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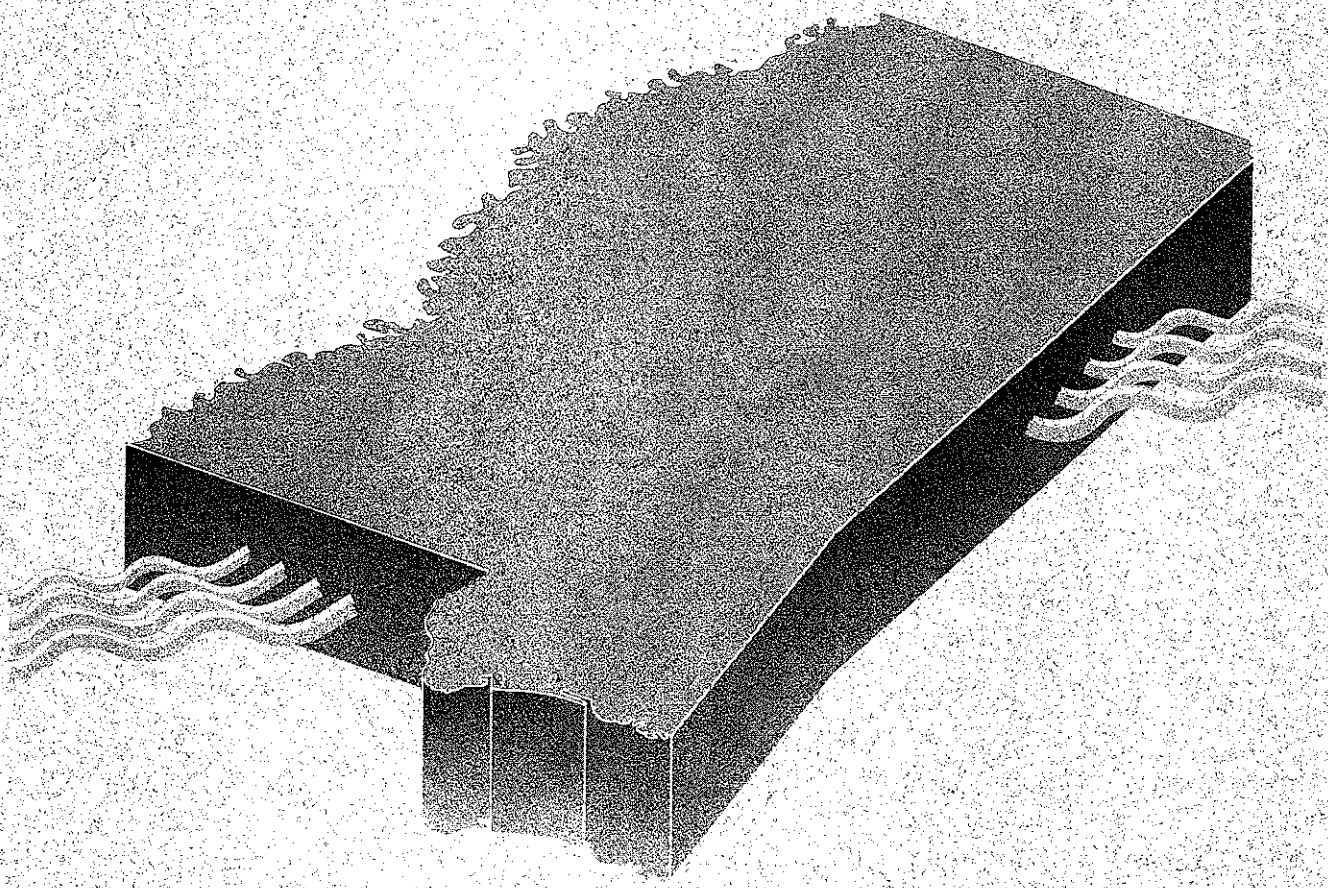
Temporal Water Table Levels and Characteristics of Representative Mississippi Soils



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Temporal Water Table Levels and Characteristics of Representative Mississippi Soils

Abstract

Soil water table depths and precipitation were studied for 25 soil mapping units representing 23 soil series and 5 soil orders in 4 of Mississippi's major land resource areas over a period ranging from 2.5 to 10 years. Morphological, physical, chemical, and hydrologic parameters were quantified for each soil. The soil water tables were extremely dynamic features and exhibited wide fluctuations. Generally, water tables were highest in winter and deepest in the summer and fall. Seasonal fluctuations commonly exceeded 4 feet. The well-drained soils usually had a shorter period of high water levels and a longer period of low water levels than the poorly drained soils. Water table depths exceeded 4 feet in all drainage classes during summer and fall, and commonly exceeded 8 feet. It was difficult to distinguish the different drainage classes based upon water table depths. Low chroma matrix and mottle colors, and concretions, often had no apparent current relationship to average water table depths that occurred during most of the year, and they appear to be relict features.

Introduction

Soil water table depths and seasonal fluctuations have profound effects on agricultural, urban, and environmental land use. Water tables near the soil surface drastically affect land use and management strategies for numerous activities. Soil water tables exert major influence on the type of crops that can be grown successfully, and on site suitability for homes, industries, roads, airports, and waste disposal. Recent concerns about deteriorating groundwater quality and pollution of aquifers have raised public concern and interest in dynamic soil water tables. Delineation of wetlands and national regulations governing their usage have become an intensely debated issue, which focuses on soil water table depths and durations at various seasons. Although extremely important for soil interpretations, temporal water table data are very limited, and this dynamic soil feature has been largely estimated or inferred from soil morphological features.

Water table studies in other states have suggested various relationships. Fritton and Olson (1972) studied water tables in New York soils, and they attributed part of the variation in water table depth to the amount, kind, and distribution of precipitation. Thorp and Gamble, (1972) related the duration of saturation and drying to soil genesis in Indiana studies. Zobeck and Ritchie (1984) pointed out that soil water table depths fluctuate greatly throughout the year and between years in the same soil series, as well as among soils of different series. Daniels et al. (1987) reported that water table depths on nearly level Coastal Plain surfaces are controlled primarily by the stratigraphy and geomorphology of the site. They also stressed that cumulative rainfall, evapotranspiration rate, permeability of beds or horizons, antecedent water level, and aquifer leakage rate affect free water levels in soils.

Boersma et al. (1972) developed a mathematical model to predict water table depths based on rainfall and soil physical characteristics. However, they determined the model was not applicable when impermeable horizons occurred near the surface. Recent studies in Maine (Hughes, et al., 1993) on 34 soil map units indicated a general relationship between water tables and soil morphological properties.

Gleyed soil colors with Munsell values of 4 or more and chromas of 2 or less (Soil Taxonomy, 1975) have been primary criteria for inferring water table depths. The relationship of gleyed color and wetness has been attributed to oxidation-reduction cycles of iron and manganese (Jenny, 1980; Bouma, 1983). Biological soil reduction by microorganisms under saturated conditions may solubilize various iron compounds, which are then leached. The resulting gleyed colors have been attributed to a lack of iron oxides (Schwertmann and Taylor, 1977; Evans and Franzmeier, 1988).

However, relating the gleyed colors to saturation presents many complexities. Studies have shown that some soils may undergo saturation, but not reduction, and they do not develop low chroma (gleyed) colors

(Daniels et al., 1973; Couto et al., 1985). Gray (gleyed) colors may also represent relict conditions not related to the present environment (Ruhe et al., 1955, Bouma, 1983; Franzmeier et al., 1983). Also, soils that lack iron oxides or have high pH levels may not have gleyed colors despite being saturated (Vepraskas, 1992). Studies by Simonson and Boersma (1972) indicated attempts to isolate relationships between water tables and a single soil color feature to quantitatively appraise water table regimes were not successful. The duration of saturation required for soil to develop gleyed, aquic characteristics is variable, dependent on a complex soil environment, and not fully understood.

New terminology has been introduced to describe redoximorphic features associated with wetness that result from oxidation and reduction of iron and manganese compounds in soil (Soil Survey Staff, 1992). Redox concentrations are defined as zones of iron-manganese oxide accumulation including (a) nodules and concretions, (b) masses of variable shape within the matrix, and (c) pore linings consisting of coatings on pore surfaces or impregnations from the matrix adjacent to the pores. Redox depletions are zones of low chroma (2 or less) where iron-manganese oxides and clay have been stripped.

The water table has been defined as the upper surface of the groundwater or the level in the ground where water is in equilibrium with atmospheric pressure (Soil Sci. Soc Am., 1978). Water tables have been commonly called perched when zones of saturated soil form above zones of unsaturated soil. Apparent water tables are thought to be continuously saturated throughout the entire profile.

Soil saturation has been characterized as having zero or positive pressure in the soil water (Soil Survey Staff, 1992). Different types of saturation have recently been defined for Soil Taxonomy (Soil Survey Staff, 1992):

a. *"Endosaturation* – The soil is saturated with water in all layers from the upper boundary of saturation to a depth of 200 cm or more from the mineral soil surface."

b. *"Episaturation* – The soil is saturated with water in one or more layers within 200 cm of the mineral soil surface and also has one or more unsaturated layers, with an upper boundary above 200 cm depth, below the saturated layer. The zone of saturation, i.e., the water table, is perched on top of a relatively impermeable layer."

c. *"Anthricsaturation* – This variant of episaturation is associated with controlled flooding (for such crops as wetland rice and cranberries), which causes reduction processes in the saturated, puddled surface soil and oxidation of reduced and mobilized iron and manganese in the unsaturated subsoil."

Mississippi soils have been separated into seven natural drainage classes: excessively, somewhat excessively, well drained, moderately well, somewhat poorly, poorly, and very poorly drained. The natural drainage classes are defined in terms of the frequency and duration of wet periods under conditions similar to those in which the soil developed (Soil Survey Staff, 1993).

Research indicates care should be exercised in water table measurements in clayey soils to avoid serious errors (Bouma et al., 1980). Uncased auger holes in clayey soils may not indicate the water table because macropores may have water from recent rains while the soil matrix remains unsaturated (Vepraskas, 1992). Bouma et al., (1980) pointed out that shallow bore holes form artificial cavities in a system of interconnected, larger natural voids that conduct water. These workers stressed that water tables should not be observed by shallow unlined boreholes. Other workers (Soil Survey Staff, 1992) also pointed out that free water flowing along the faces of peds while the soil matrix remains unsaturated may incorrectly suggest the presence of a water table, while the actual water table occurs at a greater depth. Piezometers have been recommended to avoid these pitfalls.

The study reported in this bulletin was initiated in 1981 to obtain a temporal database on water table depths for representative soils in different drainage classes, and to characterize the soils.

Methods and Materials

Twenty-five soil map units representing 23 soil series and 5 soil orders were studied in 4 major land resource areas in Mississippi. Sites were located in the Southern Mississippi Valley Alluvium (MLRA 131), the Southern Coastal Plain (MLRA 133A), the Southern Mississippi Valley Silty Uplands (MLRA 134), and the Blackland Prairie (MLRA 135). The location of the soils, their land use, and geomorphic position are listed in Table 1. The soil classification, drainage, and MLRA are presented in Table 2.

The research sites were located on upland, terrace, and flood plain positions. The soil textures ranged from sands to clays with siliceous, mixed, and montmorillonitic mineralogies. The soils studied ranged from well drained to poorly drained.

Bassfield and Cascilla soils are well drained with Cascilla subject to flooding. The Bassfield soil had a paleosol substratum below 40 inches depth.

Askew, Oaklimeter, Ora, Petal, Prentiss, Savannah, and Tippah soils are moderately well drained. Ora, Prentiss, and Savannah soils have well-developed fragipan horizons.

Arkabutla, Catalpa, Chenneby, Dundee, Forestdale, Gillsburg, Leeper, Mantachie, Quitman, Stough, and Wilcox soils are somewhat poorly drained. Mantachie and Stough soils were studied at two different locations.

Guyton, Trebloc, and Una soils are poorly drained. Chroma 2 colors extend near the surface in these soils.

Climate

Mississippi has a warm and humid climate with mild winters and warm summers. No other state, except Louisiana, in the continental United States receives as much annual precipitation per square mile (NCDC, 1983). The average statewide annual precipitation is about 56 inches with 54 inches in the north and 62 inches in the southern part of the state (Wax and Walker, 1986). Winter and spring are the wettest months, and fall is the driest, although rainfall occurs every month. Mississippi is in the udic moisture regime (Soil Survey Staff, 1975). Average precipitation exceeds evaporation annually; however, during the summer from about May through October, evaporation exceeds precipitation (Pote, et al., 1988). Soil temperatures are in the thermic class (59 to 72° F). Precipitation data were obtained from the nearest weather station to the research sites and are presented in the Appendix II.

Field Methods

Representative sites of soil mapping units were selected by area soil scientists of the USDA Soil Conservation Service and researchers of the Mississippi Agricultural and Forestry Experiment Station. Soil pits were excavated about 50 feet from piezometer locations to describe and sample each site. Nondisturbed core samples were taken in major horizons for determination of bulk density, saturated hydraulic conductivity, and moisture retention. Duplicate core samples were taken within a 40-inch distance of a contiguous pedon by cutting back the face of the pit and exposing each horizon from the surface to the bottom of the pit. Penetration resistance of major horizons was determined with the Proctor penetrometer and expressed as the mean of five determinations.

Table 1. Soils, location, land use, and landscape position of study sites.

Soil	Location	Land Use	Position
Arkabutla	SE1/4, SW1/4 sec.10, T.10S, R.1W, Lafayette Co.	Pasture	Flood Plain
Askew	SE1/4, NW1/4 sec.32, T.20N, R.1E, Leflore Co.	Cropland	Terrace
Bassfield	NW1/4, SW1/4 sec. 10, T.5N, R.14W, Forrest Co.	Forest	Terrace
Cascilla	SE1/4, SW1/4 sec.9, T9S, R.1W, Lafayette Co.	Pasture	Flood Plain
Catalpa	SW1/4, SW1/4 sec.17, T.11S, R.5E, Lee Co.	Cropland	Flood Plain
Chenneby	SE1/4, SW1/4 sec. 9, T.9S. R.1W, Lafayette Co.	Pasture	Flood Plain
Dundee	NW1/4, NE1/4 sec.26, T.20N, R.1W, Leflore Co.	Cropland	Terrace
Forestdale	NW1/4, SW1/4 sec.33, T.20N, R.1E, Leflore Co.	Cropland	Terrace
Gillsburg	SW1/4, NW1/4 sec.22, T.9S, R.3W, Lafayette Co.	Cropland	Flood Plain
Guyton	SW/14, NW1/4 sec.8, T.13N, R.13E, Winston Co.	Forest	Terrace
Leeper	NW1/4, SW1/4.sec.26, T.11S, R.5E, Lee Co.	Pasture	Flood Plain
Mantachie	NW1/4, NE1/4, sec.1, T.9S, R.6E, Lee Co.	Pasture	Flood Plain
Mantachie	NE1/4, SW1/4, sec.3, T.14N, R.11E, Winston Co.	Forest	Flood Plain
Oaklimeter	SW1/4, SW1/4 sec.26, T.5S, R.1E, Benton Co.	Cropland	Flood Plain
Ora	NW1/4, SE1/4 sec.26, T.15N, R13E, Winston Co.	Pasture	Upland
Petal	NW1/4, NW1/4, sec.17, T.1N, R.12W, Forrest Co.	Forest	Upland
Prentiss	SW1/4, NW1/4 sec.33, T.5N, R.12W, Forrest Co.	Orchard	Upland
Quitman	NE1/4 sec. 24, T.8S, R.5E, Lee Co.	Forest	Terrace
Savannah	NE1/4, SW1/4 sec.24, T.9S, R.6E, Lee Co.	Pasture	Upland
Stough	NW1/4, SE1/4 sec.22, T2N, R.13W, Forrest Co.	Forest	Terrace
Stough	SW1/4, NW1/4 sec.8, T.13N, R.13E, Winston Co.	Pasture	Terrace
Tippah	NW1/4, NW1/4 sec.21, T.9S, R.1W Lafayette Co.	Pasture	Upland
Trebloc	SW1/4, NE1/4 sec.3,, T.3N, R.12W, Forrest Co.	Cropland	Terrace
Una	NE1/4, SW1/4 sec.7, T.9S, R.6E, Lee Co.	Forest	Flood Plain
Wilcox	SE1/4, SE1/4 sec. 5, T.16N, R.14E, Winston Co.	Forest	Upland

Table 2. Major Land Resource Area, taxonomic classification, and drainage class of soil map units.

Soil	MLRA[1]	Classification	Drainage[2]
Arkabutla	133A	fine-silty,mixed, acid, thermic Aeric Fluvaquents	SP
Askew	131	fine-silty, mixed, thermic Aquic Hapludalfs	MW
Bassfield	133A	coarse-loamy, siliceous, thermic Typic Hapludults	W
Cascilla	133A	fine-silty, mixed, thermic Fluventic Dystrochrepts	W
Catalpa	135	fine, montmorillonitic, thermic Fluvaquentic Hapludolls	SP
Chenneby	133A	fine-silty, mixed, thermic Fluvaquentic Dystrochrepts	SP
Dundee	131	fine, silty,mixed, thermic Aeric Ochraqualfs	SP
Forestdale	131	fine, montmorillonitic, thermic Aeric Ochraqualfs	SP
Gillsburg	133A	coarse-silty, mixed, acid, thermic Aeric Fluvaquents	SP
Guyton	133A	fine-silty, siliceous, thermic Typic Glossaqualfs	PD
Leeper	135	fine, montmorillonitic, nonacid, thermic Vertic Haplaquepts	SP
Mantachie	133A	fine-loamy, siliceous, acid, thermic Aeric Fluvaquents	SP
Oaklimeter	133A	coarse-silty, mixed, thermic Fluvaquentic Dystrochrepts	MW
Ora	133A	fine-loamy, siliceous, thermic Typic Fragiudults	MW
Petal	133A	fine-loamy, siliceous, thermic Typic Paleudalfs	MW
Prentiss	133A	coarse-loamy, siliceous, thermic Glossic Fragiudults	MW
Quitman	133A	fine-loamy, siliceous, thermic Aquic Paleudults	SP
Savannah	133A	fine-loamy, siliceous, thermic Typic Fragiudults	MW
Stough	133A	coarse-loamy, siliceous, thermic Fragiaquic Paleudults	SP
Tippah	134	fine-silty, mixed, thermic Aquic Paleudalfs	MW
Trebloc	133A	fine-silty, siliceous, thermic Typic Paleaquults	PD
Una	135	fine, mixed, acid, thermic Typic Haplaquepts	PD
Wilcox	133A	fine, montmorillonitic, thermic Vertic Hapludalfs	SP

[1] Major Land Resource Area

[2] W-well, MW-moderately well, SP-somewhat poorly, PD-poorly.

Piezometers were constructed of 3-inch diameter polyvinylchloride (PVC) tubes 72 to 130 inches long and permeated with 0.125-inch diameter holes. The piezometers were driven and fitted snugly into 3-inch diameter auger holes and a clay seal was packed around the piezometers at the soil surface. A vented cap covered the piezometers, which extended about 6 inches above the soil surface. Water levels were measured monthly or more frequently for periods ranging from 3 to 10 years. Selected piezometers were periodically pumped dry and allowed to equilibrate to verify water levels.

Laboratory Methods

Soil bulk density at field moisture levels was determined using the nondisturbed core method (Blake, 1965). Saturated hydraulic conductivity was determined using the constant head method (Klute, 1965). Soil moisture retention was determined with a pressure membrane apparatus (Richards, 1949), and data are presented on a weight basis.

Soil samples were air-dried, crushed with a wooden cylinder, and sieved through a 10-mesh sieve to remove coarse fragments (USDA, 1992). Particle size distribution was determined by the hydrometer method and sieving (Day, 1965). Organic matter was determined by wet combustion procedure (Allison, 1935). Extractable acidity was determined by the barium chloride-triethanolamine method (Peech, 1965). Exchangeable aluminum was determined in KCl extractions following the procedure of Yuan (1959). Exchangeable cations were extracted with *N* NH_4OAc and determined by atomic absorption spectrophotometry (USDA, 1992). Soil pH was measured in a 1:1 soil-to-water ratio.

Results and Discussion

There are several fates for precipitation reaching the soil surface. Rainfall may be lost by surface runoff if the rate exceeds soil infiltration capacity. Water may move through the soil to the groundwater and be lost by subsurface flow. Water retained in the soil may

later evaporate or be lost by plant evapotranspiration. Soil physical properties exert a major influence on water retention and movement. Water retention by the soil in the unsaturated zone above the water table largely depends on pore size distribution, which is affected by texture and structure. Selected physical and chemical parameters of the soil at each site are presented in Appendix I.

Hydraulic conductivity varies in the field due to the worm holes, root channels, cracks, discontinuous macropores (Smitten, 1986), and natural soil variability (Nielsen et al., 1973). The water retained by the soil and available to plants is generally considered that held between field capacity (0.03 Mpa) and permanent wilting percentage (1.5 Mpa). Although total porosity varies inversely with bulk density, comparisons of bulk density should be within a textural class. Clayey soils have higher total porosities and lower bulk densities than sandy soils, but sandy soils usually have higher hydraulic conductivities.

Temporal Water Table Data

Average, maximum, and minimum water table depths and precipitation amounts are illustrated in Figures 1-25 and presented in Appendix II. Discussions are concentrated on the data averaged across measurement years. Because of the piezometer observation frequency, water table duration data were not obtained. Water tables were below the depth of piezometers at some sites during the study, and the bottom depth of the piezometers was used for maximum water table depth to calculate average depth in these instances. The sites represent soil map units representative of the region and some soil data may exhibit a range from the defined series criteria. The sites were grouped by drainage classes for discussion purposes.

Well-drained Soils

The Bassfield soil had a yellow-red loamy subsoil with no chroma 2 mottles within 66 inches. A few concretions were in the paleosol at depths of 40 to 66 inches. The highest average water table occurred at a depth of 31 inches in February (Figure 1), and extended to 113 inches in August and September. The concretions in the paleosol appear to be relict features.

The Cascilla soil was subject to flooding and had average water table depths ranging from 12.2 inches in March to 102 inches in September (Figure 2). The average water table remained within 22 inches of the surface from January through April, and then steadily decreased until November. Chroma 2 mottles at 23 inches and concretions at 52 inches may reflect the saturation periods during winter and early spring periods.

Moderately Well-drained Soils

Although classified as moderately well drained, no water table was detected in the Askew soil within a depth of 72 inches during the 8.5-year observation period (Figure 3). Chroma 2 mottles at 11 inches and concretions at 3 to 11 inches appear to be relict features not depictive of current saturation.

The Oaklimeter soil had free water within 12 inches January through April, which then decreased to a low of 86 inches in September (Figure 4). Chroma 2 mottles and concretions in the cambic horizon at 20 inches generally coincide with the zone of saturation during winter and spring months.

Average water table depths in Ora ranged from 24.3 inches in February to 120 inches in August and September (Figure 5). There were no chroma 2 (gleyed) colors indicating saturation. Concretions occurred above the fragipan horizon at depths of 6 to 18 inches and they appear to be relict features.

The average water table in Petal was below 55.8 inches over the 5-year observation period (Figure 6). Light brownish gray (10 YR 6/2) mottles at 17 inches and light gray (5YR 7/2) matrix color at 40 inches appear to be associated with the kaolinitic parent material rather than with saturation. No concretions were detected.

Depths to free water ranged from 38 inches in February to greater than 108 inches April through August (Figure 7) in the Prentiss soil. No chroma 2 colors occurred in the solum, but concretions occurred at 10 inches and throughout the fragipan horizons. The concretions appear to be relict features associated with the fragipan.

The water table was below 26 inches in the Savannah soil over the 8.5-year observation period, and it ranged from 26.1 inches in February to below 120 inches in September (Figure 8). Brownish gray (10YR 6/2) mottles at a depth of 24 inches and gray colors at 37 inches may reflect current wetness. Concretions occurred at 12 inches in the fragipan horizon.

The water table was below 40 inches in the Tippah soil over the 6-year observation period (Figure 9), and it ranged from 41 inches in March to 80 inches in September. The chroma 2 matrix in the Btg horizon at 22 to 37 inches does not appear to reflect current wetness, and it may be related to the loessial parent material.

Somewhat Poorly Drained Soils

The Arkabutla water table was within 18 inches of the surface January through March, and ranged from 6.7 inches in February to 59.8 inches in October (Figure 10). The occurrence of Bg horizon concretions at 6 inches apparently reflect the saturation occurring in winter and early spring.

Free water in the Catalpa soil occurred within 24 inches of the surface January, February, March, and November (Figure 11). Water depths ranged from 10.8 inches in February to 89.6 inches in September. The gleyed Bg horizon at 11 inches may be related to the montmorillonitic clay parent material rather than to wetness. Concretions at a depth of 50 inches do not correspond to the upper gleyed colors and they may indicate the seasonal water table zone.

The Chenneby water table was within 20 inches of the surface from January through June, ranging from a depth of 3.5 inches in March to 73.2 inches in September (Figure 12). Chroma 2 mottles and concretions at 8 inches reflect the winter, spring, and early summer saturation.

The average high water table in the Dundee soil was 16.4 inches in February and below 24 inches the rest of the year (Figure 13). Free water was below 40 inches May through November. Chroma 2 colors at 4 inches and concretions at the surface appear to be relict features not indicative of current wetness.

The Gillsburg water table occurred within 12 inches during January through March and was deeper than 21 inches the rest of the year (Figure 14). Water table depths ranged from 5.7 inches in February to 71.8 inches in October. Chroma 2 mottles occurred at 12 inches and concretions at 5 inches.

The Leeper water table was within 20 inches of the surface January and February, and dropped sharply to an October low (Figure 15). Depths to free water ranged from 14.1 inches in February to 94 inches in October. Low chroma mottles and concretions at depths of 10 inches appear to reflect montmorillonitic clay parent material rather than current wetness.

Two Mantachie sites, located 200 miles apart on different parent materials, exhibited similar water table characteristics. Water tables at both sites were within 20 inches during winter and early spring, and deeper than 22 inches the rest of the year (Figures 16-17). Low chroma mottles and concretions occurred within 15 inches of the surface in both sites. The Mantachie site in Winston County was subject to flooding as indicated by the shallow water table during the winter and spring seasons.

The water table in Quitman was within 20 inches of the surface January through April, and below 45 inches the remainder of the year (Figure 18). Free water fluctuated widely from 7.1 inches depth in March to 118 inches in October. The soil had a brownish-yellow upper Bt horizon underlain by a light brownish-gray (2.5YR 6/2) matrix at 14 inches, indicating a zone of saturation.

The water tables in two Stough sites located 200 miles apart exhibited similar trends. Free water in the Winston County site was within 10 inches January through April and deeper than 35.5 inches the rest of the year (Figure 19). Free water in the Forrest County site was within 10.4 inches December through March and deeper than 27.5 inches the rest of the year (Figure 20). Chroma 2 colors occurred at depths of 10 to 20 inches in both sites. Concretions occurred in Btx horizons within 20 inches in both sites.

The Forestdale water table was within 16.2 inches of the surface in February and was deeper than 27.9 inches the other 11 months (Figure 21). Free water ranged from 16.2 inches in February to 70.7 inches in October. The gleyed color (chroma 2) commencing at 4 inches depth does not appear to reflect current wetness, but it may reflect the montmorillonitic clay parent material and relict conditions.

The Wilcox average water table depths ranged from 27.8 inches in February to 114.7 inches in August (Figure 22). On the average, free water was deeper than 46 inches 11 months of the year. The gleyed colors commencing at 12 inches in the profile appear to reflect the influence of the montmorillonitic clay parent material rather than current wetness.

Poorly Drained Soils

The three poorly drained soils studied had high water tables at or near the soil surface sometime during the winter and spring seasons. The Guyton water table was within 10 inches of the surface January through April, and deeper than 30 inches the rest of the year reaching a maximum depth of 75.6 inches in September (Figure 23). Chroma 2 colors and concretions occurred at 4 inches depth reflecting the saturation.

The water table in Trebloc was within 12 inches in January and May and below 27.3 inches the rest of the year (Figure 24). Free water depths ranged from 10.6 inches in January to 109 inches in July. Chroma 2 colors at 9 inches depth and concretions at 5 inches indicated the saturated conditions. The water table fluctuated widely over the observation period.

The Una water table occurred within 16 inches of the surface November through April and below 31 inches the rest of the year (Figure 25). The average water table declined to 73.6 inches in August. Gleyed (chroma 2) colors and concretions occurred at 4 inches depth indicating the high seasonal water table.

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APPENDIX I

Pedon Descriptions, Physical, and Chemical Properties of Soil Mapping Unit Study Sites.

