

ROTORUA NURSERY.

(Area of enclosure, 163 acres; approximate altitude, 1,000 ft.)

The results obtained with the propagation of forest-trees at this nursery during the past year have been very satisfactory. Growth has been unusually good, and the germination of seeds, with the exception of larch, has been quite up to the average.

Rain fell on 155 days during the year, with a total fall of 59.90 in., and was somewhat heavier than usual. Last year the rainfall amounted to 39.58 in., falling on 137 days. The maximum temperature recorded during the year was 89° Fahr., occurring in February, and the minimum 22° Fahr., recorded on several occasions in July and September. Frost occurred on sixty-five nights, from May to November inclusive.

Seedling Trees.

Trees to the number of 4,615,400, and valued at £4,588 15s., were raised from seed, details of which are shown in Schedule V appended hereto.

Larch (*Larix europaea*).—This crop is thinner than usual, the trees obtained from 4 cwt. of seed being 1,250,000, and the percentage of germination was 4. The seedlings have made very satisfactory growth.

Japanese Larch (*Larix leptolepis*).—This is the first time that any appreciable quantity of this tree has been raised here, and the results so far are encouraging. From 5 lb. of seed 40,000 seedlings resulted, germination being at the rate of 8 per cent. This species of larch apparently does not possess the vigour of its European relation. The seedlings are very small and inclined to be weak. In England the Japanese larch is generally considered to be a faster grower than the European larch, but in New Zealand the opposite appears to be the case.

Corsican Pine (*Pinus Laricio*).—The crop raised from 4 cwt. of seed is estimated at 2,500,000 trees, and the rate of germination at 16 per cent. This is a splendid crop of trees: the germination was even throughout the beds, and good growth has been made by the seedlings.

Heavy Pine (*Pinus ponderosa*).—This is an exceptionally good crop. From 90 lb. of seed 400,000 seedlings resulted, the rate of germination being 44 per cent. Good growth has been made by the young trees.

Monterey Pine (*Pinus insignis*).—From 25 lb. of seed sown 200,000 seedlings resulted, germination being at the rate of 40 per cent. These seedlings have made splendid growth, and will all be transferred to the plantation during the coming planting season.

Weymouth Pine (*Pinus strobus*).—In comparison with the results obtained with this pine for several years past the crop this year is good, although the rate of germination is only about 8 per cent. 60,000 trees were raised from 27 lb. of seed, and good growth has been made by the young trees.

Douglas Fir (*Pseudo-tsuga Douglasii*).—The rate of germination of this species is very low this year, being 2.07 per cent. From the sowing of 12 lb. of seed 10,000 seedlings resulted, and these have made poor progress.

Apple-scented Gum (*Eucalyptus Stuartiana*).—150,000 trees were raised from 3 lb. of seed, and excellent growth has been made by the young trees, all of which will be transferred to the plantation during the coming planting season.

Experimental Lots.—Small packets, each containing 2 oz. of seed, of *Pinus Montezumae* and *Pinus patula* were presented to the Department and duly sown. Both these species are natives of Mexico, where they are found inhabiting country from 4,000 ft. to 12,000 ft. above the sea-level. They will be planted out, and their suitability for this climate tested. Neither of these pines appears to be much known in Europe, and consequently very little reference is made to their value as timber-producers.

Two-year Seedling Trees.

The growth made by the two-year-old seedlings is rather better than usual, which is no doubt due to the unusually wet summer experienced.

Larix europaea (*European Larch*).—The adoption of the proposal mentioned in last year's annual report, to allow the larch to grow without "wrenching" them, has caused the growth to be very strong. It is yet too early to make any definite statement upon the value of this treatment in combating the root-fungus (*Rosselinia radiciperda*), as this parasite is usually less troublesome during a wet season, and, although it is not so prevalent in the seed-beds this year, this may be due to the unusually wet weather experienced. A late spring frost badly nipped many of the larch, with the result that trees with double leaders and bushy specimens are very prevalent.

Very good growth has been made with most of the other trees mentioned in this schedule. *Fraxinus quadrangulata* (American ash), *Tsuga mertensiana*, and *Pinus monticola*, which were grown experimentally, do not promise to be suitable trees to grow here. They have the appearance of being in an uncongenial locality, and it is very unlikely that further trials will be made with them.

Lined-out Trees.

Severe frosts experienced in July and August accompanied by very dry weather were responsible for a death-rate of about 15 per cent. amongst the lined-out trees. This is the first occasion on which winter frosts have killed trees in the nursery. The lining out was done in July and August, which are usually very wet months, and it is probable that the newly transplanted trees succumbed more readily to the frosts, owing to the unusually dry nature of the ground. Most of the deaths occurred amongst the Douglas fir, and a small proportion of Corsican pine and heavy pine were also affected. The growth made by the lined-out trees has been uncommonly good, and a fine lot of trees will be obtained from this crop for sending to the plantations during the coming planting season. A further trial was made with lining out some 50,000 two-year-old seedling larch, but little or no growth resulted. These trees were "sized" from the two-year seed-beds, and retained in the nursery because they were either too small or too weak for sending to the plantations, and from frequent trials it has been proved that it is futile to expect such trees to grow into decent specimens.

General.

Horse-feed.—Owing to the unusually dry weather experienced during the winter months, the oaten crops grown for horse-feed were a partial failure. In all, 30 acres were sown, 14 acres being sown in