Soil Horizons

The O-Horizon
The uppermost layer of the topsoil is composed of organic materials like dried leaves, grasses, and other decomposed organic matter. This layer of soil is blackish brown or dark brown in colour, the colour is for the content of organic material.

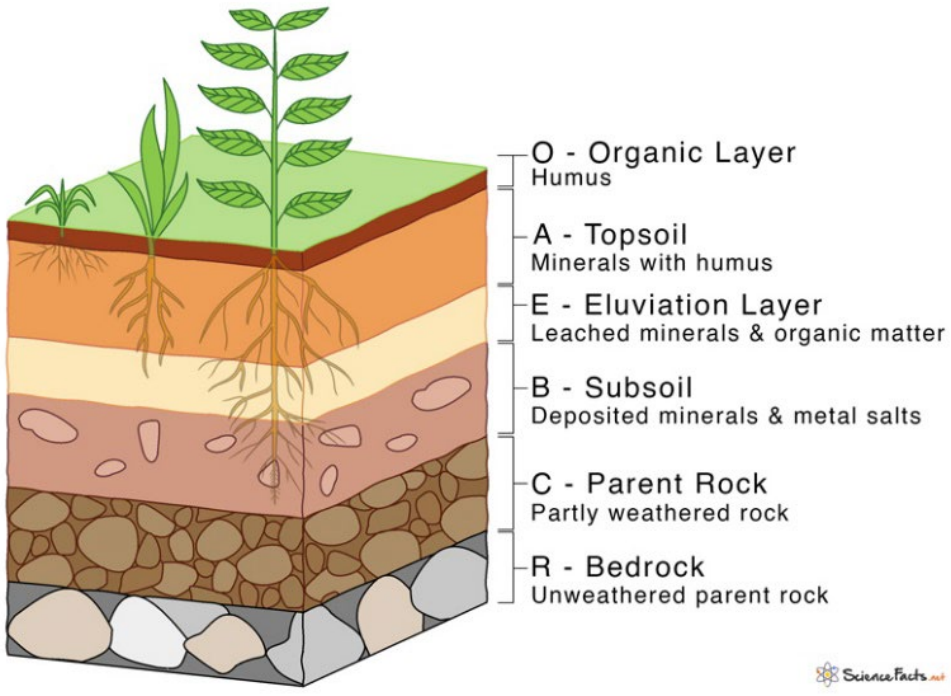
The A-Horizon is also known as the Topsoil
This layer is also rich in organic material and commonly known as the humus layer. This majorly consists of both organic matter and other decomposed type materials. The topsoil is very soft and is thus porous in nature to hold enough air and water.

The E-Horizon
This layer has nutrients seeped down from the O and A horizons. This layer is very common in forested areas which have low clayey content.

