

Darker-brown soils derived from andesitic ash beds are well developed on the easy land of Western Taranaki and along a strip extending from Ohakune to Taihape and towards Napier. These soils are slightly to moderately acid and show well the stages of leaching under increasing rainfall. The most fertile of these soils are those covering the low-rainfall areas of South Taranaki, where the topsoils are black. The most-leached soils occur closer to Mount Egmont, where the rainfall rises to 100 in.

Yellow-brown loams are also developed on areas covered by alluvium derived from volcanic ejecta. On a large area bordering the south shores of the Manukau Harbour the soils resemble closely the immature soils from the Mairoa ash. In the lowlands of the Waikato and the Matamata districts, semimature yellow-brown loams, responding well to phosphate covers the low gravel ridges and plains bordering former courses of the Waikato River. Here the yellow-brown soils form a complex with heavier meadow loams and peats occupying the former river channels and backwaters. In the Wellington and Wairarapa districts silt loams derived from greywacke, and other sediments, composed in part of tuff, give rise to a further series of yellow-brown loams.

The Brown Granular Clays.—The brown granular clays cover large areas of hill land between Dargaville and Kaitiaki, in the Waitakere district near Auckland, and in the Coromandel Peninsula.

The topsoils are granular and fairly free, in the more-leached types the subsoils are compact and sticky. In the immature stage the soils are fertile and resemble the red-brown loams. In the well-leached stages they are strongly acid and infertile, and the profile resembles that of a podsol. Brown granular clay derived from andesitic ash covers the low rolling hills of the Hamilton district and much of the rolling land to the north. These soils farm well.

The Red-brown Loams.—The red-brown loams are confined entirely to the Auckland district, where they are developed on basalt sheets under conditions of intermittent drainage. The young and immature soils are neutral to slightly acid, and are well supplied with bases, but on some areas the soils are too shallow and rocky for good farming. The semi-mature soils are moderately acid and need heavy dressings of lime and phosphate to support a good pasture. The mature soils ("ironstone" soils) are well developed in the Bay of Islands district. These infertile soils, although well leached of bases, are still but moderately acid. Nodules of ironstone occur throughout the profile.

The Ground-water Soils.

The ground-water soils include the meadow soils, where the subsoil develops under the influence of ground water, and the peaty soils.

The Meadow Soils.—For the most part the meadow soils are confined to the South and North Auckland districts, although small areas are to be found at Hawke's Bay and other low-lying plains. They are best developed in the Hauraki depression, where their textures range from a sandy loam in the south to heavy clays in the north. Most of these soils are acid and have but a moderate base supply. The meadow clays close to the shores of the Firth of Thames are high in both bases and phosphate. On all these soils drainage is needed.

The Peaty Soils.—The peaty soils are best developed in the Waikato and Hauraki lowlands, the Bay of Plenty, parts of North Auckland, and the Wairarapa. They are divided into three divisions—viz., the mellow peaty loam, the acid peaty loams, and the peats and loamy peats.

The mellow peaty loams are moderately acid and have a moderate base supply. They are good farm lands. The acid peaty loams and peaty sands require top-dressings of lime and potash in addition to phosphates. The peats and loamy peats are very acid and are poorly supplied with bases. Their high base capacity and their dry crumbly nature when deeply drained make them difficult to farm.

Saline Soils.

The saline soils occupy only small coastal areas in the Hawke's Bay, Hauraki, and North Auckland districts. Formerly mud-flats and mangrove swamps, these soils have been protected against salt-water flooding. They are usually clays with a high fertility, although some years have to elapse before the salinity can be lowered to a point when pastures can be established. The soil structure improves as the salinity falls, and drainage, an essential factor is facilitated.

Skeletal Soils.

The skeletal soils cover the steep hill country and are, for the most part, shallow soils closely related to the parent rock. Under the natural bush cover they have thin fertile topsoils, but the subsoils vary widely according to the type of rock underlying. Where they are derived from such rocks as calcareous sandstones and mudstones the subsoils are neutral in reaction and are well supplied with bases, but where they are derived from poorer rock types such as greywacke and siliceous sandstone the subsoils are poor and acid.

Skeletal soils with a fertile subsoil are found in the Taumarunui area, near Taihape, and at East Cape. Those with an acid, infertile soil occur mainly on the steep land from Wellington and Cape Palliser northward to near East Cape, and in the North Auckland Peninsula. The mid-part of the Wanganui River flows through an extensive area of skeletal soil derived from sandstone which gives a subsoil of moderate to poor fertility. In the central part of the North Island, where the steep land has been covered with pumice ash, the skeletal soils usually include much sub-aerial material. Skeletal soils derived from intermediate and basic igneous rocks are confined to the Auckland district and East Cape, reaching their greatest development in the Coromandel region.

Much of the steep land is still covered in forest. Where the land has been cleared the thin topsoil has, for the most part, been lost by erosion, and hence only those areas with fertile subsoils have been successfully farmed. Where the subsoils are poor and acid, much land formerly grazed has now been abandoned and has reverted to fern and scrub.