

Simple Successful Propagation at Classical Farms®

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Classical Farms LLC is a wholesale grower of annual color crops in Rainier, Washington, which is slightly southeast of Olympia in western Washington State. My wife and I started the business in 1985. Jill Cross is our production supervisor. Our primary crops are pansies and a large selection of annuals including hanging baskets, color planters, and gallons. Fall crops include garden mums, perennial asters, ornamental cabbage and kale, pansies, and cyclamen. Plants in 4-inch pots are the most common size, with over 1.6 million produced in 2006.

The majority of the 4-inch crops are purchased as plugs. However, in-house propagation plays an important role with many crops. Our propagation facilities work well and are not particularly sophisticated. Annual premium cuttings, basket stuffers, cordyline, fuchsias, perennial asters, garden mums, and chocolate cosmos are rooted by cutting propagation. Ornamental grasses, cabbage, and kale are propagated by seed, along with other selected annual crops. Mums, fuchsias, ornamental cabbage and kale, chocolate cosmos, and cordyline will be mentioned in more detail.

Chrysanthemum. Unrooted chrysanthemum cuttings are purchased in bags of 50 cuttings each and are stuck in either 50-cell trays or directly into the final 4-inch pot. The 50-cell trays will be transplanted to 1-gal containers. We don't use any hormone with the garden mums. However, cutting suppliers sometimes use a liquid or powder dip before shipping. Bottom heat at 75 °F is used with the 50-cell trays because the facility has bottom heat; however, mum plants root readily with no supplemental bottom heat. Roots are often seen in 6 days. Misting is done about 13 or 14 h/day and can be as frequent as every 1–2 min with a 10-sec burst. On cloudy days, misting intervals are lengthened. As with most intermittent mist, the smaller the amount of water used the better. We use Sterling 8 mist clocks or the Davis Solar-6 clock. Mist needs to reach the edges of the propagation areas, and the facility has to have high humidity. Painting of our plastic Quonset houses with shade paint, or covering with shade cloth, was helpful this year. Cuttings can scorch on the very hottest days even at short misting delays, and temperatures can reach well over 100 °F. As soon as rooting occurs, we roll up one side of the rooting pipe houses. Waves of mum cuttings are done mid-May through mid-July. Cuttings (in 4-inch pots) are planted outside their respective rooting houses and pushed inside on carts and set down in the mist. Plants in 4-inch pots are variety tagged at this time, too. The 4-inch pots are slower to stick, but there is no transplant time later. Some side notes:

- If any cuttings have *Botrytis*, this can be detected in the bags of cuttings, and the cuttings should not be planted.
- Don't leave bags of cuttings in the sun at lunchtime.
- Cutting medium is a peat and pumice blend (13:7, v/v)
- All our mum cultivars are patented, so taking cuttings is prohibited.
- We do some night interruption in August with HID lights or incandescent bulbs for October garden mum sales.

Fuchsia. Fuchsia softwood cuttings are taken in August or early September, depending on the crew workload. These easy-to-root plants will be sold as hanging baskets in May, or as 4-inch pots in April. Short, 2 or 3-inch two-node cuttings are taken, flowers removed, dipped in Hormex #1 (0.1% IBA), or Hormex #3 (0.3% IBA) on tough to root cultivars, and stuck in 50-cell trays. Bottom heat at 75 °F is used along with mist intervals that will ensure a light film of water on the leaves during daylight hours. White plastic tents over the benches are used for sun protection. Clean cuttings are important, or *Botrytis* can occur in the trays. Cuttings callused in 7 days and rooted in 3 weeks. They are then transplanted to baskets in November or December. Care in labeling of cuttings must occur. Record keeping is important.

Ornamental Cabbage and Kale. Ornamental cabbage and kale are simple seed-produced crops that are extremely popular in the Northwest, with the plants looking good in the landscape as late as the new year. We produced 30,000 this fall in two sizes, 4-inch and 1-gal.

Seed is relatively inexpensive and readily available, although certain seed can be hard to find and seed crop failures can also happen. The seed is hand sown in 50-cell trays. No special medium is used, just our straight peat and pumice (13 : 7, v/v) container mix. The flats are laid out on the bench; no heat is required because they are sown in July or August. Multiple waves of seed are sown, and the seed is covered lightly with the soil medium. Germination is fast, 4–5 days, and care must be taken so that mice don't damage the plants! Seedlings are removed from the greenhouse as soon as possible to prevent stretched stems. Varieties for 4-inch pot production are different than those for 1-gal production. For example, Nagoya should not be used in 4-inch pots, as it grows too large. Varieties for 4-inch production include Chidori, Kamome, and Pigeon.

Chocolate Cosmos and *Cordyline*. Chocolate cosmos and *Cordyline australis* 'Red Sensation' are two of the few perennial plants Classical Farms grows. Both are purchased from Steve McCulloch of I.P.P.S. fame, at his tissue culture business—Mountain Shadow Nursery. We buy chocolate cosmos unrooted and cordyline rooted.

We arrange to receive these microcuttings in June or July when we have propagation space available. In the case of chocolate cosmos, we have stuck multiple cuttings (12) in a 4-inch pot, and have also tried them in 72-cell trays, one per cell. Generally, transplant loss is greater when using the multiple cuttings method. Roots can readily be broken in transplanting.

We have used two hormone treatments: a Woods liquid dip (1 : 10, 1.03% IBA and 0.66% NAA) and Hormex #3. No significant difference was detected, so this year we simplified the procedure and used only the Hormex #3.

Rooting time can range from 15 to 30 days, and water management is key. Short, nonfrequent bursts of mist have been best (6 sec per 5–20 min). We have found our standard greenhouse mix to be better for these two crops than a specialized fine propagation mix. It is important to leach the trays prior to planting to reduce the E.C. to negligible levels. Bottom heat for rooting is 75 °F. Cuttings are misted by hand using a squeeze bottle during planting. Media is dibbled because the cuttings are soft. Work is done right at the propagation bench and can be slow. The planting crew rejected tweezers because they slowed the planting speed.

We try to grow tuberous roots by winter. We don't prune tops much to help in tuberous root development. No tuberous roots mean death. We transplant to 4-inch pots in mid-May and sell in July. It is a one-year crop for us.

Cordyline australis 'Red Sensation' is much simpler. It is planted in 72-cell trays. The rooted microcuttings are misted continually the first day only. After that, they are misted only in the afternoons. Establishment and growth remain slow for the first 30 days, after which they are transplanted into larger cells. Bottom heat at 75 °F is used. We sell these plants in 4-inch pots or in combination planters.