(Tables 3-52)

Units and Conventions Used in Soil Data Tables

Particle Size Distribution

VCS–very coarse sand	(2 - 1 mm)
CS–coarse sand	(1 - 0.5 mm)
MS–medium sand	(0.5 - 0.25 mm)
FS–fine sand	(0.25 - 0.10 mm)
VFS–very fine sand	(0.10 - 0.05 mm)
Si–silt	(0.05 - 0.002 mm)
C–clay	(<0.002 mm)

Unit Conversions

U.S. Abbr.	Unit	Approximate Metric Equivalent
Length		
in.	inch	2.54 centimeters (cm)
ft.	foot	30.48 centimeters (cm)
Mass/Weight		
oz.	ounce	28.349 grams (g)
Concentration		
meq/100g	milliequivalents per 100 grams	centimole per kilogram ($cmol_c\ kg^{-1}$)
Pressure		
at	atmosphere	0.101 megapascal (MPa)
lb/in^2	pounds per square inch	6.9 x 103 pascal (Pa)

Soil Horizon Symbols

Master Horizons

A–Mineral horizons which have formed at the surface
E–Mineral horizons which have lost silicate clay, iron, or aluminum, leaving a concentration of sand and silt particles
B–Mineral horizons which have formed below A or E horizons which have illuvial concentrations of silicate clay, iron, aluminum, humus, carbonates, gypsum, or silica alone or in combination.
C–Horizons or layers, excluding hard bedrock, that are little affected by pedogenic processes.
R–Hard bedrock

Subordinate Distinctions within Master Horizons

g–Strong gleying
k–Accumulation of carbonates
p–Tillage or other disturbance
r–Weathered or soft bedrock
ss–Presence of slickensides
t–Accumulation of silicate clay
w–Development of color or structure

Discontinuities

2–Arabic numerals are used as prefixes to horizon designations (preceding A, E, B, C, R) to indicate discontinuities. A discontinuity is a significant change in particle size distribution or mineralogy that indicates a difference in the material from which the horizons formed.

Vertical Subdivision

Horizons designated by a single combination of letters may need to be subdivided. Arabic numerals are used to subdivide horizons and always follow all letters (i.e., C1, C2, Bt1, Bt2).

Table 3. Pedon description of Arkabutla silt loam, Lafayette County.

Slope: 0-2%.

Geomorphic position: Flood plain.

Vegetation: Hay pasture.

Parent material: Alluvium.

Moist Colors

Ap 0 to 6 inches; brown/dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; common fine dark yellowish brown (10YR 4/4) iron concretions and few fine medium rounded black (10YR 2/1) concretions; many fine and medium roots; abrupt smooth boundary.

Bw 6 to 17 inches; yellowish brown (10YR 5/4) silt loam with common medium distinct light brownish gray (10YR 6/2) and dark yellowish brown (10YR 4/6) mottles; weak medium subangular blocky structure; friable; common silt coatings on vertical ped faces; common fine pores; few medium black (10YR 2/1) concretions; many fine roots; gradual smooth boundary.

Bg1 17 to 26 inches; light brownish gray (10YR 6/2) silt loam with common medium distinct yellowish brown (10YR 5/6 and 10YR 5/4) mottles; weak medium subangular blocky structure; friable; common fine and medium dark yellowish brown (10YR 4/4) iron concretions and common fine and medium black (10YR 2/1) concretions; many fine pores; many fine roots; gradual smooth boundary.

Bg2 26 to 36 inches; grayish brown (10YR 5/2) silt loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm; many fine and medium dark brown (10YR 3/3) and black (10YR 2/1) concretions; common light grayish brown (10YR 6/2) silt coatings on ped faces; many fine pores; many fine roots; clear smooth boundary.

Bg3 36 to 47 inches; grayish brown (10YR 5/2) silt loam with common medium distinct dark yellowish brown (10YR 4/4) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; few discontinuous silt coatings on ped faces; many fine and medium vesicular pores and few large discontinuous vesicular pores; common fine and medium black (10YR 2/1) concretions.

Table 4. Selected properties of Arkabutla silt loam, Lafayette County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-6	0.4	1.2	1.5	3.3	13.0	19.4	71.6	9.0	Silt loam
Bw	6-17	0.1	0.7	0.6	0.8	6.9	9.0	70.9	20.1	Silt loam
Bg1	17-26	0.9	1.8	1.0	1.2	6.4	11.3	69.0	19.7	Silt loam
Bg2	26-36	0.2	1.0	1.3	2.1	6.8	11.4	66.5	22.1	Silt loam
Bg3	36-47	0.6	1.5	1.2	1.4	4.7	9.3	65.9	24.8	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-6	0.6	320	1.3	31.8	29.1	28.1	26.4	22.7
Bw	6-17	0.3	150	1.5	26.1	25.0	24.3	23.2	20.1
Bg1	17-26	0.9	200	1.5	24.5	23.0	22.1	21.2	18.5
Bg2	26-36	0.0	310	1.6	24.5	23.0	22.0	21.4	19.4
Bg3	36-47	0.0	145	1.5	26.2	25.0	23.8	23.2	21.0

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-6	6.4	1.7	0.1	0.9	14.8
Bw	6-17	5.2	0.6	6.0	44.8	3.0
Bg1	17-26	5.6	0.3	6.7	51.2	0.8
Bg2	26-36	5.6	0.4	5.4	35.1	0.6
Bg3	36-47	5.5	0.4	3.8	21.3	0.6

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-6	5.9	0.4	0.1	0.1	4.4	10.9	59.6
Bw	6-17	2.1	0.7	0.1	0.2	10.3	13.4	23.1
Bg1	17-26	0.9	1.2	0.1	0.7	10.1	13.0	22.3
Bg2	26-36	1.4	2.4	0.1	1.1	10.4	15.4	32.5
Bg3	36-47	2.9	4.6	0.1	1.7	8.6	17.9	52.0

Table 5. Pedon description of Askew silt loam, Leflore County.

Slope: Linear, 0-2%.

Geomorphic position: First terrace level of the Yalobusha River.

Parent material: Alluvial terrace sediments.

Vegetation: Grasses and herbaceous broadleaf species, surrounded by a cultivated cotton field.

Moist Colors

Ap 0 to 3 inches; dark grayish brown/dark brown (10YR 4/2) silt loam; weak fine granular structure, very friable; few earthworm casts; many fine medium and coarse roots; abrupt wavy boundary.

Bt1 3 to 11 inches; brown (10YR 4/3) silt loam with common fine and medium distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct clay films; few fine reddish brown (5YR 4/4) and few fine black (5YR 2.5/1) concretions; common fine and few medium and coarse roots; clear wavy boundary.

Bt2 11 to 24 inches; dark grayish brown (10YR 4/2) clay loam with many fine and medium prominent yellowish brown (10YR 5/8), common medium faint light brownish gray (10YR 6/2), and few fine elongated prominent yellowish red (5YR 4/6) mottles; moderate medium and coarse subangular blocky structure; firm; many prominent clay films coating horizontal and vertical ped faces; common yellowish brown (10YR 5/4) stains coating vertical ped faces; common fine pores; common fine reddish brown (5YR 4/4) and common fine (7.5YR 2/0) concretions; few fine sand grains coating ped faces; many fine and few medium and coarse roots; clear wavy boundary.

BC 24 to 28 inches; dark yellowish brown (10YR 4/4) very fine sandy loam with many coarse faint brown (10YR 5/3) and few fine prominent strong brown (7.5YR 4/6) mottles; weak coarse subangular blocky structure; friable; common faint clay films bridging sand grains; common fine pores; common fine roots; gradual wavy boundary.

C1 38 to 52 inches; brown (10YR 5/3) loamy fine sand with common coarse faint grayish brown(10YR 5/2) and few fine distinct dark yellowish brown (10YR 4/4) mottles; structureless; very friable; pockets of dark grayish brown (10YR 4/2) silt loam material about 5 inches in diameter; few fine black (7.5 YR 2/0) concretions; common very fine mica flakes; few medium roots; gradual smooth boundary.

C2 52 to 70 inches; brown (10YR 5/3) loamy very fine sand with few fine distinct yellowish brown (10YR 5/6) mottles; structureless; very friable; common krotovinas filled with dark grayish brown (10YR 4/2) silt loam material; common very fine mica flakes; few medium roots.

Table 6.Selected properties of Askew silt loam, Leflore County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-3	0.1	0.4	0.8	6.2	16.3	23.7	57.0	19.3	Silt loam
Bt1	3-11	0.0	0.1	0.2	4.6	14.0	18.9	57.8	23.3	Silt loam
Bt2	11-24	0.0	0.1	0.1	2.6	20.5	23.3	46.4	30.32	Clay loam
BC	24-38	0.0	0.0	0.0	31.4	43.5	74.9	16.2	8.9	Sandy loam
C1	38-52	0.0	0.0	0.0	32.6	50.0	82.6	13.1	4.3	Loamy sand
C2	52-70	0.0	0.0	0.0	25.0	54.5	79.5	16.7	3.8	Loamy Sand

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-3	1.4	425	1.3	22.8	20.6	19.9	18.5	17.0
Bt1	3-11	0.1	1,200	1.5	22.9	20.7	20.1	19.3	17.6
Bt2	11-24	0.2	700	1.5	29.6	28.1	27.7	26.7	25.4
BC	24-38	0.2	1,270	1.4	21.5	19.5	19.0	18.3	16.5

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-3	5.9	2.5	0.1	0.5	4.1
Bt1	3-11	6.1	1.2	0.1	0.5	4.3
Bt2	11-24	5.2	0.7	1.5	5.6	3.2
BC	24-38	5.9	0.2	0.2	2.0	3.6
C1	38-52	6.3	0.1	0.1	1.2	4.3
C2	52-70	6.4	0.1	0.1	1.1	4.3

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-3	10.3	2.5	0.7	0.1	4.5	18.1	75.1
Bt1	3-11	11.9	2.8	0.3	0.1	4.9	20.0	75.5
Bt2	11-24	14.3	4.4	0.3	0.2	7.7	26.9	71.4
BC	24-38	5.4	1.5	0.1	0.1	2.7	9.8	72.4
C1	38-52	5.1	1.2	0.2	0.1	1.9	8.5	77.6
C2	52-70	5.6	1.3	0.2	0.1	1.8	9.0	80.0

Table 7. Pedon description of Bassfield sandy loam, Forrest County.

Slope: Linear, 3% facing east.

Geomorphic position: Second terrace of the Bowie River.

Vegetation: Woods mostly blackberry and red oak with understory of broadleaf weeds and grasses.

Parent material: Alluvial terrace sediments to a depth of 40 inches.

Colors are for Moist Soil

Ap 0 to 4 inches; brown/dark brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; many fine medium and coarse roots; clear wavy boundary.

A 4 to 7 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium granular and weak fine subangular blocky structure; friable; few fine, common medium and coarse roots; clear wavy boundary.

Bt1 7 to 13 inches; yellowish red (5YR 4/6) loam; weak medium and coarse subangular blocky structure; friable; clay films bridging sand grains, common distinct clay films coating root channels; common fine and medium vesicular pores coated with clay films; common earthworm coats; few fine, common medium, and few coarse roots; clear wavy boundary.

Bt2 13 to 23 inches; yellowish red (5YR 4/6) loam; moderate coarse subangular blocky structure; friable; common distinct clay films coating vertical and horizontal ped faces, common prominent clay films on angles of peds, and along root channels; many fine vesicular voids; few fine medium and common coarse roots; clear wavy boundary.

Bt3 23 to 33 inches; yellowish red (5YR 5/8) loam; moderate medium and coarse subangular blocky structure parting to moderate fine subangular blocky; firm; common distinct clay films on vertical and horizontal ped faces; common fine vesicular pores; few fine and medium roots; gradual smooth boundary.

BC 3 to 40 inches; strong brown (7.5YR 5/6) sandy loam; weak medium and coarse subangular blocky structure; friable; common faint clay films bridging sand grains, mostly in the upper part of the horizon; few pebbles about 1 inch in diameter; few fine pores; few fine and medium roots; abrupt smooth boundary.

2Btxb 40 to 66 inches; strong brown (7.5YR 5/6) sandy loam; moderate coarse prismatic structure parting to moderate medium and coarse angular blocky; very firm; brittle and hard; light yellowish brown (10YR 6/4) stains on ped faces; pale brown (10YR 6/3) silt flows on vertical and horizontal ped faces; common faint clay films along vertical and horizontal ped faces overlain by silt flows; red (2.5YR 4/6) iron stains coating voids and channels; few fine black concretions; few fine pebbles; few fine roots; gradual wavy boundary.

Table 8. Selected properties of Bassfield sandy loam, Forrest County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-4	0.3	1.9	10.4	32.9	9.6	55.0	39.4	5.6	Sandy loam
A	4-7	0.3	2.4	13.5	34.9	11.9	62.9	29.0	8.1	Sandy loam
Bt1	7-13	0.1	1.8	11.4	27.1	8.1	48.5	37.0	14.5	Loam
Bt2	13-23	0.1	1.9	10.6	23.6	6.9	43.0	38.1	18.9	Loam
Bt3	23-33	0.2	2.3	11.1	26.1	7.6	47.2	35.5	17.3	Loam
BC	33-40	0.4	2.8	13.2	32.4	10.9	59.8	31.1	9.1	Sandy loam
2Btxb	40-66	0.3	2.6	14.1	38.4	12.4	67.8	27.2	5.0	Sandy loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-4	1.4	175	1.4	30.1	29.2	27.2	26.6	23.9
Bt2	13-23	2.8	470	1.4	18.6	17.6	16.4	–	15.9
BC	33-40	0.7	930	1.7	13.1	11.1	10.4	9.1	8.4
2Btxb	40-66	1.3	1,140	1.6	10.9	8.3	7.0	4.7	4.5

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-4	5.6	3.6	0.1	0.9	3.8
A	4-7	5.4	0.9	0.8	14.5	2.8
Bt1	7-13	4.9	0.5	2.1	31.8	2.3
Bt2	13-23	5.0	0.3	2.8	32.9	1.5
Bt3	23-33	5.0	0.3	3.0	41.1	1.3
BC	33-40	5.1	0.1	1.6	47.1	0.3
2Btxb	40-66	5.1	0.0	0.8	47.1	0.5

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-4	3.8	1.0	0.3	0.0	6.3	11.4	44.7
A	4-7	1.1	0.4	0.1	0.0	3.9	5.5	29.1
Bt1	7-13	0.9	0.4	0.1	0.0	5.2	6.6	21.2
Bt2	13-23	1.2	0.8	0.2	0.0	6.3	8.5	25.9
Bt3	23-33	0.8	0.6	0.1	0.0	5.8	7.3	20.5
BC	33-40	0.1	0.3	0.0	0.0	2.9	3.3	12.1
2Btxb	40-66	0.1	0.2	0.0	0.0	1.4	1.7	17.5

Table 9. Pedon description of Cascilla silt loam, Lafayette County.

Slope: 0-2%.

Geomorphic position: Flood plain.

Vegetation: Hay pasture.

Parent material: Alluvium.

Moist Colors

Ap 0 to 7 inches; brown to dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine roots; abrupt smooth boundary.

A 7 to 13 inches; brown to dark brown (10YR 4/3) silt loam; weak medium subangular blocky structure parting to weak fine granular; friable, many fine roots; abrupt smooth boundary.

Bw1 13 to 23 inches; dark yellowish brown (10YR 4/4) silt loam with common medium faint dark yellowish brown (10YR 4/6) mottles; weak medium subangular blocky structure; friable; many fine vesicular pores; common fine and medium roots; clear smooth boundary.

Bw2 23 to 41 inches; brown to dark brown (10YR 4/3) silt loam with common medium distinct grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; many fine vesicular pores; common fine roots; gradual smooth boundary.

Bw3 41 to 52 inches; mottled light brownish gray (10YR 6/2), yellowish brown (10YR 5/4), dark brown to brown (10YR 4/3), and dark yellowish brown (10YR 4/6) silt loam; weak medium and coarse subangular blocky structure; friable; many vesicular pores; few fine roots; gradual smooth boundary.

Cg 52 to 67 inches; light brownish gray (10YR 6/2) silt loam with common medium distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) mottles; massive; firm; many fine and medium pores; few fine to coarse iron concretions.

Table 10. Selected properties of Cascilla silt loam, Lafayette County.

Physical Data

Horizon	Depth	Particle Size Distribution VCS	CS	MS	FS	VFS	S	Si	C	Textural Class
	Inches	%								
Ap	0-7	0.1	0.3	0.8	3.2	11.8	16.1	72.3	11.6	Silt loam
A	7-13	0.0	0.1	0.3	1.6	7.6	9.7	76.2	14.1	Silt loam
Bw1	13-23	0.0	0.1	0.2	1.1	6.1	7.4	74.5	18.1	Silt loam
Bw2	23-41	0.0	0.1	0.4	2.5	7.5	10.4	67.7	21.9	Silt loam
Bw3	41-52	0.1	0.7	1.1	3.6	8.4	13.9	67.6	18.5	Silt loam
Cg	52-67	0.0	0.1	0.5	5.4	11.8	17.8	64.2	18.0	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention 0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-7	0.1	205	1.1	32.8	30.4	29.6	–	27.8
A	7-13	0.0	350	1.5	26.1	24.9	24.4	–	22.1
Bw1	13-23	0.9	110	1.3	28.6	27.5	27.1	–	24.3
Bw2	23-41	1.1	142	1.3	30.6	29.1	27.9	–	24.3
Bw3	41-52	0.1	154	1.4	27.5	26.1	24.9	–	21.8
Cg	52-67	0.4	106	1.5	24.5	23.5	22.7	–	20.2

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-7	5.5	2.0	0.7	5.6	2.4
A	7-13	5.6	1.1	0.9	7.4	2.2
Bw1	13-23	5.7	0.9	1.3	9.0	2.0
Bw2	23-41	5.3	0.7	5.1	36.2	1.2
Bw3	41-52	5.3	0.3	6.3	49.2	0.8
Cg	52-67	5.4	0.2	6.4	55.6	0.3

Horizon	Depth	Exchangeable Cations Ca	Mg	K	Na	Extractable Acidity	Cation Exchange Capacity	Base Saturation
	Inches	$cmol_c kg^{-1}$						%
Ap	0-7	4.0	1.7	0.1	0.0	6.8	12.6	45.9
A	7-13	3.9	1.8	0.1	0.1	6.4	12.2	47.3
Bw1	13-23	4.7	2.4	0.1	0.1	7.2	14.4	50.2
Bw2	23-41	1.3	1.1	0.1	0.1	11.6	14.1	18.0
Bw3	41-52	0.6	0.8	0.1	0.2	11.2	12.8	12.4
Cg	52-67	0.3	0.9	0.1	0.5	9.8	11.5	15.0

Table 11. Pedon description of Catalpa clay loam, Lee County.

Slope: Linear 0-2%.

Geomorphic position: Flood plain.

Vegetation: The site was populated by broadleaf herbaceous weeds; the surrounding area was devoted to soybean cultivation.

Parent material: Clayey non-acid alluvium.

Colors are for Moist Soil

Ap 0 to 6 inches; very dark grayish brown (2.5Y 3/2) clay loam; strong medium and coarse granular structure; friable; few earthworm casts; few fine and medium lime concretions; few fine and many medium roots; clear smooth boundary.

A 6 to 11 inches; very dark grayish brown (2.5Y 3/2) silty clay loam; moderate fine and coarse granular structure; friable; few earthworm casts; few fine lime concretions; few fine and medium roots; clear wavy boundary.

Bg1 11 to 24 inches; dark grayish brown (2.5Y 4/2) clay with few fine and medium faint (2.5Y 4/4 and 5/4) mottles; moderate medium and coarse subangular blocky and moderate medium and coarse angular blocky structures; firm; few earthworm casts; pressure faces evident; few medium roots; gradual wavy boundary.

Bg2 24 to 36 inches; very dark grayish brown (2.5Y 3/2) clay with common fine faint dark grayish brown (2.5Y 4/2) mottles; weak medium prismatic structure parting to moderate medium and coarse subangular and moderate medium and coarse angular blocky; firm; pressure faces evident on surfaces of peds; few coarse and fine roots; gradual wavy boundary.

Bg3 36 to 50 inches; dark grayish brown (2.5Y 4/2) clay; with many medium faint olive brown (2.5Y 4/4) mottles; weak coarse prismatic structure parting to moderate medium and coarse angular blocky; firm; prominent pressure faces on surfaces of peds; few fine roots; gradual wavy boundary.

Cg 50 to 60 inches; dark grayish brown (2.5Y 4/2) and light olive brown (2.5Y 5/6) clay; massive; firm; few fine iron and manganese concretions; few coarse and fine roots.

Table 12. Selected properties of Catalpa clay loam, Lee County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-6	1.0	1.0	2.3	7.7	10.5	22.5	49.8	27.7	Clay loam
A	6-11	0.3	0.6	2.5	8.1	7.2	18.7	51.2	30.1	Silty clay loam
Bg1	11-24	0.2	0.6	2.9	8.0	5.5	17.2	38.5	44.3	Clay
Bg2	24-36	0.1	0.5	3.0	8.2	5.5	17.3	37.0	45.7	Clay
Bg3	36-50	0.2	0.5	3.1	9.4	6.2	19.3	38.0	42.7	Clay
Cg	50-60	0.4	0.6	2.8	8.2	6.3	18.3	36.9	44.8	Clay

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-6	0.2	183	1.4	25.3	24.8	24.4	23.6	22.9
A	6-11	0.6	310	1.5	27.0	26.9	26.3	25.6	25.1
Bg1	11-24	1.1	272	1.5	29.5	28.9	28.5	27.6	27.1
Bg2	24-36	0.0	182	1.5	30.3	29.9	29.4	28.3	27.7
Bg3	36-50	0.0	212	1.5	–	–	–	–	–

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-6	7.9	3.0	0.1	0.2	87.2
A	6-11	7.9	2.4	0.1	0.2	150.6
Bg1	11-24	7.9	1.4	0.1	0.2	444.0
Bg2	24-36	8.0	1.3	0.0	0.0	403.0
Bg3	36-50	7.8	1.0	0.0	0.0	347.0
Cg	50-60	7.8	0.8	0.0	0.0	190.0

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-6	43.6	0.5	0.3	0.1	0.9	45.3	98.0
A	6-11	45.2	0.3	0.2	0.1	1.6	47.4	96.6
Bg1	11-24	44.4	0.1	0.2	0.1	2.2	47.0	95.3
Bg2	24-36	40.3	0.1	0.2	0.2	2.2	43.0	94.8
Bg3	36-50	34.7	0.1	0.2	0.2	2.0	37.2	94.6
Cg	50-60	38.0	0.2	0.2	0.3	2.2	40.9	94.7

Table 13. Pedon description of Chenneby silt loam, Lafayette County.

Slope: 0-2%.

Geomorphic position: Flood plain.

Vegetation: Pasture.

Parent material: Recent alluvium.

Moist Colors

A 0 to 8 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium granular structure; friable; common fine roots; abrupt smooth boundary.

Bw1 8 to 20 inches; dark yellowish brown (10YR 4/4) silt loam with common fine faint grayish brown (10YR 5/2) mottles; weak fine and medium subangular blocky structure; friable; common fine dark yellowish brown (10YR 3/4) iron concretions; few fine black (10YR 2/1) charcoal pieces; common fine vesicular pores; common fine and medium roots; clear wavy boundary.

Bw2 20 to 24 inches; dark brown (10YR 4/3) silt loam with many medium and fine distinct grayish brown (10YR 5/2) and light brown (10YR 6/2) mottles; weak medium and coarse subangular blocky structure; friable; few fine dark yellowish brown (10YR 3/4) iron concretions; few fine roots; clear wavy boundary.

Bg 24 to 50 inches; mottled light brownish gray (10YR 6/2) dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) silt loam; weak coarse and medium subangular blocky structure; friable; common fine pores; few fine roots.

Table 14. Selected properties Chenneby silt loam, Lafayette County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
A	0-8	0.1	0.1	0.2	1.1	6.7	8.2	79.8	12.0	Silt loam
Bw1	8-20	0.0	0.2	0.9	2.2	6.4	9.7	72.9	17.4	Silt loam
Bw2	20-24	0.1	0.9	0.8	1.7	7.0	10.5	70.4	19.1	Silt loam
Bg3	24-50	0.0	0.1	0.3	0.9	4.4	5.6	71.5	22.9	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
A	0-8	0.1	690	1.4	29.2	27.9	26.8	25.0	24.3
Bw1	8-20	0.3	240	1.3	28.0	26.9	26.5	24.3	23.9
Bw2	20-24	4.5	66	1.4	29.4	28.1	27.0	23.6	23.5
Bg2	24-50	6.9	56	1.3	28.3	27.3	26.4	24.6	23.6

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
A	0-8	5.6	1.3	0.6	5.2	2.5
Bw1	8-20	5.7	1.3	1.1	11.7	2.3
Bw2	20-24	5.4	0.6	3.3	25.4	1.6
Bg2	24-50	5.2	0.3	5.5	38.5	0.5

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-8	3.8	1.5	0.1	0.1	6.2	11.6	46.6
Bw1	8-20	4.2	1.8	0.1	0.2	3.2	9.4	66.2
Bw2	20-24	2.4	1.5	0.1	0.2	8.8	13.0	32.4
Bg2	4-50	1.2	2.4	0.1	0.4	5.5	14.3	28.5

Table 15. Pedon description of Dundee silt loam, Leflore County.

Slope: Linear, 0-2%.

Geomorphic position: Flood plain.

Vegetation: Mostly bare, few grasses, the field has been devoted to cotton in recent years.

Parent material: Alluvium.

Moist Colors

Ap 0 to 4 inches; brown/dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; few fine black concretions; many fine and common medium roots; abrupt wavy boundary.

Btg1 4 to 15 inches; grayish brown (10YR 5/2) silty clay loam with common fine prominent strong brown (7.5YR 4/6) mottles; moderate coarse subangular blocky structure; firm; common faint clay films on vertical and horizontal ped faces; dark yellowish brown (10YR 4/4) stains on ped faces; few fine black (7.5YR 2/0) and common strong brown (7.5YR 4/6) concretions; patchy silt flows along vertical ped faces; many fine and few medium roots; clear wavy boundary.

Btg2 15 to 24 inches; grayish brown (10YR 5/2) silty clay loam with common medium distinct strong brown (7.5YR 4/6) mottles; moderate coarse subangular blocky structure; firm; many distinct clay films on vertical and horizontal ped faces; few patchy silt flows along vertical ped faces; few fine vesicular pores; many fine and medium reddish brown (5YR 4/4) concretions and stains; few medium and common fine roots; gradual wavy boundary.

Btg3 24 to 30 inches; grayish brown (2.5Y 5/2) silty clay loam with common fine prominent strong brown (7.5YR 4/6) mottles; moderate coarse subangular blocky structure; firm; many faint clay films along vertical and horizontal ped faces; few patchy silt flows along vertical ped faces and root pores; few sand grains coating vertical ped faces; few fine black (10YR 2/1) and few fine reddish brown (5YR 4/4) concretions; common fine vesicular pores in the interior of peds; few fine roots; gradual wavy boundary.

Bgss1 30 to 43 inches; grayish brown (2.5Y 5/2) silty clay with few fine distinct brown (7.5YR 4/4) and many medium coarse distinct dark brown (10YR 4/3) mottles; weak coarse subangular blocky structure; firm; few thin clay films on ped faces; common sand grains along ped faces; common pressure faces on ped surfaces; common slickensides that do not intercept; common fine black (7.5YR 2/0) and few fine dark brown (7.5YR 4/2) concretions and stains; few fine roots; gradual wavy boundary.

Bgss2 43 to 55 inches; dark grayish brown (2.5Y 4/2) silty clay with few fine distinct brown/dark brown (10YR 4/3) and few fine distinct brown (7.5YR 4/4) mottles; weak coarse prismatic structure; firm; few fine white crystals; common fine black (7.5YR 2/0) concretions and few fine dark red (2.5YR 3/6) stains; many pressure faces; common slickensides; few fine roots; gradual wavy boundary.

Bgss3 55 to 70 inches; dark grayish brown (2.5Y 4/2) clay with common coarse distinct dark brown (10YR 3/3) mottles; weak coarse prismatic structure; firm; few fine black (7.5YR 2/0) concretions and few fine dark reddish brown (5YR 2.5/2) stains; common slickensides that do not intersect; many pressure faces; few fine roots.

Table 16. Selected properties of Dundee silt loam, Leflore County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-4	0.4	1.0	1.4	2.2	14.9	19.9	60.6	19.5	Silt loam
Btg1	4-15	0.1	0.5	0.5	0.9	16.6	18.6	54.0	27.4	Silty clay loam
Btg2	15-24	0.0	0.1	0.2	0.7	21.9	22.9	48.0	29.1	Silty clay loam
Btg3	24-30	0.1	0.4	0.4	0.5	10.2	11.5	55.4	33.1	Silty clay loam
Bgss1	30-43	0.0	0.1	0.5	0.6	1.2	2.4	47.8	49.8	Silty clay
Bgss2	43-55	0.0	0.3	0.5	0.8	0.8	2.4	44.9	52.7	Silty clay
Bgss3	55-70	0.0	0.1	0.3	0.6	0.7	1.7	31.0	67.3	Clay

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-4	0.7	108	1.2	25.0	24.8	24.2	–	22.4
Btg1	4-15	0.1	896	1.6	22.6	22.1	21.6	–	20.6
Btg2	15-24	0.1	348	1.5	26.7	26.0	24.8	–	24.7
Bgss1	30-43	0.0	282	1.5	29.1	28.6	27.6	–	27.4

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-4	5.5	1.3	0.4	2.1	4.1
Btg1	4-15	5.0	0.6	4.7	19.2	3.3
Btg2	15-24	5.2	0.4	4.2	16.2	2.0
Btg3	24-30	5.6	0.4	1.7	5.8	1.8
Bgss1	30-43	5.5	0.6	0.7	1.6	1.9
Bgss2	43-55	6.8	0.6	0.0	0.0	2.0
Bgss3	55-70	7.3	0.8	0.0	0.0	2.1

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-4	9.4	2.3	0.5	0.1	7.0	19.2	63.7
Btg1	4-15	9.7	2.9	0.2	0.2	11.5	24.5	53.0
Btg2	15-24	10.0	5.1	0.2	0.5	10.1	25.9	61.1
Btg3	24-30	13.0	7.1	0.3	1.2	7.7	29.2	73.5
Bgss1	30-43	21.3	11.3	0.4	2.2	7.8	42.9	81.9
Bgss2	43-55	24.6	12.4	0.4	3.2	3.5	44.2	92.1
Bgss3	55-70	30.8	14.8	0.5	4.1	3.0	53.2	94.4

Table 17. Pedon description of Gillsburg silt loam, Lafayette County.

