

Alpine and Perennial Propagation Through the Year

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True alpiners are small plants from mountainous and other wild places of the earth. In addition, many alpine plants have been selected for superior or unique forms or have been hybridized in culture. Propagation fixes these characteristics and is vital to this collectors' branch of horticulture where a tiny yard may easily contain several hundred kinds of plants. The challenges to propagation are what makes the growing of alpiners so fascinating.

Although alpiners and dwarf conifers have remained my passion for 35 years, it was the addition of large perennials and shrubs which made it possible to attract a larger pool of customers to our nursery and incidentally introduce them to rock gardening. We propagate 90% of the plants we sell, so this view of our propagation methods covers what we actually do at Rice Creek Gardens throughout the year.

Propagation does not occur in a vacuum. I see propagation, sales, and overhead in dynamic balance, like three sides of a triangle. The propagation side feeds the sales side and they both depend on the stable base of overhead. When any of these sides are too long or too short, a quick response is necessary to keep the business in balance. Ideally, the triangle of propagation, sales, and overhead acts like a fence and protects the business within.

Propagation protects our business by providing true-to-name plants, in reasonable quantity, at the time we want them. We propagate almost entirely in winter and this affects overhead in at least two ways. Strongly constructed greenhouses and large heating bills, which our severe climate demands, are a considerable investment. However, our employees are kept working productively 12 months of the year. The people that grow the plants also sell them, which has been a real advantage for us and our customers.

Display gardens have been an important part of our business for 35 years, both as demonstrations and as sources of propagation materials. Rock gardens, perennials, grasses, shrubs, with ericaceous and shrub rose areas and extensive woodland gardens — including native orchid beds, that serve as research, production, and display gardens — make our nursery unusual.

The propagation year begins in August and September. The last of summer yields soft cuttings on shrubs. They root in flats and are covered loosely with spun-polyester fabric for a few days in a white-plastic-covered greenhouse that is very humid. For example, wisteria roots easily at that time. Cuttings stay in the flats in the greenhouse kept just above freezing, and are left to go dormant until February, when they are potted.

Daylilies, Siberian iris, and peonies are divided in September and October and lined out in fields or potted. In summer, daylilies are either potted or field-dug on demand and sold in plastic bags for immediate planting, where they continue to flourish and bloom.

October sees us taking cuttings from outdoor plants for warm house production of *Alyssum*, *Arabis*, *Aubrieta*, *Iberis*, *Phlox stolonifera* (creeping phlox), *Saxifraga*, and *Vinca*. These root by early January and are potted in our regular soil mix which

contains 15% black peat soil, Fafard 2, perlite, and various macro and micronutrients. Our alpine mix, turface based and also including soil, is used for saxifrages and other mountain plants demanding extra drainage.

One of the most satisfying chores is to take conifer and broadleaf evergreen shrub cuttings in October and November. *Buxus*, *Calluna*, *Cornus canadensis*, *Erica*, *Euonymus*, *Genista*, *Paxistima*, rhododendrons, and *Vaccinium* are successfully rooted at this time. Conifers which root easily include most *Chamaecyparis*, *Juniperus*, *Microbiota*, and *Thuja*. They are dipped in Wood's solution at 1 to 5 or even undiluted, stuck in flats containing sphagnum peat and perlite (1 : 2, v/v), placed on the shady north side of a warm greenhouse, and watered thoroughly but not covered or misted. They go through dormancy and start rooting in March and April, when they are potted in rhododendron soil, containing sphagnum peat, Fafard S2, perlite, and fertilizers.

October also means bringing in stock plants to keep in our "cold" house (32 to 34°F) for at least 6 weeks: *Achillea*, *Ajuga*, *Androsace*, *Anemone*, *Armeria*, *Aruncus*, *Astilbe*, *Aster*, *Boltonia*, *Campanula*, *Chelone*, *Cimicifuga*, *Convallaria*, *Coreopsis*, *Dicentra*, *Eupatorium*, ferns, *Filipendula*, *Gaillardia* × *grandiflora* 'Baby Cole', *Galax*, *Gentiana*, *Geranium*, grasses, *Hemerocallis*, *Heuchera*, *Hosta*, *Hedyotis* (syn. *Houstonia*), *Iris*, *Leontopodium*, *Lobelia*, *Lysimachia*, *Mentha*, *Monarda*, *Origanum*, *Penstemon*, garden (*Phlox paniculata*) and woodland phlox, *Physostegia*, *Potentilla*, named primula, *Rudbeckia*, *Salvia*, large sedum, *Sisyrinchium*, *Stachys*, *Thymus*, *Tradescantia*, *Tricyrtis*, *Petrorhagia* (syn. *Tunica*), *Veronica*, and *Viola*. They are divided and repotted January through March in our regular soil, with extra perlite if needed. Shrubs that need dormancy and will respond with new growth when moved to warmth in January include: *Betula*, *Buddleja*, *Calluna*, *Clethra*, *Cotoneaster*, *Epigaea*, *Gaultheria*, *Rhododendron* (azalea), miniature roses, *Salix*, and *Spiraea*. They root easily in 1 to 10 Woods solution and in peat and perlite (2 : 1, v/v) medium.

