1952	18.7		52.5		....		....		61.5		109.0	
1953	16.8		53.2		39.1		93.7		....		....	
1954	32.9		72.0		....		....		....		....	
1955	35.9	85.9	78.8	98.0	43.5	96.5	98.5	107.2	63.1	102.4	99.5	101.2
1956	29.4	113.0	96.2	128.1	....	.....	.....	.....	....	.....	.....	.....
1957	41.0	105.7	91.2	121.1	48.6	125.0	132.9	126.2	....	.....	.....	.....
1958	31.2	129.9	84.5	138.9	....	.....	.....	.....	63.0	146.4	140.1	143.6
1959	25.8	55.9	82.6	95.0	44.9	90.9	95.4	86.3	....	.....	.....	.....
1960	49.7	96.4	83.9	119.1	....	.....	.....	.....	....	.....	.....	.....
1961	46.2	104.0	78.1	117.2	49.7	114.4	125.0	124.0	72.7	126.4	133.9	132.7
1962	41.1	123.8	90.5	131.5	....	.....	.....	.....	....	.....	.....	.....
1963	48.1	124.3	89.3	119.2	52.8	137.3	129.0	134.6	....	.....	.....	.....
1964	46.8	109.5	78.7	126.1	....	.....	.....	.....	71.2	143.9	146.2	140.0
1965	50.6	139.7	126.4	163.2	65.7	156.9	159.2	162.4	....	.....	....	.....
1966	52.0	116.4	121.4	130.8								

Supplement to Circular 777

THE MORROW PLOTS

UNIVERSITY OF ILLINOIS COLLEGE OF AGRICULTURE
EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

For more details about soil treatment, cropping, and management practices on the Morrow Plots, see Circular 777.

Urbana, Illinois November, 1965

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. JOHN B. CLAAR, *Director*. Acts approved by Congress May 8 and June 30, 1914.

5M—11-65—88404

January 10, 1967

H34-RH

Mr. Orville G. Bentley
University of Illinois
Urbana, Illinois 61801

Dear Mr. Bentley:

Thank you for your letter of December 29, 1966, to the Director about the Morrow Plots, University of Illinois, Urbana, Illinois.

The National Survey of Historic Sites and Buildings, the National Park Service's program for locating and identifying sites and structures of national historical significance, did not include the Morrow Plots in its study of agriculture in the United States. But the material on the plots attached to your letter indicates that the Morrow Plots should be considered by the Survey. That will be done, and, we hope, during the forthcoming year. Previously scheduled major studies, however, could delay the consideration of the site.

We appreciate your bringing the Morrow Plots to our attention.

Sincerely yours,

S. Sydney Bradford

S. Sydney Bradford
Acting Chief, Branch of
Historical Surveys

cc:
Regional Director NE w/c inc.

RHS: Dr. Bradford

SSBradford:id

COMMITMENT: Agriculture

LESSONS FROM THE MORROW PLOTS: THE OLDEST EXPERIMENTAL PLOTS IN THE UNITED STATES

A. L. Lang
Department of Agronomy

Early History

The Morrow plots are located on the campus of the University of Illinois directly north of Mumford Hall. The soil on which the plots are located is classified as Flanagan silt loam. It is naturally a productive soil and is representative of large areas in central and northern Illinois.

George E. Morrow, professor of agriculture, established these plots in 1876. This makes them the oldest experimental plots in the United States, and they include the oldest continuous corn plot in the world. Thus they are of historical interest and through the years have given valuable lessons related to soil management. The 80th crop was harvested from the plots this year (1955). Of the 10 plots originally established, only plots 3, 4, and 5 remain. Plot 3 has been in continuous corn, Plot 4 in alternating corn and oats, and Plot 5 in a rotation of corn, oats, and clover or legume hay.

It is interesting to note that the plots were established to answer a heated controversy about whether the deep, rich, black, productive soils of the prairie could ever be depleted or spent. By 1904 depletion evidence was pronounced. Then the question arose: Can the depleted soils be rebuilt to their original level or higher? In an attempt to find the answer, each plot was divided into a north and south half. The south half of each plot was treated with manure, limestone, and phosphate in quantities beyond that thought adequate to meet the needs of the crops to be grown.

Lessons From More Than 80 Years of Cropping and 50 Years of Fertilizing

The crop yields from these plots demonstrate soil productivity, exploitation, preservation, and building. That is to say:

1. Soils can be exploited and depleted.
2. Soils can be cropped and preserved.

These other facts have been established:

1. Economical production has not been maintained by continuous cropping with corn.

2. Mineral fertilization as practiced on these plots has not maintained high productivity in the soil continuously cropped with corn.

3. Rotation without mineral treatment has not built up productivity.

4. Maximum production has not been reached by use of catch-crop legumes.

5. Maximum production has been reached by rotation, standover legumes, and mineral fertilization.

Careful analysis of these conclusions could raise two questions:

1. Are these results brought about by a physical change in the soil that may be permanent or only temporary?

2. Are the results due largely to a lack of chemical nutrient balance which, if corrected, would bring all yields to an equal level?

Inventories of the soil show differences in the physical, chemical, and biological properties of the variously treated plots. Corn yields used as an indicator reflect the physical and chemical changes that have taken place.

Table 1.--Corn Yields From the Morrow Plots Reflecting Chemical, Physical, and Biological Changes in the Soil Brought About by Various Cropping and Soil Treatment Practices

Cropping system	Soil treatment	Selected characteristics of soil to a depth of 6 inches[a/]			12-year average corn yield per acre, 1948 through 1959
		Organic carbon	Aggregates 0.5 mm.	Volume weight	
		%	%		bu.
Continuous corn	None	1.74	8.0	1.37	26
" "	MLP*	2.09	6.2	1.31	72
Corn, oats	None	2.14	5.7	1.33	40
Corn, oats (sw. cl. and alf.)	MLP*	2.44	7.4	1.24	108
Corn, oats, red clover	None	2.28	11.0	1.31	65
" " " "	MLP*	3.35	13.2	1.21	113
Bluegrass sod	None	3.20	50.0	1.28	---

a/ Stauffer, R. S., Muckenhirn, R. J., and Odell, R. T. Jour. Am. Soc. Agron. 32:819-832, 1940.

Recent data soon to be published show a difference in the composition of the proteins (nitrogen-carrying portion) of the organic matter in the soil of the various treated plots.

Something New Added in 1955

Prior to 1955 no attempt had been made to actually test the adequacy of the chemical nutrient balance. This attempt was begun in 1955. The plots and cropping are such that corn is grown on all plots every sixth year. That sequence occurred in 1955 and gave an opportunity to add new treatments to a portion of each plot, the first major change in over 50 years. The new treatments were designed to get answers to the questions asked previously:

1. Are the changes brought about in the productive capacity of these plots only temporary or permanent?

2. Can the low-yielding plots be made to produce yields equal to the highest by adequate chemical fertilizer treatment?

3. If so, can it be done immediately or how long will it take?

Yields of corn, oats, and hay since 1955 are given in Table 2.

Table 2.--Corn, Oats, and Hay Yields From the Morrow Plots 1955 - 1959[1/]

Rotation and crop		Soil Treatment: None	LNPK 1955-59	MLP 1904-59	MLP 1904-59 NPK 1955-59
		Acre yield			
Continuous Corn					
Corn 5 crops	bu.	33	98	87	116
Corn - Oats					
Corn 3 crops	bu.	46	104	109	106
Oats 2 crops	bu.	41	79	91	93
Corn - Oats - Legume					
Corn 2 crops	bu.	63	124	120	123
Oats 2 crops	bu.	41	81	84	72
Hay 1 crop	ton	.3	---[2/]	4.3	4.3

1/ Annual yields of corn since 1888 are reported in Supplement to Illinois Circular 777.
2/ No legume is seeded on this plot.

Treatments on the Recently Established Section

For Corn in 1955:
Limestone: 5 tons to unlimed areas.
Nitrogen: 200 lb. from urea on plots not having legumes and 100 lb. on plots having legumes.
Phosphate: 150 lb. P_2O_5.
Potash: 100 lb. K_2O.
One half of the limestone, nitrogen, and phosphate was plowed down. The other half, and the potash, was broadcast after plowing.
For corn and other crops since 1955, annual applications:
Nitrogen: on corn as in 1955; nitrogen on oats 50 lb. on plots having no legumes and 25 lb. on plots having legume. No nitrogen on hay.
Phosphate: 40 lb. P_2O_5 on all crops.
Potash: 30 lb. K_2O on all crops.

From the corn yields following the first four years of the new treatment (1955-1958) we could conclude that the differences in yields brought about by earlier management practices were largely eliminated. However, this conclusion was shaken by the 1959 drought when yields on the newly treated continuous corn plots fell well below those of the rotation plots. The additional fertilizers used since 1955 did not change the yields on those plots where previous management practices had supplied adequate nutrients. The results of the new and old treatments should be of interest for many years to come.

6/30/60
AG1850

Office Memorandum • ILLINOIS STATE WATER SURVEY

TO : Dr. Karl Gardner

DATE: Feb. 10, 1967

FROM : Stan Changnon

SUBJECT: Morrow Plots Weather Station

Attached is a report we prepared 4 years ago concerning the M. P. Weather Station.

I believe its many scientific values are adequately described in this report. Much of the information you might find useful is in the Introduction of the report. The station's uniqueness is reflected in its establishment as a Bench Mark Station. I have also included a Xerox copy of an article from the January 1964 issue of the Bulletin of the American Meteorological Society.

We are heartily behind the move to get the Plots recognized as a National Historical Landmark. If I can supply you with any further information, please contact me.

Stan

APCA committee reports

Two committees of the Air Pollution Control Association have recently published in the APCA JOURNAL reports of particular interest to meteorologists.

In the September issue (APCA JOURNAL, 13, 9, 397–494), the Air Pollution Measurements Committee (Charles W. Gruber, chairman) has submitted the first three sections of a complete manual on air pollution measurements designed to increase the uniformity of measurements made by various groups and thus render the resulting data more readily usable by others. Section 1 of the report is concerned with the nature of the problem of measuring fine particles, the instruments and methods available, and the influence of meteorological elements on fine particle accumulation and dispersal in the atmosphere. The effects of meteorological factors are discussed by Maynard E. Smith, Brookhaven National Laboratory, and Richard Duffee, Batelle Memorial Institute.

The authors note that the weather may be directly responsible for the introduction of fine particles into the atmosphere as well as the control mechanism for their dispersal and removal. They emphasize the importance of the horizontal and vertical components of site location, the influence of wind speed and direction on the accuracy of sampling, and the need to consider the effect of meteorological parameters on the life of the sampling equipment and on interpretation of results.

As a preliminary report in fulfillment of its responsibility for publicizing the availability of air pollution control training at United States universities, APCA Committee S-11 provided a list of such institutions in APCA JOURNAL, 13, 7, 337 (July 1963). While recognizing that many universities have available in various departments courses applicable to the study of air pollution problems, the Committee lists only the institutions which have a suitable mechanism for coordinating such courses into a cohesive degree program. All offer graduate programs requiring a bachelor's degree in science or engineering for admission, though both the programs and the admission requirements vary somewhat from institution to institution. Specific information about any program may be obtained from the schools listed below.

California Institute of Technology, Pasadena, Calif., Dr. Jack McKee, Department of Environmental Health Engineering;

University of California, Berkeley, Calif., Dr. B. D. Tebbins, School of Public Health;

University of Florida, Gainesville, Fla., Dr. E. B. Hendrickson, Air Pollution Research Laboratory;

Georgia Institute of Technology, Atlanta, Ga., Richard King, Department of Civil Engineering;

Harvard University, Boston, Mass., Dr. Leslie Silverman, School of Public Health;

University of Illinois, Urbana, Ill., Dr. R. S. Engelbrecht, Department of Civil Engineering;

University of Michigan, Ann Arbor, Mich., Paul M. Giever, School of Public Health;

University of Pittsburgh, Pittsburgh, Pa., Dr. Morton Corn, School of Public Health;

University of Washington, Seattle, Wash., Dr. A. T. Rossano, Department of Civil Engineering.

Illinois weather station marks 75th anniversary

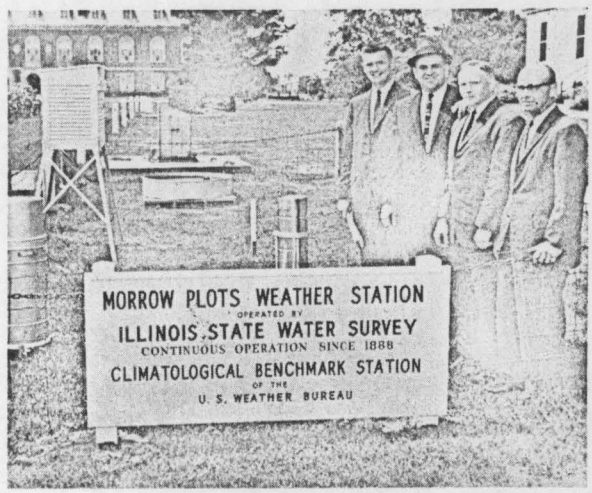
The Urbana, Illinois, weather station, a climatological substation of the U. S. Weather Bureau, reached its 75th year of continuous operation on 16 August 1963. The Illinois State Water Survey is the local agency which supervises the station operation, and Survey staff members serve as observers.

The weather station is locally known as the Morrow Plots Weather Station since its site is adjacent to the Morrow Plots agricultural research area of the University of Illinois. These plots are the oldest such research plots in existence in the United States.

Since 1888, when the weather station was opened as an activity of the University's Agricultural Experiment Station, continuous observations of soil temperatures, sky conditions, winds, relative humidity, and dew point temperatures have been made in addition to the usual air temperature and precipitation measurements. During the 1888–1890 period one of the first known efforts to accurately measure evapotranspiration was performed in conjunction with the weather station activities.

Because of the long period of continuous records at a single site in a largely unchanging environment, the U. S. Weather Bureau has identified the Urbana station as one of nineteen national bench-mark stations. At this time, this station is the only one in Illinois or any adjoining state to be so designated for study and monitoring of past and future climatic changes.

A 75th anniversary luncheon and observance were held on 14 August 1963, with interested scientists and officials attending. Among the local members of the American Meteorological Society in attendance were Glenn E. Stout, Meteorology Section Head of the Illinois State Water Survey; Stanley A. Changnon, climatologist of the Illinois State Water Survey; William L. Denmark, Weather Bureau State Climatologist for Illinois; and Professor John E. Pearson of the University of Illinois.—*Stanley A. Changnon, Jr.*



At the Morrow Plots (Urbana, Illinois) weather station during the 75th anniversary observance were (left to right): Glenn E. Stout, Stanley A. Changnon, George R. Boyd (observer), and William L. Denmark.

MAR 6 - 1967

H34-HH

Hon. William L. Springer
House of Representatives
Washington, D. C. 20515

Zip Code

Dear Mr. Springer:

We are pleased to write you in response to your telephone call of February 24 about the Morrow Plots, University of Illinois, Urbana, Illinois.

Mr. Orville G. Bentley, University of Illinois, wrote to us on December 29, 1966, about the inclusion of the Morrow Plots in the Registry of National Historic Landmarks, and we replied to him on January 10. We said in our letter that the National Survey of Historic Sites and Buildings had not included the plots in its study of agriculture, but that the material about the site sent by Mr. Bentley indicated that the Survey should study the Morrow Plots. We informed Mr. Bentley that we hoped the plots could be studied in the forthcoming year, although a previously scheduled major study could prevent that. The previously scheduled study is of architecture, which is one of over 22 broad studies to be considered by the Survey.