Slope: Slightly convex, 0-2%.

Geomorphic position: Flood plain of the Yacona River in a relatively high position, probably an old levee.

Vegetation: Grasses and broadleaf weeds next to a soybean field.

Parent material: Recent alluvium overlying old sediments of a probable alluvial origin at a depth of 20 inches.

Moist Colors

Ap 0 to 5 inches; brown/dark brown (10YR 4/3) silt loam; weak fine granular structure; friable; many fine and medium roots; abrupt wavy boundary.

Bw 5 to 12 inches; brown (10YR 5/3) silt loam with many coarse distinct dark brown (10YR 3/3) and few medium faint grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; few fine black (7.5YR 2/0) concretions and stains; many fine vesicular pores; common fine roots; clear wavy boundary.

Bg1 12 to 20 inches; light brownish gray (10YR 6/2) silt loam with many coarse distinct dark yellowish brown (10YR 4/4) and common fine distinct dark brown (10YR 3/3) mottles; weak medium subangular blocky structure; friable; many fine vesicular pores; patchy silt flows along ped faces; few fine and medium roots; clear wavy boundary.

BEgb 20 to 24 inches; light brownish gray (10YR 6/2) silt loam with many coarse prominent brownish yellow (10YR 6/6) and few fine distinct dark yellowish brown (7.5YR 4/6) mottles; weak medium and coarse subangular blocky structure; friable; patchy silt flows along vertical ped faces; many fine and common medium vesicular pores coated with silt; few medium strong brown (7.5YR 4/6) iron stains coating vertical ped faces; few medium dark reddish brown (5YR 3/4) and few fine black soft black (2.5YR 2.5/0) concretions; few fine roots; abrupt wavy boundary.

Btgb1 24 to 31 inches; gray (10YR 5/1) silty clay loam with many coarse prominent strong brown (7.5YR 5/6) and common medium prominent dark brown (7.5YR 4/4) mottles; moderate medium subangular blocky structure; friable to firm; patchy light yellowish brown (10YR 6/4) stains on vertical ped faces; many distinct clay films on ped faces; patchy silt flows along ped faces; many medium vesicular pores coated in the interior by silt and many fine vesicular pores; few fine dark yellowish brown (10YR 3/6), few fine dark brown (7.5YR 3/2) , and common medium strong brown (7.5YR 4/6) concretions; few fine roots; clear irregular boundary.

Btgb2 31 to 42 inches; mottled brown (10YR 5/3), light brownish gray (10YR 6/2), yellowish brown (10YR 5/6) silt loam; weak medium prismatic structure parting to moderate coarse subangular blocky; firm; many prominent clay films along vertical and horizontal ped faces; common silt flows along ped faces; many fine and common medium vesicular pores coated with silt; few fine strong brown (7.5YR 2/6), common coarse dark brown (7.5YR 3/2), and common medium brown (7.5YR 4/4) concretions and stains; tongues of gray (10YR 5/1) silt loam material from 2 to 5 inches wide; few fine roots; gradual wavy boundary.

Btgb3 42 to 58 inches; mottled brown (10YR 5/3), gray/light gray (10YR 6/1), and strong brown (7.5YR 5/6) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common prominent clay films along vertical and horizontal ped faces; tongues of gray (10YR 5/1) silt loam material about 3 inches wide; common fine vesicular pores; few medium pores coated with clay films and silt grains in the interior; few fine roots; clear wavy boundary.

Btgb4 58 to 65 inches; mottled gray/light gray (10YR 6/1), pale brown (10YR 6/3), and yellowish brown (10YR 5/6) silt loam; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm to very firm; common distinct clay films along vertical ped faces; many fine and few medium vesicular pores; common fine yellowish red (5YR 4/6) and few fine black (5YR 2.5/1) concretions and stains; few fine roots.

Table 18. Selected properties of Gillsburg silt loam, Lafayette County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-5	0.1	1.1	6.6	9.7	3.2	20.7	64.8	14.5	Silt loam
Bw	5-12	0.1	0.9	6.1	9.3	3.2	19.7	65.8	14.5	Silt loam
Bg	12-20	0.0	0.2	1.5	2.6	1.9	6.3	78.5	15.2	Silt loam
BEgb	20-24	0.1	0.4	1.5	1.9	2.1	5.9	78.9	15.2	Silt loam
Btgb1	24-31	0.2	0.7	2.4	2.6	4.0	9.7	62.9	27.4	Silty clay loam
Btgb2	31-42	0.3	2.1	4.6	3.5	2.7	13.2	64.6	22.2	Silt loam
Btgb3	42-58	0.2	2.0	5.8	4.8	3.7	16.4	66.6	17.0	Silt loam
Btgb4	58-65	0.2	4.2	16.3	11.5	3.4	35.7	48.6	15.7	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-5	0.1	480	1.5	23.0	22.4	20.6	–	19.6
Bg1	2-20	0.1	360	1.3	27.1	27.0	26.0	–	24.3
Btgb1	24-31	0.0	550	1.5	22.8	22.1	19.8	–	17.2

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-5	6.4	1.6	0.1	0.9	5.5
Bw	5-12	5.3	0.8	0.4	4.3	3.7
Bg	12-20	5.1	1.0	1.8	20.5	3.0
BEgb	20-24	5.2	0.4	2.4	34.8	2.3
Btgb1	24-31	5.1	0.2	6.0	42.6	0.6
Btgb2	31-42	5.1	0.2	5.4	46.6	0.2
Btgb3	42-58	5.2	0.1	4.3	45.7	0.1
Btgb4	58-65	5.5	0.1	3.7	44.0	0.1

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-5	5.5	1.0	0.1	0.1	4.1	10.8	61.9
Bw	5-12	3.3	0.9	0.1	0.1	4.9	9.3	46.8
Bg	12-20	1.8	0.6	0.1	0.2	6.2	8.8	30.1
BEgb	20-24	0.9	0.4	0.0	0.2	5.3	6.9	23.2
Btgb1	24-31	0.9	1.5	0.1	0.8	10.8	14.1	23.3
Btgb2	31-42	0.3	1.6	0.1	0.9	8.8	11.6	24.7
Btgb3	42-58	0.1	1.5	0.1	0.9	6.8	9.4	27.4
Btgb4	58-65	0.1	1.3	0.1	0.3	6.3	8.4	25.1

Table 19. Pedon description of Guyton silt loam, Winston County.

Slope: Linear, 0-2%.

Geomorphic position: Second terrace level of Noxapater Creek.

Vegetation: White oaks and pines with understory of blackberries, grasses, and some broad-leaf species.

Moist Colors

Ap 0 to 2 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and moderate medium granular structure; very friable; common coarse, many medium and many fine roots; abrupt wavy boundary.

E 2 to 4 inches; grayish brown (10YR 5/2) silt loam; moderate fine subangular blocky; friable; few coarse common medium and few fine roots; abrupt wavy boundary.

BE 4 to 14 inches; grayish brown (10YR 5/2) silt loam with many distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; common medium strong brown (7.5YR 5/6) and common medium black (7.5YR 2/0) concretions; thick silt flows along ped faces; few medium and fine roots; clear wavy boundary.

Btg1 14 to 22 inches; light gray/gray (10YR 6/1) silt loam with many medium distinct yellowish brown (10YR 5/6) and few fine prominent yellowish red (5YR 5/6) mottles; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; common medium reddish brown (5YR 4/4) and common medium black (5YR 2.5/1) concretions; many prominent clay films and silt flows coating ped faces; tongues of the BE horizon 1 inch wide; few medium and fine roots; gradual wavy boundary.

Btg2 22 to 33 inches; mottled gray (10YR 5/1), yellowish brown (10YR 5/6), strong brown (7.5YR 4/6) loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; many medium fine and yellowish red (5YR 5/6) and few medium and fine black (5YR 2.5/1) concretions; many prominent continuous clay films on vertical and horizontal ped faces; thick silt flows on ped faces; tongues of BE horizons present in the upper part of the horizon 1 inch wide; few fine and medium roots; gradual wavy boundary.

Btg3 33 to 60 inches; gray/light gray (10YR 6/1) loam with many medium prominent strong brown (7.5YR 4/6) and few medium prominent yellowish brown (10YR 5/6) mottles; moderate coarse subangular blocky structure; firm; many prominent clay films on ped faces; thick silt flows coating ped faces; few fine dark reddish brown (5YR 2.5/2) concretions; few fine roots.

Table 20. Selected properties of Guyton silt loam, Winston County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-2	1.1	2.6	4.5	16.0	5.8	29.8	60.9	9.3	Silt loam
E	2-4	0.6	0.7	2.0	25.8	14.3	43.5	51.3	5.2	Silt loam
BE	4-14	0.1	0.2	1.5	22.6	14.2	38.6	54.9	6.5	Silt loam
Btg1	14-22	0.3	0.5	1.4	17.7	11.3	31.1	51.0	17.9	Silt loam
Btg2	22-33	0.1	0.3	1.2	17.0	11.4	29.9	49.6	20.5	Loam
Btg3	33-60	0.1	0.3	1.2	15.3	10.0	26.9	48.6	24.5	Loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in^2	g/cc	%				
BE	4-14	0.3	390	1.5	19.5	16.3	14.8	13.5	10.2
Btg1	14-22	0.0	680	1.7	20.7	17.4	15.0	13.5	11.1
Btg2	22-33	0.0	1,100	1.6	19.3	18.0	16.3	–	15.5

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	cmol$_c$kg^{-1}	%	
Ap	0-2	4.6	10.0	2.3	13.0	1.8
E	2-4	5.1	2.1	1.7	31.5	2.0
BE	4-14	4.9	0.6	1.7	40.5	3.0
Btg1	14-22	5.1	0.2	5.8	55.8	0.5
Btg2	22-33	5.0	0.2	5.1	34.5	0.5
Btg3	33-60	4.7	0.2	2.8	11.0	0.7

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	cmol$_c$kg^{-1}						%
Ap	0-2	1.6	0.9	0.3	0.2	14.7	17.7	16.8
E	2-4	0.2	0.1	0.1	0.0	5.0	5.4	7.2
BE	4-14	0.3	0.1	0.0	0.1	3.7	4.2	11.3
Btg1	14-22	0.3	0.6	0.1	0.5	8.9	10.4	14.0
Btg2	22-33	0.8	1.6	0.1	3.9	8.5	14.8	42.8
Btg3	33	1.7	2.6	0.1	14.1	6.9	25.4	72.6

Table 21. Pedon description of Leeper silty clay loam, Lee County.

Slope: Slightly convex, facing southeast, 0-2%.

Geomorphic position: Flood plain.

Vegetation: Pasture under fescue with yellowtop weeds.

Parent material: Moderately alkaline alluvium overlying chalk.

Ap 0 to 6 inches; dark grayish brown (2.5YR 4/2) silty clay loam; moderate fine and medium granular structure; friable to firm; few earthworm holes; many fine and medium roots; clear smooth boundary.

Ap 26 to 10 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium granular structure; friable; common earthworm holes; many fine roots; gradual wavy boundary.

Bw 10 to 20 inches; mottled yellowish brown (10YR 5/8) and light gray (10YR 6/1) clay loam; moderate medium and coarse subangular blocky structure; firm; few fine manganese (black) concretions; common fine roots; gradual wavy boundary.

Bg 20 to 40 inches; light gray/gray (5YR 6/1) clay loam with many fine and medium prominent strong brown (7.5YR 5/8) and yellowish brown (10YR 5/8) mottles; moderate medium and coarse subangular blocky structure; firm; few fine black concretions; few fine roots; clear wavy boundary.

Bgss1 40 to 55 inches; light gray/gray (5YR 6/1) clay with many coarse distinct yellowish brown (10YR 5/8) mottles; massive; firm; segregation of iron oxides along root channels yellowish red (5YR 5/8); weak coarse prismatic structure; striated slickensides that do not intersect; decomposed roots on the outside have a very dusky red (2.5YR 2.5/2) color and the inside are black (N2.5/0); few fine black concretions; few fine roots; gradual wavy boundary.

Bgss2 55 to 74 inches; mottled grayish brown (10YR 5/2); light gray/gray (10YR 6/1) and yellowish brown (10YR 5/8) clay loam; weak coarse prismatic structure; firm; many coarse slickensides; common rounded quartz sand grains; many medium black concretions; decomposing roots have a very dusky red (2.5YR 2.5/2) color; few fine gypsum crystals; Ap material in krotovinas; few fine roots.

Table 22. Selected properties of Leeper silty clay loam, Lee County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-6	0.5	0.5	1.4	3.4	3.2	9.0	60.5	30.5	Silty clay loam
Ap2	6-10	0.5	0.9	2.8	7.5	5.6	17.3	51.2	31.5	Silty clay loam
Bw	10-20	0.7	1.5	4.2	10.8	7.4	24.5	43.3	32.2	Clay loam
Bg	20-40	0.4	1.1	3.8	9.9	7.0	22.2	41.1	36.7	Clay loam
Bgss1	40-55	0.7	1.1	3.3	8.9	6.8	20.7	35.9	43.4	Clay
Bgss2	55-74	0.4	1.0	3.4	9.0	6.4	20.1	40.2	39.7	Clay loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-6	0.8	336	1.4	27.6	27.1	26.7	–	26.3
Bw	10-20	0.1	140	1.5	24.7	24.3	23.7	–	23.1
Bg	20-40	0.0	187	1.5	26.7	26.0	25.6	–	25.4
Bgss1	40-55	0.4	101	1.5	27.9	27.0	26.5	–	26.3

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-6	7.9	2.8	0.1	0.2	102.0
Ap2	6-10	7.9	2.0	0.2	0.5	183.5
Bw	10-20	8.0	0.6	0.0	0.0	223.0
Bg	20-40	6.9	0.4	0.0	0.0	37.8
Bgss1	40-55	4.5	0.2	7.1	22.8	12.1
Bgss2	55-74	4.6	0.2	4.0	13.2	10.8

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-6	40.8	0.4	0.2	0.1	1.3	42.7	96.9
Ap2	6-10	36.7	0.2	0.1	0.1	1.6	38.8	95.9
Bw	10-20	22.3	0.1	0.1	0.1	1.8	24.5	92.6
Bg	20-40	18.9	0.5	0.1	0.5	5.0	25.1	79.9
Bgss1	40-55	15.7	1.3	0.2	0.8	13.1	31.1	57.9
Bgss2	55-74	18.4	1.7	0.2	1.0	9.2	30.4	69.8

Table 23. Pedon description of Mantachie sandy loam, Lee County.

Slope: 0-2%, slightly convex.

Geomorphic position: Flood plain.

Vegetation: Grasses and weeds.

Parent material: Loamy acid alluvium.

Ap 0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine and medium granular structure; friable; few earthworm channels; few fine pores; few fine charcoal pieces; many fine and few medium roots; clear smooth boundary.

A 5 to 10 inches; mottled dark yellowish-brown (10YR 4/4) and grayish-brown (10YR 5/2) sandy loam; weak fine and medium granular structure; friable; common horizontal layers with edges of yellowish-red (5YR 5/8) color and interior of red (2.5YR 4/8); segregation of iron along ped faces and root channels; common fine charcoal fragments; few medium and common fine roots; clear smooth boundary.

Bw1 10 to 14 inches; mottled dark yellowish-brown (10YR 4/4) and grayish brown (10YR 5/2) sandy loam; weak medium and fine subangular blocky structure; friable; few fine mica flakes; common fine and few medium roots; clear smooth boundary.

Bw2 14 to 19 inches; mottled dark yellowish-brown (10YR 4/4), grayish-brown (10YR 5/2), and dark yellowish-brown (10YR 4/6) sandy loam; weak medium subangular blocky structure; friable; few fine iron concretions; few fine charcoal fragments; few fine mica flakes; few coarse krotovinas coated with silt flows; common fine roots; gradual wavy boundary.

Bg1 19 to 32 inches; light brownish-gray (10YR 6/2) sandy loam with many coarse prominent strong brown (7.5YR 5/6) and many medium distinct yellowish-brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; common fine and medium pores coated with patchy silt flows; few fine mica flakes; few medium and common fine roots; gradual wavy boundary.

Bg2 32 to 46 inches; light brownish gray (10YR 6/2) sandy loam with many medium and coarse distinct yellowish-brown (10YR 5/6) and many medium coarse prominent yellowish-red (5YR 5/6) mottles; weak medium and coarse subangular blocky structure; friable; common fine pores; common fine mica flakes; common fine roots and few medium roots; gradual wavy boundary.

Bg3 46 to 60 inches; light brownish-gray (10YR 6/2) sandy loam with many medium and coarse prominent strong brown (7.5YR 5/6), yellowish-red (5YR 4/6), and many medium distinct yellowish-brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots.

Table 24. Selected properties of Mantachie sandy loam, Lee County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-5	0.3	0.4	4.9	26.1	21.5	53.2	34.7	12.1	Sandy loam
A	5-10	0.1	0.2	6.6	31.0	22.9	60.9	26.3	12.8	Sandy loam
Bw1	10-14	0.0	0.2	6.6	32.1	22.6	61.5	27.2	11.3	Sandy loam
Bw2	14-19	0.0	0.2	6.5	33.4	23.0	63.0	23.9	13.1	Sandy loam
Bg1	19-32	0.0	0.2	7.1	36.3	23.1	66.6	21.9	11.5	Sandy loam
Bg2	32-46	0.0	0.1	5.5	34.2	25.7	65.5	22.2	12.3	Sandy loam
Bg3	46-60	0.0	0.2	8.1	43.1	24.9	76.3	14.8	8.9	Sandy loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-5	0.2	956	1.3	24.9	22.8	21.8	–	20.2
Bw1	10-14	0.4	250	1.6	18.0	16.9	16.4	–	15.9
Bw2	14-19	1.4	163	1.6	19.0	17.4	16.7	–	15.1
Bg1	19-32	1.2	111	1.6	18.5	16.3	15.0	–	13.4
Bg2	32-46	0.4	167	1.5	20.5	17.6	15.9	–	14.3

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-5	5.7	2.0	0.1	0.7	13.4
A	5-10	4.9	0.9	4.2	40.8	9.0
Bw1	10-14	5.0	0.8	4.6	46.5	6.0
Bw2	14-19	4.9	0.5	5.5	56.1	5.5
Bg1	19-32	4.8	0.3	5.3	60.2	7.0
Bg2	32-46	4.7	0.2	6.1	66.3	3.0
Bg3	46-60	4.9	0.2	3.9	61.9	4.0

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-5	6.7	0.5	0.1	0.1	5.4	12.8	57.5
A	5-10	1.8	0.2	0.1	0.1	8.2	10.3	20.4
Bw1	10-14	1.2	0.2	0.0	0.1	8.4	9.9	14.8
Bw2	14-19	1.1	0.2	0.1	0.1	8.5	9.8	13.5
Bg1	19-32	0.7	0.1	0.1	0.1	7.9	8.8	10.3
Bg2	32-46	0.6	0.2	0.1	0.0	8.3	9.2	9.6
Bg3	46-60	0.4	0.1	0.1	0.1	5.6	6.3	10.4

Table 25. Pedon description of Mantachie silt loam, Winston County.

Slope: Slightly convex, 0-2%.

Geomorphic position: Flood plain.

Vegetation: Grasses and broadleaf weeds.

Parent material: Alluvium.

Moist Colors

Ap 0 to 3 inches; dark brown (10YR 4/3) silt loam; moderate fine and medium granular structure; friable; many fine and medium roots; clear smooth boundary.

Bw1 3 to 9 inches; brown (10YR 4/3) silt loam with common fine faint light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; many fine and common medium roots; clear wavy boundary.

Bw2 9 to 15 inches; brown (10YR 5/3) silt loam with many coarse distinct dark brown (7.5YR 4/2) mottles; weak medium subangular blocky structure; friable; common medium dark reddish brown (5YR 2.5/2) concretions; common fine and few coarse roots; clear wavy boundary.

Bw3 15 to 32 inches; mottled yellowish brown (10YR 5/4) light brownish gray (10YR 6/2), and yellowish brown (10YR 5/8) loam; weak medium and coarse subangular blocky structure; friable; few medium dark reddish brown (5YR 2.5/2) and many medium and coarse strong brown (7.5YR 4/6) concretions; few fine and medium roots; gradual wavy boundary.

Bg1 32 to 40 inches; gray/light gray (10YR 6/1) loam with many coarse distinct yellowish brown (10YR 5/6) mottles; moderate coarse subangular blocky structure; friable; few fine roots; gradual wavy boundary.

Bg2 40 to 60 inches; gray (10YR 5/1) clay loam with many fine and medium prominent strong brown (7.5YR 5/6) mottles; weak coarse subangular blocky structure; firm; common medium and coarse yellowish red (5YR 4/6) concretions; few fine roots.

Table 26. Selected properties of Mantachie silt loam, Winston County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-3	0.4	0.7	1.9	4.2	2.5	9.7	72.1	18.2	Silt loam
Bw1	3-9	0.1	0.5	1.8	4.0	2.5	8.9	69.3	21.8	Silt loam
Bw2	9-15	0.1	0.5	3.2	16.1	8.2	28.0	55.5	16.5	Silt loam
Bw3	15-32	0.0	0.1	3.5	25.2	11.0	39.9	44.9	15.2	Loam
Bg1	32-40	0.0	0.2	4.9	27.1	9.7	41.9	36.4	21.7	Loam
Bg2	40-60	0.0	0.2	4.2	19.2	7.4	31.0	39.3	29.7	Clay loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-3	0.7	340	1.1	40.5	39.7	38.3	–	21.2
Bw1	3-9	0.2	270	1.2	31.3	30.2	28.8	–	24.6
Bg1	32-40	0.1	190	1.8	18.5	17.5	15.8	–	12.2

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-3	5.2	6.1	1.6	6.9	2.8
Bw1	3-9	5.2	2.3	3.4	23.0	4.0
Bw2	9-15	5.4	0.9	1.8	21.4	2.2
Bw3	15-32	5.0	0.2	2.6	46.4	0.6
Bg1	32-40	4.9	0.1	5.1	47.2	0.6
Bg2	40-60	4.8	0.2	6.8	42.2	0.5

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-3	5.1	1.8	0.3	0.1	15.8	23.1	31.7
Bw1	3-9	2.4	0.6	0.1	0.1	11.6	14.8	21.8
Bw2	9-15	1.1	0.5	0.0	0.1	6.7	8.4	21.1
Bw3	15-32	0.3	0.5	0.0	0.2	4.5	5.6	19.2
Bg1	32-40	0.7	1.2	0.1	0.8	8.0	10.8	25.6
Bg2	40-60	1.4	2.7	0.1	1.4	10.5	16.1	34.5

Table 27. Pedon description of Oaklimeter silt loam, Benton County.

Slope: 0-2%.

Geomorphic position: Flood plain.

Vegetation: Under cultivation.

Parent material: Alluvium.

Ap 0 to 8 inches; brown/dark brown (10YR 4/3) silt loam; moderate coarse granular and moderate fine subangular blocky structure; friable; common fine charcoal pieces; many fine and medium roots; clear wavy boundary.

Bw1 8 to 20 inches; dark yellowish brown (10YR 4/4) silt loam with few fine faint pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; common medium dark grayish brown (10YR 4/2) stains on ped faces; many fine pores; common fine soft rounded black (10YR 2/1) concretions and stains; common fine roots; gradual wavy boundary.

Bw2 20 to 32 inches; dark yellowish brown (10YR 4/4) silt loam with many coarse distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; friable; common medium soft rounded black (10YR 2/1) concretions; common coarse dark grayish brown (10YR 4/2) stains on ped faces; many fine, common medium and coarse pores; few fine roots; clear wavy boundary.

BE 32 to 43 inches; mottled dark yellowish brown (10YR 4/4), light brownish gray (10YR 6/2), and yellowish brown (10YR 5/8) silt loam; moderate coarse subangular blocky structure; friable; silt flows on ped faces; common medium and fine pores; common medium hard rounded yellowish red (5YR 4/6) concretions and few fine black (10YR 2/1) masses; few fine roots; gradual wavy boundary.

Btgxb 43 to 68 inches; gray (10YR 5/1) silt loam with many prominent elongated strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm, compact and brittle; common coarse rounded very dark grayish brown (10YR 3/2) concretions inside peds and few common rounded soft black (10YR 2/1) stains on exterior of peds; silt flows on vertical ped faces; common distinct clay films on ped faces; light yellowish brown (10YR 6/4) stains on ped faces; few coarse sand grains on ped faces.

Table 28. Selected properties of Oaklimeter silt loam, Benton County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-8	0.4	0.3	1.0	10.5	10.9	23.0	66.3	10.7	Silt loam
Bw1	8-20	0.0	0.1	0.3	3.2	6.1	9.7	68.1	22.2	Silt loam
Bw2	20-32	0.1	0.4	1.1	3.1	3.3	8.0	66.8	25.2	Silt loam
BE	32-43	0.3	2.1	2.9	6.5	5.2	17.0	60.6	22.4	Silt loam
Btgxb	43-68	0.2	3.0	4.9	9.6	5.8	23.6	57.4	19.0	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-8	1.0	–	1.3	24.8	23.4	21.6	–	19.6
Bw1	8-20	2.1	–	1.5	28.0	27.4	26.8	–	25.4
Btgxb	43-68	0.1	–	1.6	23.9	22.9	20.5	–	19.2

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-8	6.8	1.8	0.0	0.0	6.5
Bw1	8-20	4.9	0.7	1.8	14.3	1.8
Bw2	20-32	4.6	0.4	5.2	38.2	0.7
BE	32-43	4.5	0.2	5.8	52.8	0.5
Btgxb	43-68	4.6	0.2	6.2	63.9	0.2

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-8	7.8	1.2	0.2	0.1	1.5	10.8	85.9
Bw1	8-20	4.0	2.2	0.1	0.2	6.2	12.6	51.2
Bw2	20-32	1.4	1.9	0.1	0.2	10.0	13.6	26.4
BE	32-43	0.8	1.5	0.1	0.2	8.6	11.2	23.1
Btgxb	43-68	0.2	1.2	0.1	0.2	8.0	9.7	16.9

Table 29. Pedon description of Ora silt loam, Winston County.

Slope: Convex, 9%, facing north.

Geomorphic position: Back slope, about 150 feet from the summit of the hill.

Vegetation: Pasture.

Parent material: Upper coastal plain sediments.

Moist Colors

Ap 0 to 3 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; many fine and common medium roots; clear wavy boundary.

E 3 to 6 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; many fine and few medium roots; abrupt wavy boundary.

Bt 6 to 18 inches; yellowish red (5YR 5/6) clay loam; weak fine subangular and strong fine and medium angular blocky structure; firm; common distinct yellowish red (5YR 5/8) clay films on vertical and horizontal ped faces in the upper horizon and many prominent in the lower part of the horizon; many coarse dark reddish brown (5YR 2.5/2) and common medium dark reddish brown (2.5YR 3/4) concretions concentrated in a layer about 3 inches thick, concretions have few elongated voids; common fine and medium roots; clear wavy boundary.

Btx1 18 to 25 inches; yellowish red (5YR 5/8) clay with common fine and medium faint red (2.5YR 4/6) mottles; weak medium prismatic structure parting to strong fine and medium angular blocky; peds tend to part to fine plates; firm; compact and brittle; many prominent clay films on vertical and horizontal ped faces; few fine and medium vesicular voids; common distinct brownish yellow (10YR 6/8) silt coatings on ped faces; few fine and medium roots; gradual wavy boundary.

Btx2 25 to 38 inches; mottled red (2.5YR 4/8) and brownish yellow (10YR 6/6) clay; moderate coarse prismatic structure parting to medium and coarse angular blocky; peds tend to part to plates; firm; compact and brittle; common distinct clay films on ped faces; few distinct silt flows on ped faces; few fine pores and voids coated with clay films; few fine roots gradual wavy boundary.

C 38 to 60 inches; mottled red (2.5YR 5/6), light gray (10YR 7/10), and brownish yellow (10YR 6/6) silty clay loam; massive; firm; few fine roots.

Table 30. Selected properties of Ora silt loam, Winston County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-3	0.8	0.6	1.2	3.8	17.7	24.1	71.3	4.6	Silt loam
E	3-6	0.2	0.5	1.3	5.6	30.0	37.6	53.8	8.6	Silt loam
Bt	6-18	0.4	0.4	0.8	3.8	21.5	26.9	41.4	31.7	Clay loam
Btx1	18-25	0.0	0.1	0.2	2.0	18.0	20.3	30.8	48.9	Clay
Btx2	25-38	0.0	0.0	0.2	2.0	22.5	24.6	33.3	42.1	Clay
C	38-60	0.0	0.0	0.1	1.5	18.0	19.6	45.3	35.1	Silty clay loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-3	0.6	450	1.4	27.6	26.8	24.5	–	14.2
Bt	6-18	0.1	970	1.5	22.3	22.1	21.3	20.4	18.7
Btx1	18-25	0.6	930	1.4	27.4	26.3	24.9	24.2	21.7
Btx2	25-38	1.0	1,030	1.6	24.4	23.7	22.6	22.1	20.2

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-3	5.5	3.9	0.1	9.0	12.8
E	3-6	5.4	1.5	0.5	8.1	18.0
Bt	6-18	5.1	0.6	4.1	38.7	1.3
Btx1	18-25	5.1	0.3	8.2	54.7	0.1
Btx2	25-38	5.1	0.2	8.6	60.1	0.1
C	38-60	5.0	0.1	8.9	67.9	0.1

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-3	5.1	0.4	0.1	0.1	5.5	11.1	50.8
E	3-6	1.8	0.1	0.0	0.0	4.2	6.2	32.4
Bt	6-18	1.3	1.0	0.0	0.0	8.2	10.6	22.6
Btx1	18-25	0.2	2.0	0.1	0.1	12.7	15.0	15.0
Btx2	25-38	0.1	1.6	0.1	0.1	12.4	14.3	13.0
C	38-60	0.1	1.4	0.1	0.1	11.5	13.1	12.6

Table 31. Pedon description of Petal loamy fine sand, Forrest County.

