

TREE PLANTING ON EAST COAST HILL COUNTRY



An experimental block of poplar species, 9 years after being planted, with Oregon pine on the margin.

This area is now well fixed and carries a crop of trees providing an almost solid crown canopy—trees of great use in land control but of little utilisation value.

Widely-spaced willows have been planted on much of the area, using *S. vitellina* alone, a mixture of *S. vitellina* and *S. fragilis*, and to some extent *S. babylonica*. The usual spacing is about 30ft. on land liable to movement.

An experiment was carried out on the Te Wake area using cuttings of the Chinese willow (*S. purpurea*), which was believed on the station to be distasteful to stock, though there is no evidence to prove this. These have formed a good covering of lower coppice growth (about 10ft.) and this species may be useful as a holding plant where a low height is preferred.

On this holding use is made of pollarded willow, in which the lower stem is branchless but a greater proportion of crown is formed. Whether this has any advantage in later growth is questionable, but if successfully planted these "pollards" with about 6 to 8ft. out of the ground form trees in a short time, able to produce anchoring roots. Stock cannot reach the top shoots of pollards.

Poplars

Poplars in mixture have been used extensively in widely-spaced protective planting, *Populus nigra*, *P. nigra* var. *fastigiata*, and *P. alba* being the species planted. The last-named suckers freely and in certain areas has now formed pure woodland.

Nine years ago it became desirable to plant over the head of a wide gully running north and south, with specially-good soil, to stabilise the ground, and opportunity was taken to make a trial of several species of imported poplars obtained from the State Forest Service nursery at Rotorua and which are being systematically tried out in various parts of New Zealand. The illustration on this page shows their general growth in 9 years compared with Oregon pine on the same

site. *P. robusta* is one which is making good growth.

Robinia pseudacacia

A narrow strip of this species planted in 1907 at an elevation of about 1200ft. gives an indication of the possible growth at this high altitude. This crop now produces durable farm timber suitable for posts, but growth is slower at this elevation than that of a crop on similar soil at a lower altitude south of Te Puia.

The *Robinia* crop on Puketiti is of the commonly poor-stemmed type, with only short lengths of straight stem, but if this species were planted in suitable gully land and at regular spacing, a freer growth and therefore a better stem form might be obtained. Trials of the "shipmast" form are being made at Puketiti from root cuttings, which show rapid growth but are too young to provide any information.

Puriri

Two small groups of puriri planted as a pure crop indicate that sufficient growth can be made to provide post-size timber in about 30 years. Trees planted between 1915 and 1920 in a group near the house have now reached a total height of 30 to 40ft. with an average diameter of 14.7in. at 4ft. 3in. above ground level and utilisable timber up to at least 16ft. The trees in this group were widely spaced, and it is estimated that if they were grown at about 8ft. spacing, clean post timber could be obtained in lengths of 20ft. and more.

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Useful samples of several *Eucalyptus* species, either in pure blocks or in mixtures of eucalypts, are growing on the Putiki area, and those showing most silvicultural promise are *E. regnans*, *E. obliqua*, *E. gigantea*, *E. sieberiana*, and *E. saligna*. Other species grown include *E. viminalis*, which has formed rather poor, badly-shaped, and branchy trees with brittle limbs; probably they originated from stock grown from seed collected from a poor-type and unsuitable Australian locality. *E.*

corynocalyx, which is represented by a few trees scattered in mixed plantations, has formed trees usually of poor shape with boles inclined to lean from the perpendicular, but a few specimens of good, straight growth have been obtained and one is under trial as a telephone pole; short lengths have been used for posts, and the indications are that this species would be worth growing here for post timber. Plantations of eucalypt species were formed in some cases by direct seeding and in others by planting out from bush nurseries.

Eucalyptus regnans

A block of this species was formed in 1917 by cultivating narrow strips of ground 20ft. apart in which the seed was sown as in a nursery seed-bed. During the first year the seedlings were wrenched, and in 12 months they were thinned out by the removal of the superfluous plants and immediately transplanted into 2 lines between each strip, giving a spacing of about 8ft. This has produced a good, regular stand of clean, tall trees with stem diameters at breast height up to 13.3in. at 30 years of age.

The trees of this crop are noticeable in that they carry grey, fibrous bark up into the crown, while in typical *E. regnans* the upper bark peels off, leaving white, shining stems; this may indicate a special strain in the species or be caused by growth at an altitude higher than that in which this species usually flourishes in New Zealand. Mr. Williams is of opinion that this species is producing a useful class of saw timber, but technical tests are required to establish the value of growing this species on the east coast.

A pure block of *E. regnans* was planted in Te Wake plantation in 1924 and appears to be growing at a rate equal to that of the older crop in the sheepyard plantation. On the margin of this area *P. radiata*, which was planted to fix the unstable stream-banks, has also been interplanted in the eucalypt block, and though the eucalypts still maintain height dominance the pines are crowding them and