After the Survey has studied the Morrow Plots, a report on the site will be presented to Secretary of the Interior Udall's Advisory Board on National Parks, Historic Sites, Buildings and Monuments. That Board reviews all reports on sites suggested for Registered National Historic Landmark designation and judges whether or not the sites reviewed should be recommended for Landmark status. After the Board has made a recommendation concerning the Morrow Plots, we shall write you.

Sincerely yours,

A. CLARK STRATTON

DEPUTY Director

cc:
Regional Director, NE
HHS - Dr. Bradford

(next time please)

COMMITMENT - AGRICULTURE

DPL - Mr. Melvin
SSBradford:mg 2-27-1967

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE

ORVILLE G. BENTLEY, DEAN

URBANA, ILLINOIS 61801

No answer required.

April 14, 1967

Mr. S. Sydney Bradford
Acting Chief, Branch of Historical Surveys
U. S. Department of the Interior
National Park Services
Washington, D. C. 20240

Dear Mr. Bradford:

In going through some of our files a few days ago, I noted that we had not acknowledged receipt of your letter of January 10, concerning designation of the Morrow Plots as a Registered National Historic Landmark.

We were pleased to learn that the Morrow Plots will be considered at such time as a survey is made to determine the eligibility of the plots for designation. We are hopeful that the review procedure can be initiated soon and that the designation might be accomplished during the centennial year of the University.

If I can be of assistance to you in developing additional material or supporting the proposal, please do not hesitate to contact me.

Sincerely,

Orville G Bentley

OGB:MC

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE

ORVILLE G. BENTLEY, DEAN

URBANA, ILLINOIS 61801

July 18, 1967

Mr. S. Sydney Bradford
Acting Chief, Branch of Historical Surveys
U. S. Department of the Interior
National Park Service
Washington, D. C. 20240

Dear Mr. Bradford:

We are again bringing up the subject of the possibility of a review by your National Survey of Historic Sites and Buildings relative to having our Morrow Plots designated as a National Historic Landmark. As you know, these agronomic plots are right in the midst of the University campus and are viewed by thousands each month.

In your letter of January 10, 1967, you mentioned that the material on the plots indicated that they should be considered by the survey. You also mentioned that previously scheduled studies could delay the consideration.

As you may know, observation of the University's Centennial is well under way, and we still have hopes that it may be possible to have the plots designated as a historic landmark before the end of the Centennial year in February, 1968.

Can you give us any information concerning the progress of the survey required for such a designation? Any information you can provide us will be very useful to us since local and state interest in these plots remains quite high.

Sincerely,

Orville G Bentley

OGB:Gjc

J McDermott 8/1/67
ABAppleman 8/1/67

August 1, 1967

H34-HH

Dean Orville G. Bentley
College of Agriculture
University of Illinois
Urbana, Illinois 61801

Dear Dean Bentley:

Thank you for your inquiry concerning the consideration of the Morrow Plots on the University of Illinois campus for possible National Historic Landmark designation.

The schedule for the fall meeting of the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments has already been fixed, and the studies to be considered by it are already rather firmly established. To permit the members of the Consulting Committee and the Advisory Board to review the studies prior to the date of the meeting, we have to prepare the material months in advance. The earliest possible date that the Morrow Plots could be considered by the Advisory Board would be at its April meeting in 1968. We will make every effort to present our report on the site to the Advisory Board at that time.

We appreciate your interest in this matter, and we regret that the press of previous commitments precludes consideration of the Morrow Plots before the end of the Illinois University Centennial year.

Sincerely yours,

(SGD) ROY E. APPLEMAN

Roy E. Appleman
Acting Chief Historian

cc:

Regional Director, Northeast w/c/inc
WSC-HHS-Mr. Sheely

JDMcDermott:rnc 8/1/67

HP-ILL- Morrow Plots

UNIVERSITY OF ILLINOIS
Urbana, Illinois 61801

COLLEGE OF AGRICULTURE
Office of the Associate Dean and Director of Resident Instruction
104 Mumford Hall, Phone: (217) 333-3380

February 6, 1968

Mr. John D. McDermott
National Park Service
801 19th Street, N.W.
Washington, D.C. 20006

Dear Mr. McDermott:

I enclose a copy of a long list of publications dealing with the Morrow Plots here on the University of Illinois campus prepared by Professor L. B. Miller of our Agronomy Department for use in our request to have the plots declared a National Historic Landmark. Since practically none of these publications are still being published, I would like to know whether or not you would like photostatic copies made of any one or more of the older ones.

I enclose a copy of the last page of Bulletin 300, "Lessons From the Morrow Plots," December, 1927, which gives a considerable amount of information concerning the original establishment of the Plots which came to be known as the Morrow Plots.

A statement by Professor Emeritus E. E. Roberts entitled, "Morrow Plots" is attached since he has studied the early history of the College.

I have written to the John Crerar Library in Chicago for a reference appearing in the Prairie Farmer, June 10, 1876, having to do with the Miles Plots, which the Morrow Plots may have been called at the very start, since Professor Manley Miles established them originally. Neither Prairie Farmer, itself, nor the University of Illinois Library happen to have this particular copy; but, I find that the Crerar Library does have it. It may be worthwhile and it may not. I shall send this to you as soon as I obtain it. This reference has held up my letter to you and I regret that I cannot enclose it at this time.

Let me know if there are any other references or sources which you would like to have concerning this subject. If you want complete copies of these, I can have photostatic copies made. I assume that the circulars and bulletins are all available in Washington; but, I realize that it may be inconvenient for you to get at them, and we could have copies made.

I also enclose two 1966 black and white photographs of the Plots identified on the reverse along with Circular 901 including a 1955 photo of the Plots, and, Circular 777 including the supplement brought up to date with the yields for the Plots in 1967.

In discussions with Professor L. B. Miller, it becomes quite apparent that many of the publications referring to the Morrow Plots and the results of the experimentation going on there were published over the years in mimeographed form. The reason for this was that the results became much more immediately available following the end of the harvest season. The long lapse from the harvest season until the final printing of the circular made the information of less value to the farmers of the State who were highly interested in instantaneous reporting. It should be mentioned that in the state of Illinois, the annual reporting of the yields from the Morrow Plots is an "event" and the newspapers and farm publications vie for the information to the extent that we have always had to be very cautious that all news media received the information on exactly the same date. This gives a little idea of the significance of these Plots to the farmers of Illinois even in the year 1967.

Sincerely,

Karl E. Gardner
Associate Dean

KEG:jp

Enclosures

cc: Dean O. G. Bentley
L. B. Miller
M. D. Thorne

Note on Origin of Morrow Plots

As is often the case with things of great age, the exact date of the origin of the Morrow plots is somewhat veiled by uncertainty. A search thru the official University records of these early years has revealed the following statements which bear upon the subject:

In the minutes of a meeting of the Board of Trustees of the Illinois Industrial University held December 14, 1875 (page 153), occurs the following recommendation by Manley Miles, then professor of agriculture, referring to the need for rotation experiments:

"The larger portion of the farm should be cultivated with a variety of crops in rotation to illustrate as far as practicable the advantages of high tillage and thorough manuring. The advantages of a systematic alternation of crops should also be determined."

In the minutes for March 10, 1880, quoted in Bulletin 125 of the Agricultural Experiment Station (page 327), appear the following paragraphs:

"The Farm Committee then submitted the following report:

"To the Honorable Board of Trustees of the Illinois Industrial University:

"'Your committee beg leave to submit the following recommendations from the professor of agriculture [George E. Morrow] for the coming season: . . . . 'Fifth—the formal commencement of what is designed to be a long continued experiment to show the effect of the rotation of crops, contrasted with continuous corn growing—with and without manuring, and also the effect of clover and grass in a rotation. A commencement was made last year, and we are fortunate in having a piece of land more than usually well adapted for such a test.

"'The report was approved, and its recommendation concurred in.'"

This record would appear to fix the date of the *official* commencement of these experiments as 1879. In the published bulletins of the Experiment Station, however, several references are made to these same plots,[1] all of which point to 1876 as the year in which the rotation experiments were actually started. These references are as follows:

In Bulletin 8 (February, 1890, page 266) T. F. Hunt, assistant agriculturist, states: "Ten half-acre plots, 5 x 16 rods, have been cropped during the past 14 years as follows . . . . ."

In Bulletin 13 (February, 1891, page 431) the same writer states: "Ten half-acre plots, 5 x 16 rods, have been cropped during the past 14 years as follows . . . . ." Evidently this statement was copied from Bulletin 8 without correcting the number of years as necessary in a publication of a year later.

In Bulletin 31 (March, 1894, page 357) Professor George E. Morrow makes the following statement: "For eighteen years tests have been made of the yield of corn on half-acre plots."

In Bulletin 31 (page 358), Bulletin 37 (page 20), and in Bulletin 42 (page 177) the column headings of the tables state, concerning Plots 1, 2, and 3, "In corn annually since 1876," and concerning Plots 4 to 10, "In rotation since 1876."

It seems proper to conclude, therefore, that the Morrow plots have been in operation for fifty-two years, including the present season, 1927.

---

[1]The Morrow plot experiments are referred to as "Experiment 23" in all the early records.

MORROW PLOTS

G. E. Morrow began work as Professor of Agriculture in the Illinois Industrial University January 1, 1877. The next year he was appointed Dean of the College.[1] In 1879 he asked for a leave of absence for the summer to make observations on agriculture of Great Britain and France. The leave was granted at a meeting[2] of the Board of Trustees June 11, 1879. At a meeting of the Board of Trustees March 9, 1880, G. E. Morrow asked approval of a "formal commencement of what is designed to be a long continued experiment to show the effect of rotation of crops, contrasted with continuous corn growing - with and without manuring, and also the effects of clover and grass in a rotation. A commencement was made last year (1879) and we are fortunate in having a piece of land more than unusually well adapted to such a test."[3]

From an address by E. Davenport the following applies to the Morrow Plots: "Agriculture in the sense of farm crops and animals had, at first, a checkered career. No fewer than four men being in charge before the coming of Professor Morrow---. He took vigorous hold of the situation and in 1879 started the so-called Morrow Plots on the Rothamsted Plan of permanent cropping. And here are the oldest soil plot experiments of the kind in America."[4]

In several different publications 1879 is goven as the year in which Morrow Plots were established. "Authentic records show that our oldest experiment fields were established at the University of

Illinois in 1879."[5]

In Bulletin 300[6] of the Agricultural Experiment Station of the University of Illinois entitled "Lessons From the Morrow Plots," is a picture of these plots. On the sign standing in front of the plots are these words: "Morrow Plots - oldest in U. S. - established 1879."

In the Illinois Agriculturist,[7] 1879 is given as the beginning of the Morrow Plots.

However, evidence exists that some plots were started in 1876, which became a part of the Morrow Plots. One plot had corn continuously since 1876, a second, corn and oats, and a third, corn, oats, and clover.[8, 9] The evidence substantiates the statement that at least three of the Morrow Plots had their beginning in 1876.

References

1. Tenth Report of the Board of Trustees, page 15.

2. Tenth Report of the Board of Trustees, page 172.

3. Report of G. E. Morrow in Tenth Report of the Board of Trustees, page 232.

4. E. Davenport, "Genesis of the Illinois Agricultural Experiment Station." A manuscript dated March 1938 in Davenport files.

5. Hopkins, C. G., J. E. Readhimer, and W. C. Eckhardt. "Thirty Years of Crop Rotations on the Common Prairie Soil of Illinois." Bulletin 125, 1908.

6. "Lessons From the Morrow Plots", Bulletin 300 of the Illinois Agricultural Experiment Station, 1927.

References (Cont'd)

7. Schaff, J. W., The Morrow Plots and Their History, Illinois Agriculturist, Vol. 29, p. 169.

8. DeMunn, M. F. Illinois Agriculturist., Vol, 32, page 40, 1927.

9. Illinois Agriculturist, Vol. 41, page 54, 1937.

MORROW PLOTS

Bulletin No. 8. 1890. Field Experiments with corn.
T. J. Burrill and G. W. McClure.

Bulletin No. 31. 1893. Corn and Oats Experiments.
G. E. Morrow and F. D. Gardner.

Bulletin No. 37. 1895. Corn Experiments 1894. Continuous cropping since 1876. F. D. Gardner.

See also Bulletins 13, 125, 300 and Circular 777.

Meeting of Board of Trustees, June 8, 1903 - page 74.

President Draper recommended that Agriculture withdraw from the plots near the Obervatory as rapidly as practicable. This was referred to the committees on Buildings and Grounds and Agriculture jointly. On June 25, 1903, the following resolution was adopted:

"That the Agricultural Experiment Station start permanent plots on the South Farm, and that it discontinue the use of all plots on the South Campus, excepting the north series of permanent plots, 8 in number, now in use, which are reserved for the continued use of the station.

MORROW PLOTS

Meeting of Board of Trustees, June 8, 1903, page 74. President Draper recommended that Agriculture withdraw from the plats near the Observatory (Morrow Plots) as rapidly as practicable. This recommendation was referred to the Committee on Buildings and Grounds and the Committee on Agriculture jointly. At the meeting of the Board of Trustees June 23, 1903, page 115, the following resolution was adopted:

"That the Agricultural Experiment Station start permanent plats on the Smith farm and that it discontinue the use of all plats on the South Campus, excepting the north series of permanent plats, 8 in number; now in use, which are reserved for the continued use of the Station."

Compiled by E. Roberts

Bibliography

(References to Morrow Plots - In Illinois Agricultural Experiment Station Bulletins and Circulars.) (Listed chronologically)

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Morrow, G. E., and Gardner, F. D. 1894. Field experiments with corn, 1893. Illinois Agriculture Experiment Station Bulletin 31, pp. 357-58.

Gardner, F. D. 1895. Field experiments with corn, 1894. Illinois Agriculture Experiment Station Bulletin 37, pp. 19-20.

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KEG:jp
2/6/68

PUBLICATIONS DEALING WITH MORROW PLOTS

For many years the area now known as the Morrow Plots on the University of Illinois campus was referred to as Experiment No. 23, "Rotations with Corn, Oats, and Meadow; Corn and Oats compared with Continuous Culture of Corn." The earliest report in which the name "Morrow Plots" was used was in notes written in 1922.

During its long history, this experiment has been summarized or reported in detail in at least 17 Illinois Agricultural Experiment Station Bulletins beginning with Volume 1, Bulletin No. 4, "Field Experiments with Corn" published in February 1889. (See list of bulletin numbers and dates of publication attached.)

Bulletin 300 "Lessons from the Morrow Plots" printed in 1927 and Circular 777 "The Morrow Plots" printed in 1955, revised in 1960 and supplemented in 1965 were devoted entirely to interpretation of this long-term experiment.

The 40th Annual Report of the Illinois Experiment Station published in 1927 gives a historic review of the area "known as The Morrow Plots" started in 1876.

Circular 901 "Illinois Field Crops and Soils" presents a picture (Page 19) of Morrow Plots and summarizes recent yields.

In the textbook "Soil Fertility and Permanent Agriculture" C. G. Hopkins 1910, pages 454-458 ".....the oldest experiment field in the United States with an authentic record of its origin....." is described in detail. Many results are reported such as "The general effect of the system of soil improvement adopted (1904) for the south half of these old plots is already very marked, an increase of 40 bushels of corn per acre being secured in 1907 from treatment on plot 4."

In "Soil Physics and Management" Mosier and Gustafson, 1917, pages 378-379 report results from the old rotation experiments at the University of Illinois

as follows: "After 37 years of continuous corn compared with 2-year and 3-year rotation systems the last four crops of corn averaged 26.4 bushels, 34.6 bushels and 57.1 bushels, respectively." The name "Morrow Plots" was not mentioned and apparently had not been assigned at that date.