Slope: 8-20%.

Geomorphic position: Uplands.

Vegetation: Large pine with scattered hardwoods.

Parent material: Coastal plain sediments.

Moist Colors

A 0 to 4 inches; dark grayish brown (10YR 4/2) loamy fine sand; weak fine granular structure; friable; many fine to coarse roots; extremely acid; clear smooth boundary.

E 4 to 10 inches; light yellowish brown (10YR 6/4) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; very strongly acid; gradual wavy boundary.

Bt1 10 to 17 inches; yellowish red (5YR 5/8) fine sandy loam; moderate medium subangular blocky structure; firm; common faint clay films on ped faces and lining pores; very strongly acid; gradual wavy boundary.

Bt2 17 to 26 inches; yellowish red (5YR 4/6) loam; common medium prominent light brownish gray (10YR 6/2) and common medium faint red (2.5YR 4/6) mottles; moderate medium angular blocky structure; firm; common fine roots; clay skins on ped faces; extremely acid; gradual wavy boundary.

Bt3 26 to 32 inches; pale brown (10YR 6/3) silty clay loam; many coarse prominent red (2.5YR 4/6) and many coarse faint light brownish gray (10YR 6/2) mottles; moderate medium angular blocky structure; firm; few fine roots; common distinct clay films on ped faces and in pores; extremely acid; gradual wavy boundary.

Bt4 32 to 40 inches; pale brown (10YR 6/3) silty clay loam; many coarse prominent red (2.5YR 4/6) and many coarse faint light brownish gray (10YR 6/2) mottles; moderate medium angular blocky structure; firm; many prominent clay films on ped faces; extremely acid; gradual wavy boundary.

Bt5 40 to 70 inches; mottled light gray (5YR 7/2), red (2.5YR 4/6), and strong brown (7.5YR 5/6) silty clay; moderate medium angular blocky structure; firm; many prominent clay films on ped faces; extremely acid.

Table 32. Selected properties of Petal loamy sand, Forrest County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
A	0-4	1.0	1.7	21.6	40.8	8.9	74.0	23.5	2.5	Loamy sand
E	4-10	0.6	1.1	18.2	42.5	9.7	72.1	22.9	5.0	Sandy loam
Bt1	10-17	0.3	1.1	16.4	37.9	6.2	61.9	21.4	16.7	Sandy loam
Bt2	17-26	0.3	0.7	8.8	29.4	8.3	47.5	29.1	23.4	Loam
Bt3	26-32	0.0	0.1	1.2	6.7	8.2	16.2	52.0	31.8	Silty clay loam
Bt4	32-40	0.0	0.1	1.0	6.2	5.9	13.2	55.2	31.6	Silty clay loam
Bt5	40-60	0.0	0.0	0.3	1.4	3.0	4.7	49.4	45.9	Silty clay

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
A	0-4	1.2	–	1.5	14.5	13.8	12.4	11.1	9.1
E	4-10	0.4	–	1.7	9.1	8.7	7.6	5.8	5.7
Bt1	10-17	0.2	–	1.9	13.7	13.6	12.5	11.3	10.4
Bt2	17-26	0.1	–	1.7	18.8	18.7	17.7	16.4	15.5
Bt3	26-32	0.1	–	1.7	23.9	23.4	22.4	21.6	20.6

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
A	0-4	4.5	1.7	1.1	15.1	1.0
E	4-10	4.9	0.4	0.5	9.1	1.0
Bt1	10-17	4.6	0.2	3.1	39.7	0.6
Bt2	17-26	4.4	0.4	6.6	53.2	0.5
Bt3	26-32	4.3	0.2	9.6	53.3	0.8
Bt4	32-40	4.4	0.0	10.3	45.6	0.7
Bt5	40-60	4.3	0.1	17.8	51.7	0.8

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-4	0.1	0.1	0.1	0.1	7.1	7.3	3.7
E	4-10	0.2	0.2	0.0	0.1	5.0	5.5	9.6
Bt1	10-17	0.4	0.7	0.1	0.1	6.5	7.8	16.0
Bt2	17-26	0.5	1.1	0.1	0.1	10.6	12.4	13.9
Bt3	26-32	1.5	2.0	0.1	0.1	14.3	18.0	20.3
Bt4	32-40	1.8	2.5	0.2	0.1	18.0	22.6	20.2
Bt5	40-60	4.7	5.6	0.4	0.1	23.6	34.4	31.3

Table 33. Pedon description of Prentiss silt loam, Forrest County.

Slope: Linear, 0-2%.

Geomorphic position: Upland.

Vegetation: Pecan orchard.

Parent material: Coastal plain sediments.

Moist Colors

Ap 0 to 4 inches; dark grayish brown (10YR 4/2) silt loam with common fine faint dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many fine medium and coarse roots; clear wavy boundary.

Bt 14 to 10 inches; yellowish brown (10YR 5/8) silt loam with few fine prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; firm; few faint clay films coating vertical ped faces; few fine dark red (2.5YR 3/6) concretions; many fine roots, and common medium and coarse roots, clear smooth boundary.

Bt2 10 to 20 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; firm; common distinct thin clay films on vertical and horizontal ped faces; few fine dark reddish brown (2.5YR 3/4) and yellowish red (5YR 4/6) concretions; common fine and medium and few coarse roots; abrupt wavy boundary.

Btx1 20 to 28 inches; yellowish brown (10YR 5/6) silt loam with common fine and medium distinct strong brown (7.5YR 5/6) and common medium and coarse faint light yellowish brown (10YR 6/4) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; compact and brittle; many prominent clay films on vertical and horizontal ped faces; silt flows overlie clay films; common fine yellowish red (5YR 4/6), few fine strong brown (7.5YR 5/6), and few fine dark reddish brown (5YR 2.5/2) concretions; common medium and fine pores coated with clay films and silt flows inside peds; few fine medium and coarse roots; gradual wavy boundary.

Btx2 28 to 36 inches; brownish yellow (10YR 6/6) loam with many coarse faint yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; compact and brittle; many prominent clay films on vertical and horizontal ped faces; thick continuous pale brown (10YR 6/3) silt flows overlie clay films; few fine red (2.5YR 4/8) concretions; common medium and fine vesicular pores; few fine and common coarse roots; gradual wavy boundary.

Btx3 36 to 52 inches; yellowish brown (10YR 5/6) clay loam with common coarse prominent red (2.5YR 4/8) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky which tends to part into plates; very firm; compact and brittle; many prominent strong brown (7.5YR 4/6) clay films on vertical and horizontal ped faces; common medium and coarse dark brown (7.5YR 3/4) concretions; common fine and medium vesicular pores inside peds; few fine and medium roots; gradual wavy boundary.

Btx4 52 to 60 inches; yellowish brown (10YR 5/8) loam with common coarse prominent red (2.5YR 4/8) and few medium faint brownish yellow (10YR 6/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; very firm; compact and brittle; many prominent clay films along vertical and horizontal ped faces; patchy silt flows along ped faces; few coarse strong brown (7.5YR 5/6) concretions many fine and medium vesicular pores inside peds; few fine roots.

Table 34. Selected properties of Prentiss silt loam, Forest County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-4	0.5	0.9	2.0	15.1	13.8	32.2	58.9	8.9	Silt loam
Bt1	4-10	0.1	0.4	0.9	10.2	12.1	23.7	57.2	19.1	Silt loam
Bt2	10-20	0.2	0.4	0.8	9.4	11.2	22.1	54.9	23.0	Silt loam
Btx1	20-28	0.4	0.5	0.9	9.5	10.9	22.1	56.2	21.7	Silt loam
Btx2	28-36	0.2	0.3	0.9	12.6	14.8	28.9	48.1	23.0	Loam
Btx3	36-52	0.1	0.2	0.8	13.0	15.6	29.6	42.2	28.2	Clay loam
Btx4	52-60	0.0	0.1	0.9	14.8	17.2	33.0	41.5	25.5	Loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-4	4.6	297	1.2	29.5	29.3	27.2	25.3	24.9
Bt1	4-10	0.3	406	1.5	17.7	15.2	14.0	13.3	12.2
Btx1	20-28	1.6	100	61.5	20.8	18.4	15.8	14.8	14.4
Btx2	28-36	0.5	704	1.5	19.3	17.4	14.3	13.2	13.0

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-4	5.3	2.6	0.2	1.8	2.6
Bt1	4-10	5.1	0.4	1.4	17.5	1.3
Bt2	10-20	5.0	0.3	3.4	37.4	1.5
Btx1	20-28	5.1	0.2	4.1	47.1	2.0
Btx2	28-36	5.0	0.1	4.0	50.0	1.5
Btx3	36-52	4.8	0.1	4.8	51.1	1.3
Btx4	52-60	4.9	0.1	4.3	50.6	1.0

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-4	3.1	1.2	0.3	0.0	6.7	11.2	40.7
Bt1	4-10	1.6	1.2	0.4	0.0	4.7	8.0	41.2
Bt2	10-20	1.2	0.8	0.4	0.0	6.8	9.1	25.4
Btx1	20-28	0.8	0.4	0.2	0.0	7.2	8.7	16.5
Btx2	28-36	0.6	0.4	0.1	0.0	6.9	8.0	14.0
Btx3	36-52	0.5	0.4	0.1	0.0	8.3	9.4	11.3
Btx4	52-60	0.5	0.5	0.1	0.0	7.4	8.5	12.6

Table 35. Pedon description of Quitman silt loam, Lee County.

Slope: 0-2%.

Geomorphic position: High terrace.

Vegetation: Large red oak and post oak.

Parent material: Coastal plain sediments.

A 0 to 1 inch; light yellowish brown (10YR 6/4) silt loam; weak fine subangular blocky structure; friable; many fine and medium roots; extremely acid; abrupt wavy boundary.

E 1 to 5 inches; light yellowish brown (10YR 6/4) silt loam with many fine distinct brownish yellow (10YR 6/6) mottles; weak fine subangular blocky structure; friable; common fine and medium roots; extremely acid; clear wavy boundary.

Bt 5 to 14 inches; brownish yellow (10YR 6/6) silt loam with many fine faint strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable; few distinct clay films on ped faces; extremely acid; gradual wavy boundary.

Btx1 14 to 25 inches; light brownish gray (2.5YR 6/2) silt loam with many medium distinct strong brown (7.5YR 5/8) and brownish yellow (10YR 6/8) mottles; weak coarse prismatic structure parting to moderate medium angular blocky; firm; brittle; light gray (10YR 7/2) silt coatings on ped faces overlying many prominent clay films; few fine roots penetrate some peds; extremely acid; gradual smooth boundary.

Btx2 25 to 36 inches; mottled light gray (N 7/0), strong brown (7.5YR 5/8) and pale brown (10YR 6/3) silt loam; weak coarse prismatic structure parting to moderate medium prismatic; firm; brittle; common distinct clay films and thick silt coatings on ped faces and between prisms; very strongly acid; clear wavy boundary.

Btx3 36 to 65 inches; gray (10YR 6/1) silt loam with many coarse prominent strong brown (7.5YR 5/8) mottles; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; brittle; many prominent clay films and silt coatings on ped faces; very strongly acid.

Table 36. Selected properties of Quitman silt loam, Lee County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
A	0-1	0.1	0.1	2.8	12.9	9.1	26.3	59.8	13.9	Silt loam
E	1-5	0.3	0.5	2.3	12.9	9.0	25.0	62.9	12.1	Silt loam
Bt	5-14	0.2	0.4	2.1	12.7	9.3	24.7	60.7	14.6	Silt loam
Btx1	14-25	0.0	0.4	1.9	11.7	8.3	22.3	57.7	20.0	Silt loam
Btx2	25-36	0.1	0.4	2.0	11.3	7.2	21.0	57.5	21.5	Silt loam
Btx3	36-65	0.1	0.5	2.1	11.5	7.8	22.0	54.9	23.1	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
E	1-5	0.4	–	1.4	20.3	18.3	17.4	16.4	14.2
Bt	5-14	0.3	–	1.5	20.5	18.1	17.8	15.9	14.2
Btx1	14-25	0.5	–	1.5	23.5	20.3	17.9	16.3	14.6
Btx2	25-36	0.4	–	1.5	24.5	21.1	18.9	17.0	15.0
Btx3	36-65	0.2	–	1.5	23.7	20.2	18.1	16.7	14.8

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
A	0-1	4.0	1.8	4.2	53.2	0.0
E	1-5	4.1	1.7	4.3	47.7	0.0
Bt	5-14	4.1	1.1	5.3	52.0	0.0
Btx1	14-25	4.3	0.8	6.7	59.8	0.0
Btx2	25-36	4.6	0.8	8.3	68.0	0.3
Btx3	36-65	5.0	0.4	8.8	88.0	0.8

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-1	0.0	0.1	0.1	0.1	7.7	7.9	2.5
E	1-5	0.0	0.1	0.1	0.1	8.7	9.0	2.4
Bt	5-14	0.0	0.1	0.1	0.1	10.2	10.5	2.8
Btx1	14-25	0.0	0.3	0.1	0.1	10.7	11.2	3.9
Btx2	25-36	0.1	0.3	0.1	0.3	11.4	12.2	6.7
Btx3	36-65	0.3	0.4	0.1	0.4	8.9	10.0	11.7

Table 37. Pedon descriptions of Savannah fine sandy loam, Lee County.

Slope: Convex, 3%.

Geomorphic position: On the scarp of an alluvial terrace.

Vegetation: Coastal bermudagrass and fescue.

Parent material: Alluvial terrace sediments.

Ap 0 to 4 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine and medium roots; clear wavy boundary.

Bt 4 to 12 inches; yellowish brown (10YR 5/6) loam; moderate medium subangular blocky structure; friable; many faint dark yellowish brown (10YR 4/4) clay films on horizontal and vertical ped faces; common fine pores in ped interiors; many fine and medium roots; clear wavy boundary.

Btx1 12 to 24 inches; yellowish brown (10YR 5/4) fine sandy loam with common fine faint yellowish brown (10YR 5/8) mottles; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; compact and brittle in more than 40 percent of volume; common distinct dark yellowish brown (10YR 4/4) clay films on horizontal and vertical ped faces; many faint light brownish gray (10YR 6/2) silt and sand coatings on vertical and horizontal ped faces; few fine black (7.5YR 2/0) concretions; common fine and medium pores; common medium roots along vertical seams; gradual wavy boundary.

Btx2 24 to 37 inches; brown (10YR 5/3) fine sandy loam with common medium distinct strong brown (7.5YR 5/6), many coarse distinct yellowish brown (10YR 5/6), and common coarse distinct light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to weak coarse subangular blocky; firm; compact and brittle in more than 60 percent of volume; many distinct clay films on vertical and horizontal ped faces; thick continuous sand flows along ped faces; common fine and medium pores coated with clay films in the interiors; few fine and medium roots along vertical seams; gradual wavy boundary.

Btx3 37 to 56 inches; mottled gray (10YR 6/1), yellowish brown (10YR 5/6) and yellowish red (5YR 5/6) sandy clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; compact and brittle in more than 60 percent of volume; many distinct brown (10YR 4/3) clay films on vertical and horizontal ped faces; thick continuous sand and silt flows on vertical and horizontal ped faces; common fine and medium pores coated with clay films in the interior; few fine and medium roots along vertical seams; gradual wavy boundary.

Btg 6 to 70 inches; gray (10YR 6/1) sandy clay loam with common fine and medium prominent red (2.5YR 5/6) mottles; weak coarse prismatic structure parting to moderate coarse subangular blocky; firm; many prominent gray (10YR 5/1) clay films on horizontal and vertical ped faces; patchy, thin sand and silt flows along vertical and horizontal ped faces; few fine pores inside peds; few fine roots along vertical seams.

Table 38. Selected properties of Savannah sandy loam, Lee County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-4	0.1	0.3	2.7	28.4	26.5	57.9	33.5	8.6	Sandy loam
Bt	4-12	0.0	0.2	1.3	18.5	20.2	40.2	40.0	19.8	Loam
Btx1	12-24	0.0	0.1	1.4	24.8	27.2	53.5	29.1	17.4	Sandy loam
Btx2	24-37	0.0	0.0	1.5	29.1	31.1	61.7	18.5	19.8	Sandy loam
Btx3	37-56	0.0	0.1	1.4	24.8	28.1	54.4	18.9	26.7	Sandy clay loam
Btg	56-70	0.0	0.0	1.2	25.4	28.9	55.6	16.2	28.2	Sandy clay loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-4	0.4	265	1.6	17.6	16.3	14.4	13.6	10.1
Bt	4-12	0.5	262	1.6	18.6	18.2	17.5	17.2	14.8
Btx1	12-24	0.1	416	1.5	20.1	18.7	17.0	16.1	13.2
Btx2	24-37	0.2	710	1.6	20.3	18.7	17.1	16.1	13.2

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-4	5.3	1.2	0.5	7.7	13.0
Bt	4-12	6.4	0.5	0.1	1.0	7.4
Btx1	12-24	5.7	0.2	0.7	8.0	2.0
Btx2	24-37	5.0	0.1	4.3	38.7	0.8
Btx3	37-56	4.9	0.1	9.6	53.3	0.5
Btg	56-70	5.1	0.1	10.9	53.4	0.6

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-4	2.6	0.2	0.1	0.0	3.7	6.5	43.8
Bt	4-12	5.9	0.8	0.1	0.0	3.1	9.9	68.4
Btx1	12-24	3.4	1.7	0.1	0.0	3.5	8.7	60.1
Btx2	24-37	1.8	2.2	0.1	0.0	6.7	11.1	37.1
Btx3	37-56	1.7	3.1	0.1	0.1	13.1	18.0	27.7
Btg	56-70	2.1	3.7	0.1	0.1	14.3	20.4	29.8

Table 39. Pedon description of Stough silt loam, Forrest County.

Slope: 0-2%.

Geomorphic position: Terrace.

Vegetation: Pine.

Parent material: Coastal plain sediments.

A 0 to 5 inches; dark gray (10YR 4/1) silt loam; weak fine granular structure; friable; extremely acid; clear smooth boundary.

E 5 to 10 inches; grayish brown (10YR 5/2) silt loam; many fine faint brownish yellow (10YR 6/6) mottles; weak fine granular structure; friable; extremely acid; clear smooth boundary.

Bt 10 to 18 inches; mottled yellowish brown (10YR 5/6), light yellowish brown (10YR 6/4), and light brownish gray (10YR 6/2) silt loam; weak fine and medium subangular blocky structure; friable; few faint clay films on ped faces; extremely acid; clear smooth boundary.

Btx1 18 to 30 inches; mottled yellowish brown (10YR 5/6), light gray (10YR 7/2), and yellowish red (5YR 5/6) loam; weak coarse prismatic structure parting to weak medium subangular blocky; firm and brittle; common vesicular pores; common distinct clay films on ped faces; few strong brown (7.5YR 4/6) concretions ; extremely acid; gradual smooth boundary.

Btx2 30 to 50 inches; mottled gray (10YR 5/1), yellowish brown (10YR 5/4), and strong brown (7.5YR 5/6) loam; moderate coarse prismatic structure parting to weak medium subangular blocky; firm and brittle; silt and very fine sand seams between prisms; common distinct clay films on ped faces; common black and dark brown (7.5YR 3/4) concretions; extremely acid; gradual wavy boundary.

Btx3 50 to 66 inches; mottled gray (10YR 5/1), and light olive brown (2.5Y 5/4) silt loam; moderate coarse prismatic structure parting to weak moderate subangular blocky; silt seams between prism faces; common distinct clay films on ped faces; common black (10YR 2/1) concretions; extremely acid.

Table 40. Selected properties of Stough silt loam, Forrest County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
A	0-5	0.7	0.7	4.6	17.9	12.7	36.6	59.6	3.8	Silt loam
E	5-10	0.1	0.2	2.9	17.0	11.9	32.1	60.3	7.6	Silt loam
Bt	10-18	0.1	0.2	3.2	18.8	10.3	32.6	58.5	8.9	Silt loam
Btx1	18-30	0.0	0.1	2.0	17.4	7.8	27.3	47.8	24.9	Loam
Btx2	30-50	0.0	0.0	1.8	21.3	14.5	37.6	45.6	16.8	Loam
Btx3	50-60	0.0	0.2	2.0	11.6	7.1	20.9	58.3	20.8	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
A	0-5	0.7	–	1.4	22.2	20.9	19.6	17.6	14.9
E	5-10	0.4	–	1.6	15.2	14.4	12.9	12.5	7.7
Bt	10-18	0.2	–	1.6	17.5	16.7	16.2	11.6	8.7

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
A	0-5	4.3	2.9	1.7	16.2	0.0
E	5-10	4.4	0.6	1.8	32.7	0.0
Bt	10-18	4.4	0.4	2.0	38.5	0.0
Btx1	18-30	4.5	0.0	8.1	61.4	0.0
Btx2	30-50	4.5	0.1	6.4	57.7	0.1
Btx3	50-60	4.4	0.2	7.6	53.5	0.2

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-5	0.0	0.1	0.1	0.1	10.3	10.5	2.1
E	5-10	0.0	0.0	0.0	0.1	5.4	5.5	2.0
Bt	10-18	0.0	0.1	0.0	0.1	5.0	5.2	2.9
Btx1	18-30	0.0	0.6	0.1	0.4	12.1	13.2	8.9
Btx2	30-50	0.1	0.9	0.1	0.4	9.6	11.1	13.2
Btx3	50-60	0.4	1.9	0.1	0.7	11.2	14.2	21.0

Table 42. Selected properties of Stough silt loam, Winston County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-5	0.1	0.4	1.7	18.0	11.9	32.1	61.8	6.1	Silt loam
BE	5-15	0.2	0.2	1.3	15.2	11.0	27.9	58.9	13.2	Silt loam
Bt	15-20	0.1	0.2	1.4	14.5	10.6	26.7	59.6	13.7	Silt loam
Btx1	20-28	0.3	0.3	1.2	11.2	8.4	21.4	52.9	25.7	Silt loam
Btx2	28-41	0.1	0.2	1.1	11.0	8.3	20.6	54.3	25.1	Silt loam
Btx3	41-55	0.0	0.1	1.2	13.5	10.6	25.4	55.4	19.2	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-5	0.1	600	1.5	21.4	19.9	18.6	–	12.8
Bt	15-20	0.5	400	1.4	22.3	18.8	16.6	–	11.5
Btx1	20-28	0.1	380	1.5	23.8	22.2	20.9	–	17.3

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-5	5.5	2.0	0.1	1.4	15.0
BE	5-15	5.0	0.5	1.6	23.9	5.3
Bt	15-20	5.0	0.3	2.8	42.4	3.0
Btx1	20-28	5.2	0.2	7.4	53.6	0.4
Btx2	28-41	5.5	0.1	7.8	50.3	0.2
Btx3	41-55	5.6	0.1	4.2	34.7	0.4

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-5	3.0	0.2	0.1	0.1	3.7	7.0	47.9
BE	5-15	1.6	0.3	0.0	0.2	4.5	6.7	31.7
Bt	15-20	0.9	0.3	0.0	0.2	5.2	6.6	21.8
Btx1	20-28	0.5	1.2	0.1	0.9	11.1	13.8	19.2
Btx2	28-41	0.4	1.9	0.1	1.7	11.4	15.5	26.5
Btx3	41-55	0.9	2.4	0.1	2.4	6.4	12.1	47.5

Table 41. Pedon descriptions of Stough silt loam, Winston County.

Slope: Slightly convex, 0-2%.

Geomorphic position: Second terrace of Tallahaga Creek.

Vegetation: Grasses and few broadleaf weeds.

Parent material: Alluvial terrace sediments.

Moist Colors

Ap 0 to 5 inches; grayish brown (10YR 5/2) silt loam with many common fine distinct yellowish brown (10YR 5/6) mottles; moderate fine and medium granular structure; very friable; few fine black (10YR 2/1) concretions; many fine and common medium roots; abrupt wavy boundary.

BE 5 to 15 inches; yellowish brown (10YR 5/6) silt loam with common fine and medium faint pale brown (10YR 6/3) and few fine faint strong brown (7.5YR 5/6) mottles; weak medium and coarse subangular blocky structure; friable; few faint clay films on vertical ped faces; few fine root pores filled with Ap material; many very fine pores; few fine yellowish red (5YR 4/6) concretions; common fine roots; clear wavy boundary.

Bt1 5 to 20 inches; light yellowish brown (10YR 6/4) silt loam with common medium faint yellowish brown (10YR 5/6) and few fine distinct strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; friable; common distinct clay films on vertical and horizontal ped faces; silt flows on ped faces; common fine and medium strong brown (7.5YR 4/6) hard concretions; common fine roots; abrupt wavy boundary.

Btx1 20 to 28 inches; mottled yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure parting to moderate medium and coarse subangular blocky; firm; slightly compact and brittle; common distinct clay films on vertical and horizontal ped faces; a 0.3 inches thick light gray (10YR 6/1) silt layer coating horizontal ped faces just below the upper boundary of the horizon; fine streaks of silt along vertical ped faces; common fine strong brown (7.5YR 5/6) concretions; many fine vesicular pores; few fine roots; gradual wavy boundary.

Btx2 28 to 41 inches; mottled light yellowish brown (10YR 6/4) and yellowish brown (10YR 5/6) silt loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; slightly brittle; common prominent clay films coating vertical and horizontal ped faces; silt flows coating ped faces; many fine vesicular pores; common fine yellowish red (5YR 4/6) concretions; few fine roots; clear wavy boundary.

Btx3 41 to 55 inches; mottled light brownish gray (10YR 6/2) and strong brown (7.5YR 5/6) silt loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; slightly brittle in 20 to 40 percent of volume; many prominent clay films on ped faces; patchy silt flows along vertical ped faces; common pores; few fine roots; abrupt wavy boundary.

Table 42. Selected properties of Stough silt loam, Winston County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-5	0.1	0.4	1.7	18.0	11.9	32.1	61.8	6.1	Silt loam
BE	5-15	0.2	0.2	1.3	15.2	11.0	27.9	58.9	13.2	Silt loam
Bt	15-20	0.1	0.2	1.4	14.5	10.6	26.7	59.6	13.7	Silt loam
Btx1	20-28	0.3	0.3	1.2	11.2	8.4	21.4	52.9	25.7	Silt loam
Btx2	28-41	0.1	0.2	1.1	11.0	8.3	20.6	54.3	25.1	Silt loam
Btx3	41-55	0.0	0.1	1.2	13.5	10.6	25.4	55.4	19.2	Silt loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-5	0.1	600	1.5	21.4	19.9	18.6	–	12.8
Bt	15-20	0.5	400	1.4	22.3	18.8	16.6	–	11.5
Btx1	20-28	0.1	380	1.5	23.8	22.2	20.9	–	17.3

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-5	5.5	2.0	0.1	1.4	15.0
BE	5-15	5.0	0.5	1.6	23.9	5.3
Bt	15-20	5.0	0.3	2.8	42.4	3.0
Btx1	20-28	5.2	0.2	7.4	53.6	0.4
Btx2	28-41	5.5	0.1	7.8	50.3	0.2
Btx3	41-55	5.6	0.1	4.2	34.7	0.4

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-5	3.0	0.2	0.1	0.1	3.7	7.0	47.9
BE	5-15	1.6	0.3	0.0	0.2	4.5	6.7	31.7
Bt	15-20	0.9	0.3	0.0	0.2	5.2	6.6	21.8
Btx1	20-28	0.5	1.2	0.1	0.9	11.1	13.8	19.2
Btx2	28-41	0.4	1.9	0.1	1.7	11.4	15.5	26.5
Btx3	41-55	0.9	2.4	0.1	2.4	6.4	12.1	47.5

Table 43. Pedon description of Forestdale silty clay loam, Leflore County.

Slope: Linear, 0-2%.

Geomorphic position: First alluvial terrace of the Yalobusha River.

Parent material: Alluvium.

Vegetation: Grasses and broadleaf weeds.

Moist Colors

Ap 0 to 4 inches; dark brown (10YR 4/3) silty clay loam; weak fine and medium granular structure; friable; less than ten percent by volume gravel content; many fine and medium roots; abrupt wavy boundary.

Btg1 4 to 9 inches; dark grayish brown (10YR 4/2) silty clay with common fine distinct yellowish brown (10YR 5/8) and few fine distinct yellowish brown (10YR 5/4) mottles; strong coarse subangular blocky structure; firm; brown (10YR 5/3) stains on ped faces; common prominent clay films coating ped faces; few fine rounded pebbles; common fine vesicular pores; cracks along ped faces less than 0.5 inches wide; common fine and medium roots; clear wavy boundary.

