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The Effective Propagator — Keeping a Focus on Key Issues in Propagation Management[®]

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INTRODUCTION

Effective operation of a commercial propagation program goes beyond the essential knowledge of propagation practices such as cutting, seeding, and grafting. Various aspects of propagation as a business must also be considered if the propagation operation is to be successful. A commercial propagator will seek to focus on ways of improving and maintaining the effectiveness of the operation for reasons of personal career enhancement, company profitability, and employee relations. This discussion focuses on some key issues in commercial production that, if made a part of a propagator's scope of operations, can help a propagator to be a more effective manager in day-to-day operations and over the long run.

KEY ISSUES IN COMMERCIAL PROPAGATION**Identification**

A source of frustration to landscapers and home gardeners is the discovery that the plant they installed in the landscape months or years ago is not the cultivar that it was supposed to be. Misidentification of plant materials can occur at numerous stages during production of the plant, but nowhere can it create more problems than in the propagation stage. Since numerous cuttings are often obtained from a single stock plant (or even just a single shoot), errors in identification can have a compounding effect that may not be discovered until weeks or months later.

If cuttings are to be obtained from stock plantings, the planting should be clearly identified either with durable labels in the ground or on the plant, or by means of a clearly delineated planting map. At least once per year, the plantings should be inspected for branch sports, suckers, or seedlings that may appear within the stock planting. Stock plants should be inspected for aberrations well in advance of collecting propagation materials, and particularly at a time when off-type plants or shoots can be most easily identified, such as during the flush of new growth or during flowering. There should be no room for doubt as to the correct identification of plant material for propagation. "If in doubt, take it out!"

Errors in identification can occur easily if cuttings are obtained from container-grown plants. Mixing of crops may be due to human error such as when a few leftover plants are incorrectly consolidated into a bed of another cultivar. Animals may be

the culprits, as when deer, coyotes, or crows send container plants helter-skelter during their nursery excursions. On occasion, the plants themselves may “decide” to grow into a neighboring bed. Container-grown plants should be inspected for off-type plants by nursery personnel even more frequently than stock plants in the ground, regardless of whether the plants will be used for cuttings or not.

Proper identification must be carried with the material through all stages of the process. When collecting cuttings of cultivars of similar appearance, a label on the outside of the bag of cuttings can be supplemented with an additional label on the inside in case the former is lost during handling. Once these cuttings have been stuck, one label for every several flats (or a label at each end of a ground bed) is usually satisfactory for cultivars that are very distinctive. However, if working with cultivars of similar appearance, be generous with the use of labels. The expense of a few extra labels is cheap insurance in case a few are lost during the process.

Sanitation

Probably no other area of focus is more reflective on the overall effectiveness of a propagator than the area of sanitation. Although sanitation processes may not be obvious to a nursery visitor, the results of a focus on cleanliness are readily evident.

The old saying that “an ounce of prevention is worth a pound of cure” is readily applicable to propagation.

- Clean up between crops.
- Sweep up in the corners.
- Check under the benches.
- Wash down the walls.
- Treat surfaces with a disinfectant.
- Empty trash regularly.

These are all simple practices, but all too readily overlooked. An effective propagator is constantly noticing these things during walks through the greenhouse or outdoor beds.

An effective propagator has no tolerance for weeds. Weeds are not only pests in themselves, but they can also harbor diseases, insects, and other critters that are more than willing to relocate to newly-stuck cuttings or germinating seed trays. The propagator, perhaps more than anyone in the nursery, is well aware that “there’s no such thing as one weed.” Clean soils and hand weeding are probably more critical in propagation than in other parts of the nursery as cuttings and seedlings are far more sensitive to soil-borne diseases and pre-emergent herbicides. Besides this, weeds or weed seeds are the last things that a propagator wants to include in liners headed to the next grower in the production process.