L. B. Miller

LBM:cac
1/22/68

UNIVERSITY OF ILLINOIS
Urbana, Illinois 61801

COLLEGE OF AGRICULTURE
Office of the Associate Dean and Director of Resident Instruction
104 Mumford Hall, Phone: (217) 333-3380

February 22, 1968

Mr. John McDermott
National Park Service
801 19th Street, N.W.
Washington, D.C. 20006

Dear Mr. McDermott:

In my letter of February 6, 1968, I mentioned that we were examining material from an early issue of Prairie Farmer to determine whether or not this early report of establishment of certain plots might bear relation to our own Morrow Plots. Professor L. B. Miller feels that this report had no reference to the Morrow Plots and was entirely separate.

Professor Miles did make the statement, "The fact cannot be much longer ignored, that as rich as the prairie soils originally were, they are slowly being impoverished and exhausted, and the time is not far off when the fact will be generally acknowledged and acted on." This gives a little of the rationalization for the establishment of research having to do with the exhaustion of Illinois prairie soils. The Morrow Plots were quite obviously established for this prime purpose, since for some 92 years one plot has been continuously kept in one crop without fertilization to determine the rate of exhaustion.

Please let me know if further information is still required.

Sincerely,

Karl E. Gardner
Associate Dean

KEG:jp

cc: O. G. Bentley
L. B. Miller
M. D. Thorne

H34-HH February 28, 1968

Dr. Wayne D. Rasmussen
Chief, Agricultural History Branch
Economic and Statistical Analysis Division
Department of Agriculture
Washington, D. C.

Dear Dr. Rasmussen:

We appreciate very much your willingness to review the short study on the Morrow Plots that we have prepared to present to the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments for possible designation as a National Historic Landmark.

Your judgment as to whether the Morrow Plots merit Landmark recognition will resolve our indecision in this technical field of American History. If you do feel that the Plots merit recognition, your comment on their most significant contributions will be most helpful.

If, however, you regard the Morrow Plots as not meriting Landmark status, perhaps you could give us some reasons as to why they fall short in comparison with the Sanborn Field in Missouri. Proponents of the Morrow Plots will surely make the comparison.

I am enclosing a draft copy of our theme study on agriculture that was done in 1983. This will refresh you on our frame of reference and contains descriptions of similar sites such as the Sanborn Field.

Thank you very much for your interest and assistance to the National Historic Landmark program.

Sincerely yours,

/S/ ROBERT M. UTLEY

Robert M. Utley
Chief Historian

Enclosures

BASIC FILE RETAINED IN HHS

cc: HHS-Mr. Sheely
HJSheely:rnc 2-28-68

J McDermott 3/5/68

H34-HH March 5, 1968

Dean Karl E. Gardner
University of Illinois
College of Agriculture
104 Mumford Hall
Urbana, Illinois 61801

Dear Dean Gardner:

Thank you very much for the information and the photographs. I have everything I need now to complete my report.

I also want to thank you for your hospitality during my January visit. It was greatly appreciated.

Sincerely yours,

John D. McDermott

John D. McDermott
Historian

cc:
WASO-HHS-Mr. Sheely
WASO-HHS-Mr. McDermott

JDMcDermott:rnc 3-5-68

HP-ILL-Morrow Plots

UNITED STATES DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE
WASHINGTON, D.C. 20250

March 8, 1968

Robert M. Utley, Chief Historian
Office of Archeology and Historic Preservation
U. S. Department of the Interior
National Park Service
801 - 19th Street, N. W.
Washington, D. C. 20006

Dear Mr. Utley:

I have given careful consideration to the question as to whether or not the Morrow Plots at the University of Illinois should be designated as a National Historic Landmark.

I have seen the Morrow Plots as they are now laid out. I am also familiar with some of the work of Professors Miles and Morrow.

I can appreciate the feeling in the National Park Service that the designation should be carefully guarded. So far as historical importance is concerned, the Morrow Plots have been of less value to American agriculture than Sanborn Field or the Coker Experimental Farms.

On the other hand, the Morrow Plots are unique so far as prairie agriculture is concerned. In this sense, they are not competitive with either the Sanborn or Coker sites. The Morrow Plots are nicely kept up, they are, in part, the originals, and they are recognized by people interested in prairie agriculture as both authentic and important.

With all of these considerations in view, I recommend that the National Park Service designate the Morrow Plots as a National Historic Landmark.

I am enclosing the material you sent me.

Sincerely yours,

Wayne D. Rasmussen

Wayne D. Rasmussen, Chief
Agricultural History Branch
Economic and Statistical
Analysis Division

Enclosure

H. J. Sheely 3/26/68

H34-HH March 26, 1968

Dr. Wayne D. Rasmussen
Chief, Agricultural History Branch
Economic and Statistical Analysis Division
United States Department of Agriculture
Washington, D. C. 20250

Dear Dr. Rasumssen:

Thank you very much for giving us your views on the significance of the Morrow Plots at the University of Illinois. This was just the sort of authoritative evaluation that we needed to define more precisely our own tentative conclusions. We are making your letter a part of our presentation on the Morrow Plots to the Advisory Board.

Thank you again for your assistance.

Sincerely yours,

/s/ ROBERT M. UTLEY

Robert M. Utley
Chief Historian

cc:
HHS-Mr. Sheely

HJSheely: vf 3-26-68

HP-Illinois - Morrow Plots

MAY 15 1968

Dear Mr. Springer:

I am pleased to inform you that the Morrow Plots, described in an enclosure, have been found to possess exceptional value in commemorating or illustrating the history of the United States.

This site has been evaluated by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments through studies prepared by the National Survey of Historic Sites and Buildings, pursuant to the Historic Sites Act of August 21, 1935. I have approved the recommendation of the Board.

As explained in the enclosed folder, the site is eligible to receive a certificate and plaque designating it a Registered National Historic Landmark. The Director of the National Park Service will notify the owner and provide him with the proper application forms.

In recognizing the historical importance of this site in your State, I wish to commend the owner for the care and preservation of this property.

Sincerely yours,

(sgd) Stew

Secretary of the Interior

Hon. William L. Springer
House of Representatives
Washington, D. C.

Enclosures

cc:
Regional Director, Northeast
WASO-HHS-Mr. Sheely

Dear Senator Dirksen: MAY 15 1968

I am pleased to inform you that the Morrow Plots, described in an enclosure, have been found to possess exceptional value in commemorating or illustrating the history of the United States.

This site has been evaluated by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments through studies prepared by the National Survey of Historic Sites and Buildings, pursuant to the Historic Sites Act of August 21, 1935. I have approved the recommendation of the Board.

As explained in the enclosed folder, the site is eligible to receive a certificate and plaque designating it a Registered National Historic Landmark. The Director of the National Park Service will notify the owner and provide him with the proper application forms.

In recognizing the historical importance of this site in your State, I wish to commend the owner for the care and preservation of this property.

Sincerely yours,

(sgd) Stewart

Secretary of the Interior

Hon. Everett McKinley Dirksen
United States Senate
Washington, D. C.

Enclosures

cc:
Regional Director, Northeast
WASO-HHS-Mr. Sheely

Dear Senator Percy:

MAY 15 1968

I am pleased to inform you that the Morrow Plots, described in an enclosure, have been found to possess exceptional value in commemorating or illustrating the history of the United States.

This site has been evaluated by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments through studies prepared by the National Survey of Historic Sites and Buildings, pursuant to the Historic Sites Act of August 21, 1935. I have approved the recommendation of the Board.

As explained in the enclosed folder, the site is eligible to receive a certificate and plaque designating it a Registered National Historic Landmark. The Director of the National Park Service will notify the owner and provide him with the proper application forms.

In recognizing the historical importance of this site in your State, I wish to commend the owner for the care and preservation of this property.

Sincerely yours,

(sgd) Stewart

Secretary of the Interior

Hon. Charles H. Percy
United States Senate
Washington, D. C.

Enclosures

cc:
Regional Director, Northeast
WASO-HHS-HJSheely

DEPARTMENT of the INTERIOR

news release

NATIONAL PARK SERVICE Kelly - 343-4214

For Release May 23, 1968

INTERIOR SECRETARY UDALL NAMES THIRTEEN SITES
AS NATIONAL HISTORIC LANDMARKS

Secretary of the Interior Stewart L. Udall, acting on recommendations of the Advisory Board on National Parks, Historic Sites, Buildings and Monuments, today named 13 sites in 10 States eligible for designation as National Historic Landmarks. These sites bring the total number of National Historic Landmarks to 762.

The new sites are:

--San Francisco Bay Discovery Site, San Mateo County, Calif.;

--Morrow Plots, University of Illinois, Urbana, Ill.;

--Shawnee Mission, Fairway, Johnson County, Kans.;

--Sinclair Lewis Boyhood Home, Sauk Centre, Minn.;

--Old Warren County Court House, Vicksburg, Miss.;

--Rowan Oak, William Faulkner Home, Oxford, Miss.;

--Wainwright Building, St. Louis, Mo.;

--Westminster College Gymnasium, Fulton, Mo.;

--Robert Frost Homestead, Rockingham County, N. H.;

--Hangar No. 1, Lakehurst Naval Air Station, Lakehurst, N. J.;

--Connemara, Carl Sandburg Farm, Flat Rock, N. C.;

--The Gully, Robert Frost Farm, South Shaftsbury, Vt.; and,

--Homer Noble Farm (Robert Frost Farm), Addison County, Vt.

Secretary Udall also enlarged the boundaries of the Colonial Annapolis Historic District to conform to the colonial town plan. Annapolis was declared a National Historic Landmark in June 1965.

National Historic Landmarks are not administered by the National Park Service but are recognized as a means of encouraging preservation of historic properties. All properties eligible for Landmark designation are automatically included in the National Register being expanded by the Secretary of the Interior under the National Historic Preservation Act of 1966.

The owners of the sites are invited to apply for bronze plaques and certificates identifying the locations as National Historic Landmarks, at which time they are officially designated.

When completed the register will be a record of all man-made evidences of state, local and national significance of our historical heritage that are worthy of preservation.

x x x

(Editors note: Attached are brief descriptions of the 14 sites, including the expansion of the boundaries of the previously designated Colonial Annapolis Historic District. Photographs of these are not available from the National Park Service or the Department of the Interior.)

1. San Francisco Bay Discovery Site, Sweeney Ridge, approximately four miles west of San Bruno, via Sneath Lane from Skyline Boulevard, San Mateo County, California. The discovery of San Francisco Bay by the expedition of Gaspar de Portolá was the major achievement of this expedition of 1769 and also of the entire era of early Spanish exploration in Alta California. From the discovery came the later decision to establish a presidio and two missions in the environs of the Bay. The approximately 20 acres in which the Discovery Site is located is owned by the Consumers Ice Company.

2. Morrow Plots, University of Illinois, northwest corner of Gregory Drive and Matthews Avenue, Urbana, Illinois. Begun in 1876 and enlarged in 1879, the Morrow Plots at the University of Illinois were the first field experiment plots established by a college in the United States. They were reduced in number from 10 to three in 1904. The Morrow Plots were of great importance in proving that prairie soil could be depleted by the continuous cropping of corn and, conversely, that crop rotation was an effective method of preventing soil exhaustion. They continue to provide data on the effects of crop rotation and the impact of organic and chemical nutriments on plant yields. Of the three plots now used, one dates back to 1876 and the others to 1879.

3. Shawnee Mission, 53rd Street and Mission Road, Fairway, Johnson County, Kansas. The Shawnee Methodist Mission and Indian Manual Labor School was among the earliest of such institutions in the Louisiana Purchase area. The school at one time had an enrollment of almost 200 students, and provided religious and vocational education for Indian children of many tribes. The first territorial governor of Kansas had his executive offices at the Mission in 1854, and the first territorial legislature met there in 1855. The Mission thus figured importantly in the struggle for "Bleeding Kansas." It continued as one of the largest and most important Indian schools in the trans-Mississippi West until its closing in 1862. Three well-preserved brick buildings still stand at the location to which the Mission moved in 1838. This 12-acre area is now a State Park administered by the Kansas State Historical Society.

4. Colonial Annapolis Historic District, Annapolis, Maryland. Annapolis, capital of the colony and subsequently of the State of Maryland, was a planned city. The boundaries of the revised Historic District roughly approximate those of the original town plan as designed and surveyed in 1695. Unique for the period, the modified baroque plan represents an attempt to create a European urban environment in a North American setting. With few modifications Annapolis developed in harmony with the original plan to emerge in the mid-18th century as the focal point of Maryland government, politics, and commercial activity and as a center of provincial wealth, culture, and taste. Until about 1800, Annapolis was Maryland's most important city, and basic features of that city have survived to the present. Within Old Town the original plan has been little changed, and some 120 18th century buildings, many considerably altered, are standing in the revised district. In mass, scale, and texture the physical evidence of Annapolis places it as near to the 18th century as to our own.

5. Sinclair Lewis Boyhood Home, 812 Sinclair Lewis Avenue, Sauk Centre, Minnesota. Sinclair Lewis was the best known and most widely read novelist in the United States during the second and third decades of the 20th century, and perhaps the leading figure in the new realism movement in American literature. He was the first American to win the Nobel Prize for Literature, and the first to establish a truly international reputation since Edgar Allen Poe. The most famous of his satirical novels, Main Street, created an image of the American small town in the world mind and secured his permanent place in American literary history.

Sinclair Lewis spent his boyhood years in the two-story frame house at 812 Sinclair Lewis Avenue. After entering college, he returned there for vacations and continued to visit the home periodically during the rest of his life. Sauk Centre and Sinclair Lewis are synonymous in literary history due to the fact that his most famous novel, Main Street, satirizes a mythical community much like the one in which he grew to manhood. Substantially unaltered, the boyhood home is owned by the Sinclair Lewis Foundation. Restoration and refurbishing are planned in cooperation with the Minnesota Historical Society.

6. Old Warren County Court House, Court Square, Vicksburg, Mississippi. Completed in 1861, the Old Warren County Court House was the symbol of Confederate resistance in the Vicksburg Campaign of 1862-1863. Following the surrender of the city on July 4, 1863, Union forces under Maj. Gen. U. S. Grant unfurled their colors from the Court House cupola and paraded around the building in celebration of the victory, which most historians agree was the most decisive in the Civil War. Substantially unchanged after more than a century, the Old Court House is maintained as a museum by the Vicksburg and Warren County Historical Society under an arrangement with the Warren County Board of Supervisors.

7. Rowan Oak, William Faulkner Home, Old Taylor Road, Oxford, Mississippi. Most critics agree that William Faulkner is one of the major novelists of American literature. His Yoknapatawpha Series, according to critic Malcom Cowley is "a labor of the imagination that has not been equalled in our time." For his accumulated work, William Faulkner received the Nobel Prize for Literature in 1950. Two subsequent volumes were awarded Pulitzer Prizes, A Fable in 1955 and The Reivers in 1963.

In 1930 William Faulkner purchased a two-story residence on Old Taylor Road in Oxford, Mississippi. This 34-acre estate was his home until his death in 1962. At Rowan Oak, as he called it, Faulkner wrote most of his novels and short stories that brought him international fame and recognition. After his death, his heir leased the home to the University of Mississippi, which maintains it exactly as it was the day the novelist died. The library and study are accessible to scholars and other serious Faulkner students by appointment.

8. Wainwright Building, 709 Chestnut Street, St. Louis, Missouri. Design of the Wainwright Building, constructed in 1890-1891, was Adler and Sullivan's first commission involving the use of complete iron and steel framing. This structure represents Louis H. Sullivan's deliberate and most thorough attempt to create a special form appropriate to the multistory office block. Until Sullivan showed the way, high buildings lacked unity--they were built up in layers. For Sullivan, the potential aesthetic quality of the tall building lay in its unusual height, and it was this that he seized on to provide the expression of his intense personal feeling.