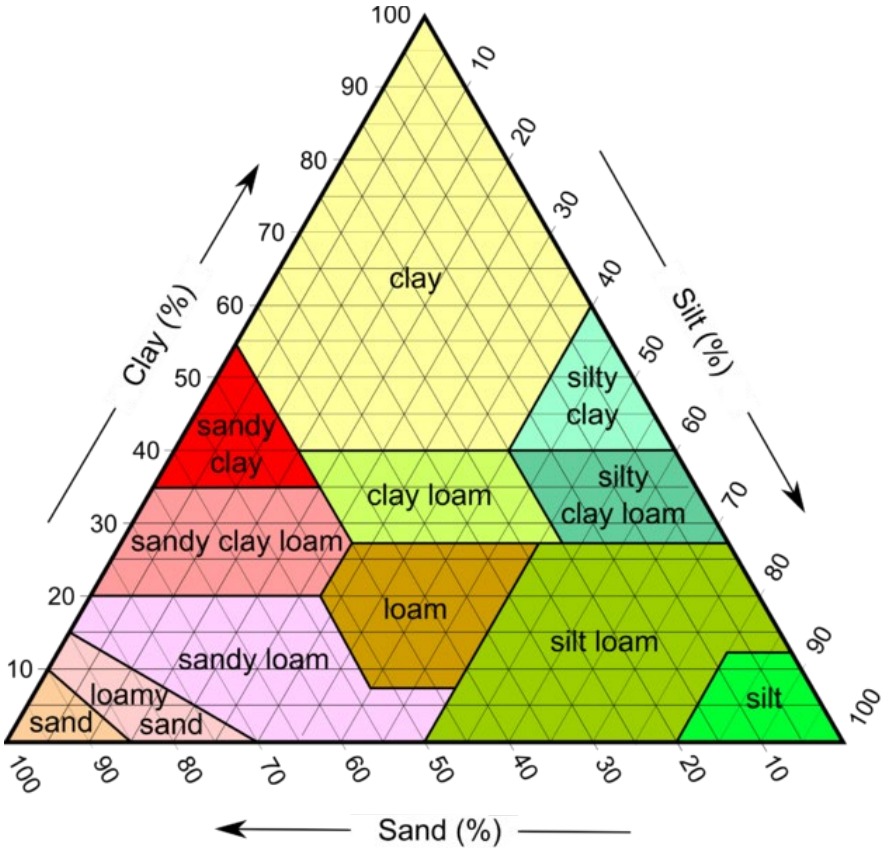
The B-Horizon or Subsoil
This horizon is present just below the topsoil, while above the bedrock. This is comparatively much harder and more compact than the topsoil. This contains less humus, soluble minerals, and organic matter. Rather this is a site of deposition of certain minerals and metal salts like iron oxide.

The C-Horizon, Known as the Saprolite
This layer has an absence of any organic matter and is made up of broken bedrock.

The R-Horizon
They are the compacted and cemented layer with different types of rocks like granite, basalt and limestone.



