

the warmest month being February (69.1° F.) and the coldest being August (53.5° F.). Temperatures for the Kaitaia district will be lower as it is more exposed to the westerly winds, and July is probably the coldest month.

SOILS.

The soils are classified in seven groups—the podsols, the meadow podsol complex, the brown podsolized soils, the degraded rendzina soils, the meadow soils, and the red-brown soils.

Podsols.—(1) The sand podsols cover over approximately 6,400 acres on the flat-topped hills east of the Kaitaia alluvial fan and are largely developed on Pleistocene sands. The profile on the Awanui-Monganui Road is—

- A₁ 9 in. dark-grey sand.
- A₂ } 4 in. white free sands.
- } 8 in. cemented white sands.
- B₁ 12 in. blackish-brown sands (humus pan).
- B₂ On brown cemented sands.

The soils were formed under kauri forest, but the present cover is low manuka, scrub, and wiwi. They are unsuitable for farming.

(2) The podsols with loam and clay loam topsoils cover a few small areas on the low rolling hills of Cretaceous mudstone. Altogether they occupy about 1,600 acres. Where there is no cemented horizon close to the surface, these soils will carry pasture if well manured with lime and phosphate.

(3) The meadow podsol complex covers about 640 acres of low-lying flattish and hummocky ground near Ahipara and Waipapakauri. On the slightly higher parts the soils are sand podsols, whereas in the hollows there are peaty sands resting on cemented sands and peaty sandy loams. These soils are farmed, but the pastures are thin and of low productivity.

(4) *Brown Podsolized Soils.*—Brown podsolized sands form the soil over 4,180 acres on the older fixed sand-dunes near the west coast. The topsoils are dark-grey free sands; the subsoils are slightly compact and more loamy to a depth of 18 in. The area is rolling with some steep slopes.

These soils are well adapted to dairying and fat-lamb raising, but much of the area has been ruined by frequent burning of the scrub cover, which has exposed the soil to the erosive power of the wind.

(5) The brown podsolized sandy clays and clays which cover about 11,500 acres are derived from the Tertiary sandstones. The relief is rolling to moderately steep, with slips fairly common on the steeper slopes. The soils, which are developed under a dicotylous-podocarp forest, are grey-brown and shallow and rest on compact brown clay subsoils.

This land has been farmed, but at present many of the pastures are thinning and much of the area is reverting to bracken-fern, manuka, and rush.

(6) The brown podsolized clay loams and clays were developed under a dicotylous-podocarp forest on moderately steep to rolling land underlain by mudstones and sandstones, some of which are calcareous. The topsoils are shallow, grey-brown crumbly clay loams; the subsoils are dull-brown compact clays with a fine nut structure.

These soils, covering approximately 29,400 acres, are generally better farmed than the brown sandy clays and clays. Neglected areas are reverting to bracken fern.

(7) *Degraded Rendzina Soils.*—The degraded clays are fertile soils derived from argillaceous limestone under a dicotylous forest. They cover about 4,200 acres. On the larger area east of Kaitaia the soils are mostly shallow with numerous outcrops of limestone, but on the area north-east of Kaitaia the soils are deeper and the limestones outcrops are largely confined to the stream-beds and to the steeper slopes.

A typical profile is—

- 5 in. of blackish crumbly clay;
- 6 in. light grey-brown flecked compact clay;
- On limestone.

Clover grows prolifically on these soils and the pasture comes away early in spring, but they are among the first soils to be adversely affected during a dry spell.

The shallow phase is used mainly for sheep-farming with some dairying, whereas the deep phase is used mainly for dairying.

(8) *Meadow Soils.*—The brown crumbly meadow clays derived mainly from debris from the basic igneous rocks covering the steep ranges to the south cover about 4,000 acres on terraces in the Victoria and Takahue Valleys and fringing the hills west to Ahipara. On the lower terraces where the soils are poorly drained, chocolate-brown friable clays overlie grey-brown compact flecked clays. In other areas covered by more recent alluvium the soil is a deep friable chocolate clay. They are fairly well farmed but the production from them is lower than would be expected from such soils.

On higher terraces where drainage is better the soil is more compact and is brown for 24 in. from the surface. Tiny nodules of manganese are scattered throughout the profile. The higher terrace soils are said to have been fairly productive in the past, but now the pastures are yellowish and contain only a small percentage of stunted clover, while much has reverted to manuka, gorse, and rush.

(9) The grey-brown meadow clays occupying about 10,200 acres are fertile soils which cover the higher part of the alluvial fan of the Awanui River. The topsoils are grey and rest on compact grey and brown-flecked clay subsoils. The native vegetation is said to have been cabbage trees, flax, and manuka.

Although an extensive drainage programme has been carried out, nearly two-thirds of the area is still subject to flooding. On these areas most of the farms are large. Dairying is the principal type of farming on these soils. The pastures are slow to start growth in the spring, but from the beginning of summer to late autumn the growth is very strong.