The Wainwright Building is essentially unchanged and in good structural condition. It is still used as an office building and does face problems of maintenance and remodelling.

9. Westminster College Gymnasium, Westminster College Campus, Fulton, Missouri. Winston S. Churchill's speech at Westminster College on March 5, 1946, which introduced the term "iron curtain" into public usage, marks a turning point in international relations. It was the first step toward recognition that the "cold war" was on and that existing policies of the Soviet Union constituted a threat to the West. As former President Truman once commented, "It was one of the greatest speeches I ever listened to... and part of the policy of the free world ever since." The speech prepared the way for the Truman Doctrine or so-called containment policy of March 1947 and later for the formation of N.A.T.O. The college gymnasium where Churchill delivered the speech remains unchanged.

10. Robert Frost Homestead, two miles southeast of Derry on State Route 28, Rockingham County, New Hampshire. The author of 11 volumes of poetry, Robert Frost has been one of the few 20th-century poets to command both critical respect and wide readership. During his lifetime he reaped more honors than any other American poet before him. On four occasions he received the Pulitzer Prize for Poetry: in 1924 for New Hampshire, in 1931 for Collected Poems, in 1937 for A Further Range, and in 1943 for A Witness Tree. The current assessment of Robert Frost is that he will stand as one of our greatest American poets.

Between 1900 and 1909 Robert Frost lived on a farm two miles southeast of Derry, New Hampshire. It was on this 12-acre farm that Frost developed his style and strength as a poet and composed many of the poems found in his first two books, A Boy's Will (1913) and North of Boston (1914). Now owned by the State of New Hampshire, the house remains virtually unchanged. Pending restoration, the Frost Homestead is not open to the public.

11. Hangar No. 1, Lakehurst Naval Air Station, Lakehurst, New Jersey. Commissioned in 1921, Lakehurst Naval Air Station, New Jersey, became the hub of Naval lighter-than-air activity. Known internationally as the American Airship Center, it was the home port for the Navy's rigid airships: the "Shenandoah," "The Los Angeles," the "Akron," and the "Macon." The only stopping place in this country for commercial airships, it was the

scene of the burning of the German Zeppelin "Hindenburg" in 1937. The most significant building remaining from the rigid airship era is Hangar No. 1, a gigantic structure built in 1921 to house the huge helium-filled dirigibles. Hangar No. 1 stands unchanged.

12. Connemara, Carl Sandburg Farm, one-fourth of a mile west of the Post Office in Flat Rock, Henderson County, North Carolina. Carl Sandburg was one of our most versatile American writers. His publications included poetry, history, biography, stories for children, a novel, an autobiography, and a collection of folk songs. He was the only American to receive Pulitzer Prizes in two different fields: one in history for Abraham Lincoln: The War Years published in 1939, and one in poetry for Complete Poems published in 1950. The current critical assessment of him is that he will stand as one of the major poets of the 20th century.

Carl Sandburg lived at Connemara Farm in Flat Rock, North Carolina, from 1945 to 1967, longer than at any other place. It was there that he wrote his autobiography Always The Young Strangers, his only novel Remembrance Rock, his one volume Abraham Lincoln, and several books of verse. His Complete Poems, some of which were written at Connemara, earned him the Pulitzer Prize in 1951. The Sandburg house, built in 1838 by Christopher G. Memminger, Secretary of the Treasury for the Confederacy (1861-1864), contains all the Sandburg personal and literary effects. The 241-acre estate is owned by Mrs. Carl Sandburg, who continues to make her home there.

13. The Gully, Robert Frost Farm, one-quarter mile east of State Route 7 on Buck Hill Road, South Shaftsbury, Vermont. Robert Frost purchased a farm on Buck Hill Road, South Shaftsbury, Vermont, in 1929, and spent his summers there until the death of his wife in 1938. During the period Frost considered the farm his official residence, he earned two Pulitzer Prizes: one for Collected Poems in 1931 and the other for A Further Range in 1937. Known as The Gully, the farm remains intact. The house stands almost exactly as it was during the Frost occupancy. The barn has been altered considerably and now serves as an artist's studio. The 153-acre farm is privately owned and not open to the public.

14. Homer Noble Farm (Robert Frost Farm), one mile north of State Route 125, three miles east of Ripton, Addison County, Vermont. In the fall of 1940, Robert Frost purchased a farm in the Green Mountains of Vermont, three miles east of the small community of Ripton. Living and writing there during the summer and fall months until his death in 1963, Frost produced five volumes of poetry, one of which, A Witness Tree, earned him his fourth Pulitzer Prize. Now owned by Middlebury College, the Frost cabin stands in excellent condition and contains many of the poet's furnishings. The 150-acre farm is not open to the general public but may be seen by scholars, students, and writers by appointment.

Battaile 5/23/68
(for H. J. Sheely)

May 5/23

H34-HH

MAY 24 1968

Dean Orville G. Bentley
University of Illinois
College of Agriculture
Urbana, Illinois 61801

Dear Dean Bentley:

We are pleased to inform you that the Morrow Plots, described briefly in the enclosure, have been found to possess exceptional value in commemorating or illustrating the history of the United States, and are thus eligible for registration as a National Historic Landmark.

The Registry of National Historic Landmarks is a permanent register of nationally significant historic and archeological sites. Its purpose is to identify and recognize these sites and to encourage their owners to preserve them. Eligible Landmark sites are chosen through studies prepared by the National Survey of Historic Sites and Buildings; evaluated by the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments; and approved by the Secretary of the Interior in accordance with the Historic Sites Act of August 21, 1935.

As explained in the enclosed booklet (pp. 24-25), recognition and registration of Landmark sites are afforded by certificates and bronze plaques, which are provided free of charge to the owners or administrators of these sites upon their application and agreement to adhere to simple preservation practices. If you wish to apply for the certificate and plaque, copies of the application form are enclosed. The form should be completed in triplicate and two copies returned to the National Park Service. You may retain the third copy for your records.

We will be happy to have the Morrow Plots included in the Registry.

Sincerely yours,

Ernest Allen Connally

Ernest Allen Connally
Chief, Office of Archeology
and Historic Preservation

BASIC FILE [illegible] H H

Enclosures

HJSheely:rnc 5-23-68

HHS-Mr. Sheely

cc: Regional Director, Northeast

HP-Illinois-Morrow Plots

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE

ORVILLE G. BENTLEY, DEAN

URBANA, ILLINOIS 61801

H34
~~HH~~
H H

June 28, 1968

AIR MAIL

Mr. George B. Hartzog, Jr.
Director
National Park Service
Department of the Interior
Washington, D. C. 20240

Dear Mr. Hartzog:

In behalf of the University of Illinois, owner of the Morrow Plots located in Urbana, Champaign County, Illinois, I hereby make formal application for a certificate and a bronze plaque, 17" x 18", designating this historic property as a Registered National Historic Landmark.

1. Fully conscious of the high responsibility to the Nation that goes with the ownership and care of a property classified as having exceptional value and worthy of Registered National Historic Landmark status, we agree to preserve, so far as practicable and to the best of our ability, the historical integrity of this important part of the national cultural heritage.

2. Toward this end, we agree to continue to use the property only for purposes consistent with its historical character.

3. We agree to permit an annual visit to the property by a representative of the National Park Service, as a basis for continuing Landmark status.

4. If, for any reason, the three conditions mentioned above cannot continue to be met, it is agreed that the Registered National Historic Landmark status shall cease and that until such status is restored by the Secretary of the Interior, neither the Registered National Historic Landmark certificate nor the plaque will be displayed.

Sincerely yours,

Orville G. Bentley

OGB:M

H. J. Sheely 7/5/68

H34-HH July 5, 1968

Dean Orville G. Bentley
University of Illinois
College of Agriculture
Urbana, Illinois 61801

Dear Dean Bentley:

Thank you for your letter of June 28 submitting your application for the certificate and plaque registering the Morrow Plots as a National Historic Landmark. We are proceeding with the preparation of the certificate and plaque.

Our Northeast Regional Office administers the National Historic Landmark program in Illinois, and Regional Director Lemuel A. Garrison will inform you when the plaque and certificate for the Morrow Plots have been completed. Should you wish the Service's help in arranging ceremonies for the presentation, Mr. Garrison will be glad to assist you. His address is: Regional Director Lemuel A. Garrison, Northeast Regional Office, National Park Service, 143 South Third Street, Philadelphia, Pennsylvania 19106.

We are happy to have the Morrow Plots included in the registry of National Historic Landmarks.

Sincerely yours,

/S/ ROBERT M. UTLEY

Robert M. Utley
Chief Historian

cc:
Regional Director, Northeast w/c/application

HHS-Mr. Sheely

HJShhely:rnc 7-5-68

H P-ILL. Morrow Plots

BASIC FILE RETAINED IN H H

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE

ORVILLE G. BENTLEY, DEAN

August 15, 1968

Director Lemuel A. Garrison
Northeast Regional Office
National Park Service
143 South Third Street
Philadelphia, Pennsylvania 19106

Posted 8-21-68 mrf

Dear Director Garrison:

I was delighted to learn from Mr. Robert M. Utley's letter of July 5 that you might be available to assist us in arranging the ceremony designating the Morrow Plots as a National Historic Landmark.

A program is being planned for September 12, 1968, beginning at 1:30 p.m. and ending about 3 p.m. We would be pleased if you could be present to make brief remarks and to present the certificate and the plaque to the University of Illinois on this occasion.

We have invited Congressman William M. Springer to make informal remarks and we will be scheduling an address by an internationally known soil scientist.

Although you may not recall it, I had an opportunity of meeting you while you were Director of the Yellowstone National Park. We also had the opportunity to talk about problems of mutual interest while you were in the Omaha office of the National Park Service. I was then at South Dakota State University.

Can you be of assistance to us in getting the citation and plaque here before September 12? We, of course, would like to have both of them, although we understand that the time required to get the plaque may be marginal. A copy of our June 28 request to Director Hartzog is enclosed.

We hope that you can be with us.

Sincerely,

Orville G. Bentley

OGB:Mjc
enc

HH

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
Northeast Region
143 South Third Street
Philadelphia, Pa. 19106
August 23, 1968

In Reply Refer to:
H34 ~~HH~~
NER

AUG 27 1968
DIVISION OF HISTORY
SURNAME: DATE
HH
HHP
HHS Healy
McCutchen 9/4

Memorandum:

To: Director
Att: National Survey of Historic Sites and Buildings

From: Regional Director, Northeast Region

Subject: Registered National Historic Landmark Presentation Ceremony: Morrow Plots, University of Illinois, Urbana, Illinois

Date: September 12, 1968

Time: 1:30 - 3:00 p.m.

Place: University of Illinois

Presentor: Mr. Allen T. Edmunds, Associate Regional Director, Great Lakes Area Office

Presentee: Dean Orville G. Bentley, University of Illinois, College of Agriculture

Plaque: En route to Regional Office from foundry

Certificate: Sent Mr. Edmunds 8/23/68

Guests: Dean Bentley has invited Congressman William M. Springer to make informal remarks and is scheduling an address by an internationally known soil scientist (no name given)

Remarks:

Lemuel A. Garrison

Lemuel A. Garrison

cc:
Mr. Edmunds

September 10, 1968

Memorandum to the files

Subject: Landmark ceremony for Morrow Plots, University of Illinois

To insure that Senators Everett McKinley Dirksen and Charles H. Percy, and Representative William L. Springer, were notified of the ceremony scheduled for 1:30 p.m. on September 12, I called their offices (September 5) in addition to drafting routine notification letters for the Director's signature (September 4).

I spoke to Administrative Assistant John R. Gomien (Dirksen - 180-2854), Secretary Nadine Jacobsen (Percy - 180-2152), and Secretary Helen M. Dubino (Springer - 180-2371), and gave them the same information contained in the letters.

George S. Cattanach, Jr.

George S. Cattanach, Jr.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
NORTHEAST REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

IN REPLY REFER TO:

H34
NER

Sept. 3, 1968

HH

DIVISION OF HISTORY	
SURNAME:	DATE
X HH	9/4
HHP	
X HHS	9/5
	9/5

Orville G. Bentley, Dean
University of Illinois
College of Agriculture
Urbana, Illinois 61801

Dear Dean Bentley:

This is to confirm the details of the ceremony for designating the Morrow Plots a Registered National Historic Landmark, as arranged by my secretary, Mrs. Madeline Farren.

The date is September 12, 1968, the time, 3:00 (Should be 1:30 (to 3:00)) p.m. is agreeable to us. Associate Regional Director Al Edmunds will represent the National Park Service and the U. S. Department of the Interior, and in that capacity will present the bronze landmark plaque and certificate. If there should be any change in plans or more detailed arrangements to be made, you might wish to make them directly with Mr. Edmunds, whose address is Great Lakes Area Office, National Park Service, Manley Miles Building, Michigan State University Campus, Harrison Road, East Lansing, Michigan 48823 and telephone number Area Cod 517 - 337-4268. The certificate should be in Mr. Edmunds' hands now; the plaque is being sent to you so that it can be mounted in place before the ceremony, if you so wish.

Regional Director Garrison has asked me to express his regret that he cannot attend the ceremony because of a previous travel commitment. He also wants me to express his good wishes for a memorable occasion and his appreciation of the interested participation of the University of Illinois in the Registered National Historic Landmark program and historic preservation in general.

Sincerely yours,

Murray H. Nelligan

Murray H. Nelligan
Assistant to the Regional Director,
Historic Preservation

cc: National Survey of Historic Sites and Bldgs., WASO w/c inc.

Cattanach 9/4/68
N.J. Sheely 9/4/68
Unley 9/4
Carfalley 9-4
Harrison 9/5

H34-HH

SEP 6 - 1968

Hon. Everett McKinley Dirksen
United States Senate
Washington, D. C.

Dear Senator Dirksen:

We are pleased to inform you that a ceremony designating the Morrow Plots at the University of Illinois in Urbana a National Historic Landmark will be held at 1:30 p.m. on September 12 at the University. Mr. Allen T. Edmunds, Associate Regional Director, Great Lakes Area Office, National Park Service, will present the Landmark certificate and plaque to Dean Orville G. Bentley, College of Agriculture, University of Illinois.

Senator Charles H. Percy and Representative William L. Springer are also being notified of the ceremony. The Morrow Plots are in Representative Springer's Congressional District.

Plans and arrangements for landmark presentation ceremonies are the prerogative of the owner or administrator. The National Park Service is glad to cooperate in such activities when requested to do so.

Please let us know if we may supply further information.

Sincerely yours,

(SGD) GEORGE B. HARTZOG, JR.

Director

SIMILAR LETTER SENT TO: Hon. Charles H. Percy
United States Senate
Washington, D. C.

Hon. William L. Springer
House of Representatives
Washington, D. C.

cc:
Mr. James B. Myers, Room 3147
Regional Director, Northeast
DAL - Mr. Melvin
HHS - Mr. Sheely

BASIC FILE RETAINED IN HH

GSCattanach:bw 9/4/68

HP - Illinois - Morrow Plots

KP Ross 11/16/73
N.J. Sheely 11/16/73

NOV 20 1973

H3417-PS

Memorandum

To: Regional Director, Northeast Region

From: Chief, Division of Historic and Architectural Surveys

Subject: Receipt of National Historic Landmark Biennial Inspection Reports

We are pleased to acknowledge the receipt of biennial inspection reports for the following national historic landmarks:

Fairlane, Henry Ford Estate, Michigan
Morrow Plots, Illinois

Your continued cooperation in keeping us informed of further developments regarding landmarks in your Region, including changes of ownership and any potential threats to their integrity or existence, will be greatly appreciated.

