

ROTORUA NURSERY.

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

The rainfall for the twelve months ended 31st March amounted to 53·56 in., recorded on 161 days, the heaviest monthly fall being in September, when 8·02 in., falling on twenty-five days, was recorded. The maximum shade temperature for the year was 92° F. on the 30th December and the minimum 21° F. on the 5th August. Frost was recorded on sixty-nine nights. Generally, the weather throughout the year has been abnormal; the winter was unusually wet and cold, and the summer—from the beginning of December to the middle of March—hot and dry.

Seedling Trees.

The crop of trees, which number 5,660,675, and are detailed on Schedule V attached, are, on the whole, satisfactory, although the dry weather had the effect of retarding the growth until well into March. Heavy winds during November delayed the seed-sowing considerably, and the larch crop was fully a month later than usual in being sown.

Larch (Larix europaea).—From 4 cwt. of seed 2,500,000 trees were raised, germination being at the rate of about 8 per cent. The seedlings are a fine healthy lot, but the growth is not so good as usual, owing to the delay in sowing. From the same quantity of seed sown the previous year only half as many trees were raised.

Corsican Pine (Pinus Laricio).—2,000,000 trees were raised from 4 cwt. of seed, the rate of germination being unusually low—14 per cent. These are a splendid lot of seedlings, and have made good growth since the dry weather ceased. They have been less affected by the dry weather than any of the other pines grown this year.

Heavy Pine (Pinus ponderosa).—The seed of this species germinated at the rate of 50 per cent., there being 500,000 trees raised from 100 lb. of seed. Owing to the dry weather the growth has been slow, and the leaves of the plants became pale and yellow in patches.

Weymouth Pine (Pinus strobus).—This is a very poor crop. From 20 lb. of seed 12,000 plants resulted, germination being at the rate of about 2 per cent.

Monterey Pine (Pinus radiata).—20,000 plants were got from 3 lb. of seed, germination being at the rate of 42 per cent. The growth of the seedlings has been slow, owing to the dry weather.

Douglas Fir (Pseudo-tsuga Douglasii).—From 40 lb. of seed 500,000 seedlings were produced, the rate of germination being 31 per cent. This is the most abundant crop of Douglas fir which has ever been raised here, the best previous rate of germination being 19 per cent. in 1911. The seedlings have felt the dry weather very much, and the growth has been rather poor.

Amongst the other small lots of seedlings mentioned in the schedule of one-year-old trees are several well-known valuable timber-trees.

The alder were grown for planting small areas of wet land. The crop is a very poor one as regards the germination, but the young plants have made excellent growth.

Sycamore is also a thin crop, but the plants are very vigorous. It is proposed to use these in planting up open places where the bracken has killed out the larch.

Picea excelsa and *Picea sitchensis*—the Norway and Sitka spruces—are to be used for underplanting larch; the latter-mentioned species is an excellent timber-tree, and has thriven well here when sheltered by more accommodating species.

Abies pectinata (the silver-fir of Europe) will be experimented with in a manner similar to that outlined for the spruce.

Cryptomeria japonica has been grown here to a small extent previously, and does well under certain conditions. The number raised this year will make it possible to put the value of this tree for afforestation purposes beyond a doubt.

Chamaecyparis Lawsoniana will be tried for underplanting larch. It does well where protected by other trees, but is susceptible to damage by unseasonable frosts.

Two-year-old Trees.

European Larch.—This crop has suffered very much from the depredations of the larvæ of the native brown beetle (*Odontria puncticollis*), and also to some extent by the strong drying winds which were prevalent in the spring. The crop is a disappointing one.

Japanese Larch (Larix leptolepis).—Suffered greatly from the same cause as the European one, but the trees were transplanted into nursery rows, and made a quick recovery. The growth has been strong and healthy. This larch appears to be a better drought-resister than the common one, but on this point further investigations require to be made, because the opinion is expressed upon observations made from trees planted in different parts of the nursery and without actually testing the species side by side.

Corsican Pine.—Both the trees in the seed-beds and the lined-out ones have made splendid growth.

Heavy Pine (Pinus ponderosa).—The growth is satisfactory, but not as good as usual. Judging from the appearance of the seedlings, this lot is one of the numerous types of heavy pine, and not the one which has been grown here for many years past. An endeavour will be made to ascertain which variety this is.

Weymouth Pine (Pinus strobus).—These were transferred from the seed-beds to nursery rows last spring, because the larvæ of the brown beetle was destroying them. Owing to the damaged condition of the roots, about 50 per cent. of the plants succumbed, and those which survived made very poor progress.

Pinus montezumae and *Pinus patula*, both Mexican species, have made very quick growth. The former makes a very strong tap-root, and will probably be difficult to transplant successfully.