DEVELOPMENT OF THE HARDPAN LAYER IN THE LEON SOILS

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The Leon soils are in the seaward portion of the south Atlantic coastal plain, the largest areas being in Florida and southeastern Georgia, and smaller areas occurring in South Carolina and North Carolina. These soils occur in small areas in only a few foreign countries. Mr. Bennett of this Bureau, in his travels in Central America found small bodies of the St. Johns and Leon soils in the savanna areas in the vicinity of Pearl Lagcon in northeastern Nicaragua. Cobb, in the Landes and Dunes of Gascony, has described a hardpan occurring in southern France, which is similar to the Leon Hardpan. The Russian literature gives no account of any soil exactly like the Leon.

There has been mapped by the Soil Survey of this Bureau, about 1,250,000 acres of this soil and about 400,000 acres of its black correlative, the St. Johns which is mapped in small areas in New Jersey and in Florida. The total acreage of the Leon soils in the south Atlantic coastal plain region is probably between 4,000,000 and 5,000,000 acres, an area equal in size to the combined area of three of our States, namely Connecticut, Rhode Island, and Delaware.

The relief of the Leon soils ranges from almost level to slightly undulating. There are a few low ridges as these soils approach the white sand soils of the St. Lucie series and also a few depressions as they grade toward soils of the St. Johns and Plummer series. The largest areas of the Leon soils lie at elevations between 20 and 50 feet above sea level but some areas occur as low as 10 feet and some as high as 100 or more feet. During normal seasons, drainage is adequate to remove surface water, and the rainfall rapidly penetrates the fine sand to the hardpan. However, if the rainfall is extremely heavy and continuous, the sand above the hardpan becomes waterlogged. The hardpan hinders the free movement of the gravitational water during rainy seasons and capillary rise during dry seasons. The water table in normal seasons lies at a depth ranging from about 24 to 30 inches from the surface of the ground or just below the brown layer under the hardpan. In 1927, in many places in Polk County, Florida, and in an area not far distant from the Bok Tower, the water table was about 40 inches below the surface. During the drought of 1930, the water table in many places was at least 60 inches below the surface, notably in the region north of Wilmington, North Carolina.