

## Propagation of Ornamental Grasses

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### INTRODUCTION

Propagation of ornamental grasses is dependent on several criteria including, but not limited to, the time of year, the age of the stock plant, and the method by which the grass is propagated. To complicate matters, all of these criteria are often interdependent on each other. Methods by which ornamental grasses may be propagated are by seed, cuttings, and division. In this paper, the factors influencing successful propagation of ornamental grasses are discussed.

### TYPES OF GRASSES

Most grasses can be categorized as cool- or warm-season grasses. Cool-season grasses can be propagated in the spring or fall when they are actively growing. Most cool-season grasses actually stop growing and may even “brown out” due to the heat of the summer. Examples of cool-season grasses include *Festuca glauca* ‘Elijah Blue’ (blue sheep’s fescue), *Helictotrichon sempervirens* (blue oat grass), and *Calamagrostis xacutiflora* ‘Karl Foerster’ (feather reed grass). The warm-season grasses should be propagated in spring and summer when they are actively growing. Examples of warm-season grasses are *Pennisetum* (fountain grass), *Miscanthus*, and *Arundo donax* (giant reed).

### PROPAGATION OF GRASSES BY SEED

Propagation by seed of ornamental and native grasses can be the least expensive way to produce grasses in large quantities. This is especially useful in the landscape when the landscaper wants to direct seed grasses into large masses or meadow plantings. In the nursery setting, it is useful for propagating grasses that are not named cultivars, when the preservation of specific traits of a particular plant are not necessary. Although growing the grasses from seed requires extra attention and may take longer than from a division, it still can be helpful for producing grasses.

Grasses can be sown most of the year if they are given the right growing conditions. Seeds are available commercially and can be collected from available stock plants. Usually, seed from commercial sources does not need to be cleaned. Seed collected from available stock plants is manually taken from stems and outer coverings are removed. The seed is stored at room temperature in labeled paper bags to prevent moisture build up and subsequent rotting. Germination rates of the grass seed can vary from days to weeks to even months. Many of the grasses benefit from cold stratification. To cold stratify, cleaned seed is put into a plastic bag with peat at a ratio of seed to peat of 1 : 1 (v/v). This mix is lightly moistened and shaken to thoroughly combine and spread the moisture throughout the bag. The labeled bag is then refrigerated for 2 to 4 weeks depending on the variety. The bags are checked frequently to make sure there is no unwanted mold, etc. Cold stratification can help to decrease the days until germination and increase the yield of seedlings that can be potted.

The grass seed is evenly sowed in trays (usually 288s or 144s) filled with pre-moistened Metro Mix 220 or Southern States Tobacco and Vegetable Seed Starter. It is then covered with media to a depth of no more than one and a half times the width of the seed (note that some seed is not covered since it needs light to germinate). Some fluffy seed may need to be wetted before covering to keep it in place. The trays should be misted regularly and the media should be kept moist to the touch. Each tray is labeled with name, date sown, and seed source. Germination rates vary with the different seed and with the different seed sources. Improved germination rates and decreased germination periods have been achieved using bottom heat that keeps the seed at 70°F. Germination periods can be 1 to 21 days or longer. The best germination rates and decreased germination periods are obtained in the spring and early summer. Adequate rates and germination periods during other parts of the year can be achieved with the combined use of cold stratification and bottom heat.

### PROPAGATION OF GRASSES BY CUTTINGS

Several grasses can be propagated by cuttings. Annual grasses such as *Pennisetum setaceum* 'Rubrum', *P.* 'Burgundy Giant', and *Saccharum officinarum* 'Pele's Smoke' can be propagated by cuttings. Perennial grasses such as *A. donax* and several *Panicum* varieties can be propagated by cuttings. Cutting methods vary with the plant selected for propagation. One grass, *A. donax* (giant reed), can be propagated by cuttings. *Arundo donax* cuttings are usually collected in the late summer or early fall. For best results, stems are selected from stock plants with medium growth. The smaller or larger stems do not seem to produce as many rooted cuttings per stem. The stems are then cut into 1- to 2-ft sections and all of the leaves are removed. The top 30 to 46 cm (12 to 18 inches) of stem are discarded since they rarely root well. The 1 to 2-ft stems are laid in water in small pools for 3 to 5 weeks. During that time, some of the nodes produce shoots and then roots. The stems around the rooted nodes are cut into 3-inch pieces and then potted into 3½-inch pots. Because of the variability in weather from year to year, sizes of stems, location of nodes on the stem, etc., it is very difficult to develop criteria to determine percentage of actual takes for a particular node and to determine which nodes would come closest to 100% take.