Soil Texture

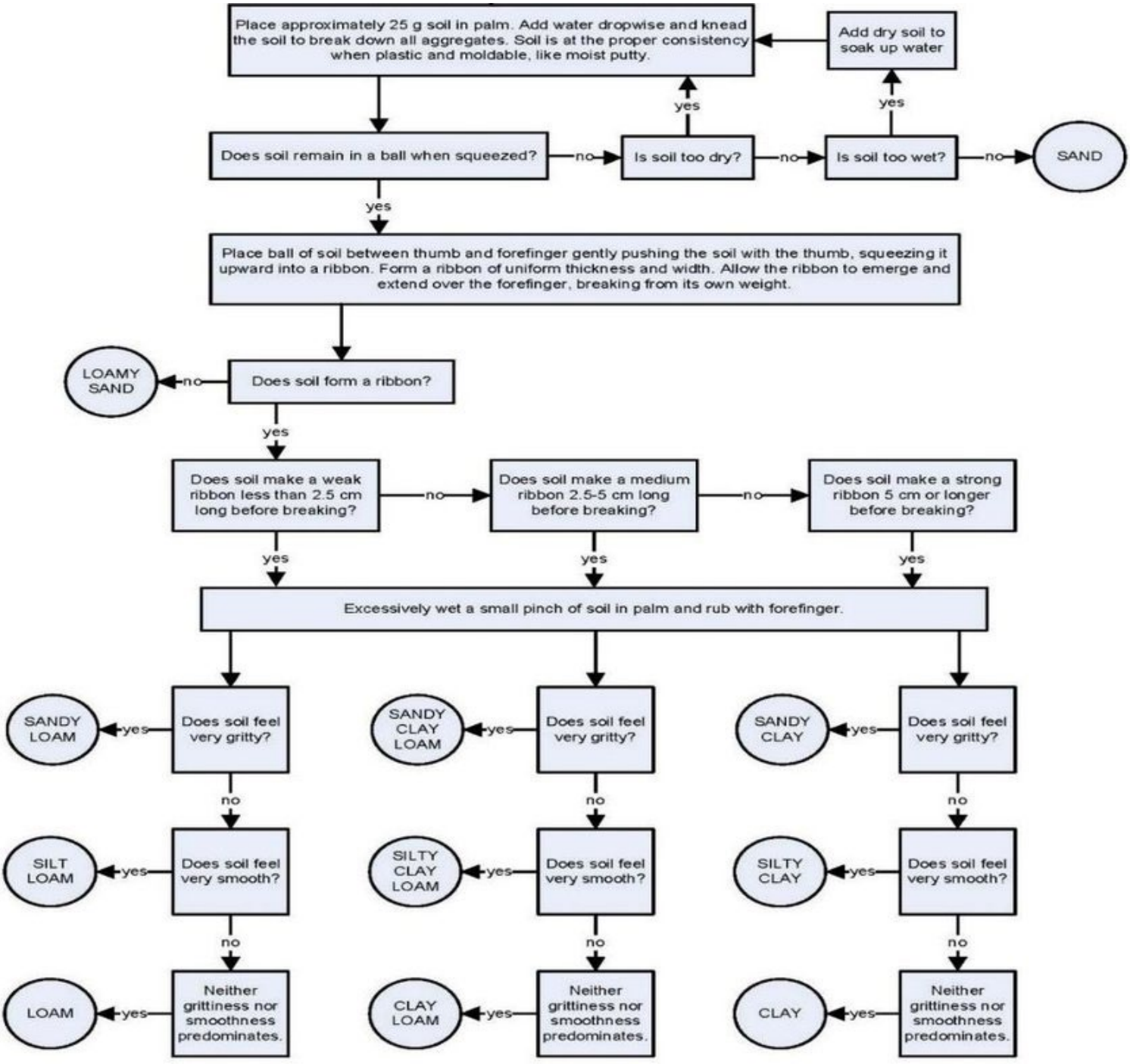


		Texture		
		Gritty	Smooth	Neither
Ribbon Length	0	SAND		
	0-1 "	Sandy Loam	Silt Loam	Loam
	1-2"	Sandy Clay Loam	Silty Clay Loam	Clay Loam
	>2"	Sandy Clay Loam	Silty Clay Loam	Clay Loam

Soil texture based on ribbon length.

Texture	Length of ribbon (mm)	Soil properties and management implications
Sandy	Less than 15mm	- Little resistance to root growth - High infiltration rate - Low plant available water
Sandy loam	Between 15mm and 25mm	- Root growth not restricted - Highly susceptible to mechanical compaction - May be hard setting - Moderate infiltration rate - Moderate plant available water
Loam	Around 25mm	- Root growth not restricted - Moderately susceptible to mechanical compaction - Moderate plant available water - Moderate infiltration rate
Silty loam	Between 25mm and 40mm	- Root growth not restricted - Moderately susceptible to mechanical compaction - Moderate plant available water - Low to moderate infiltration rate
Clay loam	Between 40mm and 50mm	- Root growth not restricted - Moderately susceptible to mechanical compaction - Moderate to high plant available water
Clay	Between 50mm and 75mm	- Root growth frequently restricted - Moderately to highly susceptible to mechanical compaction - Some restriction on water movement leading to periodic waterlogging - Moderate to high plant available water
Heavy clay	Greater than 75mm	- Root growth moderately to severely restricted - High susceptibility to mechanical compaction - Water drains very slowly except in self-mulching soils

Soil Texture Based on Feel



Soils of Hobcaw

LAKELAND SERIES

36B Lakeland Fine Sand

The Lakeland series consists of very deep, excessively drained, rapid to very rapidly permeable soils on uplands. They formed in thick beds of eolian or marine and/or fluvio-marine sands in the Southern Coastal Plain MLRA (133A), the Carolina and Georgia Sandhills (MLRA 137), the Eastern Gulf Coast Flatwoods (MLRA 152A) and the Atlantic Coast Flatwoods (MLRA 153A).Near the type location, the mean annual temperature is about 67 degrees F., and the mean annual precipitation is about 52 inches. Slopes are dominantly from 0 to 12 percent but can range to 85 percent in dissected areas.

A--0 to 3 inches; very dark grayish brown (10YR 3/2) crushed and rubbed sand; single grain; loose; common uncoated sand grains; common fine and medium roots; strongly acid, clear wavy boundary. (2 to 9 inches thick)

C1--3 to 10 inches; yellowish brown (10YR 5/4) sand; common medium faint yellowish brown (10YR 5/6) mottles; single grain; loose; common fine and medium roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C2--10 to 43 inches; yellowish brown (10YR 5/8) sand; single grain; loose; few fine roots; few uncoated sand grains; strongly acid; gradual wavy boundary.

