CHARACTERISTICS OF SOILS DEVELOPED ON THE HIGH PLAINS OF TEXAS

By

W. T. Carter, U. S. Bureau of Chemistry and Soils
E. H. Templin, Texas Soil Survey

The characteristics of the soils of the High Plains of Texas are presented as an example of the types of soil development which occur under warm subhumid and semi-arid climates.

The High Plains is a great uniform physiographic province which extends through a considerable range of climate. It is a high, smooth, constructional plateau-plain which occupies the highest and least dissected portion of the Great Plains Region. In Texas the High Plains occupy about 21,000,000 acres in the extreme northwestern part of the State. The province extends outside of Texas a short distance westward into New Mexico and several hundred northward to include portions of Oklahoma, Kansas, and Colorado.

In Texas about 85% of the surface is smooth, well drained and occupied by well developed soils. With few exceptions regional drainage lines have not developed, and run-off water collects as intermittent lakes occupying small basins which have no outlet and which were formed through ground settlement. In general the ground water table lies more than 100 feet below the surface. Throughout the Texas portion only one geological formation, the High Plains Deposits of Cenozoic age is exposed. This consists of unconsolidated, highly calcareous clays and sands with minor amounts of gravel.

On the High Plains in Texas the mean annual precipitation ranges from 22 inches in the northeast to about 15 inches in the southwest. The mean annual temperature ranges from 63°F. in the southeast to 54°F. in the northwest. The climate is continental, evaporation is high, and about four-fifths of the total precipitation falls during the warm months from April to October inclusive. The elevation ranges between 2,700 feet in the southeast and 4,700 feet in the northwest.

Fundamentally the soil difference between the High Plains and the surrounding physiographic provinces consists of the dominant occurrence of well developed soils on the High Plains.