

BETULA PROPAGATION

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SEED PROPAGATION

Collection. For the indigenous species, *Betula pendula* and *B. pubescens*, it was noted that collection from sources with a similar latitude to the final planting site was best because their growth pattern depends closely on the day length of their provenance. Seed collection allows for the introduction of Asiatic and North American species from known provenances in the wild permitting botanic gardens to build up a better picture of their variability and distribution. It is important not to collection seed from the various exotic species growing in parks, arboreta, etc. As a wind-pollinated genus, hybridization between species regularly occurs.

Seed treatments. Birch seed does not store well and rapidly loses viability, but as collection is easily accomplished each year, this is not a problem.

Germination percentages are much improved with a two or three week cold, moist stratification at 0 to 1° C. Naked stratification leads to problems with aeration, so it is recommended to mix the seed with a medium of 25% vermiculite or sand and 75% sieved peat—one part seed to three parts medium. Pregerminated seed must be sown very carefully.

Sowing. Difficulty can be experienced in achieving even distribution as seeds can clump together. Mix the seed and medium with dry sand and rub together between the hands. This will give a much more even sowing in the seed beds.

The seed must be covered with a light layer of grit and the seed surface kept regularly damped down in dry weather, otherwise germinating seedlings will perish. Shading seed beds in hot weather was thought to be of benefit as well.

CUTTING PROPAGATION

Propagation by cuttings is desirable for many birches because it obviates the possibility of an unsightly graft union, and for selected clones, along with other vegetative methods, is essential.

Birches known to have been successfully propagated by softwood cuttings include: *Betula nigra*, *B. pendula* cvs. *B. albo sinensis*, and *B. jacquemontii*, *B. nana* is always produced from cuttings.

Well-established hard-pruned stock plants are essential to provide juvenile cutting material. The earlier one can take cuttings

in the season the better—ideally before the end of May in Britain. Use heel or nodal-tip cuttings 15 cm or so long with the base starting to ripen, remove lower leaves and lightly wound. A hormone treatment of 0.8% IBA is beneficial.

Cuttings can be rooted in sun tunnels or in trays or cells under conventional mist or polythene. It is most important to establish a well-rooted cutting with subsequent shoot growth before autumn. Do not move the cuttings into pots until the following spring.

GRAFTING

For clonal selections and named cultivars grafting produces a saleable plant in a relatively short time.

The conventional method of side-grafting onto pot-grown rootstocks of *Betula pendula* in January/February is well documented so will not be discussed further here.

An interesting method used at Kinsealey Research Station in Ireland is as follows.

Use 1+1 transplants of *B. pendula*, 5 to 8 mm diameter with a good root system. A bare-root wedge graft is carried out in January/February as low down on the rootstock as possible. Well-grown scion material should be used which is about half the thickness of the rootstock. The cambium layers are matched on one side, much in the same manner as a wedge graft. The two are tied together with rubber strips and the whole union immersed in molten paraffin wax.

Aftercare consists of plunging the root system in moist peat in a cold glasshouse or polytunnel. When white roots begin to grow in the spring, the plants are potted off into three litre containers and grown on under glass or polythene.

BUDDING

It was noted that both "T" budding and chip budding had been used on field-grown rootstocks of *Betula pendula*. While it is possible to achieve good results, they are often variable, probably due to lack of really good ripe buds of sufficient size each year; the prevailing weather and timing play a great part in success or failure. As with all budding of field-grown crops, consistent results are required for economy in production

GROWING ON

It was noted how important it is to pot-on bench-grafted birches in good time; if growth ceases because of lack of root space and nutrients it is very difficult to get them into growth again. Therefore, it is paramount to pot-on from the bench-grafting container while the graft is in active growth.

SUMMARY

For the indigenous species, large scale field production has been refined to a great degree in recent years. This is producing first quality transplants both for understocks as well as for amenity uses. Smaller lots of wild-collected seed, particularly from Asia, can easily be germinated in trays under glass. Bench grafting of the various clones and cultivars is still the norm in the industry, although there is an increasing interest in production from softwood cuttings. In reply to a plea from landscape architects for multi-stemmed birches, the nursery stock industry would grow them if the market was strong.