NPS Form 10-900
(3-82)

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United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only

received DEC 16 1987

date entered JAN 14 1988

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic The Old Rotation

and/or common

2. Location

street & number Auburn University NA not for publication

city, town Auburn NA vicinity of congressional district 3

state Alabama code 01 county Lee code 081

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	X educational	___ private residence
X site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	X yes: unrestricted	___ industrial	___ transportation
	NA	___ no	___ military	___ other:

4. Owner of Property

name Auburn University/Alabama Agricultural Experiment Station

street & number Comer Hall

city, town Auburn NA vicinity of state Alabama

5. Location of Legal Description

courthouse, registry of deeds, etc. Lee County

street & number Courthouse

city, town Opelika state Alabama

6. Representation in Existing Surveys

title Alabama Inventory has this property been determined eligible? ___ yes X no

date 1970-present ___ federal X state ___ county ___ local

depository for survey records Alabama Historical Commission

city, town Montgomery state Alabama

7. Description

Condition		Check one	Check one
___ excellent	___ deteriorated	X unaltered	X original site
X good	___ ruins	___ altered	___ moved date _____
___ fair	___ unexposed		

Describe the present and original (if known) physical appearance

The Old Rotation is located on the old Agronomy Farm on the campus of Auburn University in Auburn, Alabama (Lee County). It is adjacent to and southwest of the Davis Arboretum and is the center of an area presently used for agricultural teaching and demonstration plots and some limited field research.

The Old Rotation site measures 136.1 feet by 315.5 feet and consists of 13 plots measuring 21.5 feet by 136.1 feet, each separated by a 3-foot alley. The site is identified by a permanent metal sign.

The original cropping systems started in 1896 by J. F. Duggar are given below:

Plot	1896 Crop Rotations
1	Corn/cowpeas
2	Corn (continuous)
3	Cotton/vetch
4 & 7	2-year rotation: Cotton/vetch- Corn/cowpeas
5 & 9	2-year rotation: Cotton/vetch- Cowpeas
6	Cotton (continuous)
8	Cotton/vetch
10, 11, & 12	3-year rotation: Cotton/vetch Corn/cowpeas- Oats/cowpeas
13	2-year rotation: Cowpeas- Cotton/vetch

As a continuous experiment cotton patch, the original schematic has undergone minor revision five times since 1896 to reflect changing agricultural practices. The present cropping system has been used since 1956.

Plot	Present Crop Rotations
1	Cotton (continuous)
2	Cotton/winter legume
3	Cotton/winter legume
4 & 7	2-year rotation: Cotton/winter legume Corn/winter legume
5 & 9	2-year rotation: Cotton/winter legume Corn/winter legume
6	Cotton (continuous)
8	Cotton/winter legume
10, 11, & 12	3 year rotation: Cotton/winter legume Corn/rye Corn/soybeans
13	Cotton (continuous)

The soil at the site was originally (1896) mapped as a Chesterfield sandy loam. However, the current Lee County Soil Survey (1981) identifies the soil as a Marvyn loamy sand, 1 to 6 percent slope. However, some erosion has occurred, especially on plot 13, and much of the original loamy sand topsoil is gone. The site is located on the fall line between the Piedmont Plateau and the Gulf Coastal Plain physiographic regions and the soil is a transition between the two regions.

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	X education	___ military	___ social/ humanitarian	
___ 1700–1799	___ art	___ engineering	___ music	___ theater	
X 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	___ transportation	
___ 1900–	___ communications	___ industry	___ politics/government	___ other (specify)	
		___ invention			

Specific dates 1896 **Builder/Architect** N/A

Statement of Significance (in one paragraph)

SIGNIFICANCE

The Old Rotation is the oldest, continuous cotton experiment and the third oldest field crop experiment in the United States.* It may be the oldest, continuous cotton experiment in the world. The Old Rotation was the first experiment to demonstrate and document the value of rotating cotton with other crops and including nitrogen-restoring legumes in the systems. Information from this test provided evidence that rotation with legumes could sustain and actually improve yields of cotton and corn in Alabama soils. Data from this experiment have been the source of numerous scientific, popular, and educational publications on cotton production and soil fertility. Unlike many field experiments which are conducted for two to three years and terminated, the Old Rotation has continued to provide valuable information on crop production to generations of farmers, scientists, and students.

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*Note: The only field experiments in the United States older than the Old Rotation are (1) the "Morrow Plots" at the University of Illinois (Urbana) - established 1876, recognized as a Registered National Historic Landmark in 1968, and contain the oldest, continuous corn plot in the world and (2) the "Sanborn Field" at the University of Missouri (Columbia) - established in 1888 and recognized as a Registered National Historic Landmark in 1965. Both sites have been preserved and are maintained on the campuses of these Universities.

9. Major Bibliographical References

See continuation sheet.

10. Geographical Data

Acreage of nominated property 1.14+ acres

Quadrangle name Auburn **Quadrangle scale** 1:24000

UTM References

	Zone	Easting	Northing
A	16	642100	3607040
B			
C			
D			
E			
F			
G			
H			

Verbal boundary description and justification The nominated site is a rectangular parcel measuring 136.1 feet by 315.5 feet at the south end of Mell Street (gravel road) on Auburn University. It is located in the SE 1/4 of NW 1/4 of Section 31.

