

vitality, because they are really a year old before they reach us. The following table shows the average number of trees of several of the principal species raised per pound of seed for a period of five years at Rotorua Nursery. The cost per thousand is estimated only from what the seed cost, and does not include the cost of growing. This is merely intended to give an idea of how the cost of the seed influences the proportions of the several species grown:—

| Name of Species. | Average Number of Trees raised from 1 lb. of Seed. | Average Cost of Seed for One Thousand Trees. | Remarks. |
|---------------------------------------|--|--|----------------------------|
| | | s. d. | |
| <i>Larix europaea</i> | 3,500 | 0 7-87 | Imported from Europe. |
| <i>Pinus austriaca</i> | 4,300 | 0 11-63 | " " |
| " <i>Laricio</i> | 5,500 | 0 7-33 | " " |
| " <i>ponderosa</i> | 3,200 | 3 4 | " America. |
| " <i>strobos</i> | 2,000 | 6 1 | " " |
| " <i>radiata</i> | 11,000 | 0 3-37 | Seed saved in New Zealand. |
| <i>Pseudo-tsuga Douglasii</i> | 5,400 | 2 5½ | Imported from America. |
| <i>Sequoia sempervirens</i> | 1,200 | 12 7 | " " |
| <i>Eucalyptus Stuartiana</i> | 24,500 | 0 3½ | " Australia. |
| " <i>pauciflora</i> | 14,500 | 0 5¼ | " " |
| " <i>amygdalina</i> | 24,500 | 0 2½ | " " |

Seeds of many of the American species can be procured in Europe at rates considerably lower than those charged by American firms; but, on the other hand, the quality of the seed is much lower, so that it is cheaper in the end to get these direct from America. The formation of forests by direct sowing, instead of planting, is practised to a certain extent where the conditions are favourable in the Northern Hemisphere. To do this profitably, however, cheap and good seed is absolutely necessary, and, besides, the conditions must be especially favourable. These conditions it is not proposed to discuss, as such a method of forming forests in New Zealand is quite unthinkable, on account of the cost of the seed. Sowing the seeds in nurseries, and caring for every seedling thus raised, is the only profitable method we can adopt until seeds of the several species are saved in New Zealand, and their cost much lower than at present.

Summary.—Since afforestation work was commenced in the Rotorua District some twelve years ago, much information has been gained with respect to this subject. Much of the work in the first place was necessarily of an experimental nature, but the experience that has been gained from the operations up to the present time has made it possible to arrange the various species with much precision with respect to both soil and aspect.

Although the information gained is far from complete enough to lay down a decided course for a long period, yet it is sufficient to guide our operations for, say, the next ten years, by which time further data will have been collected, and a choice of system or systems made possible. Up to a certain point all the systems have much in common, so that the choice of any is not really an urgent matter, considering the limitations to the number of species that can be successfully grown. Owing to the damage done by frost to certain species one thing is certain: we must cover the ground with whatever sort will succeed, and the species that do this in the quickest manner should be favoured, inasmuch as the introduction of the less hardy species will be the sooner possible. The information gained from the work up to the present may be summarised as follows:—

1. Broad-leaved trees, such as oak, ash, catalpa, &c., have failed owing to unseasonable frosts. Some of them could be grown in small selected patches, but the method is costly, and it is deemed advisable to confine our operations to several of the conifers.

2. Damage by frost to certain species of conifers can be avoided by choosing aspects suitable for each.

3. The comparative rate of growth of the kinds has been ascertained. (Under this head much information is still required, as many species which are slow growers when young become rapid growers after they have attained a certain age.)

4. Mixtures of species are undesirable, particularly on account of the difference in the rates of growth.

5. Many species have been tried and have been found to be too tender; others are suitable, but regular supplies of their seeds cannot be procured; and a few species—principally those that find a place in the forestry operations in Europe—are suitable, and can be cheaply grown. Information about trees that have been tried can be got by referring to the tables appended hereto.

Information on the following lines will be collected as time goes on:—

1. Suitability of species to the soil and locality. This refers more to those kinds that have failed owing to frost, but which may be suitable for planting as under-trees.

2. Development of trees. Data is required as to when the species complete their principal height-growth. The extent of the annual accretions is also a necessity in forecasting the value of a crop, and a help in deciding the period of rotation.

3. The ages at which the different species commence to bear seed, and the frequency of the seed years. Such information as this is needed if one of the systems of natural regeneration is adopted.