

Utilizing Large Nursery Containers for Herbaceous Root Production[©]

Michael Kolaczewski

Flora & Fauna Horticultural & Biological Consultants, 324 Silver Street, Elgin, Illinois 60123 U.S.A.

Email: mjkolaffhbc@sbcglobal.net

INTRODUCTION

Propagating and growing plants in containers, in this case herbaceous perennials for the purpose of producing rootstock or root mass divisions, can be a straight forward and effective low-tech method of propagation. This presentation describes the process used to produce several types of perennials for landscape use.

METHOD AND MATERIALS

It has been said, the simplest idea is often the best. With that in mind, I sought to devise a method for producing herbaceous root stocks of various perennial plants. The goal would be to minimize stress to stock plants, and to have minimal steps in the production process.

At the 45th annual meeting of the Eastern Region, Mr. Peter Del Tredici presented a paper on the propagation of hardy, woody plants from root cuttings (see additional readings). At that time, I was aware of using this propagation method for trees and shrubs. I learned a great deal more on this subject from Peter's presentation and subsequent paper published in the Combined Proceedings of the International Plant Propagators' Society (Del Tredici, 1995).

I have over the years employed root-cutting propagation in various containers to produce both woody and herbaceous plant materials. Herbaceous plants are readily adaptable to container growing, not only in a production situation, but also in ornamental situations as well (Kolaczewski, 1995).

One of the problems with leaving plants in the same container for any length of time is that eventually the root(s) will bottom out and also become tangled and malformed in the container. I have for many years used Anderson Die and Manufacturing[®] band pots, and the deep propagation flat to grow root cuttings of perennials, as well as seedlings and simple plant divisions.

I looked at expanding this method to employ a larger container, whereby I could have an alternative method to growing plants in the ground. Obviously, living in a temperate climate, USDA Zone 5 means we have winter conditions that limit one's ability to work outdoors for months at a time. Winter conditions can, and do, cause soil to freeze to considerable depth, limiting harvesting of roots, to either before or after the winter months.

I decided to use a much larger container, such as shrub or tree pots to grow perennials in, thereby enabling me to have the ability to grow plants in several ways. I could either employ a pot-in-pot method, or grow containerized plants outdoors in three seasons, and place them in a poly-house environment, for the winter season. I could overwinter them in a moderated climate where the plants would be dormant, but not frozen, facilitating fall through winter propagation.

When harvesting roots, for either cuttings or simply to divide the root stock into manageable pieces, removing the plants from the pots is straight forward. The damage to the plant is minimal, the plant is dislodged from the pot, shaking the media free is not complicated. I employ a pine bark, rice hull, and peat compost mix as the nucleus for growing the majority of my plants. There can be other components or less or more of one item or another, depending on what it is I am growing.

The first plants I chose to use with this container method were *Rheum palmatum* var. *tanguticum*, Chinese or Tibetan rhubarb, and *Acanthus mollis*, and *A. spinosus*, bear's breeches. *Rheum* taxa grow to be impressive specimens, this particular plant has a deep red color in the leaf veins, which adds to its ornamental value. They are also a garden substitute for *Gunnera*, which is not hardy here in USDA Zone 5 conditions of Chicago, Illinois. *Acanthus* offers both foliage and floral display as elements to the garden setting. Both of these plants can produce extensive root systems, which make them good candidates for this trial.

I decided to trial two containers for growing these plants. I chose Anderson Die and Manufacturing Nursery cans, The Polycan #6, which is 12- $\frac{3}{4}$ in. wide, and 11- $\frac{1}{4}$ in. deep. I also used the Polycan #4 deep pot, which is 10- $\frac{1}{2}$ in. wide, and 12 in. deep. One plant of each type was planted into each respective size container. These containers would allow for more or less, normal root development. I wanted to compare a somewhat narrower container versus a squat container. The object being to allow for roots to "fill out" a pot if you will, and diminish the chances of roots spiraling and being malformed. The plants were shifted from standard 1-gal nursery containers, into the larger containers in the spring of the year. Fertilizer was incorporated into the mix prior to planting, at a rate of 3 lbs to a yard³ of mix. Supplemental liquid feeding was applied when needed, about five times during the first season of this trial. No fungicide was applied to the containers; insecticide was only applied if monitoring showed evidence of activity. Slug activity was minimal.

Plants were not disturbed throughout the first growing season. In about mid-September, the plants were dislodged from the containers to inspect their growing progress. The *Rheum* had produced a number roots that were over 8 in. in length, and about a $\frac{1}{4}$ to a $\frac{1}{2}$ in. in diameter, and about twice as many that were slightly smaller than the largest ones. The *Acanthus* produced about a half a dozen roots that were about a $\frac{1}{2}$ in. in diameter. At this junction, the plants were repotted, removing only roots that potentially could interfere with others in close proximity.

These plants were left outside until the end of October, and then were put into a polyhouse for the winter. In early March, the *Acanthus* was dislodged and about half of the roots were removed for propagating cuttings. These were potted into 1-gal containers and left in the polyhouse until mid April. No cuttings or division of the *Rheum* took place at this time.

Once danger of frost had passed, all plants were returned to outdoor growing conditions, and the growing regime from the previous season was repeated. During the second fall season plants were not dislodged from their containers, and put into winter quarters, once they started going into dormancy. During March of the second season, the plants were all removed from the containers. About 2 dozen cuttings were taken from the *Acanthus*, and 14 root sections were taken from the *Rheum*. The remaining rootstock was then potted into a more appropriate size container.

CONCLUSIONS

Obviously, growing perennials in containers has been the norm for some time. This method reduces if not eliminates damage done to the rootstock by digging larger plants out of the ground. Overwintering plants in protected facilities can start or extend production methods that are not tied to weather conditions associated with outdoor production methods. There was no appreciable difference in growth between the different size containers. Costs can be controlled with potting media that can be recycled, and the longevity of better quality growing containers. Several more plants will be added to the program, with the intention of producing additional propagation materials. The accompanying photos show some of the methods and materials contained in this presentation. I hope you have found this information useful; it has been my pleasure to share my horticulture experiences with you.

ADDITIONAL READINGS

- Del Tredici, P.** 1995. The Propagation of hardy, woody plants from root cuttings: A review. *Comb. Proc. Intl. Plant Prop. Soc.* 45:431–439.
- Kolaczewski, M.** 1995. Utilizing band pots for herbaceous plant production. *Comb. Proc. Intl. Prop. Soc.* 45:554–555.