Employees

When it comes to effective employee relations, topics such as employee selection, communication of company policies, safety programs, fair wages and benefits, performance evaluation, advancement opportunities, and observance of labor laws may come to mind. Certainly all of these are valid areas of focus, each worthy of a thorough discussion. However, let’s focus on a few specific areas in which the propagator (or any manager) can effectively demonstrate interest in the personal well being and job satisfaction of nursery employees.

Perhaps the best indication of concern in effective employee relations can be seen not by looking at the well-printed employee handbook, the bulletin board by the time

clock, nor the safety posters placed at strategic locations, but rather by looking at — the employee bathrooms and eating areas. Clean and functioning toilets with all their parts, clean sinks with soap and towels, and clean floors and walls send a positive message. While not a popular task, arrangements for (at least) daily maintenance need to be made. Problems need to be handled on a one-to-one basis, never with padlocks or threatening notices.

An investment of time and effort in training employees to do their jobs safely and efficiently also shows an appreciation of an employee's mental capacity to perform beyond a standard routine. Training can range from teaching an employee a new job skill to something as simple as a review of safe lifting techniques. A common question asked of human resource professionals is "What if you train an employee and he leaves?" to which the most appropriate answer is "What if you don't train him and he stays?"

With a Spanish-speaking workforce so prevalent in American nursery operations, a manager who can speak even a modest amount of Spanish will find the ability to be of advantage in employee relations. Spanish-speaking employees appreciate and respect the efforts of English-speaking managers to communicate, even if to a limited extent, in Spanish without the constant use of a translator. Classes in conversational Spanish are readily available in most areas.

Production Planning

An effective propagator should be studious in collecting and maintaining records on all propagation activities, and be able to teach others the manner and importance of such record keeping. Records form the database for future production planning.

Cutting records may include the source of the cutting materials, the size and type of cutting prepared, the type and concentration of hormone used, the quantity of each cultivar, the persons(s) who prepared the cuttings, any special treatments provided to the cuttings, date of preparation, and where the cuttings were placed for rooting. Seeding, grafting, and budding records should contain similar information.

Subsequent production data can be more of a challenge to collect, but is equally important. Information on cuttings may include the date that the cuttings were rooted and/or ready to be removed from the mist environment. Information on seeds may include approximate germination percentage and date or date range for germination. Information for grafts may include the date that the grafts had healed and/or the scion or bud began to grow. Notes on plants produced by any type of propagation should also include any problems encountered during the propagation phase and dates(s) when the plants were ready for shifting into larger containers or planting into the field.

Production scheduling, the planning phase of the propagation and production processes throughout the nursery, involves the building of models based upon information gathered from previous crops or estimates based upon similar crops. Information contained in production schedules includes (at a minimum) the best time(s) of year (month, week, or day) to propagate specific crops, production time (from start to a finished crop), and minimum expected yield percentage. Theoretical production schedules can be compared with actual data each year to ensure that schedules are accurate. Small to medium-sized nursery operations may find a spreadsheet system sufficient for maintaining and working with production schedules, while larger operations often purchase software packages or utilize custom-prepared programs.

Preparedness

Marketing classes teach students that there are three key elements to a successful retail business — location, location, and location. This principle applies equally well to the effective operation of a propagation department as location within the nursery can, on the one hand, help to foster an efficient operation or, on the other hand, increase the risk of disaster. Propagation facilities should be located in areas away from readily available public access in order to reduce the chance of vandalism, especially to critical equipment. Facilities should also be located away from areas subject to potential flooding as loss of propagation and lining-out materials can be far more devastating to a business than the loss of plants of larger sizes. Propagation facilities are best located away from sources of blowing dust or influx of weed seeds.

A sudden loss of electrical power can be disastrous to a propagation facility due to reliance on solenoid valves, digital or computerized controllers, motorized greenhouse vents, greenhouse heating and cooling devices, and other electrical equipment. An investment in an emergency power source, such as a gas-powered generator, can keep critical equipment operating (and keep the crop alive) until the power supply can be restored. Such emergency equipment must be checked for proper operation from time to time to ensure that it will be ready when needed.