C3--43 to 64 inches; yellowish brown (10YR 5/8) sand; few medium faint very pale brown (10YR 7/3) mottles and streaks; single grain; loose; many uncoated sand grains; strongly acid; gradual wavy boundary.

C4--64 to 80 inches; very pale brown (10YR 7/4) sand; single grain; loose; many uncoated sand grains; few medium distinct yellowish red (5YR 5/8) masses of iron accumulation; strongly acid. (Combined thickness of the C horizons ranges from 71 to more than 98 inches)

Horizons with chroma of 2 are not indicative of wetness. Small pockets of sand grains in shades of gray not related to wetness or masses of iron accumulation in shades of yellow or brown may occur in some pedons below depths of 40 inches.

GEOGRAPHIC SETTING: Lakeland soils are on broad to narrow uplands in the Southern Coastal Plain. They formed in eolian or marine and/or fluvio-marine sands. Slopes are dominantly 0 to 12 percent but may range up to 85 percent in highly dissected areas. The climate is humid subtropical. The average annual air temperature ranges from 62 to 71 degrees F., and the average annual precipitation ranges from 45 to 60 inches.

DRAINAGE AND PERMEABILITY: Excessively drained; rapid to very rapid permeability; slow runoff.

USE AND VEGETATION: Many areas are cleared and used for peanuts, watermelons, peaches, corn, tobacco, and improved pasture. The natural vegetation consists of blackjack oak, turkey oak, post oak; scattered long leaf pine with an understory of creeping bluestem, sandy bluestem, lopsided indiangrass, hairy panicum, fringeleaf paspalum, and native annual forbs.

ECHAW SERIES

28 Echaw sand

A--0 to 5 inches; very dark brown (10YR 2/2) loamy sand; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; clear smooth boundary. (2 to 6 inches thick)

E1--5 to 21 inches; yellowish brown (10YR 5/6) loamy sand; single grained; loose; many fine and medium roots; grains of sand coated; very strongly acid; gradual smooth boundary.

E2--21 to 27 inches; yellowish brown (10YR 5/6) loamy sand; single grained; loose; few fine roots; grains of sand coated; common medium distinct pale brown (10YR 6/3) iron depletions; very strongly acid; clear smooth boundary.

E3--27 to 40 inches; light brownish gray (2.5Y 6/2) loamy sand; weak fine granular structure; very friable; few fine roots; grains of sand coated; many fine prominent yellowish brown (10YR 5/6) masses of iron accumulation; strongly acid; clear smooth boundary. (Combined thickness of the E horizon is 24 to 45 inches)

Bh--40 to 50 inches; dark brown (7.5YR 3/2) sand; weak fine subangular blocky structure parting to weak fine granular; very friable; slightly brittle in darker portions; few fine and medium pores; grains of sand coated; common fine prominent yellowish brown (10YR 5/4), and common fine distinct dark reddish brown (5YR 3/2), and dark brown (10YR 3/3) bodies; strongly acid; clear smooth boundary. (6 to 45 inches thick)

Cg--50 to 65 inches; mottled light brownish gray (10YR 6/2) and brown (7.5YR 5/2) loamy sand; single grained; loose; strongly acid.

GEOGRAPHIC SETTING:
Landscape: Coastal plain
Landform: upland
Geomorphic Component: talfs
Parent Material: marine sediments
Elevation: 10 to 100 feet
Mean Annual Air Temperature: 59 to 70 degrees
Mean Annual Precipitation: 38 to 52 inches
Frost Free Period: 190 to 275 days

DRAINAGE AND PERMEABILITY:
Drainage Class (Agricultural): moderately well drained
Internal Free Water Occurrence: moderately deep, common
Index Surface Runoff: negligible to very low
Permeability: moderately rapid to rapid

USE AND VEGETATION:
Major Uses: woodland
Dominant Vegetation: Where cultivated-- corn, soybeans, hay, and pasture grasses. Where wooded-- of longleaf, slash, and loblolly pine mixed with blackjack, turkey, and post oak.