(Sgd.) A. R. Mortensen

A. R. Mortensen

PS:HJ Sheely:KP Ross:kr 11/16/73
bcc: DI

HP - Michigan - Fairland, Henry Ford Estate

Illinois - Morrow Plots

BASIC FILE RETAINED IN PS (HSS)

NWR Form 61
(4/77)

LANDMARK VISIT REPORT

I. GENERAL BACKGROUND

1. Name of Site: Morrow Plots

2. Type of Landmark: Historic X Natural ___ Environmental ___ Education ___

3. Name of Visitor: Albert W. Banton, Jr.

4. Title: Superintendent, Lincoln Home National Historic Site

5. Organization: _____

6. Name and title of person contacted: Dr. R. W. Howell
Head, Department of Agronomy, University of Illinois, Urbana, Ill.

7. Name and title of person responsible for the management of the site: Same as above.

8. Owner - telephone and address: University of Illinois, Urbana, Ill.
217-333-3421

9. Briefly state why site was declared a landmark:

II. OWNERSHIP

1. What is the attitude toward continued participation in the landmark program? Wish to continue X. Does not wish to continue ___. Is not participating ___.

2. Have any changes in land ownership taken place since designation? Yes ___ No X. If yes, if possible, list new owners and addresses.

3. If ownership changes have taken place might these changes nullify "registered" status or allow a change from "eligible" to "registered" status? Yes ___ No ___. If yes, please explain:

4. Does the present owner wish to change from "eligible" status to "registered" status? Yes ___ No ___.

III. CONDITION AND MAINTENANCE OF SITE

1. Condition includes any structures(s), grounds, furnishings, etc. that are a part of the landmark. Please check applicable box(s). (Cross out "no" as needed)

a. /X/ Condition of the site is excellent, signs of regular maintenance.

b. / / Condition of the site is good, regular maintenance performed.

c. / / Condition of the site shows decline, no regular maintenance performed.

d. / / Condition of the site shows serious deterioration, no regular maintenance performed.

/e./ / / Condition of the site threatens integrity of the landmark.

f. / / _____ shows signs of deterioration but the rest of the site is in good condition, no regular maintenance performed.

g. / / Other

2. If c, d, e, f, or g has been checked, please explain.

3. Measures that are being taken or planned to improve condition of site: None

IV. SITE INTEGRITY

1. Has there been any destruction or alteration of all or part of the landmark? Yes ___ No X. If yes, please explain:

2. Have there been circumstances or events on the lands adjacent to the landmark that have resulted in serious impairment, diminishment, or destruction of landmark resources, character, and/or significance? Yes ___ No X. If yes, please explain.

3. Has there been an introduction of visual, audible, or atmospheric elements that are out of character with the property and its setting? Yes ___ No X. If yes, please explain.

/4./ Have any other threats to the integrity of the site taken place? Yes ___ No X. If yes, please explain.

/5./ Are there any threats likely to occur in the future? Yes ___ No X. If yes, please explain:

/6./ Is there urgency regarding any of the threats? Yes ___ No X. If yes, please explain:

7. Do any financial problems exist in maintaining the landmark? Yes ___ No X. If yes, please describe.

8. Are there any special problems, or special problems that we can assist in solving? Yes ___ No X. If yes, please explain.

V. ACCEPTABILITY OF USE

1. How is the landmark used:

Residential property	☐	Mixed use	☐
Commercial property	☐	Private property	☐
Public property	☒		

2. Is present use of the site acceptable to maintenance of the landmark's integrity? Yes X No ___. If no, please describe unacceptable uses.

3. Is the landmark interpreted to the public via brochures, signing or other means? Yes X No ___. If yes, describe the nature and accuracy of the interpretation. Tape message of 3 minutes duration- changed with the four seasons.

4. If a registered landmark, is the bronze plaque displayed? Yes X No ___. If no, explain.

5. Where is the landmark certificate located? In Deans Office

RECOMMENDATIONS

/1./ On the basis of this report is landmark designation recommended to continue for this site? Yes X No ___. If no, explain citing specific examples from this report and any other sources. NONE

/2./ What follow-up action do you suggest for the MWRO and/or others?

/3./ Is a special team needed to assess threats, problems, or special items? If so, what type of expertise is needed, approximately how long, and when will they be needed? No

4. Is there any new information, corrections, or comments on the significance of the area as described in the original report or brief? Yes ___ No X

5. Did you offer any suggestions to the owner/administrator? Yes ___ No X. If so, please note.

6. Did you give the owner/administrator the tax and grants-in-aid handouts? Yes ___ No X.

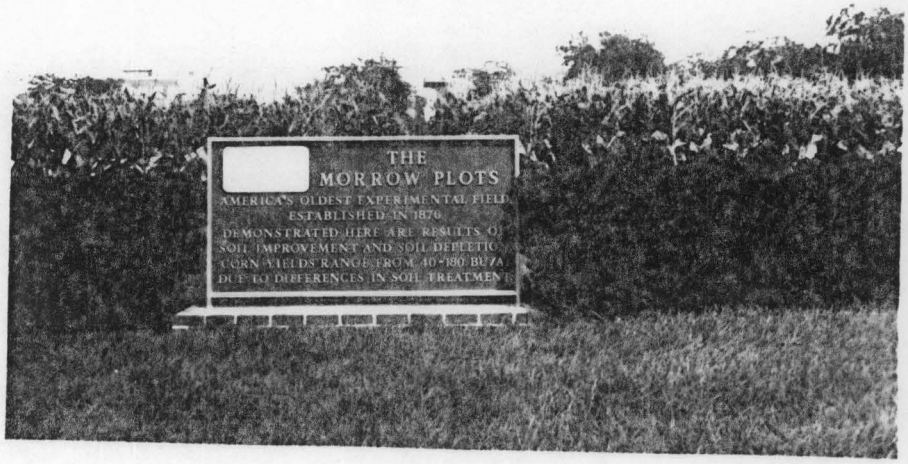
7. Did you contact local/state agencies to ascertain threats? Yes ___ No X.

8. Did you attach to this report dated, captioned photographs of threats, site condition, site use, display of plaque, and other conditions? Yes X No ___.

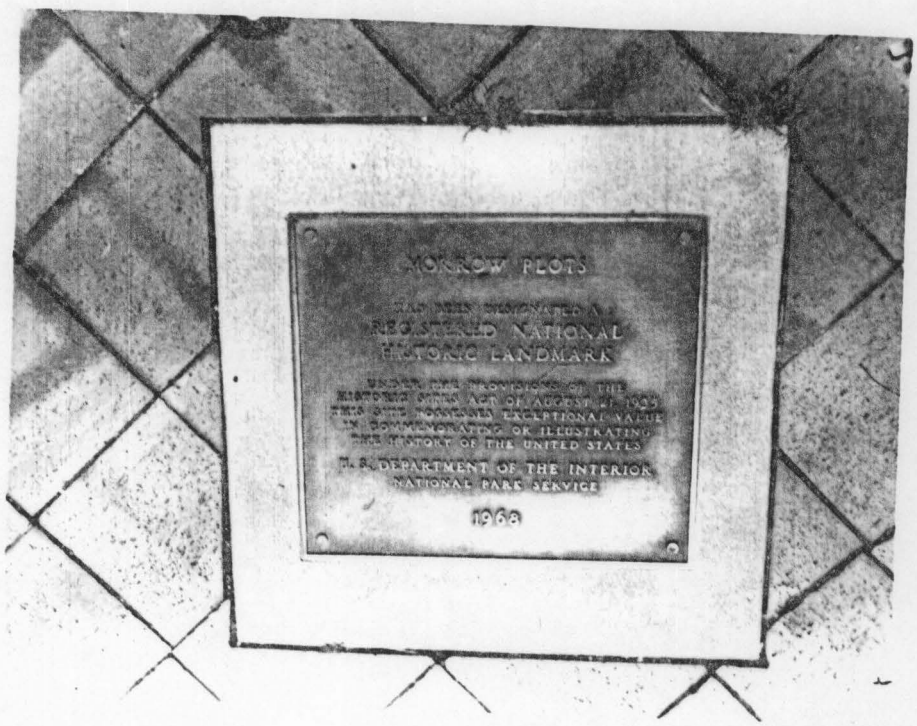
9. General Comments:

Albert W. Barton Jr
Signature of Visitor

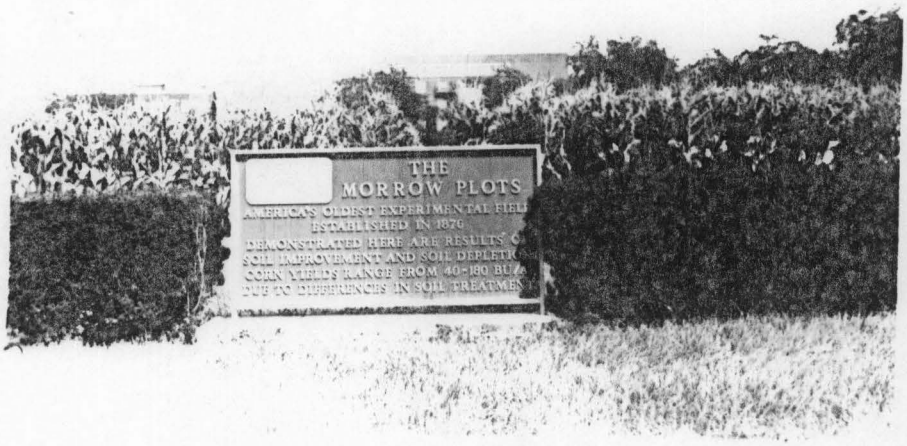
Date: 8-4-77



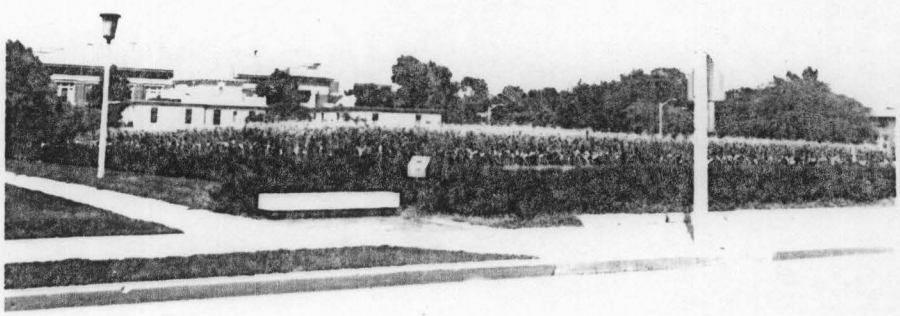
Registery Plaque and interpretive device in place at Morrow Plots, University of Illinois, Urbana, Ill.



Registery plaque in place in the sidewalk at the southwest corner of the Morrow plots.



Morrow Plots - Identification signs of cast aluminum, one on each side of the plot.



Morrow Plots, University of Illinois, Urbana, Ill. Looking northeast - showing an overall view of the Plots, Registery plaque (mounted flush in pavement of sidewalk) and a tape device for interpretation.

REGISTRY OF NATIONAL HISTORIC
AND NATURAL LANDMARKS

REPORT OF BIENNIAL VISIT TO

THE MORROW PLOTS

Date of visit January 27, 1970

Visited by James L. McLaughlin (name), Management Assistant (title), Great Lakes Area Office (office)

Received by Dr. Marlowe D. Thorne (name), Head (title), Department of Agronomy University of Illinois (office)

Condition*

Excellent

Operation**

Agronomy Department has immediate charge of plots. Plaque not erected.

It is hoped that landscape architect will complete plans for erection of plaque by next summer.

Contact Dr. Marlowe D. Thorne, Head, Department of Agronomy, University of Illinois, Urbana, Illinois.

FTS 217-525-4011
217-333-3421 - Urbana, Illinois

*Grounds, structure/s, furnishings
**Note any changes in ownership, sponsoring organizations, operating staff, use, location of plaques and certificates, etc.

Special Problems

New library adjacent to Morrow Plots was built underground to prevent shading of the Plots.

Suggestions Offered

Urged that consideration be given to the erection of the plaque at the earliest possible opportunity.

(signed)

REGISTRY OF NATIONAL HISTORIC AND NATURAL LANDMARKS

REPORT OF BIENNIAL VISIT TO

Morrow Plots

Date of visit September 12, 1973

Visited by Grant A. Petersen (name), Management Assistant (title), Chicago Field Office (office)

Received by Prof. L. F. Welch / Dr. Charles Brown (name), (title), Agronomy Dept.-Turner Hall, Univ. of Illinois (office)

Condition* Excellent. The plots continue to be used for experimental soil fertility studies.

A hedge of yew has been planted around the periphery of the plot presently delineated by a wire and post fence. This fence will be removed when the hedge has reached a satisfactory height and density.

Operation** The Agronomy Department continues to have charge of the Plots. The plaque is located at the SW corner of the site embedded in a patio with a brick-stone bench. It is well done. Contact is Dr. Charles Brown, Turner Hall, Department of Agronomy, University of Illinois (217) 333-3421.

*Grounds, structure/s, furnishings

**Note any changes in ownership, sponsoring organizations, operating staff, use, location of plaque and certificate, etc.

Special Problems No real problems. Prof. Welch asked for information on audio-interpretive devices and self-guiding leaflets. Information will be sent to him. (See below)

Suggestions Offered The pros and cons of various interpretive treatments for the Plots were discussed and suggestions offered.

It was suggested that the experimental "facts and figures" of the Plots be played down in the interpretive offerings and the emphasis placed on their impact on civilization; i.e., increased food production, changing farming practices etc.

Grant A. Petersen

(signed)

September 14, 1973

(date)

REGISTRY OF NATIONAL HISTORIC
AND NATURAL LANDMARKS

REPORT OF BIENNIAL VISIT TO
Morrow Plots, Ill.

Date of visit September 8, 1975

Visited by Grant A. Petersen (name), Acting Assistant to the Regional Director, Chicago (title), Chicago Field Office (office)

Received by Prof L. F. (Fred) Welch (name), _____ (title), Agronomy Dept., Turner Hall, Univ. of Illinois (office)

Condition*

The Plots continue to be maintained in excellent condition. Experimental soil fertility studies continue resulting in a "living" historical landmark.

The yew hedge planted two years ago around the periphery of the plot is now approximately three feet tall and the wire and post fence, once delineating the site, has been removed.

The University, through Professor Welch, utilized the suggestions provided during the 1973 visit and installed an audio-interpretive device, relating the significance of the Morrow Plots, immediately adjacent to the location of the historic landmark plaque at the Plots' southwest corner. We had provided Professor Welch with information on the types of audio-interpretive devices and how they might be used. They utilized one of these designs and the three-minute audio-interpretation is excellent. It has been in operation approximately one year and they have had no major difficulties. The text (continued)

Operation**

The Agronomy Department, University of Illinois, is in charge of the Plots. As indicated above, the plaque is located in the southwest corner of the site embedded in a patio with a brick-stone bench. The audio-interpretive device is located at this patio location. Our contact at the University is either Dr. Charles Brown, Turner Hall, Agronomy Department, University of Illinois, telephone: Area Code 217, 333-3421, or Professor L. F. (Fred) Welch, at the same address and telephone.

Condition (continued)

of the taped narrative is changed to match the changing growth conditions of the species planted within the Plots.

As a matter of general information, the taped unit they are utilizing is made by Orrtronics, Inc. of Toledo, Ohio, Model No. is 773-320.

*Grounds, structure/s, furnishings
**Note any changes in ownership, sponsoring organizations, operating staff, use, location of plaque and certificate, etc.

