Propagation of Daylilies, Hostas, and Astilbes

Duncan McDougall
N.Casertano Greenhouses and Farms Inc., 1030 S. Meriden RD., Cheshire, Connecticut 06410

INTRODUCTION

At Casertano Farms in Cheshire, Connecticut our principle crops have been annuals, poinsettias, mums, and Easter and Christmas products. Two years ago we started raising perennials for the wholesale market by utilizing some empty hoophouses used for producing annuals. The houses are 22 × 150 ft and heated with a hot-air system. The first three greenhouses were filled with surplus stock from some of the Holland bulb companies and daylilies from my private farm in Woodbury, Connecticut. We soon had five houses filled with seed perennials. Today, we have eleven greenhouses and twelve acres of land being exclusively used for perennial production.

We irrigate from a large well that eliminates potential algae problems with our micro-irrigation systems, but have a backup pond for use during drought periods. Water is supplied by upright sprinklers placed every 12 ft. Emitters can be changed to increase or decrease the amount of water needed for individual crops. Therefore, it is possible to have plants that require different amounts of water growing in the same row. We leave about 1½ ft between rows and locate the irrigation system in that space. We later use that space to walk and place weights on the edges of over-wintering covers. Heavy-felt covers held down by cement blocks or sandbags are used for winter protection with all our outside 1-qt and 2-gal containers.

Colored pots are used to help customers select the proper planting situation for our perennials. We have orange pots which indicate a sun/light-shade planting is acceptable and purple pots for shade plants.

Depending on the season, we use a crew of 5 to 12 people with a crew of five working straight through the winter growing and dividing plants.

At this time of year, we are busy filling our greenhouses with seedlings and are just beginning to divide other perennials. To maximize the use of our greenhouse space we place racks above the seedlings for *Sempervivum* (hens and chicks) because they like heat and light. They will stay there until early spring, and then be divided again before sale in late spring. By using these racks we accommodate another 8,000 plants in the greenhouses.

PROPAGATION

Field Production for Propagation Material. Field production of plant material for propagation occurs on about about two acres of land which has been rejuvenated with leaf compost. Our nursery has been the town of Cheshire's leaf-recycling center for the past two years and we produce our own compost. We plant double rows on raised beds and place Netafim-trickle tube between the plants. By changing the spacing of emitters—12 in., 18 in., or 24 in.—we can increase or decrease the water to meet individual plant needs.

Container Production for Propagation Material. Propagation in containers is another method we use for raising perennial plant stock. The majority of our

plant material, whether generated by division or seed, is grown in one-quart containers.

Our rows are 10 ft wide by 300 ft long and hold 20,000 qt containers. We have three separate acres covered with black plastic with gravel roads separating each of the three blocks. In addition to the 1½-ft spacing between double rows we also leave a 6-ft wide opening for fertilization or spraying by tractor. In the summertime we place 2 rows of quart trays the length of the roadway so as to maximize the use of the field.

We grow many cultivars of daylily, hosta, and astilbe which are saleable in one year. Astilbes in 9 to 12 months will fill a 1-qt container with their root systems. We used a light bark mix for the 1-qt container and a coarser soil mix for the 2-gal containers. We find very little difference in the mass of the root systems in the two containers (i.e. qt vs 2 gal). By dividing into the smallest pieces possibe, including some pieces that do not have eyes, a 2-gal container can yielded approximately 16 root divisions for planting into 1-qt containers. A 1-qt astilbe has many more eyes than the 2-gal plant, and can be divided into approximately 14 divisions. We have noticed two significant things with astilbe:

1) Plants grown in quart pots generate more complete eyes than those from a 2-gal plant.

2) Using quarts produces approximately four times the quantity in the space used by the 2-gal pots.

Field grown *Hosta* 'Royal Standard' take up more room than 2-gal pots and have problems with weed control. A field-grown hosta plant generates four very large eyes after one year. Each eye is too large to put in a quart pot. This adds another step to our planting process because now we have to cut at least a third of the root stock off the plant before we can use them. The one characteristic that field-grown hostas show, that the quarts and 2-gal containers do not, is lateral eyes on each crown. For example, *Hosta* 'Albo-Marginata' raised in a 2-gal container has 4 crowns exposed, 2-lateral eyes. We take a knife and cut each crown starting from the bottom and drawing the knife to the top. This eliminates damage to any roots at the base of the crown. If done properly, you have cut through the center of the crown with no damage to the roots at the base. These crowns can be halved again for a total of 12 divisions. *Hosta lancifolia* divided from a 1-qt pot yields 8 divisions while an *H. fortunrei* var. 'albo-picta' divided from a 1-qt pot yields about 12 divisions. 'Stella d' Oro' and 'Bonanza' are two daylilies that show the extremes in root growth differences. 'Stella d' Oro' multiplies vigorously and has to be root pruned as their roots are too long. A 1-qt plant will produced five complete fans. These fans, further divided, produced seven additional divisions. Planted at the same time, a 2-gal 'Stella d' Oro' will produce only four fans and take up four times the space. A 1-qt 'Bonanza' will produce only about two fans in one year. By carefully dividing, and keeping small eyes when we find them, a typical 1-qt 'Bonanza' yields a total of seven plants with a little care in cutting. I strongly suggest drenching all hosta and daylily root stock divisions with a fungicide before planting.

CONCLUSIONS

It appears that we are much more productive growing stock plants in 1-qt pots than as 2-gal or field stock. Astilbes and daylilies work well for us using this system. I believe we should look harder at field grown hostas because of their ability to develop more lateral eyes.