Daylily (*Hemerocallis*) Production Propagation and Breeding

Robert G. Austin
Jon's Nursery Inc., 24546 Nursery Way, Eustis, Florida 32726

WHAT MAKES A DAYLILY DESIRABLE AND PROFITABLE?

I believe that the number one cultivar on the list should be one that offers repeat blooming cycles, has double flowers, excellent flower color, and resistance to fading in the sun. Other desirable traits include: plants with a good balance of floral scape to foliage size, foliage with resistance to summer heat, and a high yield of bibs for propagation by division that leads to profitable mass production.

DEVELOPING SUPERIOR NEW CULTIVARS FOR THE TRADE

Our philosophy at Jon's Nursery for developing superior new cultivars is to establish close relationships with successful professional breeders. This is just one of the ways that we bring in new and exciting plant material showing promise. By relying on professional breeders we also avoid tying up production space that occurs with the very land-intensive breeding process. Breeding and selecting daylilies entails tying up land during the evaluation of thousands of seedlings with little or no commercial value. Better land usage and screening efficiency occurs when we buy plants that appear to have commercial value and place them in an evaluation area for climactic and developmental trials. Crosses with siblings, parents, and outside cultivars can also be conducted more efficiently in developing new cultivars and discarding plants with undesirable characteristics.

Breeding and Selection. In an effort to create tetraploid daylilies, some hybridizers apply colchicine (a naturally occurring plant alkaloid) that is applied to mitotic cells, such as shoot apical meristems or root tips to induce polyploidy, i.e. diploids (2N) can develop into a tetraploids (4N). Tetraploid plants can have larger flower sizes and other desirable changes in morphology. Mutations can also be induced by radiation from x-rays and ultraviolet light.

PROPAGATION

Daylilies may be propagated by seed, however seedlings will not be true to type (except for species) and they usually produce an inferior plant in floral characteristics compared to the parental lines. That is why at Jon's Nursery we utilize seed propagation only for breeding and selection purposes.

Propagation at Jon's Nursery. Propagation for commercial production at Jon's Nursery is done by division — chopping away most of the root mass and soil of 1-gal stock plants with machetes. We then divide, using knives or simply separating by hand, so that each resulting new plant has a portion of the crown and at least one bud with a few stubby roots. Year-round propagation of daylilies at Jon's Nursery is successful in part because of our mild winters. During hotter, late summer propagation, divisions are planted into 40-cell, rose-pot-size trays containing a mixture of Canadian peat and perlite mixture (1 : 1, v/v) and placed in a shade house to root out.

Stock plants are produced by dividing plants during the fall and direct sticking into 1-gal containers to form plants for the next year's new source of propagules. Rooted cell packs from summer propagation can then be planted anytime of the year, thus replacing plants sold during the spring through the summer, and assuring that well rooted sellable 1-gal material is ready early in the following spring.

Daylilies may also be rooted by proliferations or offsets, which are unrooted plantlets formed along the nodes on scapes late in the bloom cycle. These are handled as unrooted liners. Some breeders claim to have success in creating a proliferation of unrooted plantlets.

DAYLILY PRODUCTION AT JON'S

For production at Jon's, daylilies are planted in 6-inch pots with a well drained soil mix of pinebark, peat, sand, and slow-release fertilizer. Over the years, we've used different media and all performed well with daylilies. Major plant pest problems are with thrips and aphids, which we control with air blast applications of Cygon 2E. This provides good systemic control without the use of restricted-use pesticides. Occasional spider mite problems can be spot treated with specific miticides that are labeled for use on *Hemerocallis*.

WHERE DO WE GO FROM HERE?

At Jon's Nursery we are promoting a line of tetraploid daylilies selected for their upright rigid foliage, more compact and heavier scapes, larger and thicker flowers — and of course the very rich flower colors which we believe tend to make truly superior plants.

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