

Nursery Stock in Finland

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INTRODUCTION

Finland is on the east of northern Europe, in Scandinavia, between the 60th and 70th degree of latitude and so is as far north as Sweden, Norway, Greenland, and Alaska.

About 75% of Finland's area of 337,000 km² is forest and woodland, and 10% is covered by lakes. Half of the 5 million Finns live in the very south of the country.

The climate is cold temperate, potentially subarctic but comparatively mild because of the moderating influence of water (Baltic Sea, North Atlantic Current, 60,000 lakes).

THE SIGNIFICANCE OF CLIMATE FOR HORTICULTURE

The cold climate sets a limit on the range of horticultural crops which can be grown. However, a positive effect of the climate is that there are fewer pests than in warmer climates.

There are four seasons which are literally as different as day and night. The climate ranges from Atlantic maritime in the south to Arctic in the north so growers have to respect provenance of origin of the stock they are using, even when it originates in Finland.

For example in February the average temperature in the north, at -13.6C, is much colder than in the south (-6.8C); in July the average temperatures are much more similar (14.6C in the south and 14.1C in the north). In the south, the temperature occasionally drops below -20C in winter, but during warm summer days it can climb above 20C.

Hardiness is, therefore, the most important characteristic of plants. For that reason, many genera which are easily grown in more temperate climates, such as *Hedera helix*, do not survive at all. Many can only be used in the southern zones, for example *Quercus robur*, *Aesculus hippocastanum*, *Corylus avellana*, *Fothergilla major*, *Potentilla fruticosa* 'Red Ace'. Retail plant labels in Finland show the zones in which a plant is hardy.

In much of the country, soil can remain frozen after the start of the growing season (Fig. 1) which means additional difficulties are encountered if growing evergreens such as *Rhododendron*, *Buxus*, *Ilex*, and also some conifers.

THE KESKAS-PROJEKT

The word Keskas comes from the Finnish, *kestävä kasvi*, which means hardy, long-lasting plant.

The Keskas Projekt was started at the Department of Horticulture, Helsinki, in 1984 because there was an increasing need for woody ornamentals for landscape planting schemes. Imported plants often failed because they were not hardy enough while many old proven plants had been lost from general cultivation. The aim of the project was to find hardy, beautiful ornamentals in already long-established plantings in Finland, and then improve the quality of nursery stock by propagating the best clones of these plants.