Btg2 9 to 17 inches; dark grayish brown (10YR 4/2) silty clay loam with few fine distinct strong brown (7.5YR 5/6) mottles; moderate coarse subangular blocky structure; firm; common distinct clay films coating ped faces; few fine vesicular pores; few fine and medium rounded gravel; common fine and medium roots; clear smooth boundary.

Btg3 17 to 26 inches; grayish brown (10YR 5/2) silty clay with common coarse distinct yellowish brown (10YR 5/8) mottles; moderate coarse subangular blocky structure; firm; many prominent clay films on ped faces; common pressure faces; common fine and few medium roots; gradual smooth boundary.

Btgss 26 to 41 inches; grayish brown (2.5Y 5/2) clay with common medium distinct yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; firm; common distinct clay films on ped faces; common, well-expressed pressure faces; few slickensides; pockets of dark gray (10YR 4/1) clay material about 3 inches in diameter; few fine and coarse roots; gradual smooth boundary.

Cgss 41 to 60 inches; grayish brown (2.5Y 5/2) silty clay with common fine prominent yellowish brown (10YR 5/8) mottles; massive; very firm; common pressure faces; common slickensides; few fine roots.

Table 44. Selected properties of Forestdale silty clay loam, Leflore County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-4	0.2	0.7	1.6	2.6	5.5	10.5	51.1	38.4	Silty clay loam
Btg1	4-9	0.0	0.2	0.4	1.0	4.7	6.3	48.6	45.1	Silty clay
Btg2	9-17	0.1	0.4	0.8	1.4	3.1	5.7	56.0	38.3	Silty clay loam
Btg3	17-26	0.0	0.2	0.3	0.4	1.4	2.2	43.9	53.9	Silty clay
Btgss	26-41	10.0	0.3	0.3	0.3	0.8	1.7	37.9	60.4	Clay
Cgss	41-60	0.0	0.1	0.4	0.6	0.5	1.6	45.4	53.0	Silty clay

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-4	0.6	179	1.2	37.9	36.4	30.6	29.6	29.5
Btg1	4-9	0.3	362	1.3	31.7	31.1	28.9	28.5	28.3
Btg2	9-17	0.2	208	1.3	29.7	28.6	25.7	–	25.4
Btgss	26-41	0.2	158	1.3	41.6	40.8	34.8	33.5	32.3

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-4	5.1	5.5	0.3	0.8	2.3
Btg1	4-9	5.6	1.8	0.5	1.5	2.2
Btg2	9-17	5.6	1.4	0.7	2.5	2.4
Btg3	17-26	5.1	0.9	7.6	20.3	2.1
Btgss	26-41	4.8	0.7	10.5	22.8	1.8
Cgss	41-60	5.1	0.4	2.0	4.5	1.7

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-4	15.9	7.0	1.4	0.1	11.6	36.0	67.7
Btg1	4-9	15.9	7.1	0.6	0.1	9.0	32.7	72.5
Btg2	9-17	13.2	5.4	0.3	0.3	9.2	28.4	67.8
Btg3	17-26	14.0	6.6	0.4	0.7	15.7	37.4	58.0
Btgss	26-41	16.5	9.2	0.5	1.1	18.9	46.1	59.1
Cgss	41-60	21.2	12.3	0.5	1.3	9.5	44.8	78.8

Table 45. Pedon description of Tippah silt, Lafayette County.

Slope: Compound, 5-8%.

Geomorphic position: Upland, close to the top of a ridge.

Vegetation: Recently cut for timber; small hardwood species and grasses.

Parent material: Coastal Plain Sediments.

Moist Colors

A 0 to 2 inches; brown to dark brown (10YR 4/3) silt; weak fine granular structure; very friable; many fine and medium roots; abrupt smooth boundary.

E 2 to 6 inches; brownish yellow (10YR 6/4) silt; weak fine granular structure; very friable; common medium strong brown (7.5YR 5/6) soft iron concretions and stains; many fine and medium roots; abrupt smooth boundary.

Bt1 6 to 15 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium and fine subangular blocky structure; friable; many fine, medium, and coarse roots; gradual smooth boundary.

Bt2 15 to 22 inches; strong brown (7.5YR 5/6) silty clay loam with common fine faint strong brown (7.5YR 4/6) mottles; moderate medium and fine subangular blocky structure; friable; common prominent clay films on ped faces; common fine roots; gradual smooth boundary.

2Btg1 22 to 37 inches; grayish brown (10YR 5/2) silty clay loam with dark yellowish brown (10YR 4/6) coatings on ped faces; moderate medium and fine angular blocky structure; firm; common prominent clay films and patchy silt coatings on ped faces; common fine roots; gradual smooth boundary.

2Btg2 37 to 47 inches; light yellowish brown (2.5Y 6/4) silty clay loam with many medium faint light olive brown (2.5Y 5/6) mottles; moderate medium and fine angular blocky structure; firm; many prominent clay films on ped faces; black (N 2/0) films on cleavage planes; common fine roots; abrupt wavy boundary.

2Btg3 47 to 50 inches; grayish brown (2.5Y 5/2) clay with many medium distinct olive yellow (2.5Y 6/6) mottles; weak medium angular blocky structure; firm; many fine rounded iron fragments and concretions; strong brown (7.5YR 5/6) iron coatings on ped faces; common fine roots; clear wavy boundary.

2C 50 to 61 inches; light yellowish brown (2.5YR 6/4) clay with common fine faint olive yellow (2.5Y 6/6) mottles; massive; firm; many pressure faces; black (2.5Y 2/0) films on cleavage planes; few medium roots.

Table 46. Selected properties of Tippah silt, Lafayette County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
A	0-2	0.4	2.1	2.4	3.0	3.6	11.5	80.3	8.2	Silt
E	2-6	0.2	0.6	0.9	1.6	3.7	6.9	84.2	8.9	Silt
Bt1	6-15	0.1	0.3	0.5	0.8	1.5	4.7	63.9	31.4	Silty clay loam
Bt2	15-22	0.0	0.2	0.4	0.7	1.9	3.2	65.3	31.5	Silty clay loam
2Btg1	22-37	0.1	0.3	0.5	1.2	3.0	5.1	61.9	33.0	Silty clay loam
2Btg2	37-47	0.9	1.5	1.1	2.9	8.1	14.5	49.8	35.7	Silty clay loam
2Btg3	47-50	0.1	0.1	0.2	0.5	1.5	2.4	38.0	59.6	Clay
2C	50-61	0.0	0.1	0.1	0.3	0.5	0.9	39.7	59.4	Clay

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
A	0-2	0.3	505	1.4	28.4	25.2	23.4	–	20.7
E	2-6	0.0	385	1.5	27.3	23.3	21.2	–	21.1
Bt1	6-15	0.6	135	1.3	26.3	25.3	24.4	–	24.4
Bt2	15-22	0.1	155	1.4	28.4	27.7	26.9	–	26.3
2Btg1	22-37	0.1	150	1.4	26.3	24.7	23.3	–	22.7
2Btg2	37-47	0.0	105	1.4	25.4	24.4	23.6	–	23.4
2Btg3	47-50	0.3	135	1.4	35.0	33.7	33.0	–	32.7
2C	50-61	0.3	135	1.4	36.5	34.1	33.3	–	31.9

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
A	0-2	5.0	6.1	0.7	4.3	3.2
E	2-6	5.1	1.1	2.3	33.8	1.7
Bt1	6-15	5.2	0.8	7.4	42.5	0.7
Bt2	15-22	5.2	0.4	8.3	45.1	0.4
2Btg1	22-37	5.5	0.3	6.5	30.2	0.5
2Btg2	37-47	5.3	0.2	3.2	12.8	0.6
2Btg3	47-50	5.0	0.2	2.5	6.0	0.7
2C	50-61	5.9	0.2	0.5	1.2	0.7

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-2	3.8	1.2	0.3	0.1	11.1	16.4	32.5
E	2-6	0.5	0.3	0.1	0.0	5.9	6.8	13.2
Bt1	6-15	1.4	2.1	0.1	0.1	13.7	17.4	21.2
Bt2	15-22	1.2	2.8	0.1	0.2	14.1	18.4	23.3
2Btg1	22-37	3.2	6.3	0.2	0.5	11.4	21.5	47.1
2Btg2	37-47	6.0	10.2	0.2	1.0	7.7	25.0	69.2
2Btg3	47-50	13.0	19.9	0.3	1.2	7.1	41.5	82.9
2C	50-61	14.6	21.6	0.3	1.3	3.9	41.8	90.6

Table 47. Pedon description of Trebloc silt loam, Forrest County.

Slope: Linear, 0-2%.

Geomorphic position: Second terrace level of Leaf River.

Vegetation: Soybeans.

Parent material: Alluvial terrace sediments.

Moist Colors

Ap 0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; very friable; many fine and medium roots; abrupt wavy boundary.

E 5 to 9 inches; light brownish gray (10YR 6/2) silt loam with few fine distinct yellowish brown (10YR 5/6) mottles; weak fine subangular blocky structure; friable; few fine black (10YR 2/1) concretions and stains; many earthworm holes and many root holes filled with Ap material; many fine vesicular voids; common fine and medium roots; clear wavy boundary.

Btg1 9 to 16 inches; light brownish gray (10YR 6/2) clay loam with common medium prominent red (2.5YR 4/6) and common medium and coarse distinct yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; firm; many distinct clay films on vertical and horizontal ped faces; few fine pores inside peds; few sand flows along vertical ped faces; few fine roots; clear wavy boundary.

Btg2 16 to 28 inches; light brownish gray (10YR 6/2) clay loam with many medium and coarse distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; many prominent clay films coating vertical and horizontal ped faces; light yellowish brown (10YR 6/4) stains coating ped faces; few fine pores inside peds; patchy sand flows on vertical ped faces; strong brown (7.5YR 5/6) iron coatings along elongated pores; few fine roots; clear wavy boundary.

Btg3 28 to 47 inches; light brownish gray (10YR 6/2) clay loam with many fine medium and coarse prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; many prominent clay films coating vertical and horizontal ped faces; common fine and medium soft brown (7.5YR 4/4) concretions; patchy white (10YR 8/1) silt flows along vertical ped faces; few fine roots; gradual wavy boundary.

Btg4 47 to 60 inches; light brownish gray (10YR 6/2) clay loam with many fine, medium, and coarse prominent strong brown (7.5YR 4/6) and common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very firm; many prominent clay films on vertical and horizontal ped faces; few pressure faces.

Table 48. Selected properties of Trebloc silt loam, Forrest County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-5	0.5	0.9	2.6	18.4	18.6	41.0	55.9	3.1	Silt loam
E	5-9	0.2	0.6	2.0	15.4	17.3	35.5	60.2	4.3	Silt loam
Btg1	9-16	0.0	0.2	0.8	8.4	10.6	20.0	43.0	37.0	Clay loam
Btg2	16-28	0.1	0.2	0.8	10.1	12.8	24.0	42.3	33.7	Clay loam
Btg3	28-47	0.1	0.2	0.6	10.7	13.6	25.2	44.3	30.5	Clay loam
Btg4	47-60	0.1	0.2	0.5	11.5	14.6	26.8	36.7	36.5	Clay loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-5	1.1	167	1.2	19.6	16.9	16.3	–	11.5
Btg1	9-16	0.6	337	1.6	23.4	21.4	19.9	19.3	16.9
Btg2	16-28	0.2	210	1.4	25.7	24.9	24.3	24.0	22.2
Btg3	28-47	0.1	293	1.6	21.4	20.6	19.9	19.7	18.1

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-5	6.5	2.4	0.1	1.2	2.8
E	5-9	5.8	0.4	0.1	3.2	1.8
Btg1	9-16	4.8	0.3	14.7	66.8	0.9
Btg2	16-28	5.2	0.2	13.8	70.8	0.5
Btg3	28-47	5.3	0.1	11.3	68.9	0.4
Btg4	47-60	5.1	0.1	13.1	64.2	0.3

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-5	4.5	1.6	0.3	0.0	2.0	8.4	75.8
E	5-9	1.1	0.6	0.1	0.0	1.3	3.1	57.5
Btg1	9-16	1.2	1.4	0.1	0.4	18.9	22.0	14.1
Btg2	16-28	0.7	1.4	0.1	0.6	16.7	19.5	14.0
Btg3	28-47	0.6	1.5	0.1	0.9	13.3	16.4	18.9
Btg4	47-60	0.7	2.2	0.1	1.6	15.9	20.4	22.2

Table 49. Pedon description of Una clay loam, Lee County.

Slope: Linear, 0-2%.

Geomorphic position: Flood plain.

Vegetation: A disturbed forest of sweetgum and oaks with understory of few grasses and broadleaf weeds.

Parent material: Alluvium.

Ap 0 to 4 inches; brown (10YR 4/3) clay loam; moderate fine and medium granular structure; friable; many fine and medium roots; few coarse roots; smooth clear boundary.

Bg1 4 to 9 inches; grayish brown (2.5Y 5/2) clay with common fine prominent brownish yellow (10YR 6/8) and many coarse distinct dark yellowish brown (10YR 4/4) mottles spreading horizontally 0.1 inches in diameter; moderate fine and medium subangular blocky structure; firm; few weakly expressed pressure faces; common fine iron and manganese concretions; common fine and medium roots; gradual wavy boundary.

Bg2 9 to 17 inches; light olive gray (5Y 6/2) clay loam with many fine and medium prominent yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; firm; common fine and medium and few coarse roots; gradual wavy boundary.

Bg3 17 to 25 inches; gray (5Y 6/1) clay with many coarse prominent yellowish brown (10YR 5/8) mottles; moderate fine and medium subangular blocky and moderate fine angular blocky structures; firm; common fine and medium and a few coarse roots; gradual wavy boundary.

Bg3 25 to 45 inches; gray (5Y 6/1) clay with many medium and coarse prominent brownish yellow (10YR 6/8) and yellowish brown (10YR 5/8) mottles; moderate fine subangular blocky and weak medium and coarse angular blocky structure; firm; very sticky and plastic; common pressure faces; common fine and few medium and coarse roots; gradual smooth boundary.

Bg5 45 to 60 inches; gray (5Y 6/1) clay loam with many medium and coarse prominent yellowish brown (10YR 5/8 and 5/4) and many medium and coarse prominent strong brown (7.5YR 5/8) mottles; moderate medium and coarse angular blocky structure; firm; few fine iron concretions; well expressed pressure faces; few fine and medium roots.

Table 50. Selected properties of Una clay loam, Lee County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
Ap	0-4	0.8	1.1	3.9	12.1	7.2	25.1	38.8	36.1	Clay loam
Bg1	4-9	0.2	0.6	2.6	9.1	5.5	17.9	40.9	41.2	Clay
Bg2	9-17	0.1	0.4	3.3	14.4	10.2	28.4	38.5	33.1	Clay loam
Bg3	17-25	0.0	0.2	2.2	10.4	7.3	20.1	37.0	42.9	Clay
Bg4	25-45	0.1	0.4	2.5	11.1	8.0	22.0	33.9	44.1	Clay
Bg5	45-60	0.0	0.3	3.1	16.2	12.0	31.5	33.1	35.4	Clay loam

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
Ap	0-4	0.3	83	1.1	38.2	36.0	35.1	34.1	31.8
Bg1	4-9	0.1	85	1.2	34.8	33.1	32.2	31.1	29.5
Bg2	9-17	0.1	103	1.3	27.8	26.5	25.6	24.7	23.2
Bg3	17-25	0.0	171	1.5	27.2	25.9	25.2	24.5	23.2
Bg4	25-45	0.0	115	1.4	29.8	28.5	27.8	27.1	25.9

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
Ap	0-4	5.6	5.6	0.2	0.6	8.7
E	4-9	5.5	2.6	0.7	2.3	9.2
Bg1	9-17	5.2	1.2	2.7	11.3	9.3
Bg2	17-25	5.0	0.7	3.4	12.4	10.0
Bg3	25-45	4.9	0.5	2.1	7.5	9.9
Bg4	45-60	5.7	0.3	0.2	0.9	10.5

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
Ap	0-4	18.3	2.1	0.3	0.1	12.8	33.6	61.9
E	4-9	16.6	1.8	0.2	0.1	11.3	30.1	62.5
Bg1	9-17	12.1	1.3	0.2	0.1	10.2	23.8	57.2
Bg2	17-25	15.0	1.5	0.2	0.2	10.6	27.4	61.4
Bg3	25-45	16.9	1.7	0.2	0.2	9.0	28.0	67.9
Bg4	45-60	16.8	1.6	0.2	0.2	3.7	22.6	83.5

Table 51. Pedon description of Wilcox silty clay loam, Winston County.

Slope: 2-5%.

Geomorphic position: Upland.

Vegetation: Forest.

Parent Material: Porters Creek Clay.

A 0 to 12 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine and medium subangular blocky structure; friable; many fine and coarse roots; very strongly acid; clear smooth boundary.

Btg 12 to 25 inches; mottled gray (N 6/0) and yellowish red (5YR 5/6) silty clay; moderate medium subangular blocky structure; firm; common prominent clay films on ped faces; extremely acid; gradual wavy boundary.

Btgss1 25 to 34 inches; mottled light brownish gray (2.5YR 6/2), yellowish red (2.5YR 5/8), and light olive brown (2.5Y 5/6) silty clay; firm; many prominent clay films on ped faces; common medium slickensides; very strongly acid; gradual smooth boundary.

Btgss2 34 to 58 inches; mottled gray (5Y 5/1) and yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; firm; many prominent clay films on ped faces; common medium and coarse slickensides; extremely acid; abrupt wavy boundary.

C 58 to 70 inches; gray (10YR 5/1) and olive (5Y 5/3) soft weathered shale; massive in-place parting to moderate medium platy structure; firm; extremely acid.

Table 52. Selected properties of Wilcox silty loam, Winston County.

Physical Data

Horizon	Depth	Particle Size Distribution								Textural Class
		VCS	CS	MS	FS	VFS	S	Si	C	
	Inches	%								
A	0-12	2.0	3.2	3.5	3.1	1.4	13.2	56.5	30.3	Silty clay loam
Btg	12-25	2.3	3.3	2.3	1.3	0.4	9.6	46.7	43.7	Silty clay
Btgss1	25-34	0.7	1.4	1.2	0.8	0.4	4.5	45.8	49.7	Silty clay
Btgss2	34-58	0.5	0.9	0.9	0.7	0.3	3.3	35.6	61.1	Clay

Horizon	Depth	Hydraulic Conductivity	Penetration Resistance	Bulk Density	Moisture Retention				
					0.03	0.01	0.3	0.6	1.5
					Mpa				
	Inches	in/hr	lb/in²	g/cc	%				
A	0-12	0.4	–	1.3	31.4	30.7	30.5	28.6	28.3
Btg	12-25	0.1	–	1.4	30.6	29.7	29.0	26.8	26.8
Btgss1	25-34	0.1	–	1.5	30.4	29.1	27.9	25.5	25.2
Btgss2	34-58	0.0	–	1.5	40.0	38.9	38.1	35.5	35.4

Chemical Data

Horizon	Depth	pH	Organic Matter	KCl Exchangeable Al	Al Saturation	Exchangeable Ca/Mg
	Inches		%	$cmol_c kg^{-1}$	%	
A	0-12	4.7	2.2	1.9	5.5	1.9
Btg	12-25	4.5	0.3	13.9	43.0	0.7
Btgss1	25-34	4.6	0.2	17.0	46.4	0.5
Btgss2	34-58	4.4	0.1	20.1	43.8	0.5

Horizon	Depth	Exchangeable Cations				Extractable Acidity	Cation Exchange Capacity	Base Saturation
		Ca	Mg	K	Na			
	Inches	$cmol_c kg^{-1}$						%
A	0-12	7.5	5.8	0.7	0.3	20.4	34.6	41.2
Btg	12-25	2.7	3.9	0.3	0.4	25.0	32.3	22.7
Btgss1	25-34	3.6	6.7	0.4	0.6	25.3	36.6	30.8
Btgss2	34-58	5.7	11.1	0.5	1.0	20.1	45.9	40.0

APPENDIX II

(Figures 1-25)

Average, maximum, and minimum water table depths and precipitation of well drained, moderately well drained, somewhat poorly drained, and poorly drained soils.
Precipitation data are for nearest weather station to soil research sites.

Station: University Mississippi, Lafayette County

Soils:
Arkabutla
Chenneby
Cascilla
Gillsburg
Tippah

Station: Holly Springs, Marshall County

Soils: Oaklimeter

Station: Louisville, Winston County

Soils:
Guyton
Mantachie
Ora
Stough

Station: Tupelo, Lee County

Soils:
Catalpa
Leeper
Mantachie
Quitman
Savannah
Una

Station: Greenwood, Leflore County

Soils:
Askew
Dundee
Forestdale

Station: Ash Nursery, Forrest County

Soils:
Bassfield
Petal
Prentiss
Stough
Trebloc

NOTE: Maximum water table depths exceeded piezometer depths at some sites, and the bottom depths of the piezometers indicate maximum water table depths, which were deeper.

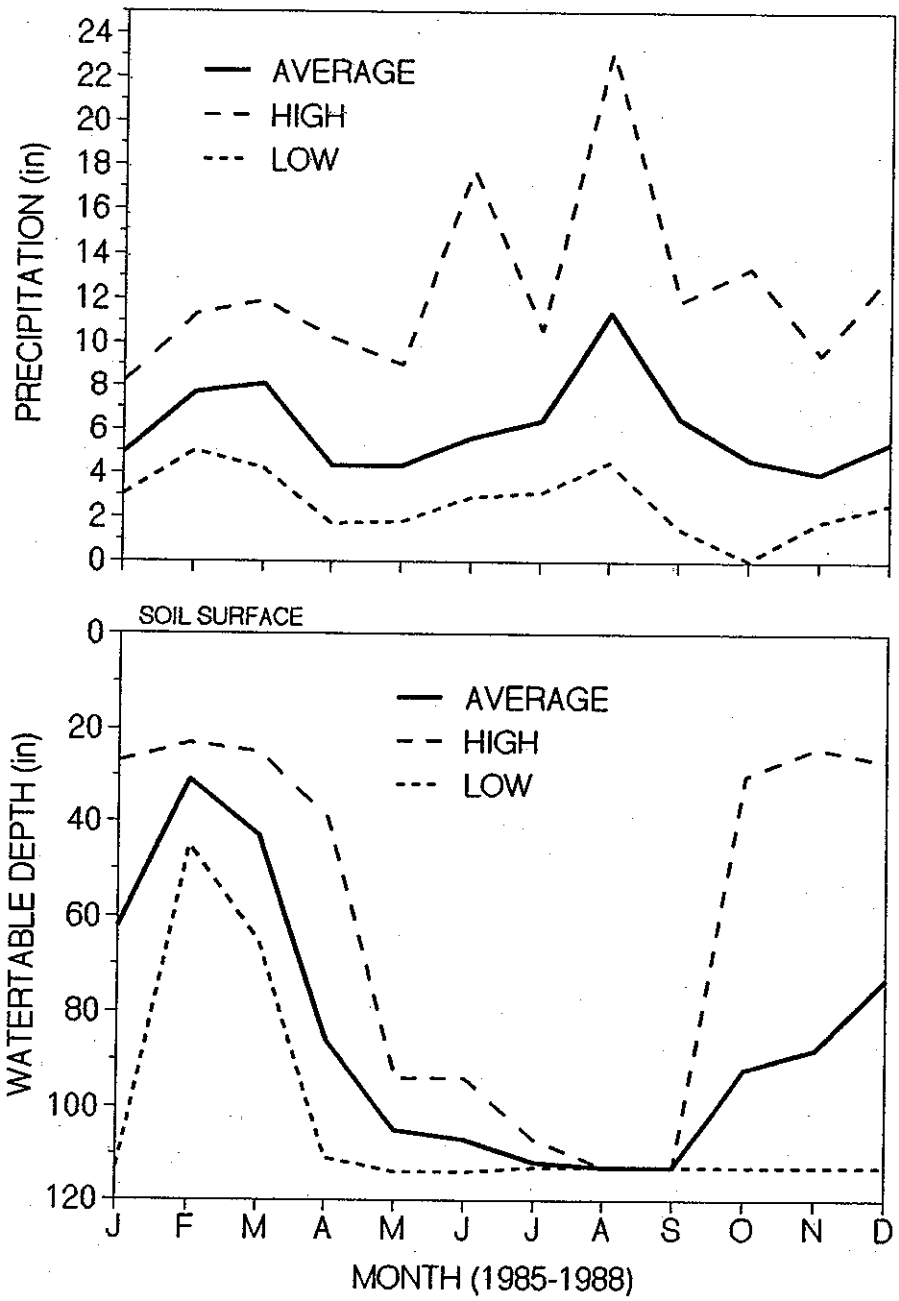


Figure 1. Average precipitation and water table levels of representative Bassfield sandy loam, Forrest County, June 1985-December 1988.

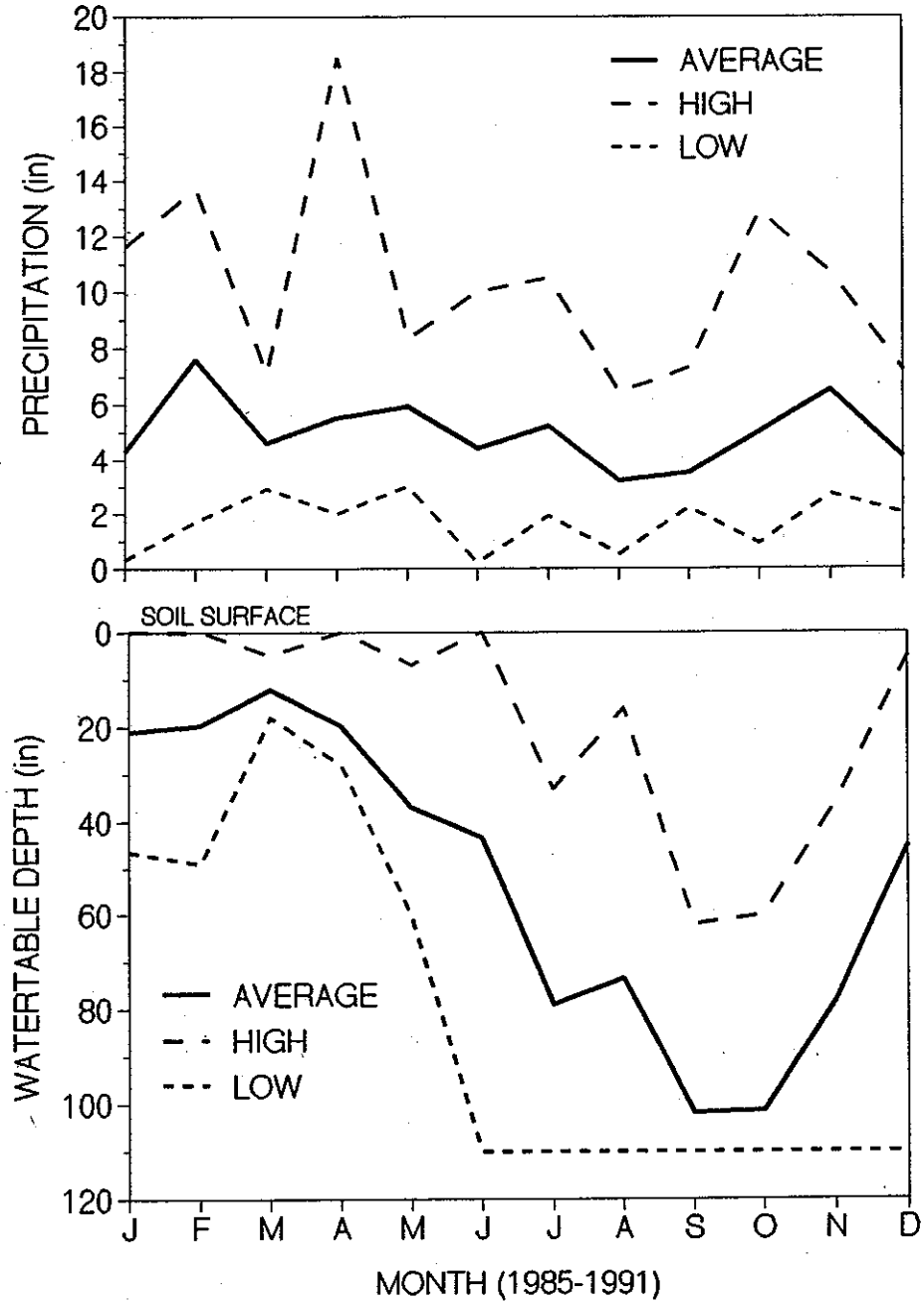


Figure 2. Average precipitation and water table levels of representative Cascilla silt loam, Lafayette County, July 1985-June 1991.

