

## Summary of Trees growing on Whakarewarewa Plantation.

|                                    | Number.   |
|------------------------------------|-----------|
| Larch (European) .. .. .           | 5,840,135 |
| „ (Western) .. .. .                | 50        |
| Pines .. .. .                      | 3,383,040 |
| Blackwood .. .. .                  | 123,174   |
| Eucalypti .. .. .                  | 2,045,517 |
| Walnut .. .. .                     | 13,800    |
| Douglas fir .. .. .                | 151,308   |
| Birch.. .. .                       | 6,585     |
| Alder.. .. .                       | 26,393    |
| Poplar .. .. .                     | 600       |
| Redwood .. .. .                    | 90,673    |
| Sycamore .. .. .                   | 32,536    |
| Oriental plane .. .. .             | 1,900     |
| Norway spruce .. .. .              | 195,025   |
| Tideland spruce .. .. .            | 91,175    |
| Red-cedar .. .. .                  | 670       |
| Sweet-gum .. .. .                  | 1,700     |
| White-cedar .. .. .                | 3,275     |
| <i>Cupressus thurifera</i> .. .. . | 420       |

12,007,976

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## WAIOTAPU PLANTATION.

(Area, 41,132 acres; approximate altitude, 1,200 ft. to 2,000 ft.)

The rainfall for the twelve months ending the 31st March, 1912, amounted to 45.88 in., distributed over 137 days, and is higher than that recorded the previous year, when 31.55 in. fell on 116 days. The maximum temperature, which was recorded in February, was 88° Fahr., and the minimum 21° Fahr., recorded in August and September. Frosts occurred on seventy-six nights, being particularly frequent in July and August. Tree-planting operations, on the whole, have been successful, although the death-rate is greater than usual among the newly planted pines. The failures recorded are in a large measure due to the unusual severity and frequency of the frosts during the winter, combined with the fact that the soil was drier than is usual in the winter months. Much of the land, too, was open tussocky country, which afforded little or no shelter to the young trees from drying winds. The death-rate was not above normal where the land carried a growth of bracken.

Trees to the number of 2,646,325 were planted, 2,394,400 being planted on a new area containing 841 acres, and the remainder, 251,925, being used to replace deaths in the former years' planting.

The wet weather experienced during the summer months has been responsible for the fine growth made by the bulk of the trees throughout the plantation. In every block of trees the vigorous growth made gives evidence of the trees having responded to the plentiful rain-showers and accompanying humid conditions of the soil and atmosphere. The eucalypti, which hitherto have been most backward, seem to have taken a new lease of life, and give promise of ultimately developing into a splendid crop. It must, of course, be recognized that the climatic conditions at Waiotapu generally are now much more congenial for plant-life than they were when the land was, with the exception of dwarf scrub, devoid of any growth. Large areas of the plantation reserves are now covered with a canopy of leaves, which has the effect of reducing the evaporation of soil-moisture and of modifying the atmospheric conditions to some extent locally, and the eucalypti plantations have therefore benefited by the growth of the large blocks of conifers which surround them.

The larch and Corsican pine continue to make satisfactory progress. Heavy pine (*Pinus ponderosa*) has made especially strong growth this year, and where this species has been mixed with Austrian pine it now overtops the latter species by two or three feet. There seems little doubt but that this mixture will prove unsatisfactory. Weymouth pine, like other conifers, has made splendid growth.

Under the heading of "General Upkeep," the chief works included are attention to fire-breaks and clearing round young trees. Most of the fire-breaks which were ploughed last year have been kept in an efficient state by stirring them with the disc harrows, and very little ploughing was needed. Owing to the increasing height of the trees adjacent to the Tourist Reserve, the fire-break to protect this boundary was made wider. A heavy growth of manuka-scrub covers the greater part of the Tourist Reserve, and there will always be danger of fire from this quarter, because the reserve is much frequented by sightseers, who sometimes are careless with lighted matches. All public roads which divide the plantation-areas have been cleared of growth, and this growth burned as an extra preventive to the spread of fire.

Comparatively few portions of this plantation require much attention by way of cleaning amongst the trees, and most of this class of work during the year was confined to the areas planted with larch on the slopes of Maungakakaramaea. On the low hills and flats the winter frosts usually kill off the growth which is made by the bracken during the summer, and consequently on such land very little labour is required to be expended in protecting the young trees. The growth of bracken above the frost-line, and particularly in the basins and gullies on the slopes of high hills, is sometimes very rank, and for from three to four years after such land has been planted it is necessary to go over the area two or three times a year and cut any growth that is likely to injure the trees.

*Labour.*—An average of 17.04 prisoners were employed daily throughout the year, performing work to the value of £1,750 5s. All the work required to be done on the plantation within three miles of the prison camp has been satisfactorily performed by prison labour, and this fact is in itself sufficient