LEON SERIES

10 Leon Sand

The Leon series consists of very deep, very poorly and poorly drained, moderately rapid to moderately slowly permeable soils on upland flats, depressions, stream terraces and tidal areas. They formed in sandy marine sediments of the Eastern Gulf Coast Flatwoods (MLRA 152A), the Atlantic Coast Flatwoods (MLRA 153A) and to a lesser extent in the Southern Coastal Plain (MLRA 133A) and the North-Central Florida Ridge (MLRA 138).

Eg1--4 to 10 inches; gray (10YR 6/1) sand; common medium faint very dark gray (10YR 3/1) streaks and splotches of organic matter accumulations deposited in former root channels and krotovinas, ranging from about 20 percent in upper part to 0 percent in lower part; single grain; loose; many fine, medium, and large roots; very strongly acid; clear wavy boundary.

Eg2--10 to 15 inches; gray (10YR 6/1) sand; 20 percent faint light gray (10YR 7/1) oval splotches of organic matter depletions; single grain; loose; few fine and medium roots; very strongly acid; abrupt smooth boundary. (Combined thickness of the Eg horizons range from 2 to 22 inches)

Bh1--15 to 18 inches; 50 percent dark brown (7.5YR 3/3) and 50 percent black (7.5YR 2.5/1) sand; weak medium and coarse subangular blocky structure; firm; common fine and medium roots; many fine and medium pores; more than 95 percent of sand grains have organic coatings; extremely acid; clear smooth boundary.

Bh2--18 to 22 inches; dark brown (7.5YR 3/4) sand; weak medium and coarse subangular blocky structure; firm; few fine and medium roots; common fine and medium pores; more than 95 percent of sand grains have organic coatings; extremely acid; clear wavy boundary. (Combined thickness of the Bh horizons ranges from 4 to 50 inches)

Bw and Bh--22 to 25 inches; 80 percent (Bw) dark yellowish brown (10YR 4/4) and 20 percent (Bh) dark brown (10YR 3/3) sand; very weak medium and coarse subangular blocky structure; very friable; common fine and medium pores; very strongly acid; clear wavy boundary. (0 to 15 inches thick)

Eg and Bh--25 to 30 inches; 95 percent (Eg) weak red (2.5YR 5/2) and 5 percent (Bh) dark brown (7.5YR 3/3) sand; single grain; loose; common fine and medium pores; very strongly acid; diffuse irregular boundary. (0 to 10 inches thick)

E'g--30 to 42 inches; pinkish gray (7.5YR 7/2) sand; single grain; loose; very strongly acid; clear wavy boundary. (0 to 36 inches thick)

B'h--42 to 77 inches; 50 percent very dark brown (10YR 2/2) and 50 percent dark yellowish brown (10YR 3/4) sand; weak medium and coarse subangular blocky structure; friable; common fine and medium pores; very strongly acid; clear wavy boundary. (0 to 50 inches thick)

B'w and B'h--77 to 108 inches; 60 percent (Bw) brown (10YR 4/3), 40 percent Bh of very dark brown (10YR 2/2) and very dark grayish brown (10YR 3/2) sand; very weak medium and coarse subangular blocky structure; very friable; common fine and medium pores; very strongly acid.

GEOGRAPHIC SETTING: Leon soils are on upland flats, depressions, stream terraces and tidal marshes of the lower Atlantic and Gulf Coastal Plain. They formed in thick beds of acid sandy marine sediments. The

climate is humid subtropical. Slopes range from 0 to 5 percent. The average annual temperature ranges from 66 to 70 degrees F., and the average annual precipitation ranges from 61 to 69 inches at the sample location.

DRAINAGE AND PERMEABILITY: Poorly drained and very poorly drained; moderate to moderately rapid permeability in the A and E horizons, moderate to moderately slow permeability in the Bh horizons, and rapidly permeable in the other layers.

