

The ABCs of Plant Propagation at GreenForest Nursery®

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INTRODUCTION

Successful propagation requires the same amount of planning as does finishing the plant for sale. A careful analysis of the plant material to be propagated is an important initial decision. Just as critical is a clear understanding of who makes that decision. At GreenForest Nursery, a team approach is used and involves the sales manager, the production manager, the propagation manager, and the owner. A team approach often helps identify potential strengths and problems. These decisions are based on how a plant is selling, how it is projected to sell, ease of production, and production time.

Deciding when to propagate is also a critical part of the planning process. This again requires input from the previously mentioned team. Liners need to be ready when the production manager needs them. Non-available liners when needed waste valuable production time. Liners ready before production is ready for transplanting may be pot-bound and past optimum quality. These decisions are based on availability of cutting material, readiness of cutting material, economics, and optimal cutting time. For economics, considerations might be rooting hollies in the summer versus winter when hollies root similarly in the summer and winter heating costs are eliminated. It might also involve propagating during a time of the year when labor is not being utilized in other nursery areas. If the increased labor to stick additional cuttings costs less than sticking fewer cutting that require heat, you might be better served to stick more cuttings during a time that reduces other inputs.

Deciding how to propagate the needed liners should also be a part of the planning process. These decisions are based on experience, experimentation, and research. I maintain a notebook that includes everything done to a group of cuttings each year. I can look back and make sure we are being consistent with what worked previously. Conversely, notes are also a helpful tool to go back and discover what small thing you changed that had a tremendous unexpected result. Experimentation usually involves a small block of cuttings taken at a different time, using different hormone types or levels, different moisture levels, or different shade levels. We experiment a little each year to increase our successes. Research involves listening to other propagators at meetings like this, reading research papers on propagation, reading propagation books, and calling fellow propagators between meetings.

Deciding how many liners to propagate depends on the number needed for production, number targeted for direct sales, rooting percentages, and cull rate. You should also consider the number needed for production if additional liners are needed for multi-trunk containers.

The best cuttings available should be utilized for propagation. Stock blocks can be maintained for this purpose and are the ideal source of cuttings. However, due to many factors, production material is often used as a source of cuttings. In this case, coordination with the production manager is critical to make sure anticipated cuttings are not removed by routine pruning prior to the need for cuttings. You can-

not grow a great plant from a poor cutting, but you can produce a cull liner from a good cutting.

BASICS OF PROPAGATION AT GREENFOREST NURSERY

Timing is very important in propagation success. Again, success requires cooperation between propagation and production. Routine pruning operations can be synced with cutting needs. In some cases, the propagation crew can perform the routine pruning thus making sure cutting quality is maintained at the same time parent plant quality is enhanced. Timing is also critical for finished liners to be ready when production is ready to transplant. If liners are not ready when production is, labor is wasted during the delay. Similarly, if production is not ready for transplanting when the liners are, plant quality can be reduced and transplant shock increased.

Space is also critical to propagation success. A successful propagator should plan ahead and know which liners will be placed in which houses. Propagators should take and stick cuttings based on filling houses with plants with similar needs. Magnolias prefer high humidity and temperatures approaching 38 °C (100 °F). Leyland cypress prefers a drier environment. You cannot successfully root these two crops in the same house at GreenForest Nursery. If you choose settings in between, both crops will suffer. If you favor one crop, the other will suffer. It is much easier to maintain optimal conditions for magnolias when the house is completely full. Empty space is a negative for maintaining humidity. Finally, various cultivars of magnolias have slightly different preferences and can be best maintained in a mono-cultivar house.

Selection of the appropriate hormone (or hormones) is another key consideration. Using the correct hormone can decrease your rooting time, increase your rooting percentages, and promote a more vigorous root system. GreenForest Nursery uses various levels of K-NAA, IBA, NAA depending on the plant. Use of K-IBA has all but ceased because of source issues. All formulations are liquid. In some cases, we are experimenting with cuttings taken at times that require no additional hormone treatment.

Moisture management is the most critical element of cutting propagation. Each house is managed individually, and each cultivar is managed individually. Moisture can be in the form of fog in the magnolias houses to make sure humidity stays high. It can be in the form of traditional misters in each house, and it can be in the form of spot watering callused cuttings. Each facet of moisture must be tailored to the crop and the stage of the crop. Houses are on clocks, but the clocks are changed manually throughout the day to make sure cuttings have optimal conditions based on temperature, humidity, cloud cover, and stage of rooting.

Finishing the liner for use at GreenForest Nursery or direct sale involves moving the plant from a misting regime to a watering regime. Fertilizer is also added to the containers as a top dress at the appropriate stage and rate.

Stepping up of liners for use by GreenForest involves their movement to outside holding areas prior to transplant into larger containers. We prefer that the liners be held no longer than 1 year. Liners stuck in summer and spring will be typically be planted out during fall or the following spring. Liners for direct sale may come from outside or greenhouse holding areas. Sold liners are typically current year's crop.

Liners for direct sales can be prebooked based on customer need or bought on an as-needed and as-available basis. We currently use a quart pot for our propagation of magnolias. Other crops are propagated in 1801s or 3601s. We can also custom propagate in other sizes as requested. However, the majority of our propagation is for GreenForest use. Very little of our transplant material is from other sources at this time. We will be adding some seed propagation for the future.

SUMMARY

GreenForest Nursery uses a team-based approach to determine liner numbers and species, timing, and space requirements. The propagation manager handles the sticking and rooting of the cuttings. This approach has given us success in the propagation and production of difficult species such as magnolias.

CONCLUSIONS

Propagation is a complex process that begins long before a cutting is made. Attention to the ABCs we use should provide a propagator good starting point for someone wishing to become involved in propagation. Hopefully, existing propagators will gain some insight from what we have shared as we seek and learn from them.