The boundary includes the 1.14-acre parcel that has historically been associated with the site.

List all states and counties for properties overlapping state or county boundaries

state	NA	**code**	**county**	**code**
state		**code**	**county**	**code**

11. Form Prepared By

name/title Steven M. Kay/Editor-Reviewer, Alabama Historical Commission
Charles C. Mitchell, Jr., Extension Agronomist-Soils & Assistant Professor

organization Department of Agronomy & Soils, Auburn University **date** June 1, 1987

street & number 111 Extension Hall **telephone** 205 826-4985

city or town Auburn University **state** Alabama 36849

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national X 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.

State Historic Preservation Officer signature E. Lawrence Oakes

title State Historic Preservation Officer **date** 12/8/87

For NPS use only

I hereby certify that this property is included in the National Register

Entered in the National Register

Keeper of the National Register **date** 1-14-88

Attest: **date**

Chief of Registration

GPO 911-399

HISTORICAL SUMMARY

The Old Rotation experiment at Auburn University is significant because (1) it is the oldest, continuous cotton experiment in the United States (and possibly the world); (2) it is the third oldest, continuous field crop experiment in the United States; (3) it was the first experiment to demonstrate the benefits of rotating cotton with other crops to improve yields and to measure the contributions of nitrogen-restoring winter legumes to a cotton-production system; and (4) it continues to document the long-term effect of these systems in nearly 100 years of cotton production in the same soil. Because only minor changes have been made in the cropping systems, the record of fertilizer used and yields provide considerable information on the fundamental problem of maintaining soil fertility and sustaining crop production in the South.

In February 1883 the Alabama Legislature appropriated funds and dircted the trustees of the Agricultural and Mechanical College of Alabama (now Auburn University) to ". . . establish and maintain an agricultural farm or station where careful experiments shall be made in scientific agriculture." The College's trustees purchased 226 acres for farm research plots. Part of this purchase, a ninety-acre block purchased from I.J.B. Gay in 1884 for $1700, is the present location of the Old Rotation.

In 1896 over 3.5 million acres of cotton were planted in Alabama, but the average yield was only 130 pounds per acre of lint. This compares to 330,000 acres in 1985 with an average yield of 795 pounds per acre.* The economy of the State and the welfare of Alabamians depended upon cotton. Lack of fertilizer nitrogen and failure to rotate cotton with other crops resulted in a steady decline in cotton yields. Some researchers suggested substituting tobacco culture for cotton. However, Professor of Agriculture John F. Duggar believed that Alabama soils and climate could sustain profitable yields of cotton with minimum fertilization if a reasonable rotation with legumes could be worked out. In the spring of 1896 he established an experiment to test and to demonstrate his ideas to students, colleagues, and cotton farmers. Corn was also a necessary crop on 19th-century Alabama cotton farms. This grain was necessary to feed the mules and horses as well as the people who labored in the fields. Therefore, corn was and still is a major crop in any crop rotation system. Profesor Duggar's test proved so valuable that it has been continued with only minor changes for almost 100 years and is now known as the "Old Rotation."

*Research yields are often reported in pounts per acre of seedcotton (before seeds have been removed by ginning). Seedcotton contains about 38 percent lint (62 percent seed) by weight.

Professor Duggar became the third director of the Alabama Agricultural Experiment Station and served for 19 years from 1903 to 1921. When the Department of Agronomy and Soils was established in 1919, management of the experiment became the department's responsibility and the entire area where the "Old Rotation" is located became known as the "Agronomy Farm." In 1977 most field crop research was moved from the Auburn University campus to the new farm at E. V. Smith Research Center. The Alabama Agricultural Experiment Station's Department of Research Operations took over management of the old "Agronomy Farm" primarily as a teaching unit. However, the Department of Agronomy and Soils still maintains the Old Rotation. Agronomy professors who have maintained the Old Rotation with the help of numerous technicians over the years include: J. F. Duggar (1896-1921); E. F. Cauthen, H. B. Tisdale, E. L. Mayton, and F. L. Davis (1922-1948); D. G. Sturkie (1948-1959); L. J. Chapman (1959-1963); Lex Webster (1963-1966); E. M. Evans (1966-1983); J. T. Touchton (1984); C. C. Mitchell (1985-present).

Original records of the Old Rotation from 1896 to 1919 were destroyed in a fire which razed Comer Agricultural Hall in 1920. However, average yields from 1896 to 1905 and from 1906 to 1915 had been published and were recovered. To date, the only known publication which summarized all the data was an article by F. L. Davis in 1948 in the magazine "Better Crops with Plant Food" published by the American Potash Institute (now the Potash and Phosphate Institute). However, numerous research papers, popular articles, and crop recommendations were developed from information gathered from plots in the Old Rotation. Figures 1 and 2 compare average cotton and corn yields during five decades from selected treatments in the test.

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