Propagation by Root Cuttings and Nitrogen Nutrition of Containerized *Anemone* ×*hybrida*©

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PURPOSE OF THESE STUDIES

Propagators in the United States are currently unable to meet demand for *Anemone* ×*hybrida*. Propagation is normally accomplished by division or root cuttings, with very low multiplication rates in either case. In addition, there are no published recommendations for N nutrition of *A.* ×*hybrida*, and recommendations for perennials in general are excessively variable. Two studies were undertaken to (1) determine the effect of N nutrition of stock plants on propagation by root cuttings, (2) provide the basis for a system for production of plantlets of anemone in small cell containers, and (3) determine optimal N levels for containerized plants of *A.* ×*hybrida*.

MATERIALS AND METHODS

In the propagation study, 64 #1 field divisions each of cultivars 'Honorine Jobert' and 'Richard Ahrends' anemone were grown in 3.8-liter (#1) containers, and fertilized daily with a complete nutrient solution providing 10, 40, 80, or 150 mg liter^{-1} (ppm) N. After 30 weeks, root cuttings 4 cm (1.6 inch) in length were harvested from the stock plants, then placed in bedding plant containers containing a pine-bark-based medium, one cutting per cell, and covered with 1.5 cm (0.6 inch) medium. Containers were placed under intermittent mist in a heated greenhouse under natural photoperiod and irradiance with days/nights of 24 ± 1.7°C (75 ± 3°F) / 20 ± 1°C (68 ± 2°F). After 12 weeks, the resulting plantlets were harvested, dried, and weighed.

In the N nutrition study, 50 uniform single-crown plantlets of *A.* ×*hybrida* 'Margarete' were potted individually in 3.8-liter (#1) containers, and grown for 15 weeks in a heated greenhouse with night interruption. They were irrigated three times weekly with a complete nutrient solution providing 10, 40, 80, 150, or 300 mg liter^{-1} (ppm)N.

RESULTS AND DISCUSSION

In the first study, 90% to 100% of the root cuttings regenerated a plantlet, regardless of treatments to the stock plants or cuttings. Time to shoot emergence responded to N nutrition of the stock plants following a quadratic pattern, with cuttings from plants fed 100 to 150 mg liter^{-1} (ppm) N exhibiting the fastest shoot emergence. This was mirrored by the size of the plantlet at harvest (12 weeks).

Our second study showed that a N rate of approximately 140 to 160 mg liter^{-1} (ppm) would maximize top growth. Higher rates, up to at least 300, would provide no additional benefit, although they would not be detrimental. Root growth was not adversely affected by increasing N, and plants supplied with 110 mg liter^{-1} (ppm) would produce the most root material suitable for cuttings, enough for approximately 50 root cuttings per stock plant.

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REFERENCES

The complete results of these two studies have been published in:

Dubois, J.-J.B., F.A. Blazich, S.L. Warren, and **B. Goldfarb**. 2000. Propagation of *Anemone* ×*hybrida* by root cuttings. J. Environ. Hort. 18(3):79-83.

Dubois, J.-J.B., S.L. Warren, and **F.A. Blazich.** 2000. Nitrogen nutrition of containerized *Anemone* ×*hybrida*. J. Environ. Hort. 18(3):145-148.

Plant Introductions from Mt. Cuba Center for the Study of Piedmont Flora©

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Over the past 17 years the plant introduction program at Mt. Cuba Center has established a reputation for introducing cultivars that are tough, broadly adaptable, and which possess qualities not found in other plants on the market. The primary mission of this program has been to seek out, evaluate, and introduce garden worthy plants derived from the Piedmont flora and develop commercially viable propagation and production methods for superior plants.

The objectives of plant evaluation and introduction at Mt. Cuba Center are to: (1) introduce outstanding cultivars that exhibit ornamental attractiveness, stress tolerance, longevity, and cultural adaptability; and (2) support the concept of "conservation of natural plant populations through propagation" rather than unsustainable and irresponsible harvesting from wild populations.

In this poster, we highlight some of Mt. Cuba Center's most successful commercially available introductions from the past 17 years. In addition, this poster showcases other planned introductions to be available in the near future.

MT. CUBA CENTER INTRODUCTIONS

***Actaea pachypoda* 'Misty Blue'.** 'Misty Blue' was discovered in 1992 in a planting of unknown origin at Mt. Cuba Center for the Study of Piedmont Flora. It is notable for its soft bluish-green foliage which contrasts well with the greens customarily found in the woodland garden. The large, white "doll's eyes" (fruit) are borne on reddish pedicels. Research is currently underway to determine the best method of asexual propagation. Not yet commercially available.

***Aster laevis* 'Bluebird'.** 'Bluebird' was registered in 1994; found in 1988 in a Guilford, Connecticut garden where it had occurred spontaneously. 'Bluebird' was selected primarily for its clean foliage and large (1 inch) flowers of RHS violet-blue (91B). It has an upright habit to 3½ ft and under most conditions needs no staking. The species blooms in September/October and has a broad tolerance of soil types and moisture levels. A description was published in the 14 Dec. 1994 *American Nurseryman*.