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Not My Fathers Nursery©

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INTRODUCTION

Hackney Nursery was started by my father, George Hackney, in 1991. The nursery was built around cheap land, cheap freight, and cheap labor. None of these attributes exist anymore. Much has changed since 1991 - not only in the way we sell, ship, and grow our plants - but also, who grows them. These changes have evolved because of regulation, necessity and advancing technology. All this has dramatically revamped the way my brothers, George, Martin, Joseph, and I - manage our roles at the nursery.

SALES

The biggest change to the nursery has been in our sales department. In the early days of the nursery, we would take pictures with a polaroid camera, and snail mail them to customers, along with an availability - and any notes a salesman might want to add. Now days we use our smart phones to email or text a picture to our customers in real time. This constant contact has helped us be more efficient in our sales, without having to take and show samples to customers. Along with technology, the sales team has also had to adapt to a growing plant palette with the introduction of many new varieties and brands of plants that are introduced each year. When my father started the nursery, the focus was to grow large numbers of a few varieties, whereas now

we are not only growing a larger number of varieties, but we also have many different sizes to adhere to the varying specs on landscape jobs.

LABOR

When my father built the nursery, labor was cheap. The answer to completing many tasks was to just throw more people at it. This style of operation led to hiring a larger number of seasonal workers who were let go at the end of spring shipping season. Now, with healthcare regulations, a decrease in worker availability, and rising wages - we have adapted to create a year around work force. The key is having people who are cross-trained to do many different jobs at the nursery. For instance, a pickup crew leader may also work in pruning or propagation, depending on the job priorities for that particular day.

We have also put a major emphasis on incorporating automation at the nursery. Originally our employees were skeptical about automation taking their jobs, but they have now realized that the automation is there to help them make their jobs easier; it frees them up to allow them to do other tasks. We currently see labor as the single limiting factor on the future growth of our nursery and are continually looking for ways to alleviate this issue.

PROPAGATION

Propagation was done outside when the nursery was started. We have now built 36 high tunnels for propagation (Fig. 1). The high tunnels are 30.5 m x 7.6 m (100 ft x 25 ft) with a 1.8 m (6 ft) side-wall. By covering with white plastic, clear plastic, or shade cloth - and having the ability to roll the walls up - we have better control over light, temperature, and water exposure. In the early years we were able to get by with a big outdoor mist systems. Now with the many different varieties we propagate in smaller, more controlled areas.

All liners are stuck into 7.6 cm (3 in.) disposable inserts - instead of individual reusable cups. We found it easier and quicker filling the trays with inserts. The trays are filled on an Ellis potting machine, stacked on pallets, and wrapped in plastic for storage. When a house is emptied - new trays are set in it and then watered-in for preparation in sticking cuttings. The propagation crew will take cutting in the field and then stick them into the trays on the floor in the house. If the variety of plants the crew is sticking requires auxins, it is applied over the top with a backpack sprayer the morning after being stuck. The auxin application is applied in the morning because the stomates are open in the mornings. It is also safer for the propagation crew, since fewer come in contact with applying auxin. We learned this technology through the IPPS.

Once a rooted liner is ready for planting - they are moved to one of the other three locations where they will be potted-up. In the past we have planted multiple 7.7 cm (3 in.) liners into a pot. We are currently running trails with sticking multiple cuttings in a quart pot. We believe that the larger liner will be able to grow a more consistent plant, in a shorter amount of time.

POTTING

When my father started the nursery, he had a full-time potting crew of 15 people. In the past five years we have tried to get away from having one big crew that only pots. Instead, we have invested in 2 EZ Potter potting machines from Ellis Products http://ellisproducts.com/products/potting-machines/ez-potter-potting-machine/. These machines allow us to fill propagation trays, 1-,2-,3-,5-, and 7-gal pots. When the machine is accompanied with the drill we will plant liners to 1-, 2- and 3-gal pots. We also shift 1-gal containers up to

3-gal and 7-gal containers. We prefer to do our potting with one crew of 6 to 7 people - but it is not their full-time job. This crew also works in shipping, consolidation, and bed repair at the nursery.

Once we have potted a plant, we have 3 different configurations in which we set the plants down (Fig. 2). The first is 4 solid lines consisting of 3 or 4 pots wide. The reason for the 4 solid lines is we use four Harvest Automation Robots https://www.public.harvestai.com/ to space all of our 2-, 3-, and 5-gal pots. These lines create a constant distance between plants needed to be spaced, and plants the robots have already spaced. For trade gal and full gal pots, we set these down in 4 solid lines of 6 pots. We then us a accordion style spacing device that will pick up one line of 6 pots and slide out to give each pot the correct space it needs.

