

Natural Regeneration and Propagation of Bamboos and Grasses

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INTRODUCTION

Interest in grasses has clearly been on the increase over the last few years and at Bransford Garden Plants we have attempted to build on this tide with our involvement in various projects and gardens which have helped to show the potential of these plants.

Grasses and bamboos belong to the largest botanical family in the world, Gramineae. However, sedges—which belong to a different family, Cyperaceae—can be used in horticulture in a similar way to true grasses and many of the remarks in this paper refer to sedges as well as grasses.

NATURAL REGENERATION

Grasses regenerate in numerous ways, most relying on a combination of the following to maintain and increase their populations: seeds, stolons, rhizomes (sympodial or monopodial), runners, nodal bulbs, and miniature plantlets.

Seed. Evolution has reduced the floral parts of grasses and bamboos to a bare minimum. They rely on the wind for cross pollination and many species have specific flowering habits. For instance most species of grass flower at a particular hour of the day, with one or two flowering twice in the same day. Some annuals are self-fertile—or can be, if cross fertilisation has not taken place. Most perennials, on the other hand, are self sterile and can wait for another year if they have not successfully cross-pollinated.

The flowering of bamboos is a considerable mystery, some varieties flower almost continuously, some annually, and some at regular intervals of up to 120 years. Some species die after flowering, others look dead because all the culms are flowering culms which tend to die off after flowering. However, the following year new vegetative culms may well appear.

There are also records of simultaneous flowering of certain species of bamboo, where a species has flowered at similar times in different parts of the world.

This erratic flowering has, as you can imagine, made the taxonomy and nomenclature of bamboos very difficult. For example, *Sinarundinaria murieliae* flowered for the first time in cultivation in Denmark in 1984; investigation of the flowers showed it should have been classified as *Thammocalomus spathaceus* and so the seedlings raised were renamed. However, plants raised in the rest of Europe did not flower at the same time and we now have two names for one type of plant. (Botanical editor's note: *Sinarundinaria murieliae* and *Thammocalomus spathacus* are considered names for the same plant, *Fargesia murieliae*.)

Selection, breeding, and crossing has been successful for many years for raising new strains of the members of the Gramineae we grow as cereal crops but as yet has not been explored much with ornamental grasses. It could no doubt yield some very worthwhile results.

Stolons. A stolon is simply an overground creeping stem which roots at the nodes, this node will then shoot to produce a new plant which can then be detached from the parent.

Sympodial Rhizomes. Here the rhizome turns upward towards its tip producing a culm, new rhizomes then form from the dormant buds on the original rhizome. Such grasses and bamboos form tight and dense clumps.

Monopodial Rhizomes. These are longer, running rhizomes where growth continues to be made from the same growing point year after year. Many noxious invasive grasses regenerate in this way. However, not all monopodials are invasive and some of them only spread very slowly. Some grasses have both monopodial and sympodial rhizomes, such as the bamboo genus *Chusquea*.

Runners. A runner is simply a horizontal culm that produces upright culms at its nodes. It is neither a stolon nor a rhizome, but in practice is very similar to a stolon.

Nodal Bulbs. A bulb-like organ, from which a new plant can grow, is produced at the nodes.

Miniature Plantlets. The tip of the flowering spikelet continues to grow forming a miniature plant. This either falls to the ground, or because of its weight bends the culm down until it touches the ground, where it takes root.

COMMERCIAL PROPAGATION OF BAMBOOS AND GRASSES

The majority of types of ornamental grasses, bamboos, and sedges are most usually propagated through division.

However, the following types of grasses can satisfactorily be grown from seed: *Bouteloua* species, *Briza maxima*, *B. media*, *Carex* species, *Deschampsia cespitosa*, *Eragrostis trichodes*, *Festuca mairei*, *Helictotrichon sempervirens*, *Hordeum jubatum*, *Hystrix patula*, *Juncus effusus*, *Luzula* species, *Molinia* species, *Pennisetum orientale*, *P. setaceum*, *Poa chiaxii*, *Schizachyrium scoparium* (syn. *Andropogon scoparius*), *Stipa* species, and *Uniola latifolia*.

Variegated grasses will tend not to come true from seed, reverting to their green ancestors.

Division of Grasses and Sedges. Here I will describe a simple system that we have developed at Bransford Garden Plants to meet our particular needs.

As with most propagation, healthy juvenile material is the key to success. We achieve this by lining out small plants in our stock area in May, this can also be done in pots. Provided the material is watered well (and shaded in the case of *Milium effusum* 'Aureum') the plants will grow away satisfactorily and be suitable for dividing the following April. In February, the evergreen types are cut back to about 15 cm tall and herbaceous types are tidied back to the ground.

All kinds come into growth quite early in the spring. We prefer to lift them at this stage when they are still actively growing, usually at the end of April or early May. Plants are simply lifted with a spade and divided using a sharp knife or hedge-bill. Each plant will produce between seven and 12 divisions which are boxed up and kept cool and moist, before potting into 9-cm pots under protection.

Provided they are kept moist, the young divisions soon establish themselves in 9-cm pots and can be potted on into finals in August of the same year, or held over for potting the following spring, depending on when they are wanted for sale.

A proportion of divisions are kept back to re-plant in the stock area and so keep the cycle going. However, one must be careful with grasses which run, because fragments of rhizomes will be left in the ground. The solution is either plant a particular variety back into the same ground, or opt for clear rotation and go into clean ground.

Throughout the process, weed control is very important. We rely on both broadleaf herbicides and manual weed control.

Division of Bamboo. The clump-forming or sympodial types are the easiest to propagate and follow a similar but longer cycle to the grasses. We aim to divide them in the early spring once root movement has started but before they start producing new culms. Plants are lifted by hand and divided with a hedgebill or spade. These divisions are then potted straight into larger pots and should become saleable within about 12 months. Divisions are also lined back into the field for 2 years before being lifted and split, again it is essential that they are kept moist during their establishment.

The running bamboos or monopodials can be more difficult to propagate but juvenility is once again the key. One way to help achieve this is to take rhizomes from the field and cut these into about 30-cm lengths and pot these into larger containers in the nursery. They can be left in these containers for up to 2 years depending on the number of culms produced and the growth within the container.

After 2 years you should have a container absolutely full of rhizomes which can then be knocked out in the early spring just as the roots are beginning to grow. The rhizomes can simply be cut up into about 15-cm lengths, providing there's a good bud on each piece, and potted up into small pots to produce young plants. For more difficult types, all I can stress is go for smaller rhizomes with greater juvenility.

Other Techniques. If ever you have bamboos around that are flowering, it's perfectly satisfactory to save mature seeds and sow this although you will get a certain amount of seedling variation.

Beyond division and seed, some researchers are experimenting with tissue culture and cuttings of bamboo but I gather with limited success and as yet no proven track records.

FURTHER READING SUGGESTIONS

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