The central concept of Vertisols is that of soils that have a high content of expanding clay and that have at some time of the year deep wide cracks. They shrink when drying and swell when they become wetter.

Vertisols are clayey soils that have deep, wide cracks for some time during the year. They shrink as they dry and swell as they become moist. The natural vegetation is predominantly grass, savanna, open forest, or desert shrub. Most Vertisols are well suited to mechanized farming if there is plenty of rainfall or irrigation water. Vertisols are well known among engineers because their unique properties limit engineering uses.
Aquerts are the wet Vertisols. They have aquic conditions at or near the soil surface for extended periods during the year but also are dry enough in normal years for cracks to open during some periods. These soils are mostly in Texas, the lower Mississippi River Valley, and the valley of the Red River of the North. The natural vegetation is predominantly forest, grass, or savanna. These soils are used mostly as rangeland, cropland, or forest. Drainage of cropland presents special problems since the saturated hydraulic conductivity of these soils is very low.

Cryerts

Cryerts are not known to occur in the United States. They are the Vertisols that have a cryic temperature regime. They are cold, but they periodically shrink and swell, forming the diagnostic characteristics of Vertisols. Cracks commonly open once a year, late in summer.

Torrerts

Torrerts are the Vertisols of arid climates. They are in western Texas and in Arizona and New Mexico. The cracks in these soils commonly stay open for most of the year but close for at least part of the winter in normal years. The native vegetation is mostly grasses and forbs. These soils are used mainly as rangeland. The use of Torrerts as irrigated cropland presents special problems since the saturated hydraulic conductivity is very low. Bypass flow through open cracks is common. Because the permeability of these soils is so slow, irrigation may result in waterlogging and a buildup of salinity unless an adequate artificial drainage system can be installed.

Uderts

Uderts are the Vertisols of humid areas. They have cracks that open and close, depending on the amount of precipitation. In some years the cracks may not open completely. These soils are mostly in Texas, in the lower Mississippi River Valley, in the valley of the Red River of the North, and in Alabama and Mississippi. At one time many of these soils supported grass and widely spaced trees, although some supported hardwood forest vegetation. Uderts are used mostly as pasture, cropland, or forest. Because the saturated hydraulic conductivity of these soils is very low, a surface drainage system is commonly used to remove excess water from cropland. Rice is grown on some Uderts that have a thermic or warmer temperature regime.

Usterts

Usterts are mostly in Texas, South Dakota, and Montana. They receive low amounts of rainfall during the summer, and cracks open and close once or twice during normal years. The native vegetation is mostly grasses and forbs. Usterts are used mainly as rangeland or cropland. The use of Usterts as irrigated cropland presents special problems since the saturated hydraulic conductivity is very low. Bypass flow through open cracks is common. Because the permeability
of these soils is so slow, irrigation may result in waterlogging and a buildup of salinity unless an adequate artificial drainage system can be installed.

Xererts

Xererts are the Vertisols of Mediterranean climates, which are typified by cool, wet winters and warm, dry summers. Xererts are mostly in California, Oregon, and Idaho. They have cracks that regularly close and open each year. Because these soils become dry every summer and moisten in winter, damage to structures and roads is very significant. The native vegetation is mostly grasses and forbs. Xererts are used mainly as rangeland or cropland. Irrigated rice is grown on some Xererts that have a thermic temperature regime.