Most of the other grasses that are propagated by cuttings are stem cuttings taken from vigorously growing stock plants or container plants. These cuttings, taken from the "woody" part of the plant, are usually 8 to 10 cm (3 to 4 inches) long with the node about 1 inch from the bottom of the cutting. All leaves are cut back to about 1 to 2 inches to reduce transpiration. The cuttings are soaked in Dip-'N-Gro for about 1 to 5 min. The cuttings are stuck in a soilless potting mix such as sand or a bark and perlite mix and watered in well. The cuttings stay under intermittent mist for 1 to 3 weeks until the roots come out of the bottom of the plug trays. Overall, this system works well especially during the warm part of the year. Some, but not all, rooting can be done in the cooler months in a hot house kept at 13°C (55°F) if the cuttings are placed on bottom heat set at 21°C (70°F).

The propagation by cuttings of other perennial and annual grasses is accomplished using similar techniques with only slight variations in soil mix and when and how to select the cuttings. Overall, propagation of grasses by cuttings is not always the best way to produce plants on a large scale; however, it is helpful to building stock on certain grasses.

## VEGETATIVE PROPAGATION OF GRASSES BY DIVISION

By far, vegetative propagation by division is the most viable, usually the quickest, and easiest method to produce grasses on a large scale. In addition, this is usually the only way that clonal cultivars can be propagated unless cuttings can be taken. As with the propagation by seed and by cuttings, the success of the vegetative propagation is influenced by a combination of factors including stock material, time of year, and size of the division.

As with any plant, the stock plant is the most important part of the propagation process. The best stock plants undeniably produce the fastest growing, fastest rooting, and most showy final product. The age of the stock plant must be considered for a variety of reasons. Usually an older stock plant will result in less new plants produced and reduced quality of new plants. This is because the centers of older grasses in the landscape become weak in the middle resulting in useless stock material. It is important to use the new outer growth for propagation since it is the strongest part of the plant. Older container plants may also be problematic as stock plants for propagation since they may be lacking in the proper nutrients. After living in the soilless mixture for an extended period of time, the stock plant can be weaker than one grown in a field or landscape situation. All stock plants, field grown and container grown, should be inspected for any pests that weaken the plants and cause a reduction in viable divisions.

Because vegetative propagation is usually on a grander scale, it is very important to consider the time of year that the propagation is being done. The cool season grasses should be split in the early spring or early fall. Splitting at this time of year should be more successful for these types of plants since they are actively growing. The warm season grasses should be split in the spring through the late summer. This is the time when the air temperatures during the day and night are highest and will encourage fast root and top growth. Many of the grasses do not split well after they have started flowering. Most perennial grasses, especially natives and *Miscanthus*, need to go dormant before they can be divided successfully.

There are several things that must be considered during the splitting process including care of the stock plant before division, the size of the division, and care of the division until it is planted into a container. It is best to keep the stock plant in the ground until it is needed for division to reduce the shock to the plant and to shorten the recovery time for the new divisions. If the clump needs to be dug early, watering well before digging can be especially helpful on hot days. If the grower can afford to make the divisions larger, the success rate will increase tremendously. Extreme heat or cold can also hurt the divisions and, again, the smaller divisions seem more vulnerable to any type of stress. It is beneficial to keep the divisions moist until they are planted into the container (i.e., covered in wet burlap in a laundry basket can work). Care after the division is planted into the pot is also a crucial part of keeping a new division alive. One of the biggest mistakes is allowing a new division to dry out, even momentarily.

## SUMMARY

Sowing seed, making cuttings, and dividing from stock plants are all viable methods to propagate grasses. Sowing grass seed is especially appropriate for propagating large quantities of native or ornamental grasses. Cuttings are a great way to build stock on some grasses and still maintain the desirable traits of a particular variety. Vegetative division is the best method for producing many grasses on a large scale. Critical factors that contribute to the successful propagation of grasses include: time of year, type of grass it is, and the condition of the stock plants.