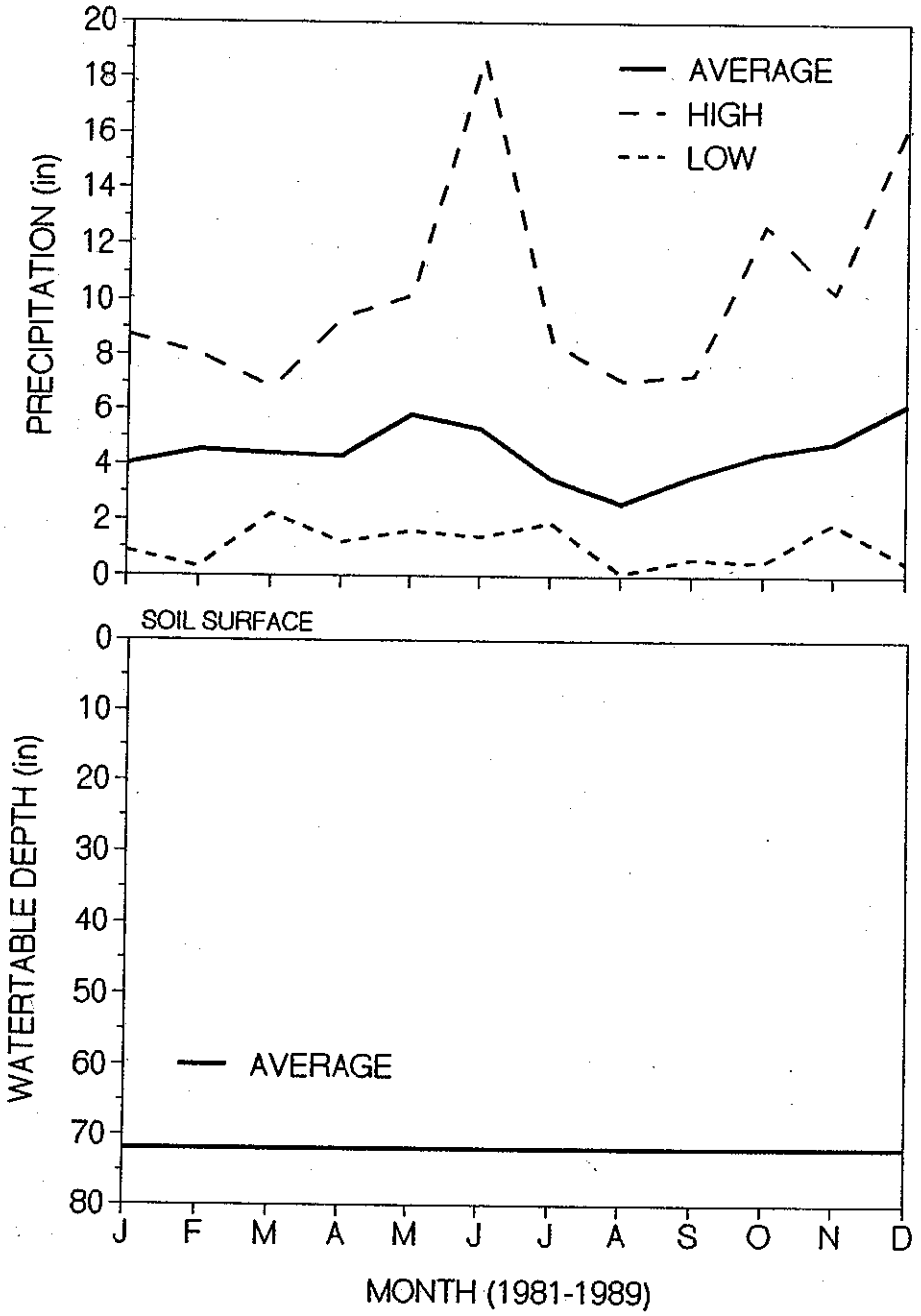


Figure 3. Average precipitation and water table levels of representative Askew silt loam, Leflore County, January 1981-June 1989.

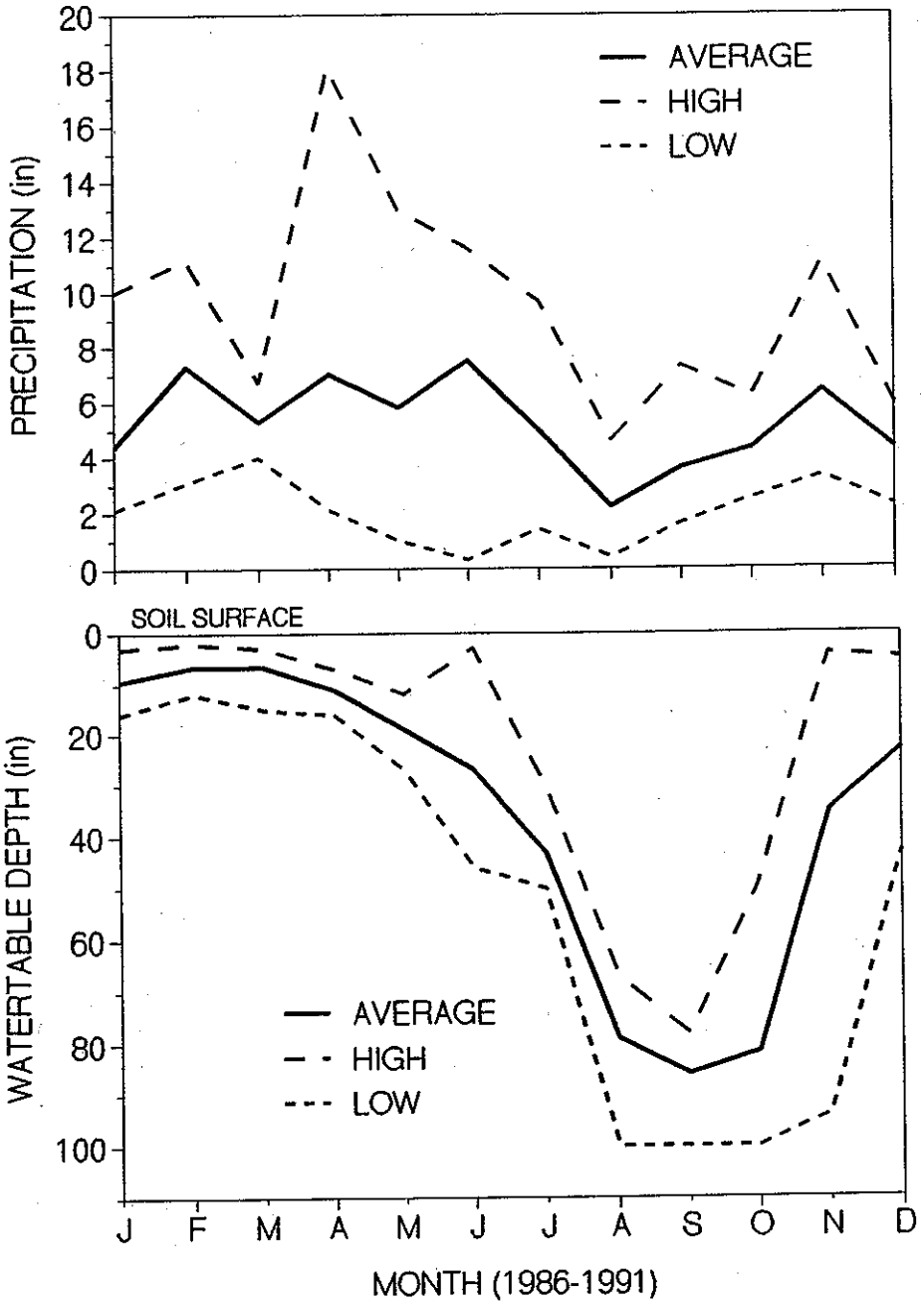


Figure 4. Average precipitation and water table levels of representative Oaklimeter silt loam, Benton County, June 1986-June 1991.

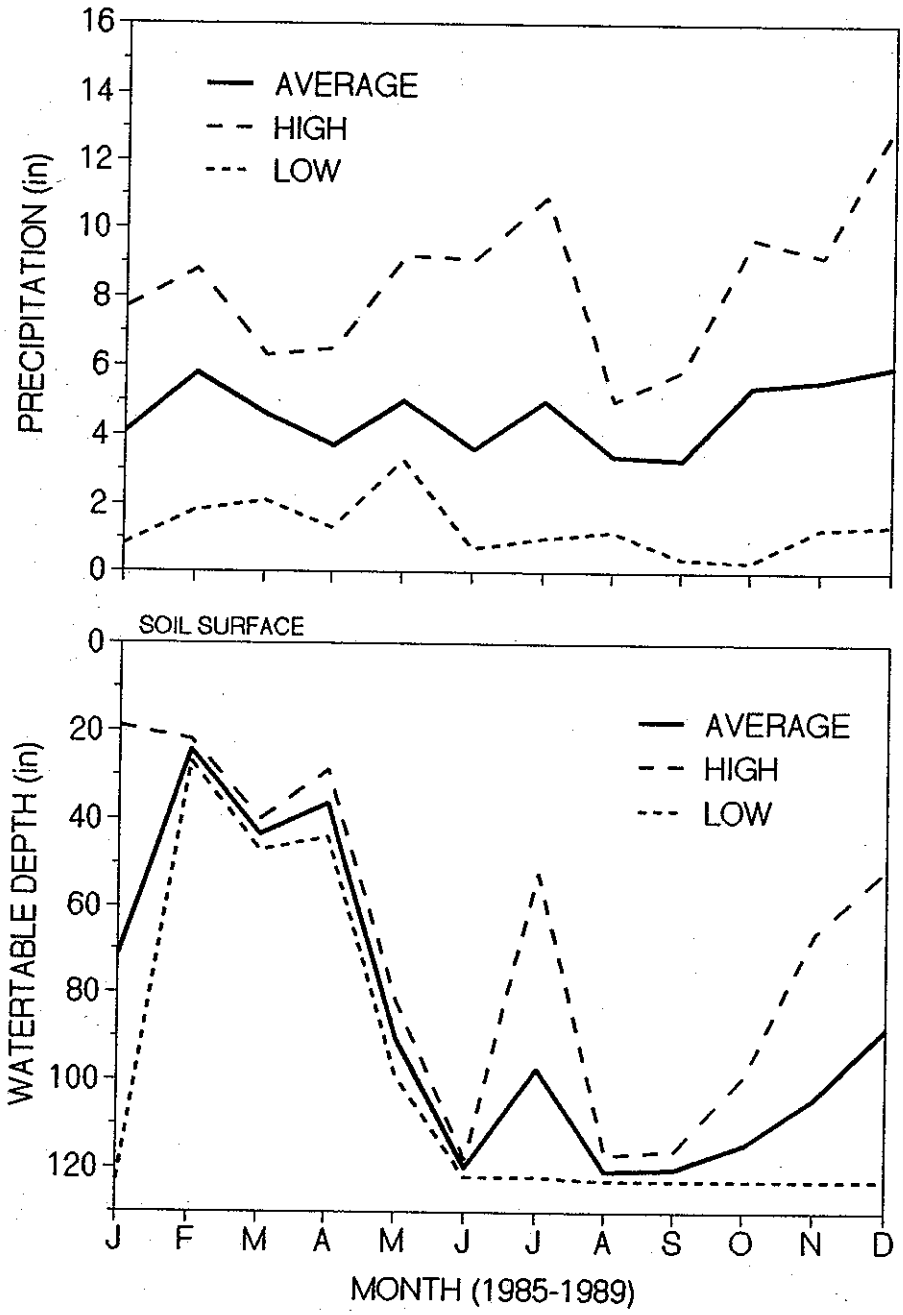


Figure 5. Average precipitation and water table levels of representative Ora silt loam, Winston County, July 1985-July 1989.

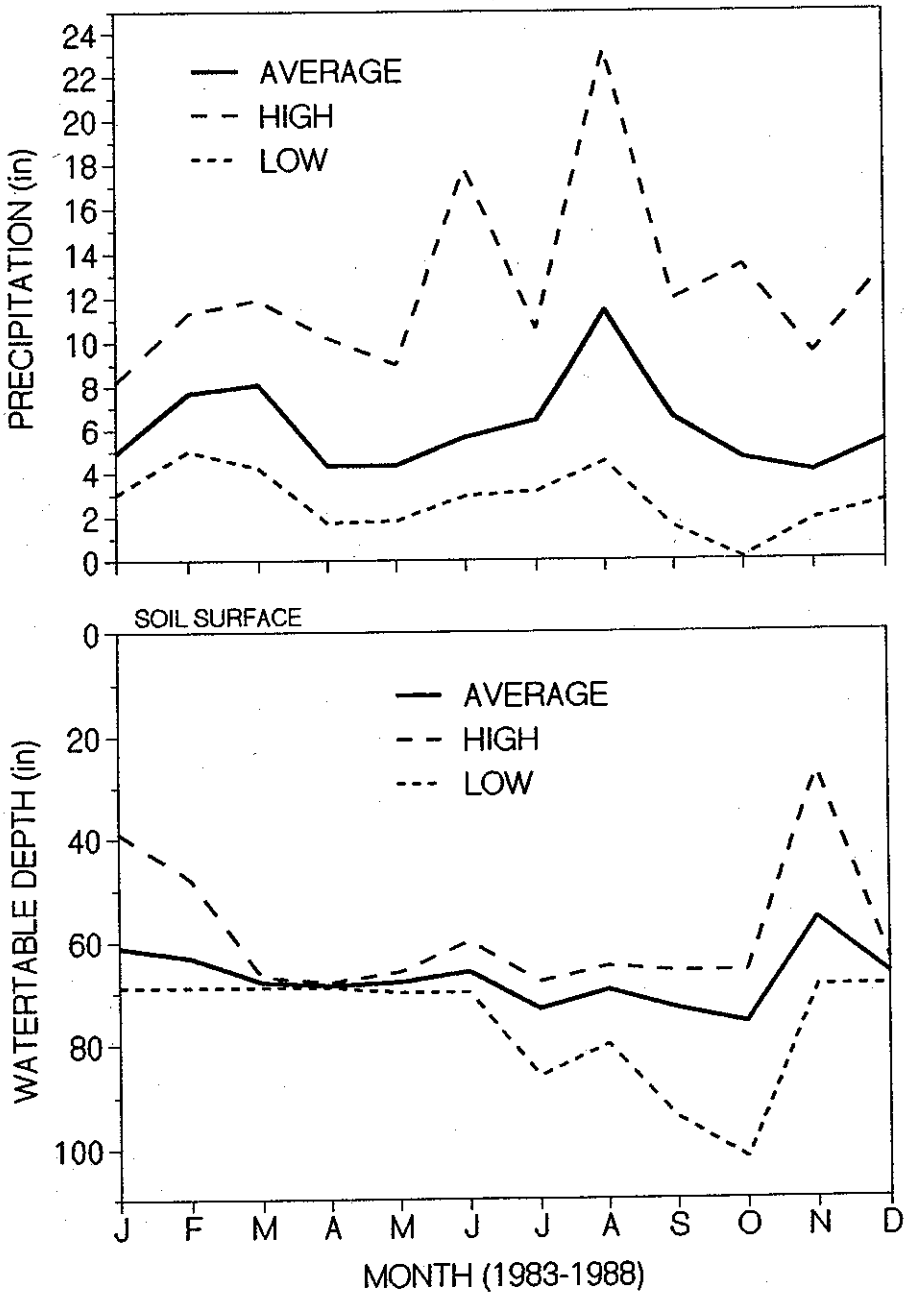


Figure 6. Average precipitation and water table levels of representative Petal loamy fine sand, Forrest County, August 1983-January 1988.

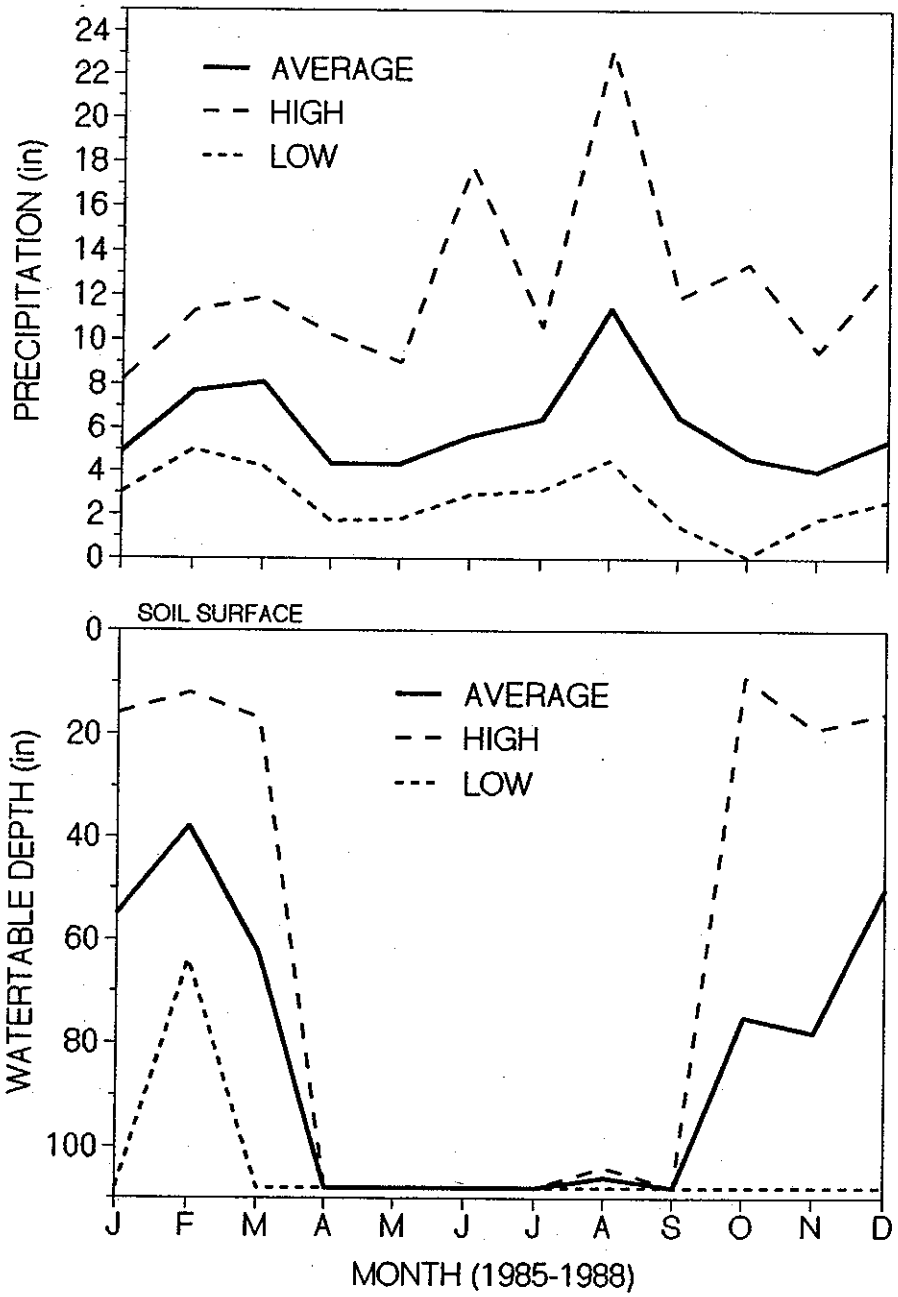


Figure 7. Average precipitation and water table levels of representative Prentiss silt loam, Forrest County, July 1985-January 1988.

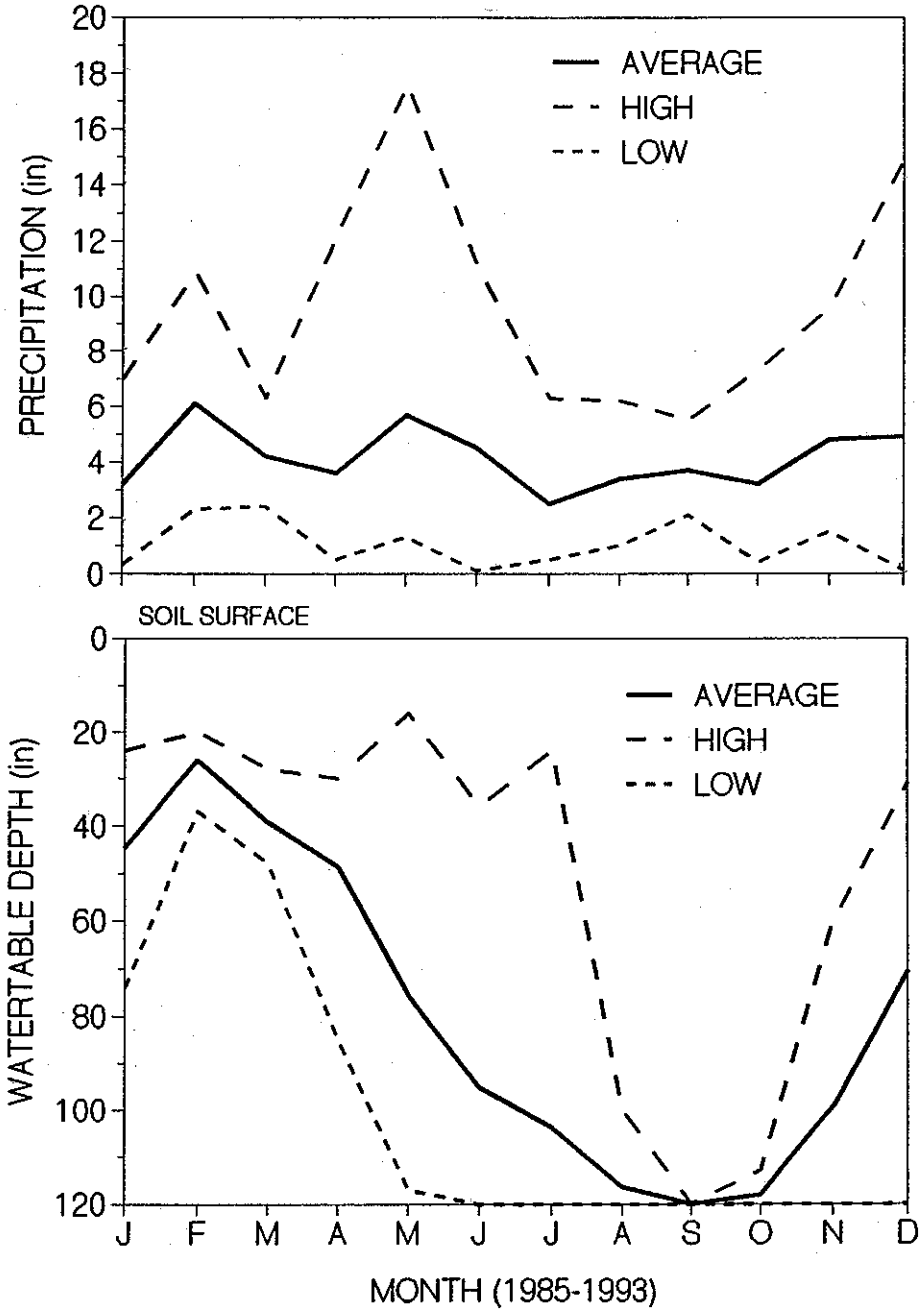


Figure 8. Average precipitation and water table levels of representative Savannah sandy loam, Lee County, August 1985-December 1993.

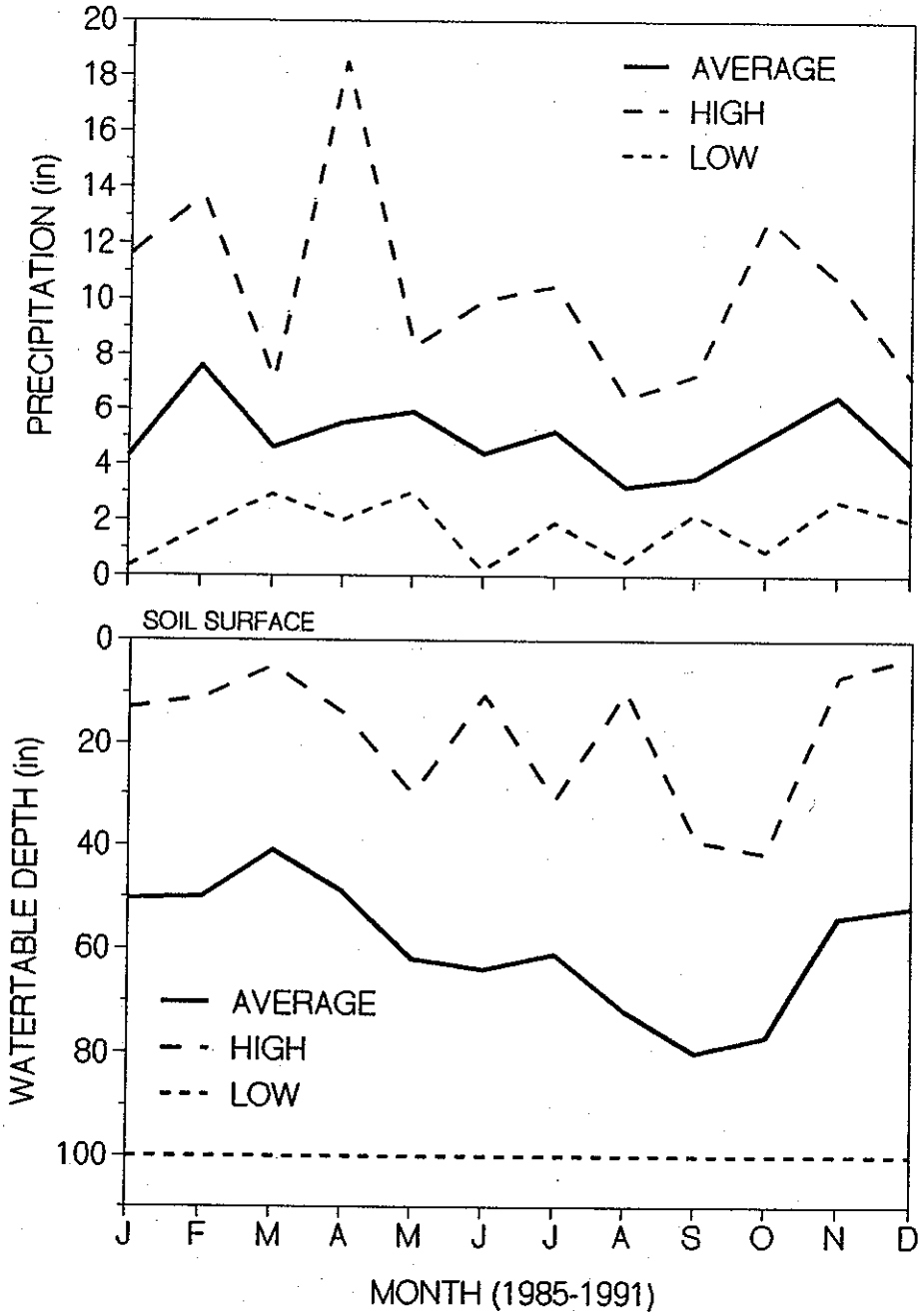


Figure 9. Average precipitation and water table levels of representative Tippah silt, Lafayette County, July 1985-June 1991.

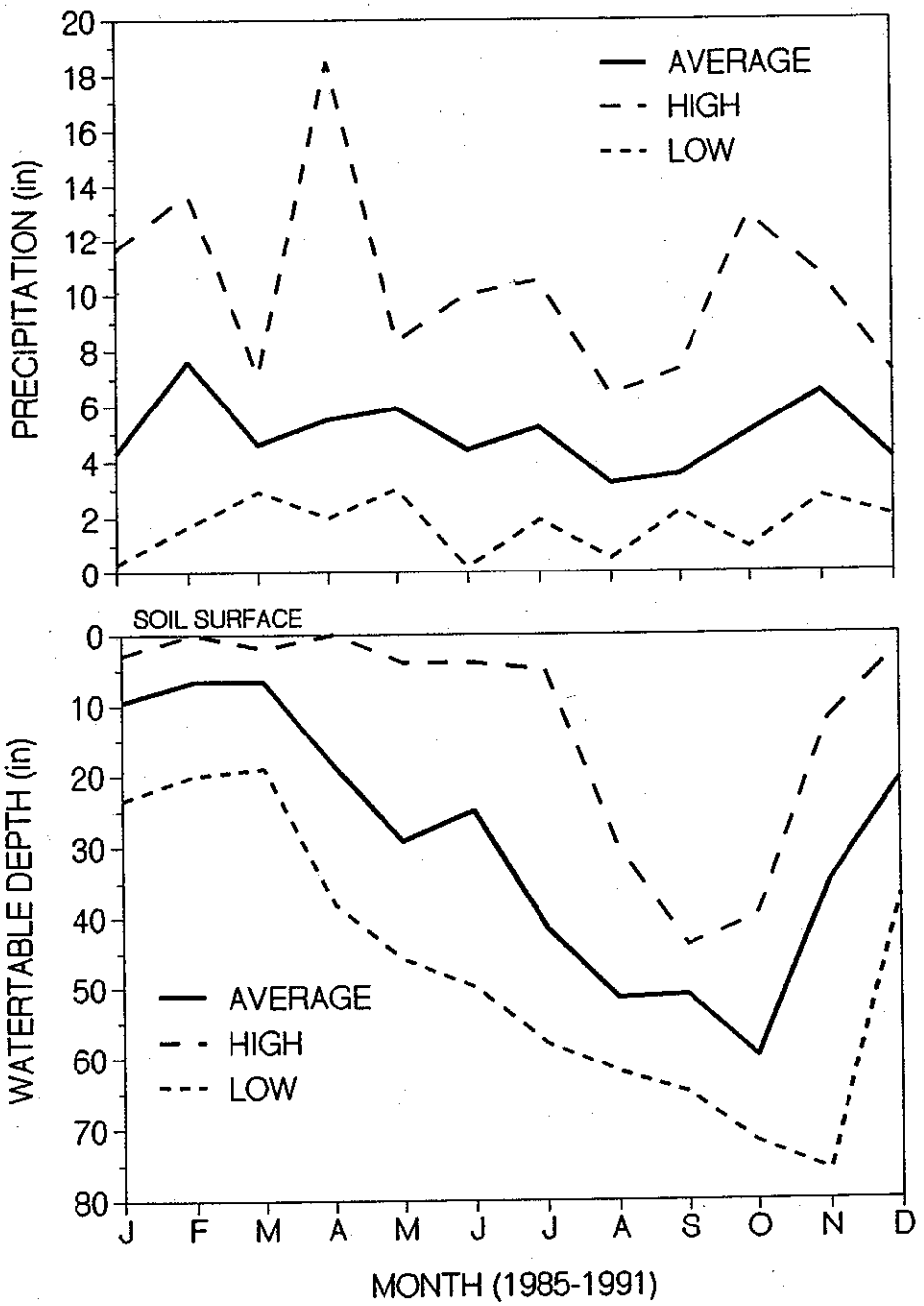


Figure 10. Average precipitation and water table levels of representative Arkabutla silt loam, Lafayette County, July 1985-June 1991.

