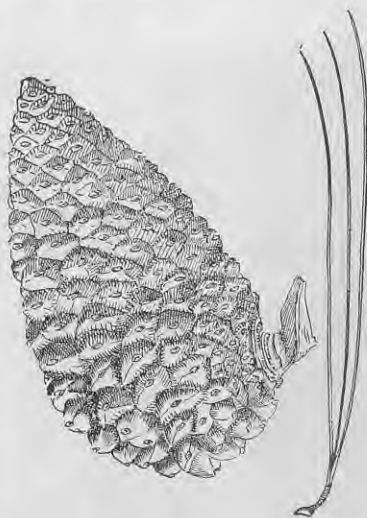
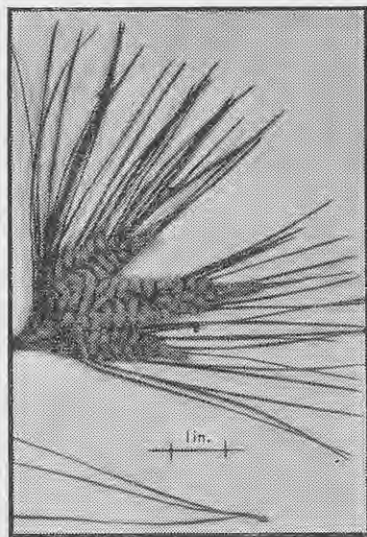


PINUS RADIATA ON THE FARM

Pinus radiata (insignis pine)



GENERAL APPEARANCE: Heavy crowned; pyramidal when young but loses its lower branches early; foliage thick and lightish green. **MATURE HEIGHT:** 100 to 160ft. **BARK:** Dark grey-brown with deep longitudinal ridges. **NEEDLES:** In groups of three, dense and crowded on the twig; 4 to 6in. long, sharply pointed and slender. **MATURE CONES:** Greyish brown with short stalks; oblique shape with outer sides longer than inner; 3 to 6in. long, 2½ to 3in. in diameter; persist on the tree for several years. **SEEDS:** Blackish, oval to triangular, and rough; ¼in. long with a light brown wing 1in. long.

There are 80 to 90 species of pine, some of which have been grown in New Zealand with varying degrees of success. By far the most common is the insignis pine (*Pinus radiata*), with the prickly-cone pine (*P. muricata*) and maritime pine (*P. pinaster*) next in favouritism. The western yellow pine (*P. ponderosa*), the Corsican pine (*P. laricio*), and *P. murrayana* have been planted to a less degree.

Distribution of *P. radiata*

A native of California, *Pinus radiata* has a very limited distribution there and grows only in a small area of hilly ground near the sea. The largest natural forest is on the Monterey Peninsula, where the climate is characterised by winter rainfall (the average is less than 20in. yearly) and summer fogs, with temperatures ranging between 30 and 90 degrees F. In its native country it is not an important tree, partly because of its sparse occurrence but chiefly because of the abundance of higher-quality timber trees such as Oregon pine and western yellow pine.

In South Africa, Australia, and particularly in New Zealand large numbers have been planted since it has been found capable of adapting itself to a wide range of conditions of both climate and soil. It grows satisfactorily in all but the poorest of soils (though it is intolerant of a badly drained subsoil) and from sea level (though there are hardier coastal pines) to several thousand feet above.

but in the high altitudes where trees are subject to low temperatures and severe frosts *P. radiata* may be attacked by a fungus (*Phomopsis*) which gains access through frost-damaged tender tips.

The best conditions for the tree in New Zealand seem to be an annual rainfall of about 60in., summers neither too hot nor too dry, and a well-drained loam or clay-loam soil.

P. radiata is a tall tree, reaching up to 160ft. at maturity, 80 to 100ft. being an average height, and is often heavily branched, though when young it is regular and pyramidal in outline. In the mass the foliage appears a rather dark green. The slender needles are 4 to 6in. long, usually in groups of three, and dense and crowded on the twig. Ripening cones are carried singly or in groups of three to five on short stalks and are from 3 to 6in. long.

P. radiata in Shelter Belts

In general, planting single-row belts of *Pinus radiata* is inadvisable, for even if wide fencing leaves them sufficient room to develop their lower branches out of reach of grazing stock, these branches will die off in time, to the detriment of the whole belt. Double-row belts are an improvement, but five or six rows or a plantation block form the most satisfactory windbreak, especially on the poorer land where the extra feet necessary for the wider belt can be spared.

A combination of *P. radiata* with a hedge provides permanent low shelter. To form a good windbreak the hedge may be planted at the same time as the pines so that the hedge becomes well established before the pines open up, thus forming an impenetrable barrier. Provided ample space is allowed so that the hedge is not overcrowded, any species suitable for local conditions may be used with the pines; barberry, boxthorn, gorse (if trimmed), *Hakea saligna*, and *Eleagnus* are satisfactory, and in severe climates pampas grass and flax will shelter the pines at first.

P. radiata is better not planted in a mixture with other trees, as little else can compete with pines for rate of growth and they are likely to smother anything planted near them, but if care is taken they can be used as a marginal band. *P. radiata* can be used as protection for one of the cypresses or in combination with other pines. Better results are achieved in exposed coastal areas by planting the *P. radiata* on the inside of the hardier *P. pinaster* or *P. muricata*.

The species most used for combining with pines are either *Cupressus benthami* (Bentham's cypress) or *Cupressus macrocarpa* and, in some circumstances, *Chamaecyparis lawsoniana* (Lawson's cypress); for instance in coastal areas where wind and salt spray make conditions too severe for the Lawson's cypress unless it is given some first shelter. Pines with macrocarpa or Bentham's cypress may be used as a two-row belt or they may be planted with several rows of one or both species.



Pinus radiata planted as first shelter for Lawson's cypress. They are beginning to crowd out the cypresses and should be removed.