Special Problems

Installation of the audio-interpretive device has taken care of the general information dissemination problem the University faced at the time of the 1973 visit. At present, there are no real problems.

Suggestions Offered

I had no new suggestions to offer Professor Welch other than to commend he and the University on their excellent care of and interest in the Morrow Plots.

If all of our historic landmark owners would take as much interest in the properties under their administration as has the University of Illinois, the landmarks program would, indeed, be outstanding.

(signed)

September 11, 1975
(date)

REGISTRY OF NATIONAL HISTORIC AND NATURAL LANDMARKS

REPORT OF BIENNIAL VISIT TO

Morrow Plots NHL

Date of visit November 8, 1976

Visited by Sherman W. Perry (name), Chief (title), Chicago Field Office (office)

Received by Bob Espeseth (name), Instructor (title), University of Illinois (office)

Condition*

Excellent - These plots are on the Mall of the University of Illinois and are surrounded by grass and a low ledge.

Operation**

These plots are used and have been since 1876 and are the oldest experimental plots established by a college in the U.S.

One plot produced 195 B/A of corn, while an untreated plot produced 39 B/A.

Audio station working with a three minute message.

Plaque is mounted in walk in front of audio message equipment.

***Grounds, structure/s, furnishings**

****Note any changes in ownership, sponsoring organizations, operating staff, use, location of plaque and certificate, etc.**

Special Problems

None

Suggestions Offered

None

(signed)

November 15, 1976

(date)

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NHL

The National Survey of Historic Sites and Buildings

Special Report

The Morrow Plots, Urbana, Illinois

Prepared by
John D. McDermott
Historian
Division of History
March 12, 1968

The Morrow Plots, Urbana, Illinois

Location: At the northwest corner of Gregory Drive and Matthews Avenue, University of Illinois, Urbana, Illinois

Ownership: University of Illinois: Dean Orville G. Bentley, College of Agriculture.

Statement of Significance

Begun in 1876 and enlarged in 1879, the Morrow Plots at the University of Illinois were the first field experiment plots established by a college in the United States. They were reduced in number from 10 to three in 1904. Of great importance in proving that prairie soil could be depleted by the continuous cropping of corn, they continue to provide data on the effect of crop rotation and the impact of organic and chemical nutriments on plant yields.

History

Prof. Manly Miles of the University of Illinois laid out the first soil experiment plots in 1876. Three in number, they were each one-half acre in size. The purpose of the experiment was to prove that the continuous growing of corn would deplete prairie soil and, conversely, that crop rotation would increase plant yields. Three years later Prof. George E. Morrow increased the number of plots to 10.

During the early years, university officials periodically reported the results of experimentation to the State Horticultural Society of Illinois, which in turn made it available to farmers throughout the State. Information concerning the experiment also appeared in the college

catalogue, but it was not until 1888 that the university began keeping accurate records of crop yields and that knowledge of the testing became widely known. By 1904 the value of the investigation had become conclusively apparent. It was evident beyond a doubt that the depletion of prairie soil was indeed possible and that crop rotation was an effective method of preventing soil exhaustion.

In 1903, officials reduced the number of experimental plots to three in order to provide space for college expansion. Of the remaining plots, only one dated from 1876. The following year, the plots were reduced about one-fifth of an acre and divided in half to make six plots one-tenth of an acre in size. This arrangement has survived to the present day. Also in 1904, college agronomists broadened the scope of investigation by treating the south half of each of the plots with animal fertilizers and other nutriments.

The Morrow Plots show the comparative value of three kinds of cropping systems. The two northern plots have been planted in corn continuously since 1876, the middle plots have been cropped on a corn and oats rotation since 1879, and the two southern plots have been sown alternately with corn, oats, and red clover since 1901. Among other things, experimentation has demonstrated and/or verified that continuous planting of the same crop lowers the productive power of prairie soil, that crop rotation is an effective preventative of soil exhaustion, and that depleted soil can be regenerated by chemical treatment.

Although the University of Illinois was the first to establish field experiment plots in the United States, the knowledge gained there in the early years was not widely disseminated. No accurate records of crop yields were kept until after the establishment of the University of Illinois Agricultural Experiment Station in 1888. By that time many colleges had agricultural experiment stations or were conducting informal experiments of a similar kind. Agronomists at Pennsylvania State College were the first to perform field experiments with fertilizers in 1881. The Jordon Plots, however, were destroyed in 1958. At Sandborn Field, established at the University of Missouri in 1888, similar experiments in crop rotation and soil depletion were performed on a somewhat larger scale. Sandborn Field became a National Historic Landmark in 1965.

Yet the investigations made at the University of Illinois loom large in early agricultural research, especially in the area of prairie soils. Most college texts in agronomy mention the experiments conducted there.

Condition

Of the three plots now in use, one dates back to 1876 and the others to 1879. The size and arrangement of the plots has not changed since 1904. The plots continue to be maintained in excellent condition.

References: (The University of Illinois Agricultural Experiment Station Bulletin is cited as UIB.) Cyril G. Hopkins, "The Fertility in Illinois Soils," UIB 123 (1908); C. G. Hopkins, "Crop Rotation for Illinois Soils," UIB 141 (1910); Hopkins, "Thirty Years of Crop Rotations on The Common Soils of Illinois," UIB 125 (1908); L. M. Smith, "An Experiment in Selecting Corn for Yield," UIB 271 (1925); Ernest DeTurk, "Lessons from the Morrow Plots," UIB 300 (1927); A. C. True, A History of Agricultural Education in the U. S., 1785-1925 (1929; Milton Whitney, Soil and Civilization (1925);

James T. Jardine, "The Rise, Development, and Value of the Agricultural Experiment Station," Oregon Agricultural College, State Agricultural Experiment Station Circular 26 (1922); Arthur Harris, "Further Studies on the Permanence of Differences in the Plots of an Experimental Field," Journal of Agricultural Research 36 (1928): The Morrow Plots: UBI 777 (1957); U. S. Department of Agriculture, Soils and Men (1938); T. Swan Harding, Two Blades of Grass, A History of Scientific Development in the U. S. (1947); C. G. Hopkins, Soil Fertility and Agriculture (1910); Interview of Associate Dean Karl E. Gardner of the College of Agriculture; Dr. Fred H. Turner, Chairman of the University of Illinois Centennial; and Professors Larry B. Miller and M. D. Thorne of the Department of Agronomy of the University of Illinois by John D. McDermott, January 10, 1968, Urbana, Illinois.

Morrow Plots, University of Illinois (1966), Looking North.

Morrow Plots, University of Illinois. Looking West.

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON, D. C.

The National Survey of Historic Sites and Buildings

Morrow Plots, Illinois

Begun in 1876 and enlarged in 1879, the Morrow Plots at the University of Illinois were the first field experiment plots established by a college in the United States. They were reduced in number from 10 to three in 1904. The Morrow Plots were of great importance in proving that prairie soil could be depleted by the continuous cropping of corn and, conversely, that crop rotation was an effective method of preventing soil exhaustion. They continue to provide data on the effects of crop rotation and the impact of organic and chemical nutriments on plant yields. Of the three plots now used, one dates back to 1876 and the others to 1879.

NSHSB: 4/12/68
JDM

Index No. 20

MORROW PLOTS

ILLINOIS

The National Survey of Historic Sites and Buildings

Begun in 1876 and enlarged in 1879, the Morrow Plots at the University of Illinois were the first field experiment plots established by a college in the United States. They were reduced in number from 10 to three in 1904. Of great importance in proving that prairie soil could be depleted by the continuous cropping of corn, they continue to provide data on the effect of crop rotation and the impact of organic and chemical nutriments on plant yields.

JDM: 3/11/68

NHL

1876, June 10 Prairie Farmer

Manly

* Miles plots

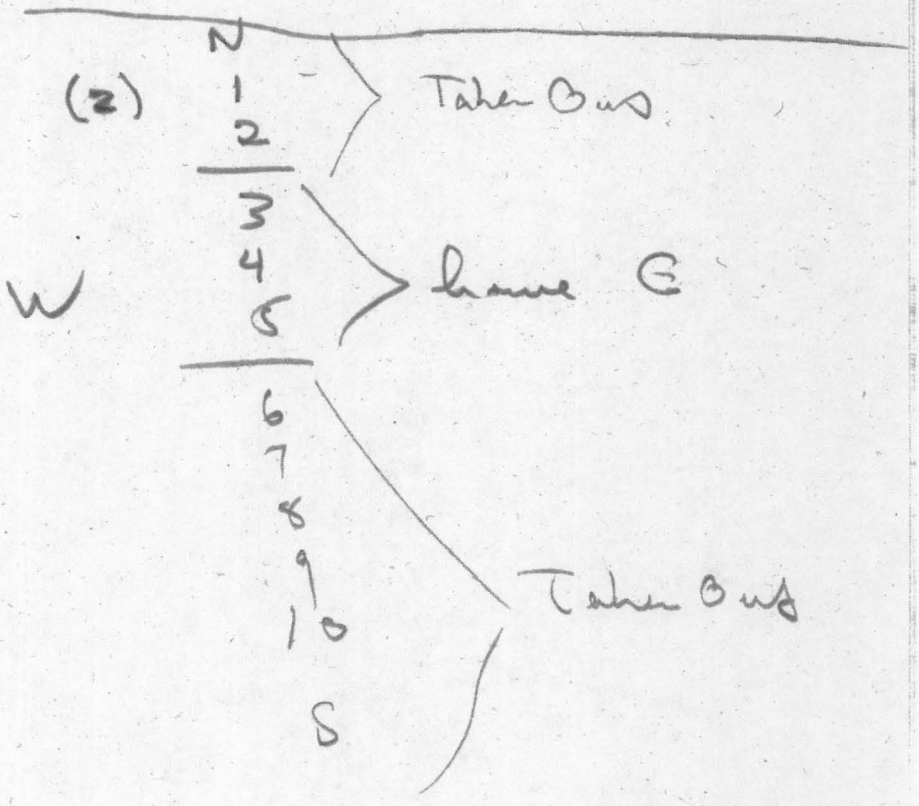
True, History of Agriculture

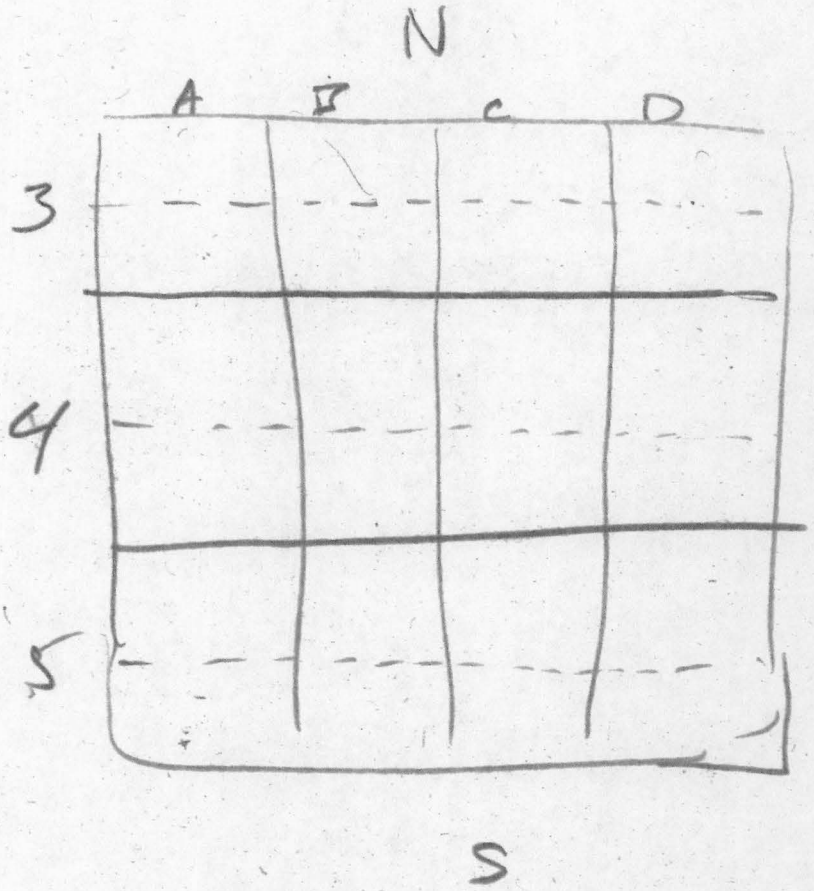
(192[illegible]

Dec. 15, 1874 — Miles recommended plot to perform experimentation to Univ. — appointment approved in 1876.

1910 -

(1) First treatment of any kind other than cropping began in 1904. (Dr Morrow's lots)
Before grew continuous corn + rotated crops.





ABCD in 1955

- - - - - in 1904

Univ of Illinois 1/10/68

FRED H. TURNER
CHAIRMAN - U. of I. CENTENNIAL

R. B. Miller
Agronomy Dept. U. of Illinois

Karl E. Gardner K. E. GARDNER
Assoc. Dean, Coll. Ags., U of I

M. D. THORNE HEAD AGRONOMY
DEPT U OF I.

Material made available to farmers of Illinois in college catalogue. — 1876 — 1888.
Feeding in information to State Horticultural Society..

Plots 1, 2, and 3
established 1876

Rest established ~~and~~ 1879
after Prof. Morrow went
to Eg. — [redacted] Broadfach
Plot at Rothamstead,
Engl. —

U assumed it.

1880 Morrow asked formal
approval for plots he
had estab in 1879 +
3 plots set up by Manly H.
Miles in 1876 (1, 2, +3)
corn, oats, rotation

One of the 12 bench-mark
weather stations

WASO-9
(Nov. 1966)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
WASHINGTON OFFICE

FOLLOW-UP SLIP

OK. But you have to be able to put in words why, concretely, Sanborn is in and Morrow out. That will be first question. Ln

To: Mrs. Utley Ln

Date

We can't make a decisive case for the Morrow Plots. They don't seem to be as important as the Sanborn Field in Missouri which was designated. Nor do they seem as significant as the Jordan Soil Plots at Penn State. Those latter have been destroyed by campus construction. The DAB biography of the founder of the Morrow Plots doesn't even mention them. They are, however, the oldest.

Dr. Rasmussen, who helped us with the original theme study, has agreed to review our special study.

NOT TO BE FILED

Signature Horace

Illinois p 78 (1)

"Gregory showed prompt and unusual understanding of the possibilities for the experiment farm, which was provided for in 1871. These experiments, he asserted, must be systematic, and an exhaustive series of would necessarily occupy many years. Following the recommendations of Bliss & W.C. Flagg he surveyed a number of plots (these are the oldest consistently devoted to such a purpose in ~~the~~ America) for experiments in cultivation, and with fertilizers and plants, and he recommended experiments in animal husbandry." For a while experiments (plots) under special direction of Flagg but in few years united with general farm. None of experiments "were half so valuable as those of Russell in horticulture. Was first published papers (was reprint) to the board in 1869 and he soon began general publication in scientific magazines of the results achieved" Some of these papers were upon a subject which he was the first scientist to discuss – the bacterial origin of diseases in plants. 123/ Plans drawn up to establish "the agricultural experiment station" with funds provided by Hatch Act. 9 directors of Station appointed by Trustees. Regarded as department of University. At outset it was determined four principal enquiries should be determined: "into the culture of the cereals and grasses; into the feeding of meat animals; into the feeding

of dairy cattle; and into orcharding and the culture of small fruits and garden products. Under joint supervision of Burrill and Morrow. By end of year over 60 distinct experiments were being conducted. Under Draper who replaced Morrow as head of College of Agr., experiment Stations investigations into soils and crops were multiplied. 4/ 1907 experiment station completed its first general survey of Illinois soils and published the results. Detailed soil study then undertaken and acquisition of experimental plots all over state began under Draper, continued rapidly. 245/ Bulletins of experiment Sta. were supplemented about 1910 by a University News service. 329/ "The work done for the state by the college of agriculture and the agricultural experiment station falls under three general heads: their activities in research, their dissemination of advice and information by correspondence, and their extension teaching through the short course, the lectures of the faculty at institutes, and other agencies — an extensive physical and chemical analysis of the soil of Illinois was made. Detailed soil survey, — both necessary bases for the adoption of scientific methods of agriculture and " University believes they have already had important results: the average state yields the last decade having been seven more bushels of corn and three more of wheat than during the quarter century before the University began (with other factors) to affect agricultural practice" Experiments have been made in crop rotation.. milk production and meat production

followed by issuance of bulletins of practicle advice. ~~Plants have~~ For the deep cultivation of corn the farmers have been led to substitute shallow, with a consequent saving of millions. Special effort has been made to impress the necessity for attention to the renovation of land through the addition of limestone, phosphate, manures and the rotation of crops as to include nitrogen producing plants methods of seeding and methods of caring for growing crops have been ~~too~~ covered in 4 bulletins.

