

The Benefits of Buying Unrooted Cuttings to the Propagator®

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INTRODUCTION

To buy or not to buy, that is the question. Propagation managers have struggled for years with the economic issue of how to asexually propagate plants. Do we produce them ourselves or buy in propagation liners. Let's look at the options we will be comparing in this talk.

- Propagate internally — taking cuttings off of existing stock in or around the nursery.
- Buy in unrooted cuttings — fresh stem or leaf cuttings without roots.
- Buy in rooted cuttings — small rooted stem or leaf cuttings free of soil.
- Buy in rooted plugs — small plants with roots in some planting media.

Hopefully after examination of these options you will have a clearer economic perspective.

BACKGROUND

The Groundcover Department at Hines, Houston propagates our own product either through cuttings, divisions, seeds, or buy-ins. We produce 7.5 million cuttings a year, 52 % come in as buy-ins and 48% are produced in-house. They are propagated into 98-cell plug flats and later shifted into 4-inch or quart pots for sales. We have 43 employees with 36 working during the day and seven at night.

Of those employees, 14 work on cutting and division propagation. We produce 4.2 million pots a year on 6 ha (15 acres) and 74% of our product is sold within the first 5 months of the year. With these restrictions, one of the most important factors in our success is the inventory turnover, or number of "turns". How many crops can we grow on this finite piece of ground in a year?

We presently are turning the 6 ha (15 acre) 1.5 times a year. Some crops take longer such as *Liriope* or *Ophiopogon*, while others are much quicker such as *Ipomoea* or *Ruellia*. Other species such as *Hemerocallis* and *Hosta* produce only one crop per year.

OPTIONS

Before we can answer the question which option is best, we have to make some basic assumptions. Do you have the time, labor, knowledge, and facilities to propagate this plant, either internally or from unrooted cuttings? One cannot underestimate these factors. Not having one of these components will play a big role in your success. Now we can start evaluating the options:

- Do we have the stock to get propagules from? As an example, we need 200,000 rooted plugs of *Hedera helix* "Thorndale" by January to shift into 1-qt pots. We stick four cuttings per plug so we need

approximately 800,000 cuttings in the fall. Due to the hot and humid nighttime conditions we cannot maintain this plant during the summer to generate cuttings. So to build numbers quickly, we have to buy-in unrooted cuttings. The same goes for *Vinca*, *Ajuga*, and *Pachysandra*. For us internally producing certain crops is not a realistic option.

- Do we have enough money to buy-in this plant? (See Table 1 for details.) As you can clearly see if you have enough cutting stock and the time to build-up production numbers, propagating internally is the more economical route. But if that is not the case, then buying in unrooted cuttings, propagating them, and producing liners versus buying in rooted plugs will net you 32% in reduced costs.
- As previously mentioned, inventory turns are important. By not having to save plants as stock plant sources to collect cuttings, one can sell the plants being held for cuttings, which would net you more money. (See Table 2 for details.)
- Do you have the time? It's January and you have just been told you need to have 25,000 *Lysimachia nummularia* 'Aurea' by March 1st for sales promotion. You have no plants on the ground and availability from your plug suppliers are slim because everyone else booked their orders for plugs in early fall. You could still buy-in unrooted cuttings, propagate them 4 weeks under mist, finish them off as rooted liners for an additional 4 more weeks, and still meet your customer's sales promotion.

FORMS OF PROPAGATION

Internal Propagation-Advantages.

- Cost effective — normal input costs.
- Quality control — by doing your own cuttings, you have maximum quality control.
- When taking the cuttings it adds to the overall quality of the plant.

Internal Propagation-Disadvantages.

- No new items — limited to the crops you are presently growing.
- Slows down the selling cycle — reduced inventory turns due to holding saleable plants for cutting stock.
- Need to have the growing facilities and knowledge.

Unrooted Cuttings—Advantages.

- Lower overall production costs compared to rooted plugs — a 32% savings.
- Lower shipping cost due to the weight of the product; shipping weight is approximately 5 lbs per thousand unrooted cuttings and 5 lbs per flat of rooted cuttings.
- More convenient shipping method — overnight delivery will take only several boxes and will be delivered in 24 h or less.
- Lower minimum orders — 100 per type/1000 per shipment.
- Quicker reaction time for needs — vendors don't need lead time to go out to produce the plugs; also quicker availability of new varieties.

Table 1. Comparison of internal propagation with own stock plants (plants in production), buying in unrooted cuttings (URC) for propagation or buying in rooted plugs. Costs are based on a 98-plug flat.

	Internal Production	Buy-in unrooted cuttings	Buying a rooted plug
Cuttings	\$0.0000	\$0.0725 × 3 cuttings = \$0.2175	—
Labor:			
cutting collection	\$0.0051	\$0.0000	—
Labor:			
prep/sticking	\$0.0160	\$0.0117	—
Plug flats/ cell	\$0.0032	\$0.0032	—
Soil	\$0.0209	\$0.0209	—
Production labels	\$0.0001	\$0.0001	—
Residency cost	\$0.0190	\$0.0190	—
Total cost	\$0.0644	\$0.2724	\$0.4000
Percentage of rooted plug cost	16%	68%	100%

Table 2. Propagation production examples with Ipomoea which is sold 43 weeks out of the year at Hines Nursery, Houston.

	Grown for external sales only without taking cuttings	Internal propagation: grown for cutting production and later sold
Propagation time under mist	2 weeks	2 weeks
Liner finishing time	2 weeks to finish in quart pot	3 weeks to produce plants with sizeable cuttings; take cuttings; 2 weeks to finish in quart pot
Total propagation and liner production time	Ready for sale in 4 weeks	Ready for sale in 7 weeks
Inventory turns per year	10.75 ×	6 ×
Summary	\$1.24 sales revenue x 12/flat = \$14.88/flat x 4.75 more turns = \$70.68 additional revenue minus \$13.89 in production costs	

- Virus-indexed and pre-cleaned cuttings — stock plants are rotated to insure quality.
- Certain companies offer unrooted cuttings (URC) pre-dipped in powdered hormone; this method of propagation is more productive than internally propagating — more cuttings produced in fewer hours, requiring less labor.

Unrooted Cuttings — Disadvantages.

- Facility and technical needs — you will need a propagation facility and knowledge on how to propagate the plant(s).
- Labor is needed to propagate cuttings.
- Some types are not available as URC.

Rooted Plugs — Advantages.

- Labor savings — the only labor cost is to pot them up.
- No need for propagating facilities.
- Increased selection available.

Rooted Plugs — Disadvantages.

- More expensive than other methods.
- Quality can be questionable at times.

CONCLUSION

Unrooted cuttings may not be the end-all method of propagation but they have many advantages. Many taxa that are now being offered, i.e., one supplier currently offers as many as 600 plants. Plants that are being offered are not just annuals but also perennials, tropicals, groundcovers, and even certain woody ornamentals. To get new introductions out faster to the public, a lot of these are being offered as URC. So if you have the facilities and the propagation knowledge, URC is a great option for meeting your customers' needs and improving your profit margin.