An effective propagator will ensure that an adequate supply of spare parts is available for regular maintenance needs as well as for emergencies. Additional plumbing supplies, electrical pumps, solenoid valves, nozzles, plastic sheeting, and other supplies on hand constitute cheap insurance for times of need. Tools to make the needed repairs should also be quickly available.

Education

The need for continuing education in the propagation department never ends. Just because you have “done it that way for years” does not mean you can expect continued success and competitive margins to continue.

For starters, get in on all the free mailing lists you can. Make sure that you are getting copies of the latest circulars, bulletins, and research reports series coming out of University Research and Extension Services in your area. Diversify your reading lists — many organizations to which we belong, and magazines which we read with no direct relation to horticulture, will have seasonal feature articles or short articles that may provide just the piece of information you need.

An unbelievable flood of information exists right at your fingertips if you have access to the Internet. Many universities maintain web sites and other organizations (including I.P.P.S.) have extensive web sites with links to other locations that contain information that is yours for the gleaning.

Certainly, no serious propagator can be without some of the classic reference texts such as the 7th edition of *Hartmann and Kester's Plant Propagation: Principles and Practices*, by Hartmann, Kester, Davies, and Geneve or any of several books by Michael Dirr such as the *Manual of Woody Landscape Plants*. Another valuable reference is the *Seeds of Woody Plants in North America* by Young and Young.

Innovation

Beyond a constant obsession to keep up on what's new, effective propagators must continually evaluate methods to “Work smarter, not harder”. We simply must evaluate processes, eliminate unneeded steps, streamline production, incorporate flow charts, invest in labor-saving systems, and monitor efficiency. Most successful

breakthroughs with regards to innovation have really been ideas that we have borrowed from other industries. Propagators often become more effective by studying what others are doing in dissimilar businesses/industries. Conveyors, robotics, soil mixers, flat fillers, and the like are technological advances that came into our arena by way of industries such as the grocery, egg, automotive, and food processing companies.

CONCLUSION

In summary, striving for excellence in key areas provides a good basis for becoming a more effective propagator. While our focus should not be limited to just the seven focus areas we have discussed, these areas must be of top priority in any successful propagation operation.

Camellia Production from Cuttings[©]

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INTRODUCTION

At Bennett's Creek Nursery we grow a full line of camellia cultivars to supply customer demand. All cultivars are propagated from cuttings and container grown. Spring bloomers consist of *Camellia japonica* cultivars and related hybrids. Fall bloomers are either *C. sasanqua* or *C. hiemalis* cultivars and related hybrids. To date over 200 cultivars have been evaluated for commercial production. We continue to trial promising new cultivars in order to supply the best possible marketing mix to our customers.

PRODUCTION

Variety Selection. Cold hardiness, flower bud set, flower characteristics, and production ease are the primary criteria upon which all potential cultivars are evaluated. Cold hardiness is essential because most of our clients are selling to customers near the northern edge of the camellia range. Good flower bud set makes a plant much more marketable as it begins to show color. In regards to flower characteristics, red blooms are currently in greatest demand. Consumers seem to prefer double blooms. And larger blooms are usually better. To be more specific about production — rootability, vigor, and disease resistance are our primary focus. Cultivars scoring high in all categories are good candidates for our marketing mix. Examples of *C. japonica* cultivars that score well are 'Les Marbury', 'Otome' (syn. 'Pink Perfection'), and 'Lady Vansittart'. *Camellia sasanqua* examples are 'Yuletide' (see *C. 'Yuletide'*), 'Cleopatra', and 'Autumn Moon'.

Propagation Timing. Timing is based upon stage of growth. Cuttings are collected from current season wood on young containerized plants. *Camellia sasanqua*, *C. hiemalis*, and related hybrids are normally ready first. Stems should be semi-hard and tan in color. An average cutting is 10 to 13 cm (4 to 5 inches) in length with 4 to 5 leaves. *Camellia japonica* and related hybrids should have tan or green and tan