These plants (*Arenaria*, *Artemisia*, *Asperula*, *Bergenia*, *Chrysanthemum*, *Dianthus*, *Draba*, *Erigeron*, *Gypsophila*, *Helianthemum*, *Hypericum*, *Lamium*, *Lavandula*, *Lewisia*, *Nepeta*, *Orostachys*, *Perovskia*, *Pulmonaria*, *Satureja*, *Saponaria*, *Saxifraga* (leafy types), small *Sedum*, and *Sempervivum*) go directly to our warm house in the fall for taking of cuttings in December, January, and February. They all prefer our regular container mix.

Opuntia cuttings are taken and left to go dry and dormant at cool temperatures until March, when they are potted and they are ready for sale by May.

November 1 is the date we plan to have all our carry-over of established potted alpiners on the ground, covered with insulated plastic sheets. Early spring flowering plants such as *Helleborus*, *Primula*, and *Saxifraga* need to experience outdoor dormancy or they will flower too early and be less saleable. *Aquilegia*, *Dianthus*, and *Liatris* are examples of large perennials that will only flower after such full dormant treatment.

November is when we order seeds of perennials for planting in December. *Aquilegia*, *Althaea*, *Delphinium*, *Echinacea*, *Echinops*, *Gaillardia*, *Helenium*, *Hibiscus*, *Lilium*, *Lobelia*, *Primula*, and *Pulsatilla* are examples. Seed is planted in flats and placed on the cool north side of the greenhouse. Roots are "eased on" to the seeds and cuttings without a great deal of care in this situation.

By the first week in December all cuttings from outdoors are usually stuck. Seed planting is continuing. Stock plants are repotted and the first of the divisions — sempervivums — are placed three to a pot.

Because of our severe climate every inch of heated greenhouse space is used. In our production house plants are arranged on double layers of tables, each about 34 inches high. Flow is critical to our operation. Plants start out on the warm south side where they produce cutting material. The cuttings are dipped in Wood's solution at 1 to 10 and stuck in flats containing our regular soil mix, cut by half with coarse perlite. They then go to the cool north side of the greenhouse where they root in a few weeks. After they are rooted they are potted in 2¼-inch pots and put on the lower, waist-high benches on either side of the center aisle. When they begin to grow and draw toward the light they are moved to the top benches where they are able to thicken up and are fertilized, and pruned if necessary. At a point when they look ¾ ready to sell they are moved to a cool house where they will stay dormant, and often budded for months. We do not move fertilized plants to the cold for 2 weeks to avoid "crashing".

Light is not necessary at this stage for most plants. They do well in a large insulated pole building that is kept at 33°F with a moistened concrete floor and ceiling fans (delphiniums are one of the exceptions). Tables are stacked three high in this building. The floor is covered with potted rhododendrons, free from the vagaries of weather.

In January we begin potting seedlings, the first of the cuttings are rooted, and division starts at the end of the month. Rare seeds arrive all winter from exchanges and they are planted on the cool north side, put outdoors in cold frames or kept just above freezing in our cold house, depending on their germination requirements.

February brings more potting of seedlings and cuttings, and a second round of soft cuttings are taken that root very rapidly.

March is our last month for any serious greenhouse work since the nursery must be readied for opening in mid-April. Bare-root roses arrive at mid month. They are pruned carefully and potted in special "rose soil" with lots of sand and sweated in a white poly-covered greenhouse, and covered lightly with thin sheets of clear plastic. Bare-root perennials arrive about April 1 for potting and are placed outdoors to the south of the pole building.

Once the nursery is open we dig *Asarum europaeum* from our woodland, along with coarse perennials like *Lysimachia clethroides* and *Monarda*. We dig hosta all season from production beds in the woodland, in naturally occurring black peat, which produces large plants from tissue-culture in a matter of weeks.

Try as we might, in spring and summer we don't take time to breathe, much less do propagation. Our selling season is only 5 months long at best, yet we keep busy all year around. Winter propagation season is something we look forward to each year, as we improve our production of our standards, discover new plants to test next season, and propagate new winners from the summer before.