

WHAKAREWAREWA PLANTATION.

(Area, 9,547 acres; altitude (approximate), 1,200 ft.)

A fair measure of success has attended the past season's operations, although the adverse climatic conditions experienced have resulted in the growth made by the majority of the trees throughout the plantation being slightly less vigorous than on an average year. During the spring and early summer months there was little warmth, and frequent frosts which assisted in keeping the ground cold; the result was that growth was sluggish, and the trees did not start away as freely as usual. As the season advanced an unusually protracted spell of dry weather set in, the small amount of rain which fell during a period of three months being barely sufficient to moisten the surface of the soil.

The effects of the dry weather were most noticeable amongst the larch, whose foliage became of an unhealthy colour, and resulted in a certain amount of premature leaf-shedding.

A particularly severe frost at the latter end of spring also checked the larch considerably, and on several small low-lying areas, where they had for several seasons been affected by late frosts, the trees were so severely damaged that there was no hope of recovery, and it was therefore decided to cut them out, and to prepare the ground for planting with pines during the autumn.

The dry weather has had little or no effect on the older pines, *Pinus Laricio*, *P. ponderosa*, and *P. Murrayana* in particular continuing to show their entire suitability to the district. On the whole, the trees planted during the past season have done remarkably well, the larch and Douglas fir having practically no failures amongst them, and with the exception that a few of the latter species are beginning to look sickly as the result of insufficient moisture, they are a very healthy lot. As usual, *Pinus Laricio* show the greatest percentage of failures, although the death-rate is a good deal lower than in the previous year; and although up to the present time they have made little headway, the weather is now very favourable for a vigorous autumn growth.

The comparatively small number of *Pinus Laricio* handled enabled the planting on new area to be completed during the autumn, and the young plants thus having the advantage of being partly established before the severe frosts set in no doubt contributed largely towards the success obtained.

Eucalyptus Stuartiana, which were planted during moist weather when the spring was well advanced, have also done better than in the previous year. In the experimental lots *Pinus resinosa* has done very well, but the same cannot be said of *Pinus Massoniana* and *Cupressus thurifera*, the former being almost a total failure, whilst amongst the latter there was fully 50 per cent. of deaths.

During the season trees to the number of 1,236,350 were received from the Rotorua Nursery. Of this number, 678,575 were planted in new area amounting to 299 acres, and the remainder—557,775—were used to replace failures in former years' plantings. The failures were principally amongst the *Pinus Laricio*, an extraordinary number of which were planted out during the previous season. Both free and prison labour were employed in planting operations, the former planting 88,625 on new area, and 408,450 to replace failures; while the prisoners planted 589,950 on new area, and 149,325 to replace failures. The number of trees now in the plantation is 12,686,551, occupying an area of 5,749 acres.

Prison Labour.—The daily average number of men employed was 9.51, and their work is valued at £931 3s. 2d., or an average per man of £97 18s. 2d., showing an increase of £14 2s. 7d. on the average earnings per man for the previous year. The work was performed in a very satisfactory manner, but the number of men available is generally insufficient, and varies so much that it is a difficult matter to lay out a season's work with any certainty of having it completed within a reasonable time.

Free Labour.—An average daily number of 19.25 men was employed, and the average cost of the various works undertaken was as follows: Clearing for tree-planting, £2 0s. 5d. per acre; pitting, 11s. 3½d. per thousand; planting, 6s. per thousand; and planting blanks, 17s. 1d. per thousand. 116 chains of fire-break were prepared for ploughing by clearing, stumping, and burning off, at a cost of 5s. 3d. per chain; and 83 chains of fencing were erected, at a cost of 4s. 2d. per chain.

The cost of clearing was considerably above that of the previous year, but the work was confined to some small areas of very steep rough land, on which the native growth was particularly heavy. On these blocks pitting was also more costly, but the greatest expense in this work was incurred in pitting the places where the frosted larch were cut out, and on which a dense growth of grass and small scrub had sprung up during the seven years which had elapsed since the areas were first planted. Owing to the risk of burning off this growth it was found preferable to chip it while preparing the pits.

Under the heading of "General Upkeep" the chief work included was the clearing of fern amongst the young trees, several of the blocks having to be gone over twice during the season. Considerable expense was also incurred in the planting of blanks and in the maintenance of fire-breaks.

Part of the oldest block of larch was cleared of all undergrowth, and the branches of the trees were trimmed up to a height of about 7 ft., and at the same time any completely suppressed trees which were either dead or dying were cut out. On any sufficiently open spaces which occurred the undergrowth was heaped and burned, the whole work of treating 30¼ acres costing, on an average, £3 14s. 6d. per acre.

This is a preliminary work connected with underplanting, and on the area prepared exhaustive trials of some of the best-known shade-enduring species of trees will be made.

A mixed block of Douglas fir and larch was gone through during the spring time, the growth being cleared around the former, and the branches of the larch trimmed up where necessary, in order to stimulate the growth of the Douglas fir by giving them the full enjoyment of light. A block of larch and redwood were also treated in the same manner.