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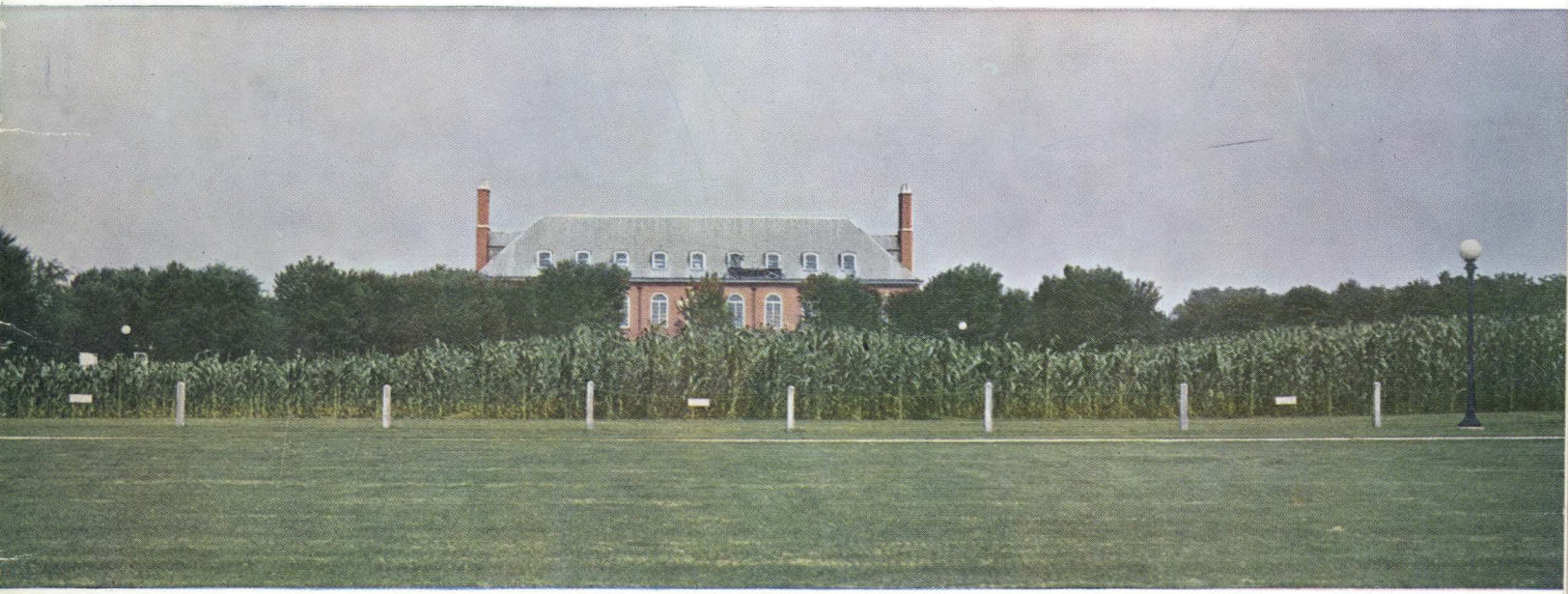
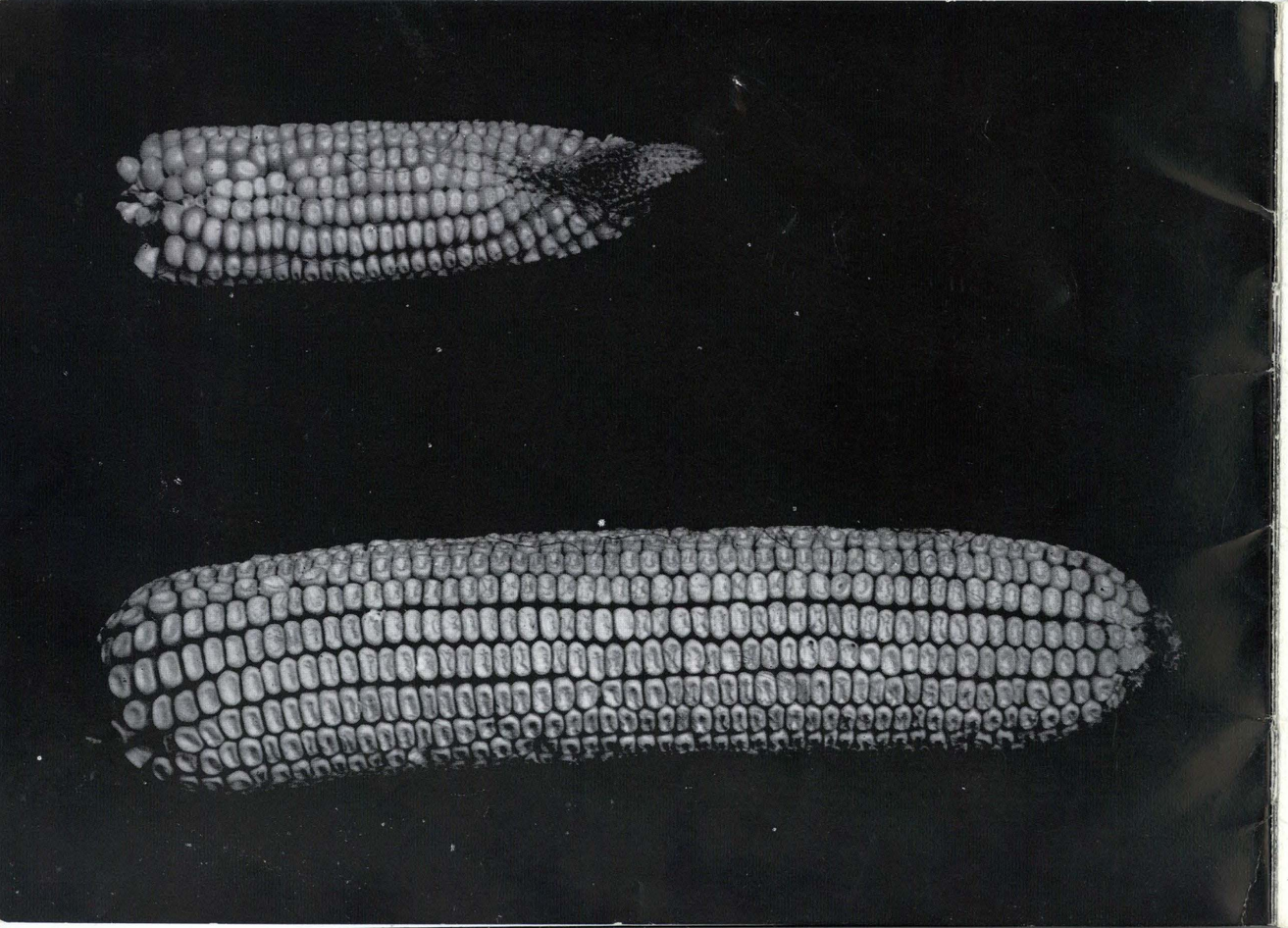
"The work which they [U of I Ex Sta.] do represents, in general, the response to a demand long ago voiced by the intelligent agricultural population of the state; they did not so much offer themselves as they were chosen by the state as the proper agency."

THE MORROW PLOTS UNIVERSITY OF ILLINOIS





A WARNING AND A PROMISE

From the story of the Morrow plots come both a warning and a promise. The warning is symbolized by the top ear of corn in the picture at the left. For this ear grew on a plot where once the soil was productive. Year after year the land was plowed and planted to corn; year after year the corn removed nutrients from the soil which were never returned. And so the corn plants are now stunted and pale, producing only a small yield of low-quality nubbins. The plot shows us all too well the disaster that has already struck many Illinois soils and that is threatening to overtake thousands of acres more.

The other ear of corn, however, reminds us that with a good rotation and adequate soil treatment we can reap the benefits of the soil ourselves and still keep it productive for our children. In recent years, another promise has been added to this — that not all of our badly damaged soils are completely lost; with proper care some of them can become fertile again.

It is thanks to a few early leaders at the University of Illinois that today we can learn from the Morrow plots the long-time effects of different cropping systems with and without soil treatment. Our principal debt is to George E. Morrow, after whom the plots are named, and Manley Miles. In the early years of the University, when the need for short-time projects was great, they had the vision to plan a long-time experiment for the benefit of future generations. The plots were laid out in 1876 and are the oldest soil experiment field in America.

THE PLOTS — DESCRIPTION AND MANAGEMENT

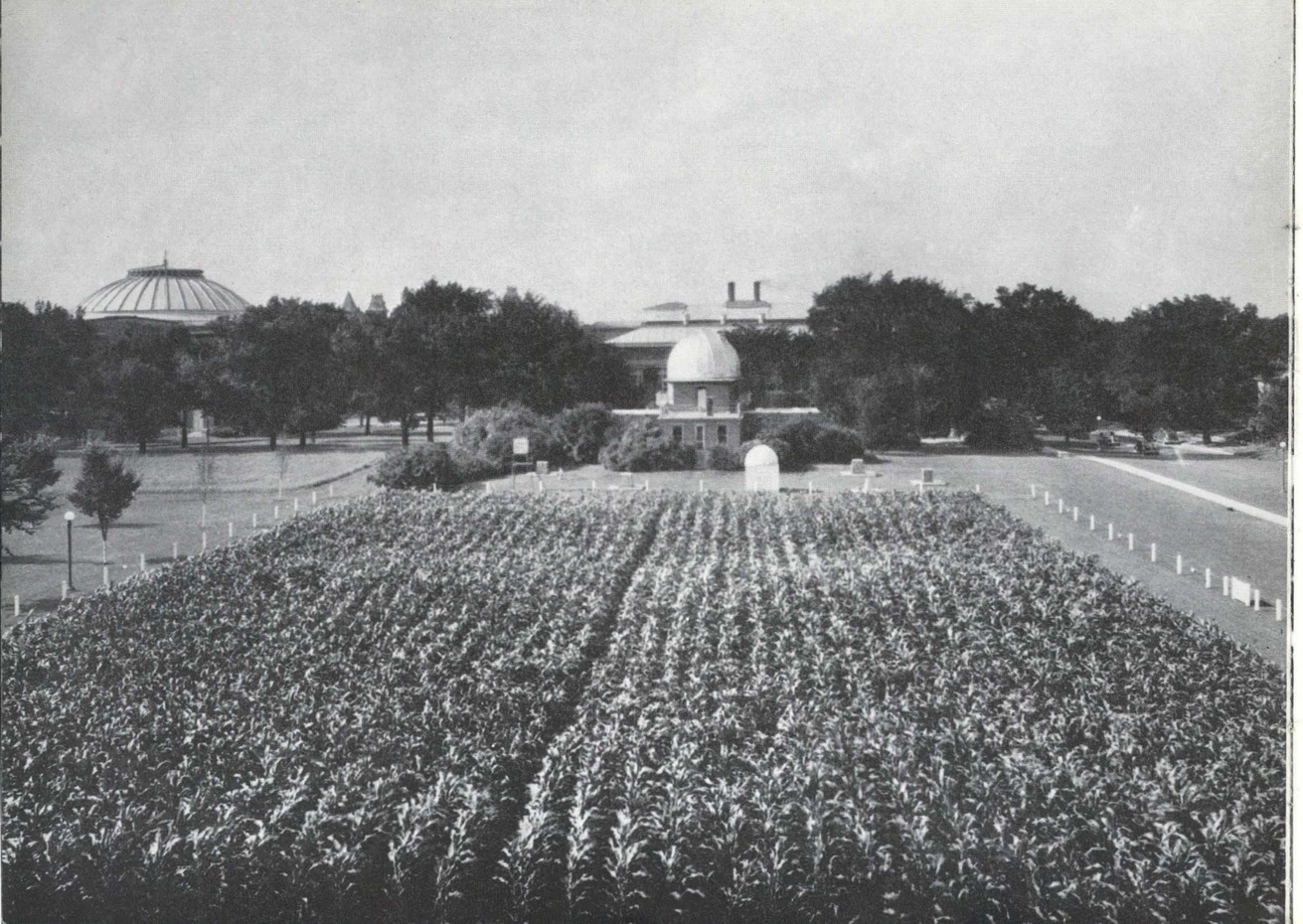
Originally there were ten plots, each ½ acre in size. In 1903, however, all but three of the original plots were discontinued. The following year each of these three was reduced to about ⅕ acre and was divided into half, making a total of six $\frac{1}{10}$-acre plots. That is how they remain today.

Three cropping systems followed

1. The two north plots have grown corn continuously since 1876.

2. The two middle plots have been cropped to a corn-oats rotation. Since 1904 catch crops have been seeded in the oats on the southern of these two plots, and plowed down the following spring for corn.

3. Since 1901 the two plots at the south have been cropped to a corn-oats-red clover rotation. Before then, the rotation was corn-corn-oats-meadow-meadow-meadow.



Soil treatment, 1904-1955

By 1904 the effects of the different cropping systems were showing up in the yields. But none of the plots had received any manure or other fertilizers. So two new questions were raised. How would soil treatment affect differences in yield among the three cropping systems? And how would it affect yields within each system?

To answer these questions the north plot in each cropping system has been continued without treatment. All grain, straw, stalks, and hay have been removed. Stubble and roots have been the only residues returned to the soil. The south plot in each system has received a manure-limestone-phosphorus (MLP) treatment. In addition, as already mentioned, a legume catch crop has been plowed down for corn on the corn-oats plot.

Manure. From 1904 to 1909 manure was applied at the rate of 2 tons to the acre. Since then, the amount added has equaled the air-dry weight of the crops removed. For all cropping systems, the manure is applied immediately before the corn crop.

Limestone. Five applications of limestone have been made at the following rates: 1904, 0.85 ton per acre; 1919, 5 tons; 1943, 3 tons; 1949, 2 tons; and 1955, 2 tons.

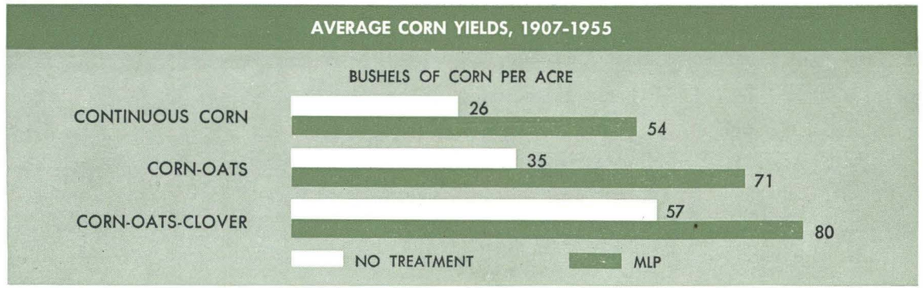
Phosphate. Between 1904 and 1925 a total of 6.60 tons of rock phosphate per acre was applied to the west half of each south plot. During the same period 1.65 tons of bone phosphate were applied to the east half. No phosphate was applied after 1925.