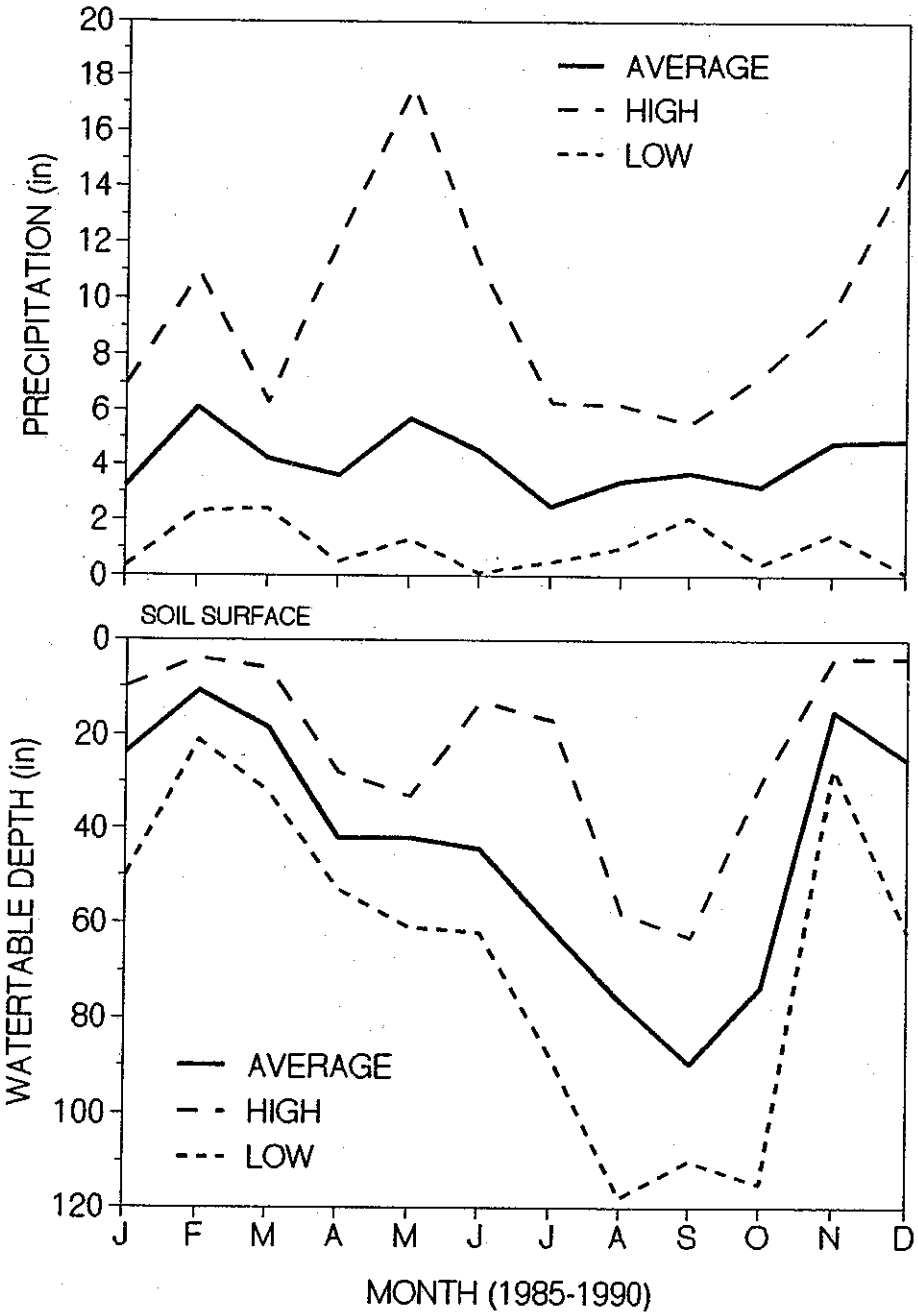


Figure 11. Average precipitation and water table levels of representative Catalpa clay loam, Lee County, June 1985-June 1991.

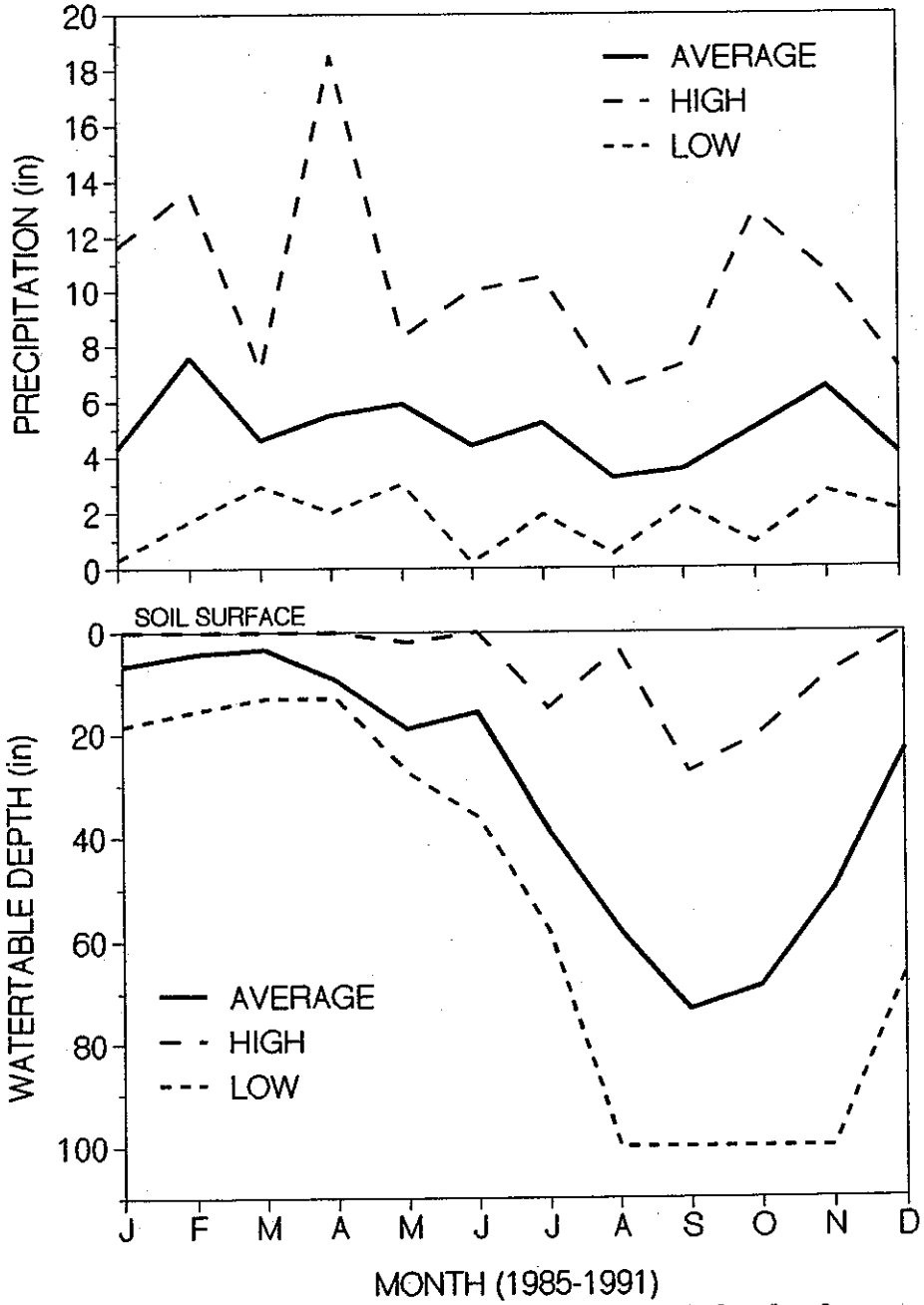


Figure 12. Average precipitation and water table levels of representative Chenneby silt loam, Lafayette County, June 1985-June 1991.

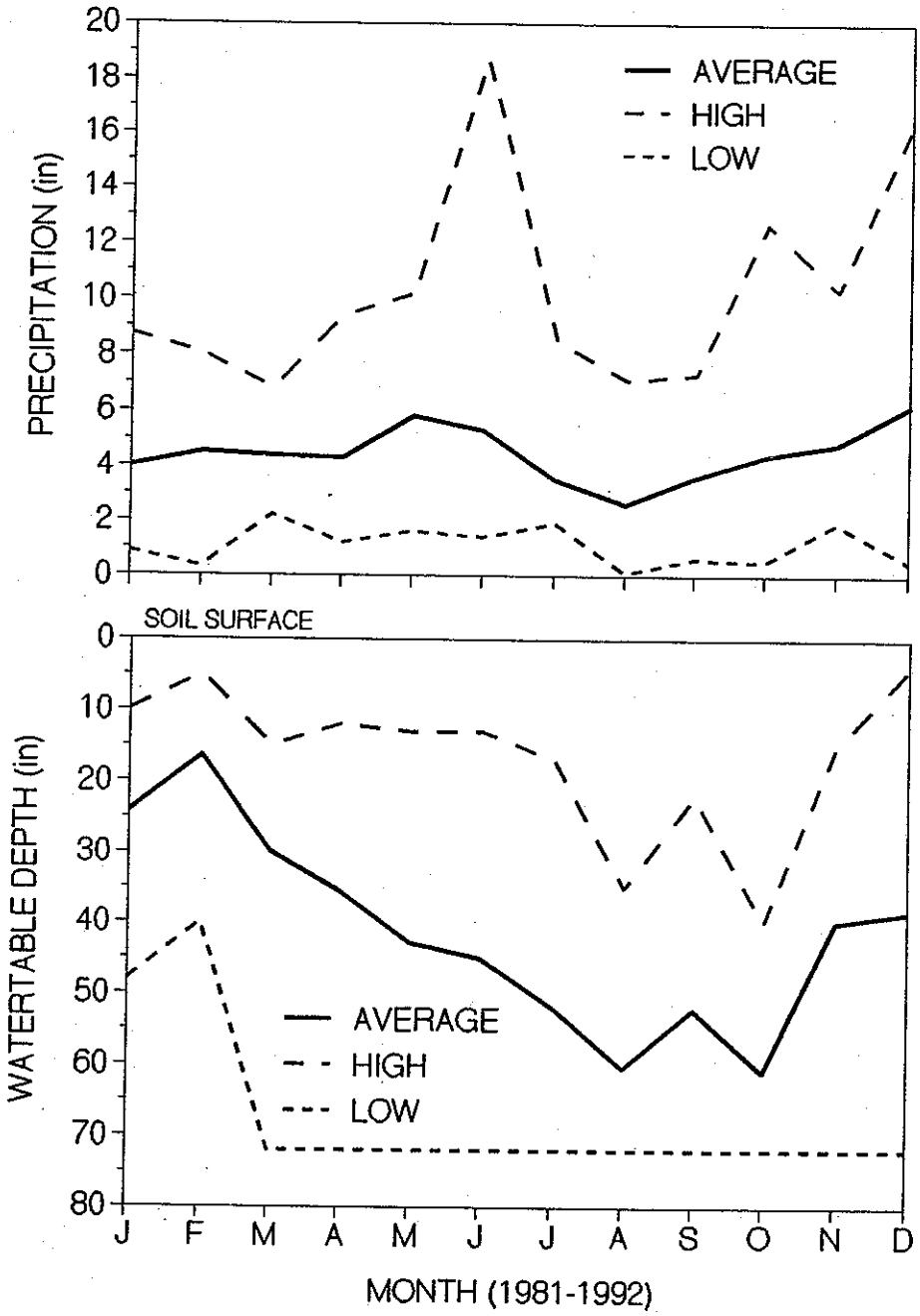


Figure 13. Average precipitation and water table levels of representative Dundee silt loam, Leflore County, March 1981-December 1992.

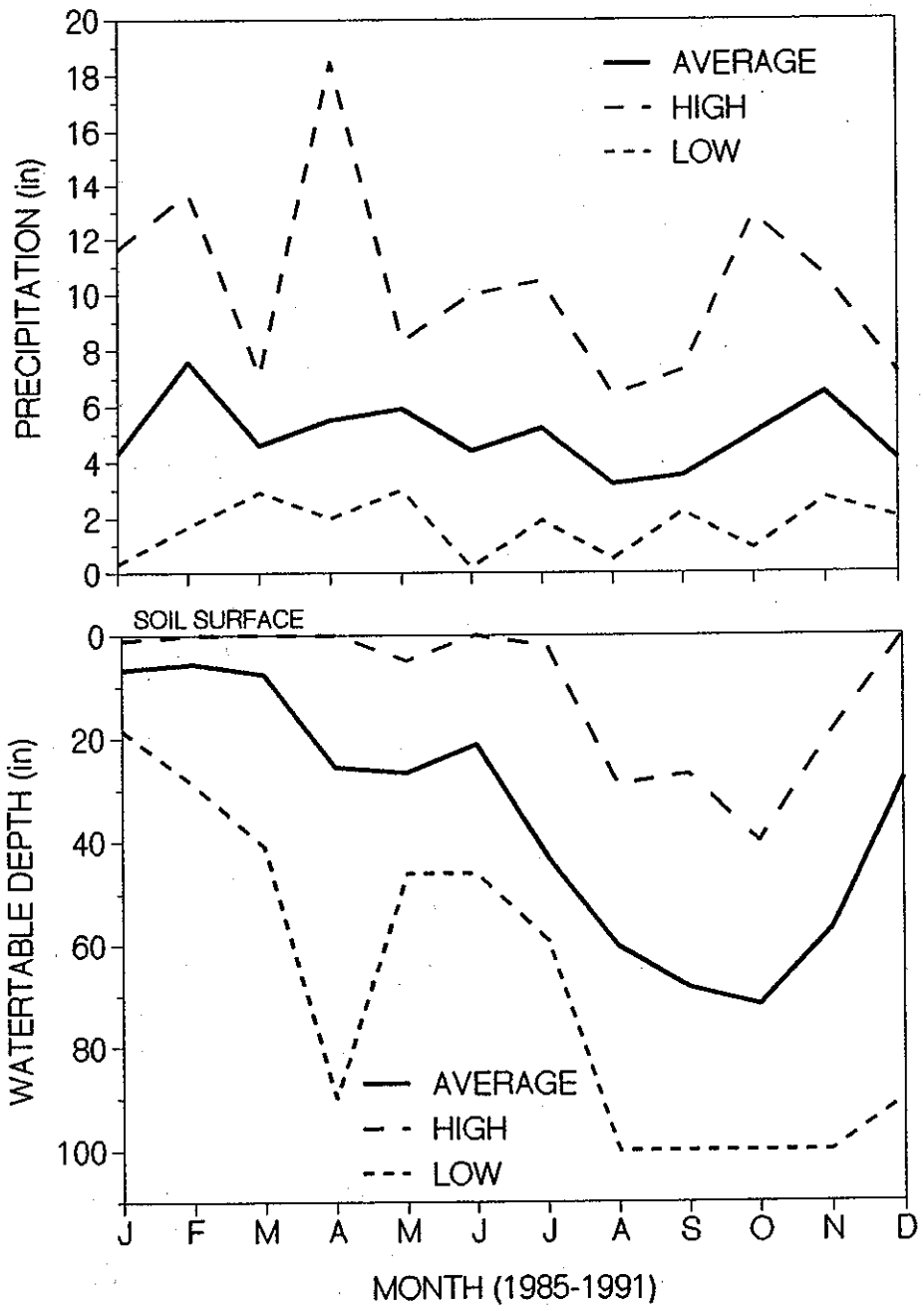
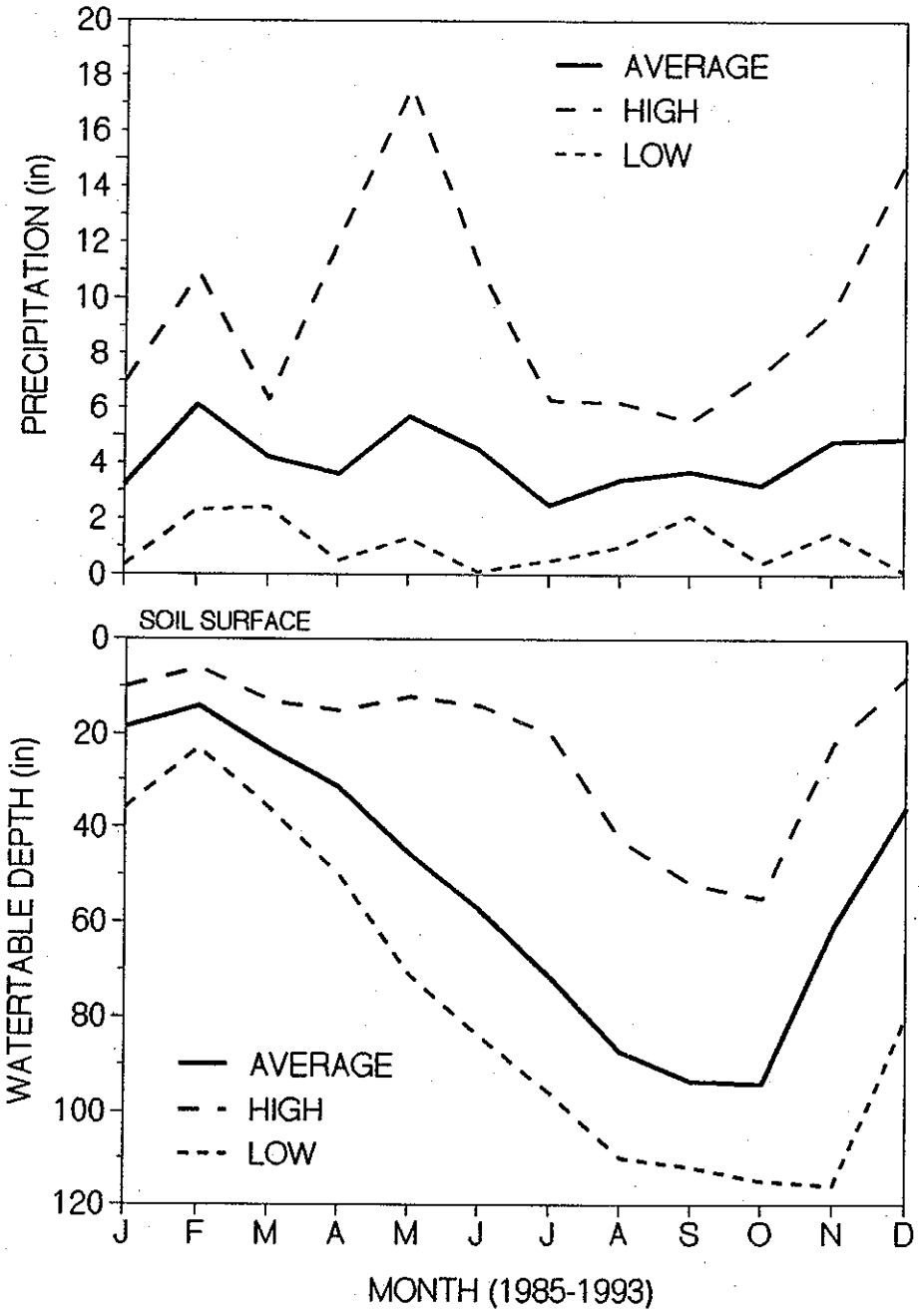


Figure 14. Average precipitation and water table levels of representative Gillsburg silt loam, Lafayette County, June 1985-June 1991.



Figuure 15. Average precipitation and water table levels of representative Leeper silty clay loam, Lee County, June 1985-December 1993.

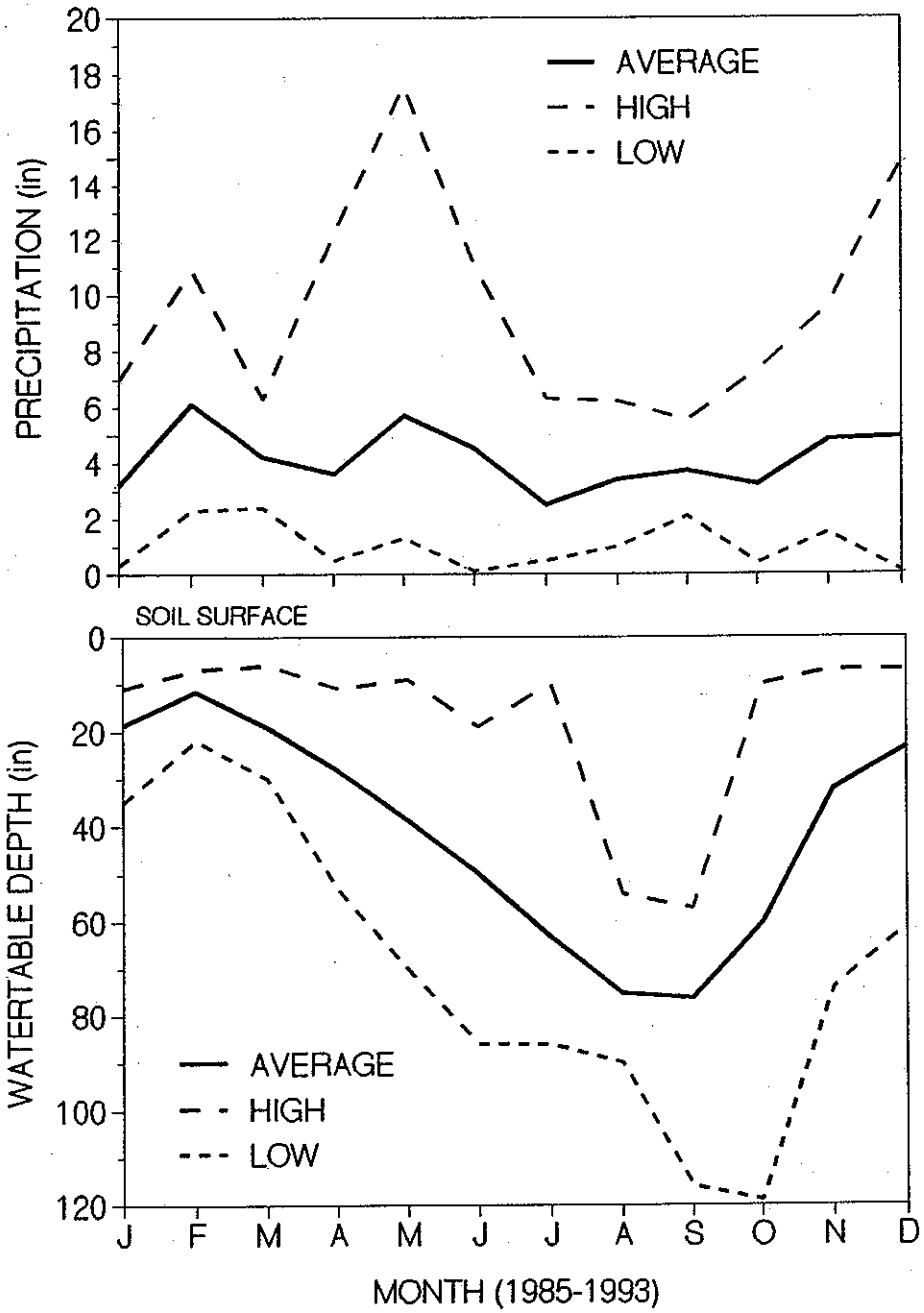


Figure 16. Average precipitation and water table levels of representative Mantachie sandy loam, Lee County, June 1985-December 1993.

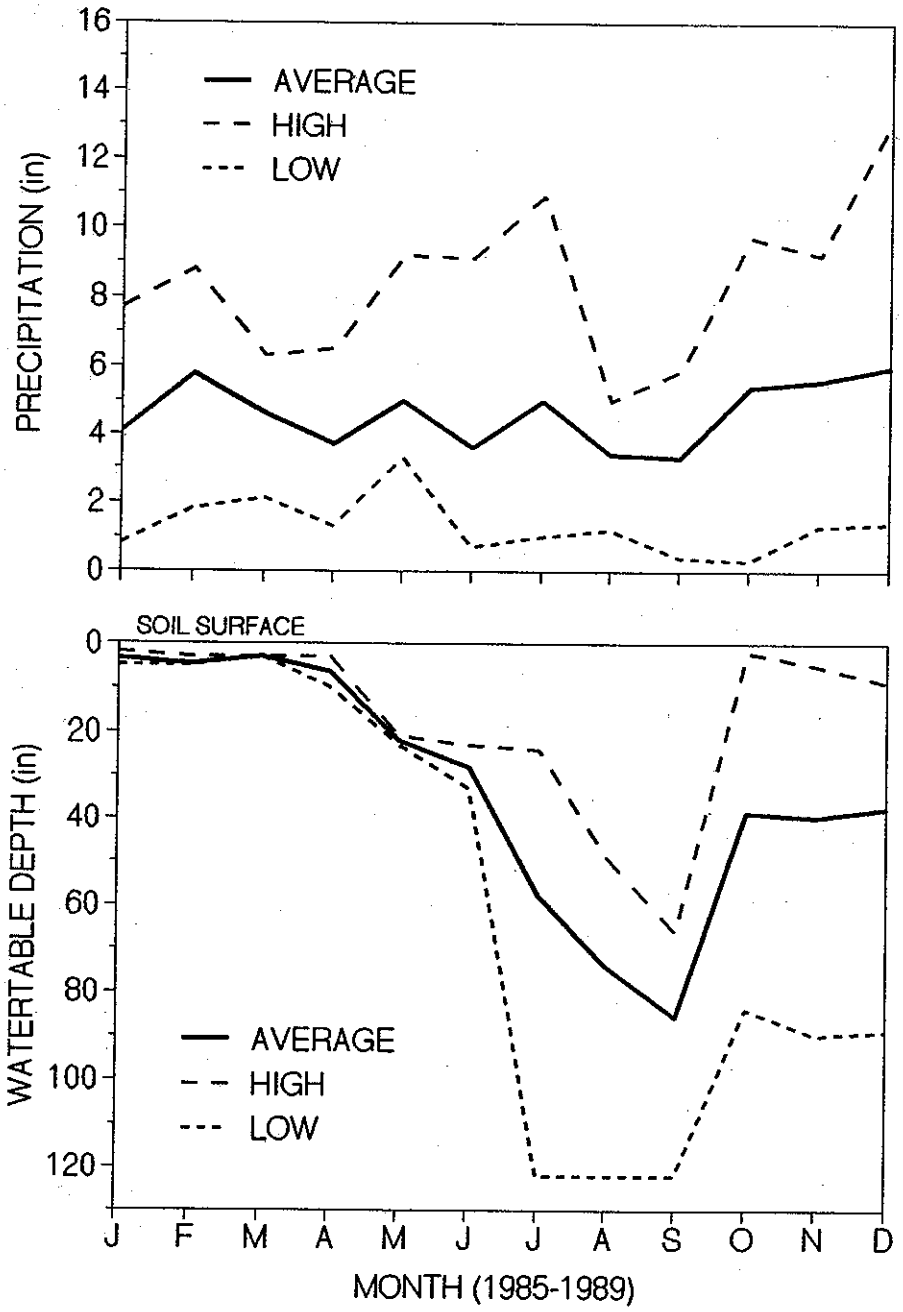


Figure 17. Average precipitation and water table levels of representative Mantachie silt loam, Winston County, June 1985-June 1989.