USE AND VEGETATION: Most areas of Leon soils are used for forestry, rangeland and pasture. Areas with adequate water control are used for cropland and vegetables. The natural vegetation consists of longleaf pine, slash pine, water oak, myrtle, with a thick undergrowth of sawpalmetto, running oak, fetterbush and other lyionia, inkberry (gallberry), wax myrtle, goldenrod, ligustrina, dog fennel, chalky bluestem, lowbush blueberry, creeping bluestem and pineland threeawn (wiregrass). In depressions, the vegetation is dominated by brackenfern, smooth sumac and swamp cyrilla are common. Vegetation in the tidal marshes includes bushy seaoxeye, marshhay cordgrass, seashore saltgrass, batis, and smooth cordgrass.

HOBCAW SERIES

31 Hobcaw loam

The Hobcaw series consists of deep, very poorly drained, moderately permeable, loamy soils that formed in marine or fluvial sediments on the Lower Coastal Plain. Slopes are less than 2 percent.

A--0 to 10 inches; black (10YR 2/1) loam; moderate fine granular structure; friable; many fine and medium roots; few fine holes; very strongly acid; clear smooth boundary. (10 to 15inches thick)

E--10 to 18 inches; gray (10YR 6/1) sandy loam; weak fine granular structure; very friable; many fine and medium roots; few fine holes; very strongly acid; clear smooth boundary. (0 to 10 inches thick)

Btg1--18 to 36 inches; gray (10YR 6/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few faint clay films on faces of some peds and in old root channels; few fine and medium roots; few fine holes; strongly acid; clear smooth boundary.

Btg2--36 to 46 inches; gray (10YR 6/1) sandy clay loam; common fine and medium distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; friable; few faint clay films on faces of some peds; few fine roots; few fine holes; pockets of sandy clay and loamy sand; strongly acid; clear smooth boundary. (Combined thickness of the Btg horizon is 15 to more than 50 inches.)

2Cg--46 to 65 inches; light gray (10YR 7/1) sand; single grained; loose; strongly acid.

GEOGRAPHIC SETTING: Hobcaw soils are on nearly level and slightly depressional areas below about 40 feet in elevation. The soils formed in loamy marine or fluvial sediments. Near the type location the mean annual temperature is about 65 degrees F., mean annual precipitation is about 51 inches; and freeze-free season is about 243 days.

DRAINAGE AND PERMEABILITY: Very poorly drained. Runoff is ponded or very slow. Permeability is moderate. The water table is above or near the surface for 3 to 6 months in most years.

USE AND VEGETATION: Most of the acreage is in forest; and the native vegetation consists of sweetgum, blackgum, water tupelo, cypress, water and willow oaks, and undergrowth of bay bushes, myrtle, and gallberry. Cleared and drained areas are used principally for growing corn, soybeans, small grain, truck crops, and pasture.

WITHERBEE SERIES

55 Witherbee fine sand

The Witherbee series consists of very deep, somewhat poorly drained, rapidly permeable soils that formed in sandy marine sediments. Slopes range from 0 to 2 percent.

A--0 to 7 inches; dark gray (10YR 4/1) fine sand; weak fine granular structure; very friable; many fine roots; very strongly acid; clear smooth boundary. (3 to 12 inches thick)

E1--7 to 12 inches; light yellowish brown (10YR 6/4) fine sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear wavy boundary. (3 to 8 inches thick)

E2--12 to 25 inches; light yellowish brown (10YR 6/4) fine sand; few medium prominent yellowish red (5YR 5/8) and common coarse distinct light gray (10YR 7/2) mottles; weak fine granular structure; very friable; few fine roots; strongly acid; gradual irregular boundary. (0 to 18 inches thick)

E/B--25 to 28 inches; mottled light yellowish brown (10YR 6/4), dark brown (10YR 4/3), and yellowish brown (10YR 5/6) fine sand; weak fine granular structure; very friable; few fine root channels filled with light gray (10YR 7/1) sand; moderately acid; gradual wavy boundary. (0 to 5 inches thick)

Bh1--28 to 40 inches; dark reddish brown (5YR 2/2) fine sand; common coarse distinct black (10YR 2/1) mottles; weak fine granular structure; very friable; moderately acid; diffuse wavy boundary.

