

WHAKAREWAREWA NURSERY, NEAR ROTORUA.

(Established February, 1898.)

Considerable success has attended operations at this nursery during the past year, chiefly due to the moist, growing season experienced. Rain fell during 115 days, and was fairly equally distributed throughout each month in the year, the total being 44.17 in., with a maximum fall of 7.24 in. in July. Frosts have not been nearly so severe as during the previous year, only 6° being registered during May, July, and August, against 10° in July of 1900; 89° was the extreme temperature recorded, against 90° of the previous year.

Continued deep cultivation has had a beneficial effect in sweetening the pumice soil, which is always more or less sour on recently cleared fern land. The effect of this "sourness" is most marked on young conifers, which turned yellow in patches, where fern-growth was previously most luxuriant. Light and frequent applications of lime to assist in decomposing fern-root has also been an important factor in bringing the nursery area into a high state of cultivation.

Compared with previous seasons, the general growth of nursery stock this year is above the average, especially as regards larch and Abies amongst the seedlings, and also in all classes of two- and three-year-old conifers and hardwoods.

Transplanting of one- and two-year-old trees from the seed-beds to nursery rows was started in August and completed in October, the number dealt with being 597,000. The loss in transplanting was about 2 per cent., chiefly among spruce fir, owing to a particularly drying time being experienced immediately after these were removed.

Tree-seeds sown during the spring germinated well, with the exception of Oregon pine and redwood. The seeds of these two species, besides being difficult to procure regularly and in quantity, lose a great deal of their vitality in transportation.

An additional nursery area of 5 acres was cleared of fern, tutu, and other roots, and roughly levelled; lime was then applied at the rate of 1 ton per acre, after which the whole was ploughed and cross-ploughed in readiness for next season's "lining-out." Nearly half an acre was graded and similarly treated for seed-sowing.

Early in the year the entire nursery was enclosed by a wire-netting fence in order to guard against the depredation of hares, which have unfortunately become plentiful in the district. Sufficient time has now elapsed to show that this expenditure was justified, no damage whatever having occurred since the fence was erected.

An area of about 50 acres was also enclosed with a post-and-wire fence for use as a horse-paddock, and it is intended to plough and sow this down in grass and clover next season.

During the spring some eight thousand trees and shrubs were planted throughout the nursery for shelter and ornamental purposes. Break-winds of *Pinus insignis* were formed across the lining-out ground, and at right angles to the prevailing winds. Considerable improvements have also been made to the nursery surroundings by planting exotic and native trees and shrubs on the borders of roads leading from seed-beds to lining-out ground.

Forty-two seed-protecting frames, 18 ft. by 3 ft., have been made during the year, the total at present in use being 200, all of which have been painted with tar to preserve the timber.

It should be noted that this nursery (and adjoining plantation) have since their initiation been almost entirely worked by Native labour, only the foreman and his assistant being Europeans. Compared with other nurseries, both as regards cost of maintenance and the various operations connected with tree-raising, it is an undisputed fact that Native labour is more economical (although wages are at the same rate as elsewhere), and the work is done with much more care and neatness than by European labour in the southern nurseries. Maori women and girls are exceptionally careful and industrious in weeding, sizing, and counting young trees.

Trees and shrubs numbering 430,197, and valued at £2,317 0s. 5d., have been supplied to plantations, reserves, Domain Boards, &c., during the year, details of which will be found in Schedule C⁶.

The total estimated number of trees and shrubs of all ages in the nursery at the 31st March was 2,292,080, and their value (estimated at considerably below ordinary wholesale trade rates) is £3,921 16s. 9d., particulars of which are given in Schedules C to C⁶. Of the above number, fully three-quarters of a million are available for transferring to plantations and reserves during the coming planting season.

Expenditure for the year amounted to £1,657 7s. 10d., the average number of persons employed being 15.5.

Seeds of over fifty species of Eucalypti have been procured for experimental purposes during the coming year. Unfortunately a large number of Eucalypti are attacked by the larvæ of a nocturnal lepidopterous insect, which eat away the epidermis of the leaves, thus asphyxiating the tree. The proposed experiment is chiefly to determine which species best resist the attack of this insect, and also to prove their hardiness, and suitability for pumice lands.

Seeds of two American timber trees, *Catalpa speciosa* and *Acer saccharinum* (sugar-maple), have been procured in order to test their suitability to the pumice soil. Catalpa timber is highly prized in America for railway-sleepers, posts, and other purposes where durability in contact with the soil is essential. Sugar-maple produces the well-known "bird's-eye maple" of commerce, and the sap is used for the manufacture of sugar and syrup.