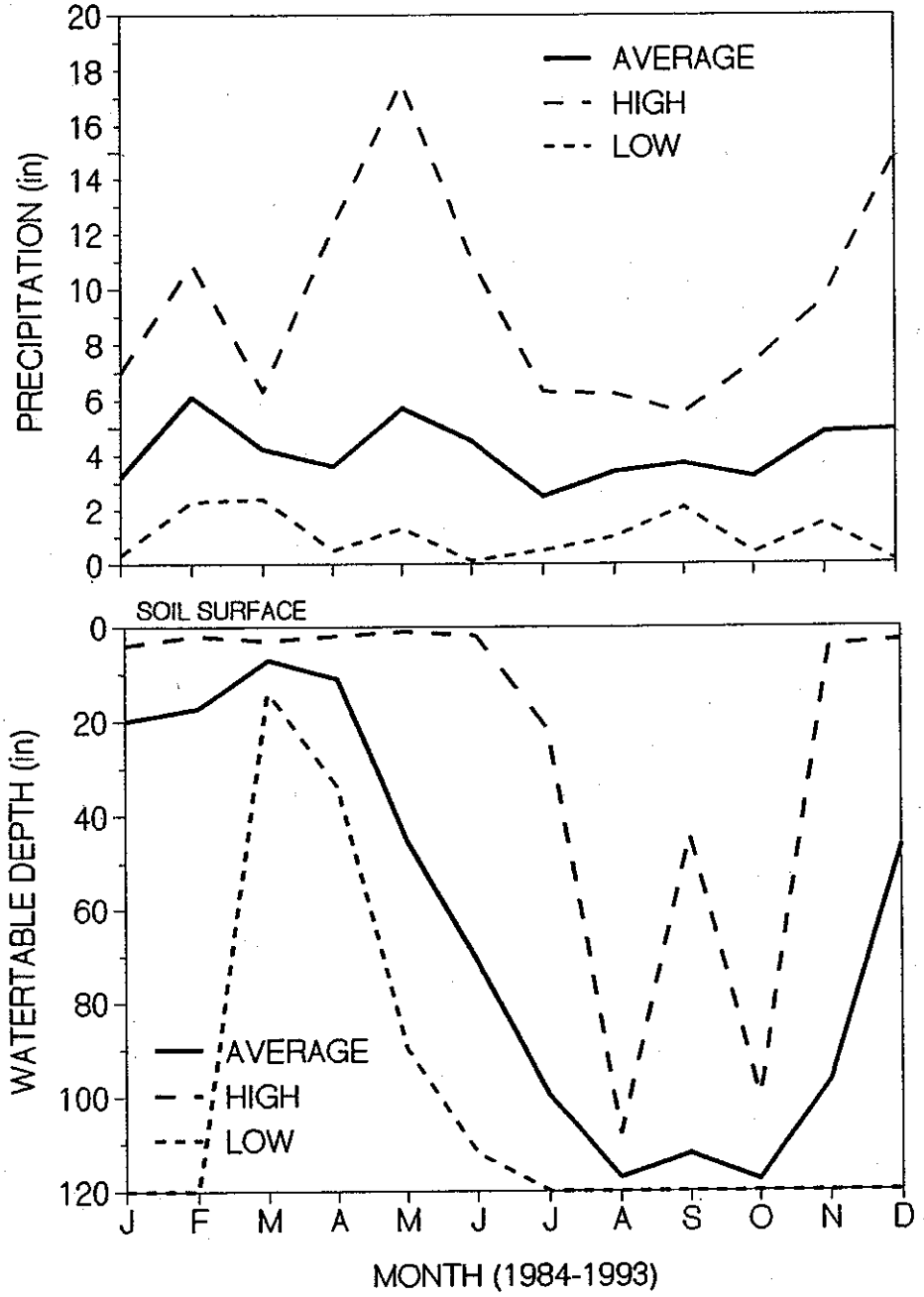


Figure 18. Average percipitation and water table levels of representative Quitman silt loam, Lee County, April 1984-December 1993.

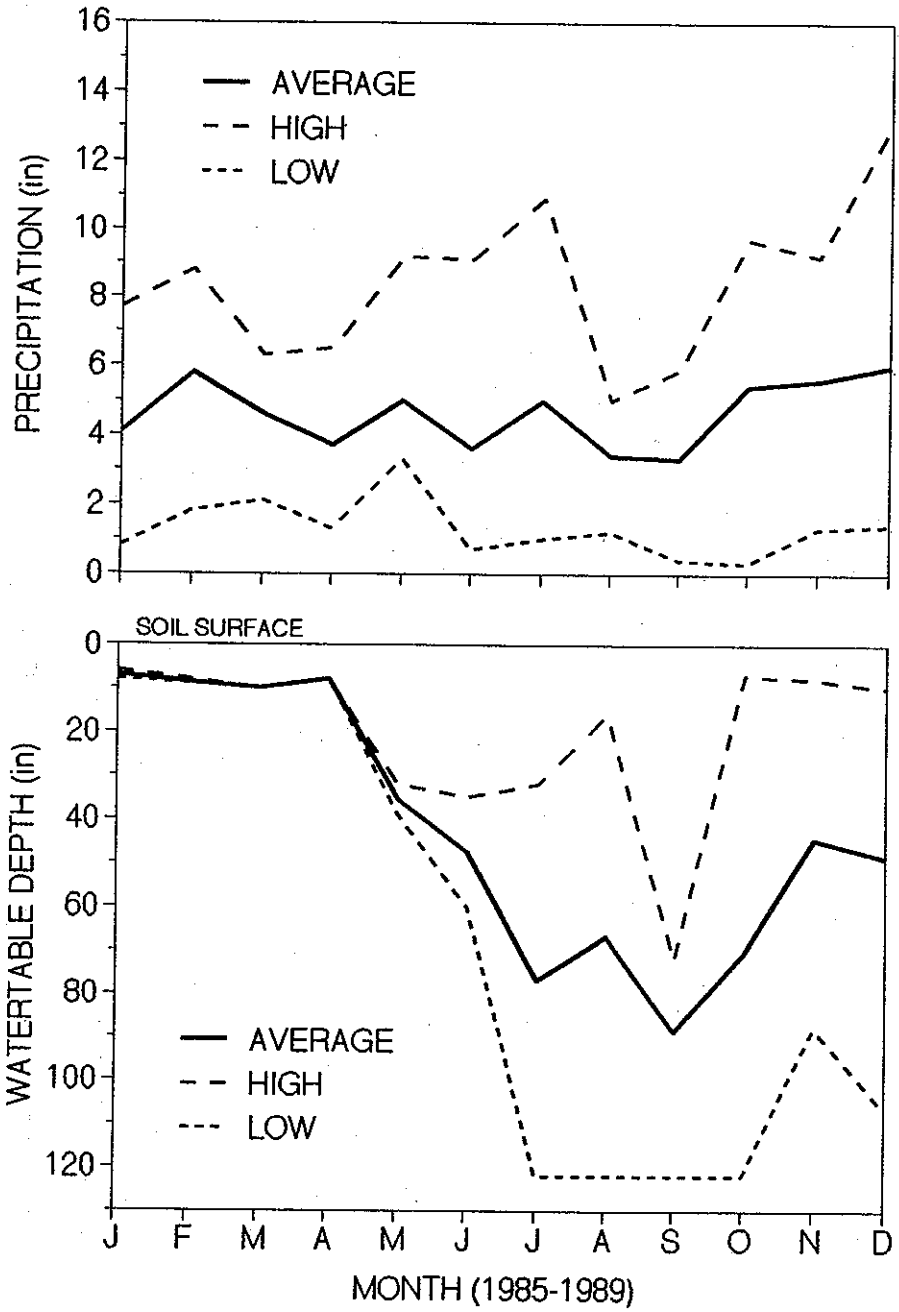


Figure 19. Average precipitation and water table levels of representative Stough silt loam, Winston County, July 1985-February 1989.

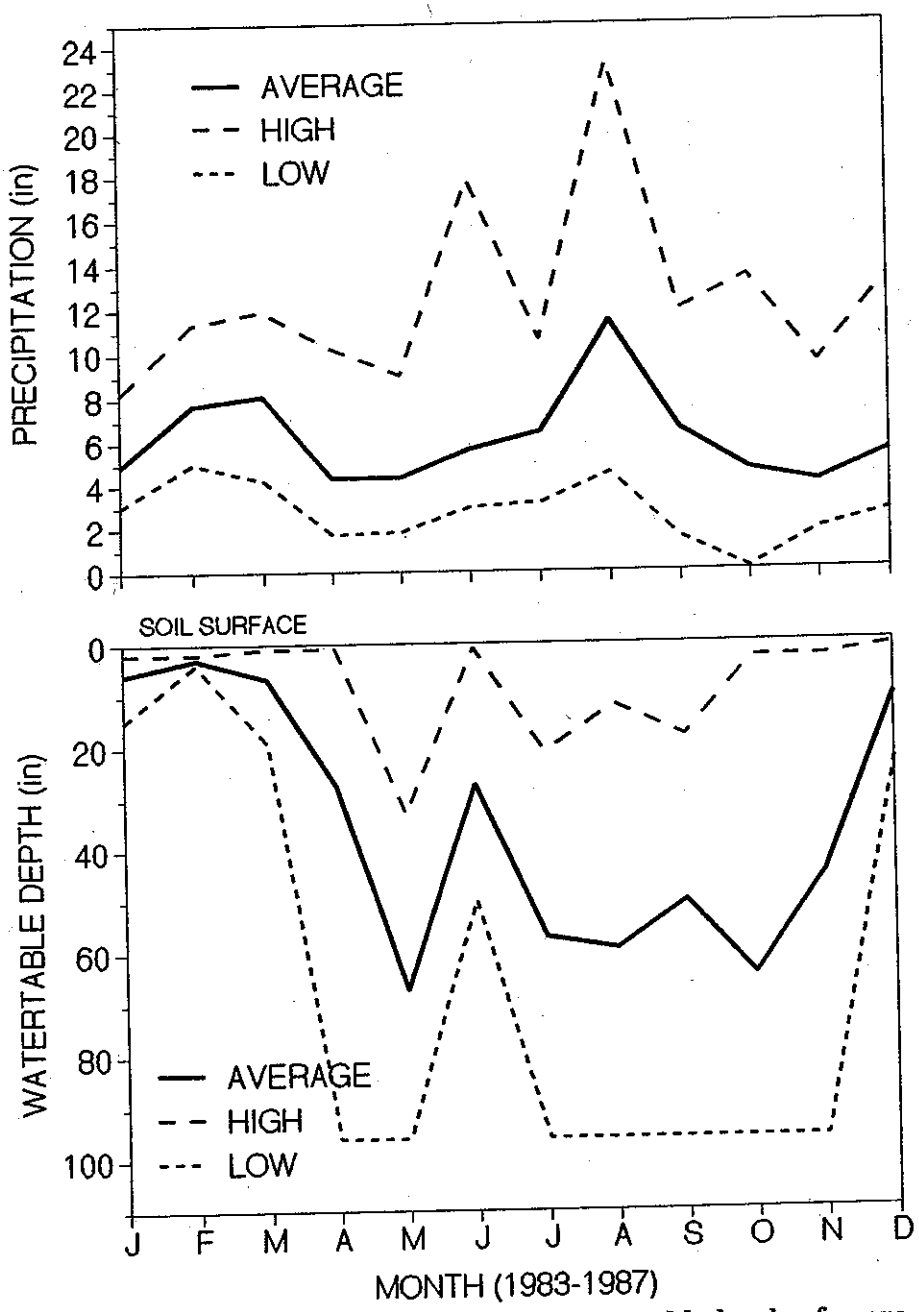


Figure 20. Average precipitation and water table levels of representative Stough silt loam, Forrest County, August 1983-December 1987.

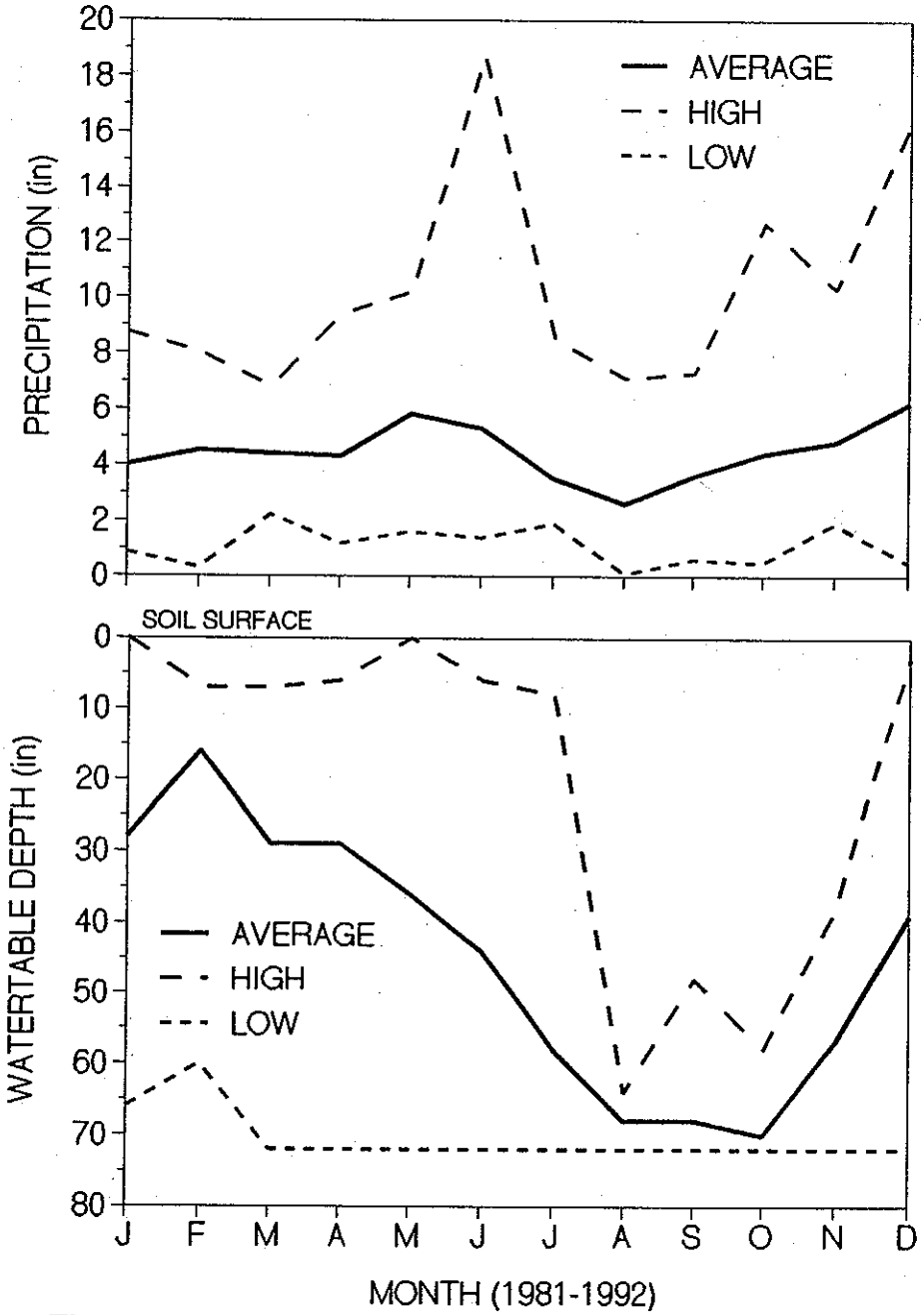


Figure 21. Average precipitation and water table levels of representative Forestdale silty clay loam, Leflore County, March 1981-December 1992.

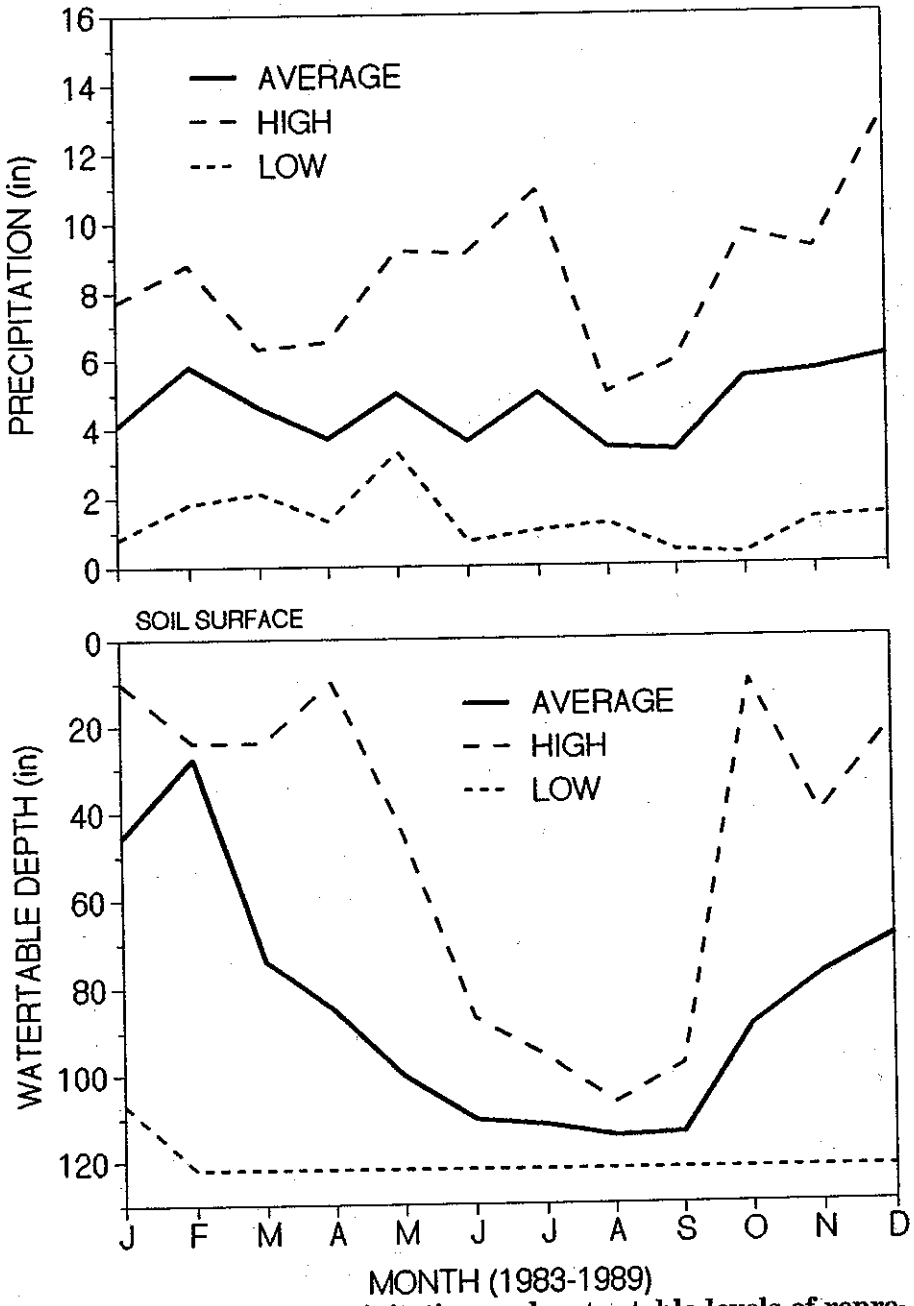


Figure 22. Average precipitation and water table levels of representative Wilcox silty clay loam, Winston County, September 1983-February 1989.

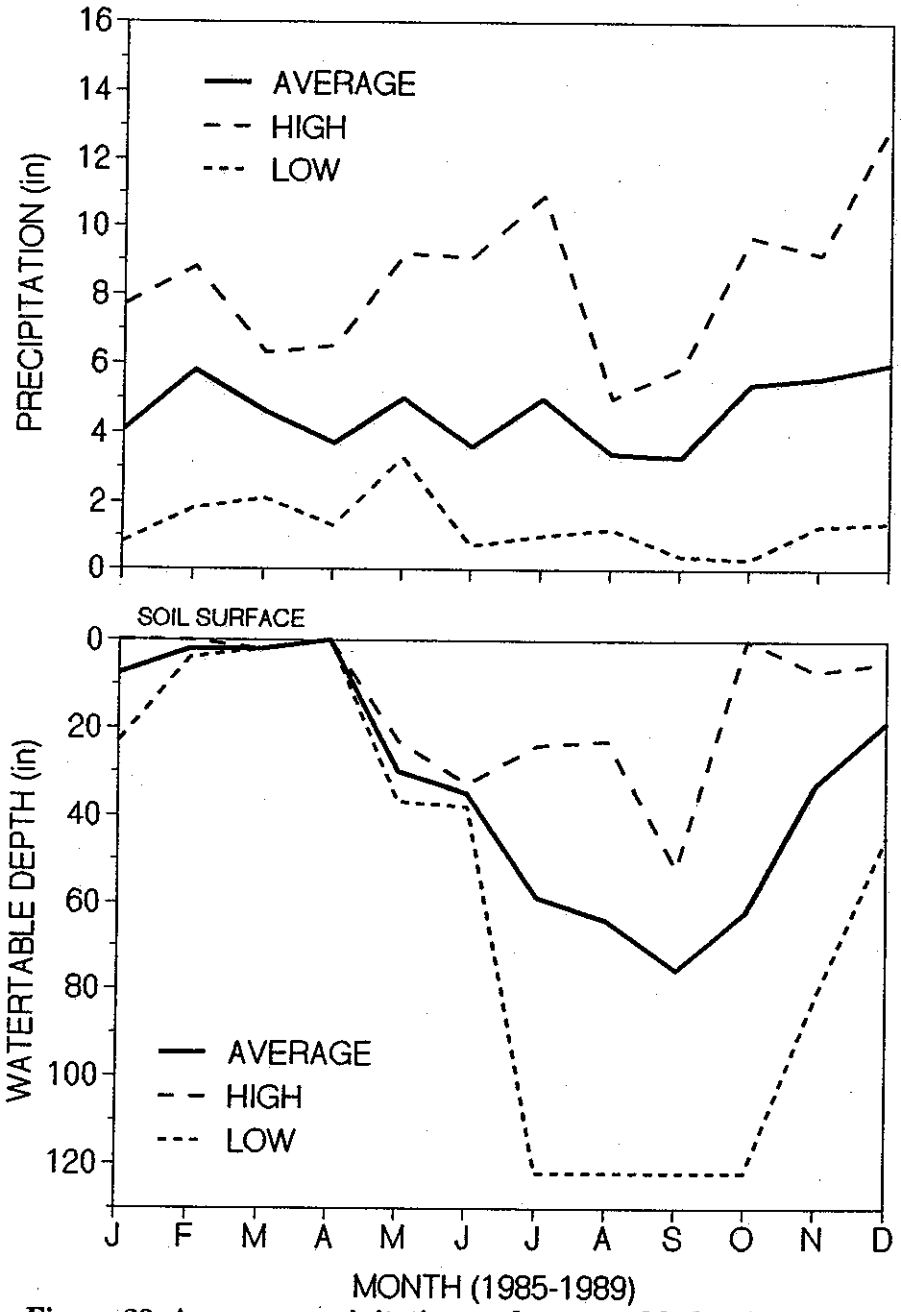


Figure 23. Average precipitation and water table levels of representative Guyton silt loam, Winston County, July 1985-February 1989.

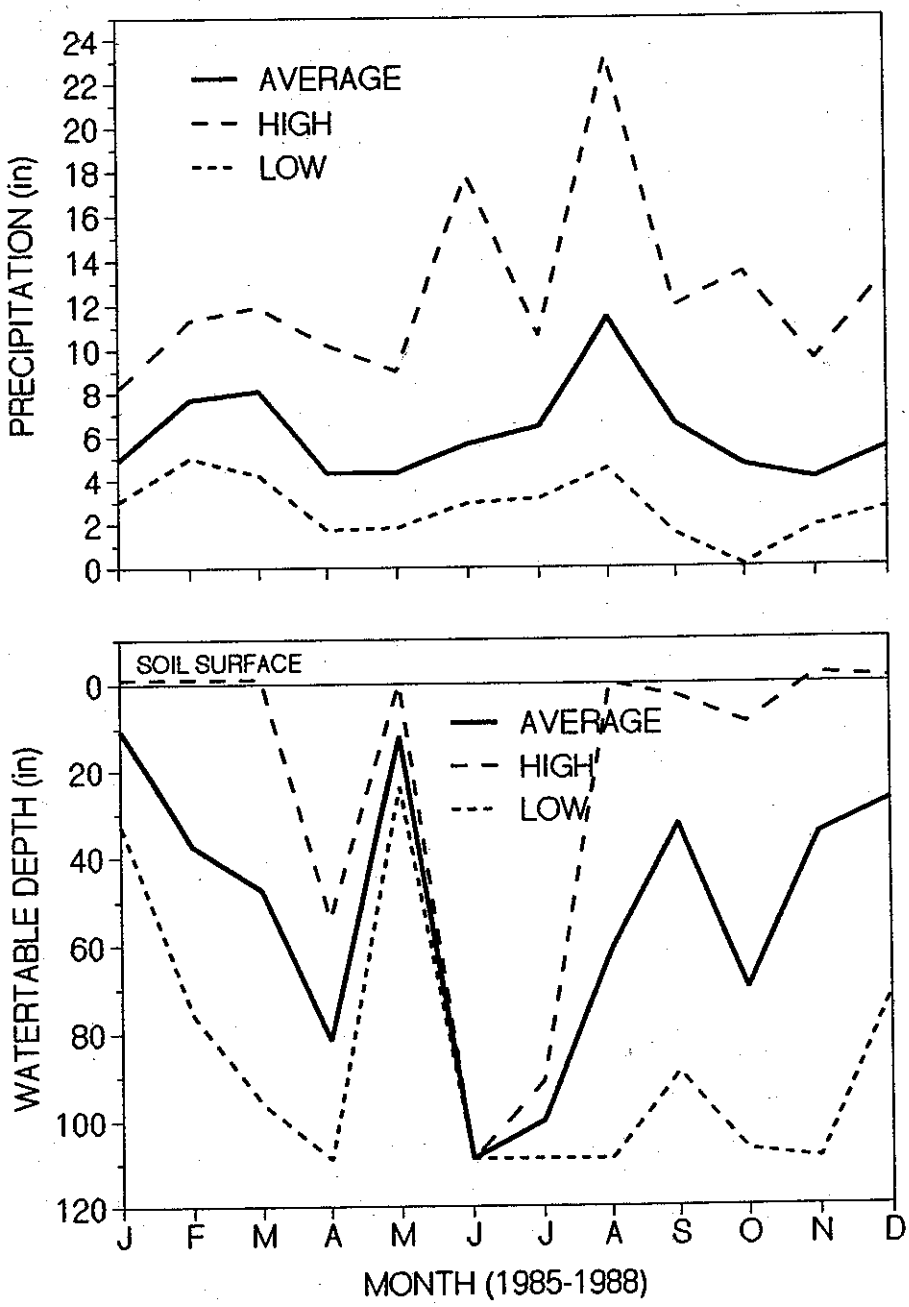


Figure 24. Average precipitation and water table levels of representative Trebloc silt loam, Forrest County, August 1985-January 1988.

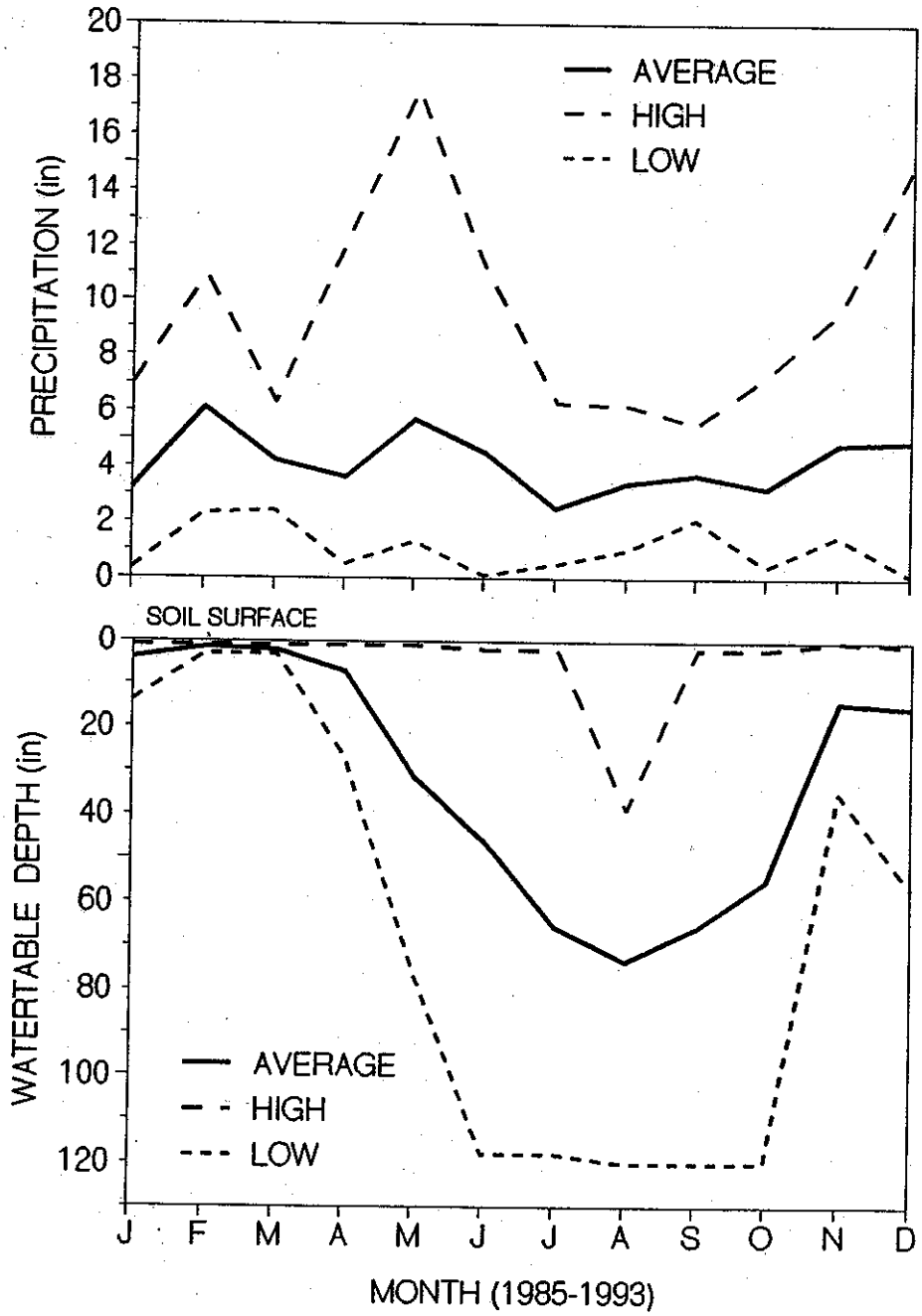


Figure 25. Average precipitation and water table levels of representative Una clay loam, Winston County, July 1985-February 1989.

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