Bh2--40 to 50 inches; black (10YR 2/1) fine sand; many coarse distinct dark reddish brown (5YR 2/2) mottles; single grained; loose; moderately acid; diffuse wavy boundary.

Bh3--50 to 92 inches; dark reddish brown (5YR 2/2) fine sand; many coarse distinct black (10YR 2/1) and dark brown (10YR 3/3) mottles; single grained; loose; moderately acid; diffuse wavy boundary.

Bh4--92 to 108 inches; dark brown (10YR 3/3) fine sand; single grained; loose; slightly acid. (Combined thickness of the Bh horizon is 6 to more than 50 inches)

GEOGRAPHIC SETTING: Witherbee soils are on level or nearly level broad interstream divides and flats in the Lower Coastal Plain. Slopes are less than 2 percent. The soils formed in sandy marine sediments. The mean annual precipitation ranges from 48 to 52 inches and mean annual temperature ranges from 65 to 70 degrees F. The frost-free season ranges from 240 to 280 days.

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; slow runoff; rapid permeability.

USE AND VEGETATION: Most of the areas are in native vegetation consisting of longleaf and loblolly pine, water oak, and post oak. Cleared and drained areas are used principally for growing corn, soybeans, small grain, hay, and pasture grasses.

BOHICKET SERIES

15 Bohicket silty clay loam

The Bohicket series consists of very poorly drained, very slowly permeable soils that formed in marine sediments in tidal marshes. These soils are flooded twice daily by sea water. Slopes are less than 2 percent.

Ag--0 to 10 inches; dark gray (5Y 4/1) silty clay loam; massive; strong fine angular blocky structure when dry; very sticky; many medium and coarse pithy fibrous roots constituting 35 percent of mass by volume; soil flows easily between fingers when squeezed and leaves small residue in hand; neutral; gradual wavy boundary. (8 to 24 inches thick)

Cg1--10 to 49 inches; dark gray (5Y 4/1) silty clay; massive; very sticky; many fine and medium roots; soil flows easily between fingers when squeezed and leaves hand empty; neutral; clear wavy boundary. (20 to 50 inches thick)

Cg2--49 to 55 inches; dark gray (5Y 4/1) silty clay and very dark grayish brown (10YR 3/2) fine sandy loam; massive; sticky; few fine roots; soil flows easily between fingers when squeezed and leaves small residue in hand; neutral; clear wavy boundary. (0 to 8 inches thick)

Cg3--55 to 68 inches; greenish gray (5GY 5/1) clay; common coarse faint gray (5Y 4/1) mottles; massive; sticky; few fine roots; soil flows between fingers with some difficulty when squeezed leaving large residue in hand; moderately alkaline; gradual wavy boundary. (0 to 25 inches thick)

Cg4--68 to 80 inches; dark greenish gray (5GY 4/1) clay; common medium faint greenish gray (5G 5/1) mottles; massive; slightly sticky; few lenses and pockets of dark grayish brown fine sandy loam material; soil flows between fingers with some difficulty when squeezed leaving large residue in hand; moderately alkaline.

GEOGRAPHIC SETTING: Bohicket soils are on broad level tidal flats bordering the Atlantic Ocean; less than 3 feet above mean sea level and extending 5 to 15 miles inland along some of the larger rivers. They are flooded by sea water twice daily. The soil formed in silty and clayey marine sediments. The climate is warm and humid. The mean annual precipitation ranges from 38 to 52 inches and mean annual temperature ranges from 59 to 70 degrees F.

DRAINAGE AND PERMEABILITY: Very poorly drained; very slow runoff; very slow permeability.

USE AND VEGETATION: Wetland wildlife habitat. Too soft for cattle grazing. Vegetation is smooth cordgrass.

REMARKS: Bohicket series was formerly mapped as a miscellaneous land type named Tidal Marsh soft. Also, such soils have been named "cat clay."


36B
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