

with, and during the year under review some 69,169 trees, valued at £212 15s. 6d., were apportioned as per Schedule V. A consignment of somewhat large proportions was allotted to the Mackenzie County Council, who have been actively engaged for years past in fostering a steady tree-planting policy among the district settlers. The Engineer, Mr. R. L. Banks, under whose able supervision the season's planting was conducted, alludes to the striking success achieved, and the immense future benefit to the district that should emanate from the creation of these State-assisted plantations.

A small area of the Waimakariri Territorial Training-grounds near Christchurch was enclosed by a rabbit-proof fence, and some 4,780 trees planted therein for shelter purposes on behalf of the Defence Department. Much need of further boundary, shelter, and internal clumps of trees for aiding military manœuvres was also obvious, and the carrying into effect of these suggestions was deferred for another year. A fair growing-percentage in *Pinus muricata* and *P. insignis* has resulted; but some few hundred specimens of *Cupressus macrocarpa* have failed to succeed on the sandy surface.

Much information on matters relating to tree-growing was imparted to public bodies, when the transmission of such advice did not interfere with departmental duties.

GENERAL.

In conclusion, I have to heartily thank all officers for their liberal support in terminating the season's operations under perhaps the most trying conditions yet experienced.

The Justice Department, ably represented by Warder-in-charge Ayling and assistants, must also be highly commended for the excellence of administration of their co-operative labours.

R. G. ROBINSON,
Superintending Nurseryman, South Island.

TAPANUI NURSERY, OTAGO.

(Area, 120 acres; altitude, 500 ft.)

Adverse climatic conditions have been instrumental in curtailing the usual amount of success attained in tree-raising at this station. The annual rainfall (38·53 in. on 201 days) exceeded the registered amount of the previous year by over 10 in.; but perhaps the almost incessant cold rains and entire absence of warmth during November were the chief factors in hastening the decay of a large number of apparently healthy plants. Frosts were recorded on fifty-five occasions, which is more than double the number registered during the last yearly period. A brief spell of warm weather was welcomed in January, when the highest shade temperature reached 90°; and 10° of frost occurred during the night of the 26th June.

Raising of Seedlings.—The excellent state of the ground, together with a desired calmness during the seed-sowing period (commenced on the 3rd October), augured well for success in this branch of labour; but simultaneously with the covering of frames heavy rain fell, causing a battering effect on the surface. Seed-germination was consequently sluggish; but eventually a fair number of seedlings broke through the earthy crust formed, only to succumb in large numbers through the persistent coldness, and consequent attacks of our most dreaded forms of diseases—"damping-off" and *Oodonia zealandica*. To minimize this partial failure a second sowing of *Pinus Laricio* was conducted on the 12th February; and the result has exceeded expectations, and increased the number of Corsican pines to 1,100,000. The total number of seedlings raised reaches 1,585,850, the details of which are shown in Schedule V. From 20 lb. of *Larix leptolepis* seed some 125,000 plants resulted; but the European-larch crop is a decided failure, owing to the previously explained causes. The combined total of our shelter-pines (*Pinus muricata* and *P. radiata*) reaches 110,000, which number will be ample to meet requirements. In addition to very satisfactory returns in the *Pinus ponderosa* beds, much useful experimental work was undertaken with the following species of the pine family—*Pinus alba*, *P. Banksiana*, *P. patula*, *P. Montezumae*, *P. picea*, *P. Murrayana*; but until they have passed through the winter test their suitability or otherwise for the locality cannot be determined. An interesting sowing of the native *Myrtus bullata* was attended with a very fair measure of success, some 2,000 plants eventuating from $\frac{1}{2}$ lb. of seed. Small amounts of various tree-seeds were also used in the trial plots, and valuable knowledge has thus been acquired. As outlined in the previous year's report, at Conical Hills Plantation an effort will be made to create a small block of *Cupressus macrocarpa*, for which purpose the 30,000 sturdy seedlings raised will be used.

Transplanting young Trees.—No difficulty was experienced in transferring some 2,805,080 seedlings from beds to nursery-lines during the spring-time. This lining-out labour was commenced on the 24th August, and completed, with an occasional intermission, about two months later. Besides an increased death-rate, tree-growth has not equalled that of ordinary seasons here; but there is every likelihood of the required number of trees being advanced enough for permanent removal to our associated plantations, without having to supplement our sturdy stock by the inclusion of undesirable two-year-old seedlings, as is oft-times done here, with more or less unsatisfactory issues.

Several exceedingly fine breaks of larch and Corsican pine may be seen where the young trees suffered from no interruptions from the grass-grubs. Each succeeding year the impossibility of growing two successive crops of trees over the same area becomes more apparent; and to escape the ill effects of the pest, besides conducting our periodical soil-restoration methods, a limited area in an adjacent semi-sheltered horse-paddock will probably be utilized for the coming season's transplantation-work.

Horse-feed.—Much success has attended our horse-breeding ventures since the idea of profitably using two old mares originated, and, of the ten horses bred, misfortune has overtaken only one so far.

The expense attached to the upkeep of fourteen horses is necessarily somewhat large, particularly when the pasture available is neither extensive nor rich; but we generally manage to grow sufficient produce, unless handicapped by an unfavourable spring. The current season's yield of an approximate 33 tons of oaten sheaves is somewhat above the average, and, in company with the similar experiences of Otago farmers generally, the harvesting problem was decidedly perplexing owing to the later ripening of grain and overabundance of moisture. About 6 tons of rye and clover hay were also stacked after