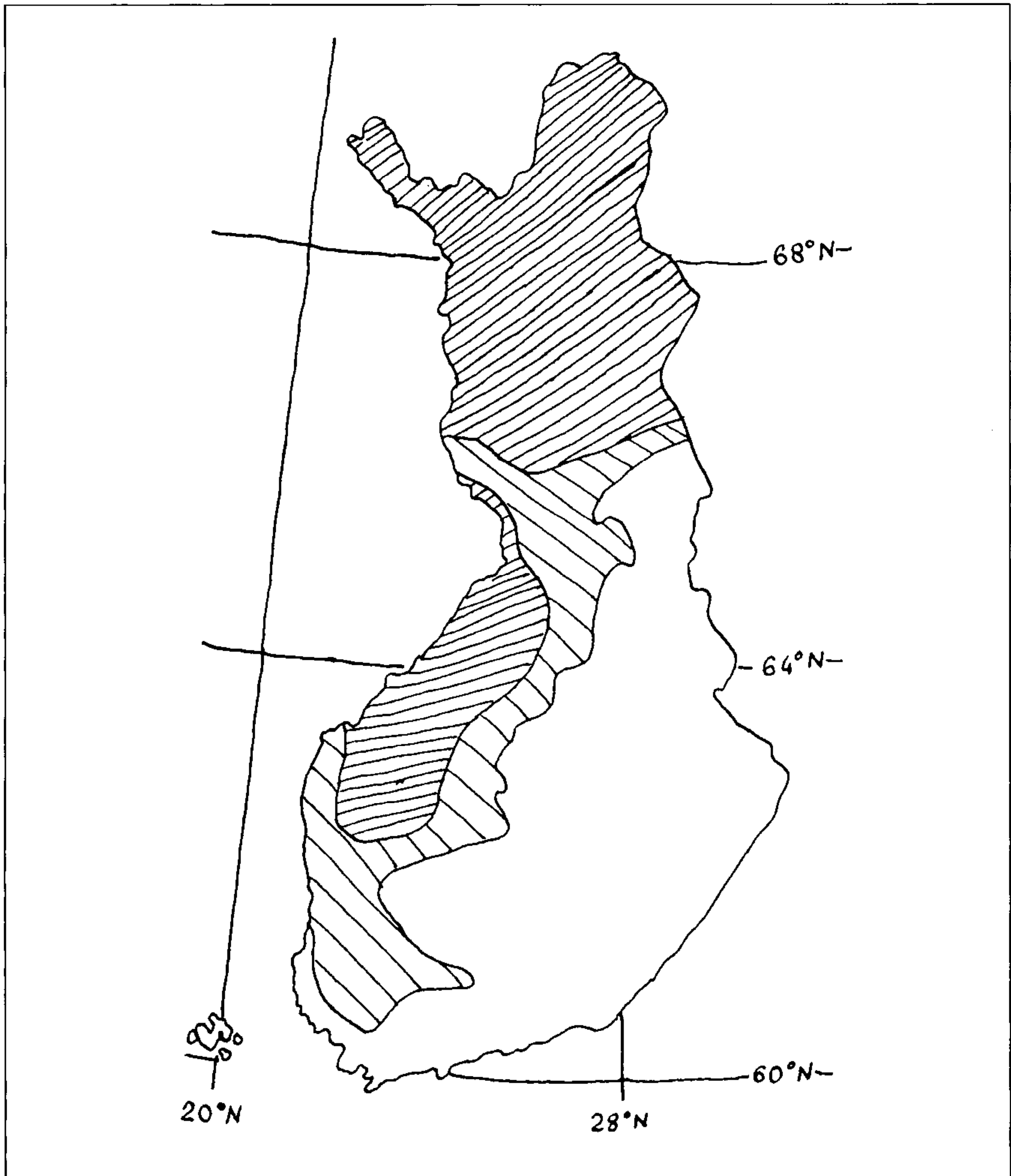


Figure 1. Finland, showing how long soil remains frozen after the start of the growing season. Key to map: [darkest shade] 5 days or longer; [medium shade] up to 4 days; [no shade] soil not frozen when growing season begins

More than 700 sources of woody ornamentals were registered, 20 of the taxa are trees, for instance *Acer*, *Fraxinus*, and *Taxus*; 60 are shrubs, for instance *Syringa*, *Cornus*, *Philadelphus*, and *Rosa*.

After field trials were carried out, the chosen clones were given a serial number and became stock plants for further propagation. The first of these clones are already cultivated on nurseries which plan to offer the first so called "Fine-plants" to their customers in 1997. They are likely to be sold at a price premium, since they are known to be hardy and of good quality.

NURSERIES IN FINLAND

Most of the 371 nurseries are situated in the south. Their production value is about 100 million Fin-Mark per year. Production area of nursery stock altogether is 787 ha (110 ha fruit and berries, 677 ha ornamentals) plus 40 ha perennials.

The nurseries vary considerably in size. There are about 30 nurseries that are bigger than 30 ha, but most of the others are small and, as the Finns say themselves, more like a big hobby.

Typically even the smaller nurseries grow a wide range of crops: ornamental shrubs and trees, climbers, fruit trees, and berries. Forest nurseries grow several conifer and deciduous tree species. The reason for this lack of specialisation is that Finland produces only for the home market, there is almost no export. Plants are sold direct at the nursery or sent to garden centers, public authorities, landscape designers, or other nurseries in Finland.

The main selling season is in April and May. Finnish companies produce 65% of the nursery stock requirement in the country, the rest of it is imported from Netherlands, Sweden, Denmark, Hungary, and Estonia.

Because of the short growing season (180 days in the south, 120 days in the north), cultivation times are longer. Late or early frosts can cause a lot of damage, especially during flowering of fruit trees and berries, and on new growth if not fully hardened off at the end of the season.

Propagation also begins later in the year. Nursery stock is propagated by seeds, cuttings, and grafting and in very few cases by tissue culture. Propagation material from the local area is always preferred, with propagation material from elsewhere in Finland being second choice. All grafting is by hand as it is the only way to ensure grafted plants survive the long, hard winters with heavy snow. Roses are not grafted but varieties are grown from seeds where possible.

Hard cuttings are taken in autumn and spring, soft cuttings in summer (June and July). The hard cuttings are stuck in soil, either in autumn before the ground is frozen, or in spring when the ground is soft enough. In summer, the soft cuttings are stuck either in soil, or in pots or trays in greenhouses.

Propagation staff at the nursery Puukarha Tahvonet had developed a special tool, called a Lapske, for taking soft cuttings. It is a flat, square piece of zinc galvanised steel with one sharp edge. It fits into the user's hand, with the sharp edge opposite the thumb, and it is secured there by a rubber band. The shoot is held against the blade with the thumb and the cut made with a turning motion of the hand. The tool is cheap to make, the technique easy to learn, and cuttings can be taken at a good speed. A further advantage is the reduced risk of accidents when using unskilled labour.

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