CORN YIELDS — 1904-1955

Differences show up in long-time averages

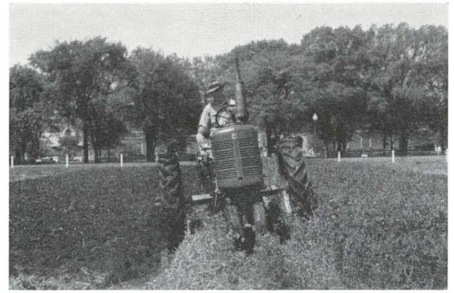
Now, after so many years, how have cropping system and soil treatment affected corn yields? Let us consider first the average yields since soil treatment was begun. Between 1904 and 1955 all plots have grown corn at the same time in nine different years, the first year being 1907. Average yields for these nine years are shown in the diagram below.

As would be expected, the greatest difference is between the untreated continuous corn and the treated corn-oats-clover plot. The combination of soil treatment and the three-year rotation has more than tripled average corn yields.



The value of the corn-oats-clover rotation lies largely in the ability of clover to take nitrogen from the air. Even when a hay crop is removed, some of the nitrogen remains in the soil for succeeding crops. Comparing the untreated plots, we see that the rotation including clover has produced more than twice as much corn as the continuous-corn system, and 63 percent more than the corn-oats rotation.

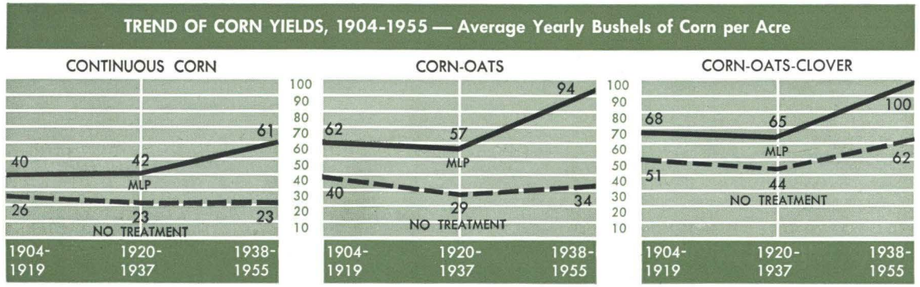
The greatest increases due to MLP treatment alone were in the corn and corn-oats systems, where yields were doubled. In the corn-oats-clover system, where yields were already relatively high, treatment increased yields by 40 percent. It is not possible to separate the individual effects of manure, limestone, and phosphate. No doubt the yield increases reflect the direct effects of manure and phosphate and the indirect effects of limestone.



Greater differences in recent years

Long-time average yields do not show us the full extent of present differences in the plots. Actually, in recent years the treated corn-oats-clover plot has been yielding more than four times as much as the untreated continuous-corn plot. This can be seen in the chart below, which gives average yields for 1938-1955, as well as for 1920-1937 and 1904-1919. All corn yields on each plot were included in the averages.

As can be seen from the chart, yields on the untreated, continuous-corn plot changed very little in 52 years. From 1888 to 1903 this plot had averaged 40 bushels, but soon thereafter productivity dropped to a very low level. In 1937, hybrid varieties were introduced onto the plots and other



changes were made in management practices, including a heavier planting rate. However, the soil growing corn continuously without treatment was so low in nutrients that it could not take advantage of the possibilities in hybrid corn or respond to the other new practices.

All the treated plots and the untreated corn-oats-clover plot showed marked yield increases after 1937, driving home the value of both the MLP treatment and the nitrogen-supplying rotation. Either treatment alone or rotation alone kept the soil moderately productive; the two together made the difference between 23-bushel corn and 100-bushel corn.

CHANGES IN THE SOIL

Closely tied to differences in crop-yielding capacity are differences in the chemical, physical, and biological nature of the soil on the various plots.

Chemical reactions

We don't know much about the history of soil acidity on the Morrow plots, since modern methods of determining reaction were not available for many years after the plots were laid out. We do know, however, that all the untreated plots are now distinctly acid. In 1955 they had a pH of about 5.0. This is to be expected, since soils become increasingly acid as they age. Naturally, on the plots where limestone has been applied the pH is considerably higher — about 6.4.

Cropping system has not appreciably affected soil reaction, either on the treated or the untreated

plots. This is somewhat surprising, because larger crops have been removed in the corn-oats-clover and corn-oats rotations than in the continuous-corn system.

Nor does cropping system seem to have had much, if any, effect on the supply of available phosphorus. All the untreated plots are low in this element according to both the Bray P_1 and P_2 tests. Plots which have received phosphate test higher.

All plots are relatively high in available potassium, with the plots that receive manure testing somewhat higher than the untreated plots.

Physical condition

Where corn has been growing year after year with no soil treatment, tilth is obviously poor. Intensive cultivation through the years has broken down the soil structure, making it difficult for air and water to pass through the soil. Tilth is better on the other plots, being best of all on the treated corn-oats-clover. Here we see a crumbly structure that makes the soil easy to work and permits easy penetration by water and air.

Organic matter

The amount of organic matter in the Morrow plots reflects both cropping system and soil treatment. Figures for 1904, when treatment was begun, and for 1953 are given in the chart on the next page.

We don't know the organic-matter content of the plots when they were first laid out. Presumably, however, all plots were similar, and the differences found in 1904 were the result of cropping systems practiced since 1876.

The decline on the untreated plots since 1904 has been 40 percent for continuous corn; 23 percent for corn-oats; and 20 percent for corn-oats-clover. This is to be expected, for, other things being similar, the decline in organic matter will vary directly with the proportion of tilled crops in a rotation.

Where soil treatment including manure has been applied, organic-matter content has changed very little over the 50-year period. This is particularly true on the corn-oats and corn-oats-clover plots. Greater differences showed up between different parts of these plots than between 1904 and 1953. It is reasonable to assume then, that soil treatment has maintained organic-matter content on these two plots. While there has been no appreciable decrease, however, neither has there been an increase.

AMOUNTS OF ORGANIC MATTER, 1904 AND 1953

YEAR	CONTINUOUS CORN	CORN-OATS	CORN-OATS-CLOVER
1904	40 / 38	43 / 44	50 / 51
1953	24 / 31	33 / 44	40 / 49

TONS PER ACRE — NO TREATMENT — MLP

Nitrogen

Since organic matter is a storehouse of nitrogen, we would expect nitrogen values to follow organic-matter values on the Morrow plots. That this has happened is shown in the chart below.

As with organic matter, the decline in nitrogen content on untreated soil has been greater with the continuous-corn system than with the corn-oats and corn-oats-clover rotations. Also on treated plots cropped to corn-oats or corn-oats-clover there has been no significant change in nitrogen content.

Life in the soil

Before crops can make much use of the nitrogen, phosphorus, and other plant nutrients stored in the organic matter, some of the organic matter must be decomposed. This is the work of bacteria and

AMOUNTS OF NITROGEN, 1904 AND 1953

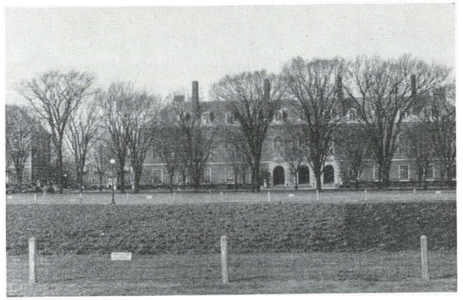
YEAR	CONTINUOUS CORN	CORN-OATS	CORN-OATS-CLOVER
1904	4200 / 4000	4000 / 4100	4600 / 4900
1953	2400 / 3100	3000 / 4100	3500 / 4600

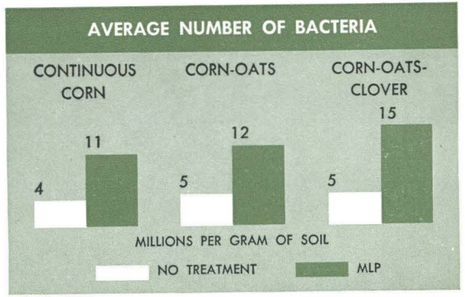
POUNDS PER ACRE — NO TREATMENT — MLP

other microbes in the soil. How fast organic matter decomposes depends on the kinds and numbers of microbes; and these in turn are largely determined by the kind and amount of organic matter.

The numbers of bacteria on the different plots, as indicated by the plate method, are given in the chart below. Total numbers of microbes may be presumed to vary with the numbers of bacteria.

It isn't surprising that the treated plots have many more bacteria than the untreated plots. The organic matter supplied by manure is readily decomposable and is a source of food for many kinds of bacteria. In the untreated plots, the only organic matter is in the roots and stubble, which are not easily decomposed. For this reason, there is little difference among the untreated plots in numbers of bacteria.





NEW HOPE FROM THE MORROW PLOTS

In 1955 an important new chapter was begun in the history of the Morrow plots. By that time more than 50 years had passed since any material change had been made in soil treatment or cropping system. And for 80 years the north plot had been growing corn continuously without soil treatment. As we have seen, average annual yield on this plot since 1920 was only 23 bushels an acre, and the soil was obviously poor in tilth.

So now new questions arose. Had the soil on the north plot been permanently damaged, or could it be revived with new treatment? And had the best plots reached maximum productivity,

CORN YIELDS WITH OLD AND NEW TREATMENTS — Bushels of Corn per Acre

TREATMENT	CONTINUOUS CORN 1955	CONTINUOUS CORN 1956	CORN-OATS 1955	CORN-OATS-CLOVER 1955
None	36	29	43	63
LNPK (New)	86	113	97	102
MLP (Old)	79	96	98	100
MLP and NPK	98	128	107	101

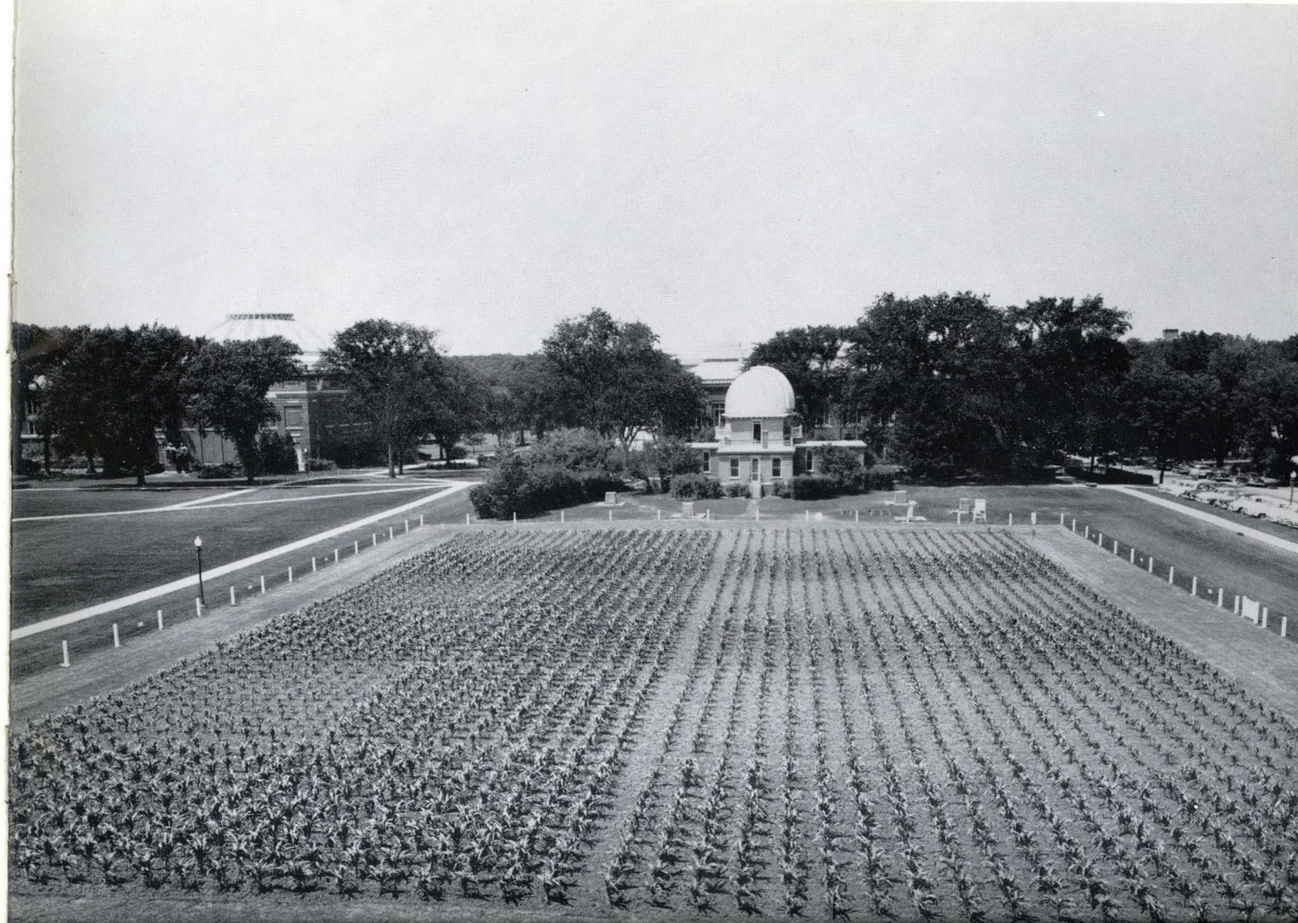
or could productivity be improved by adding more plant nutrients? To answer these questions, one-fourth of each plot received additional soil treatment.

Limestone was applied to previously unlimed plots at the rate of 5 tons an acre. Nitrogen in the form of urea was added at these rates: 200 pounds an acre to plots not growing legumes and 100 pounds an acre to other plots. Superphosphate at the rate of 150 pounds of P_2O_5 was added to all plots. Muriate of potash containing 100 pounds of potassium oxide (potash) was also added to all plots.

In 1956, additional soil treatment was applied to the areas heavily fertilized in 1955. The treatment included 40 pounds of P_2O_5 and 30 pounds of potash an acre. Nitrogen was applied at the rate of 200 pounds on the two continuous-corn plots and 50 pounds on the other plots.

The response of the previously untreated continuous-corn plot to this treatment was astounding. In 1955 the yield was 86 bushels an acre, and in 1956 it shot up to 113 bushels. So it would seem that physical condition did not greatly affect yields when enough plant food was supplied. In contrast to these remarkable results is the fact that the new treatment produced no yield increases on the previously treated corn-oats-clover plot. Apparently the combination of a good rotation and the MLP treatment had maintained fertility.

Thus, for some of our worn-out prairie soils there is new hope that they can become productive once more. But the Morrow plots have a deep topsoil, little of which has been lost by erosion, and a permeable subsoil. The sad truth remains that once productivity has been lost on our more shallow soils, it is lost for centuries to come. So the warning of the Morrow plots remains with us, as well as the promise.



Circular 777

UNIVERSITY OF ILLINOIS — COLLEGE OF AGRICULTURE

Extension Service in Agriculture and Home Economics

(This circular was prepared by the Department of Agronomy.)

Urbana, Illinois, June, 1957

Cooperative Extension Work in Agriculture and Home Economics: University of Illinois, College of Agriculture, and the United States Department of Agriculture cooperating. Louis B. Howard, *Director*. Acts approved by Congress May 8 and June 30, 1914.