The second way in which we set down is in what we have termed “pods”. Pods, are blocks of 3-gal pots that are 9 pots wide and 6 pots deep. This configuration matches up with our Agrinomix Trike Forklifts http://agrinomix.com/fork-handling-solutions/. We can pick up the entire pod and move it to another bed, where there is room to space it. With the pods, we can jam about two and half beds worth of spaced material into one bed. All our 7- and 15-gal material is set down spaced - and generally will not be moved until it is sold. Using this automation, has not only reduced our labor needs from the old way, but we are finding that we are able to grow plants more efficiently. Tasks are now preformed as needed; much more lean flow https://www.process.st/lean-manufacturing-principles/.

HERBICIDE

Previously, the nursery never used herbicides. Instead, employees had assigned areas and they were awarded bonuses for finishing their areas in a week. However, increased labor cost has caused us to introduce herbicide into the rotation (Fig. 3). We continue to use the bonus system

and have teams of two weeders whose goal is 10 acres a week. We are currently on a 5 week rotation, where each plant on the nursery will be weeded and herbicide applied every fifth week. We are using mostly liquid herbicides at a lower rate because of the interval. There are instances where we are forced to use granular herbicides. On more sensitive species, like hydrangeas, we have begun using sawdust or rice hulls as a weed barrier.

FERTILIZER

Originally the nursery used liquid fertilizer, but shifted to all granular to comply with Florida Best Management Practices for nurseries. We have now created a program, where we are using both Liquid and Granular to offer the plant the correct nutrients during different times of the year. All new plantings are top-dressed with a 6-month fertilizer, and then we will reapply again in 5 months cycles as the plant grows. These applications are performed by two men who use the provided fertilizer spoons, as well as automated fertileeze fertilizer dispensers https://www.fertileeze.com/. We are also in talks with Harvest Automation to work on designing a fertilizer attachment for their robot that would fertilize the plant when it was spaced. Liquid fertilization is used when we are in optimal growing weather, and the plant needs more nutrients than the granular is providing. We also use the liquid fertilizer to "hold" a plant once it has reached the saleable stage but has not yet been sold.

PESTICIDE APPLICATION

In the beginning, my father's nursery used a converted tomato sprayer to apply pesticides and fungicides. We recently added some new technology as well as some out-of-the box thinking to our spray regimen. Two years ago, we purchased a AirTek air blast sprayer http://www.airtecsprayers.com/ with an ionization system on the boom (Fig. 4). We have seen a much better coverage rate, and better pest control by using this technology. Last year, we built a

drenching machine, consisting of a 3785 L (1000 gal) tank and a 5-hp pressure pump. The main objective was to use this when hand drenching crops. However, we discovered that with the pressure pump we could design a valve system where we can tie into individual shade and propagation hoses - and subsequently spray a fungicide through the existing sprinkler heads. This drastically reduces the amount of time it takes to do the job.

SHIPPING AND FREIGHT

The way we ship our finished product and how much it costs to ship have also greatly changed since the nursery opened. It used to be that we would pick up with wagons and stack all our material with conveyer belts. Now we use racks and pick-up containers on pallets (Fig. 5). We made this change for two reasons: firstly, it is less damaging to the product and secondly, it decreased loading and unloading time for drivers using electronic logbooks https://eldfacts.com/eld-facts/. We try to have loads racked and staged on the dock before a driver arrives - especially on loads carried by outside drivers. This allows us to use as little of their drive time as possible. The quicker unloading time with the racks also allows drivers to get two or three loads a week instead of one or two. Also, with the electronic loads, we cannot guarantee your order will be there in one or two days of shipping. The driver could be 40 miles away at lunch but must shut down for the day. This means the customer will not get their product until they open the next day. This has caused us to only ship local trucks after Wednesday to guarantee that our customers will not have to take a Saturday delivery. The down time caused by the electronic logbooks has caused our freight rates to increase. The local owner operator trucks we use have increased their rates by twenty percent a mile and a 20 percent increase on flat rates in loads to Atlanta and Charlotte.

SUMMARY

The nursery industry has drastically changed since our father opened Hackney Nursery. We, as a family, have had to adapt to increased production cost and regulations. We have adapted with a more skilled trained workforce, more automation and new production practices. With these changes we hope to keep the nursery running well into the future.

Propagation

- Done in-house, no longer in field.
- Tray inserts are used.
- Trays filled via machine.
- Auxin is sprayed on the foliage in the morning.

Figure 1. Propagation at Hackney Nursery in protected high tunnels.

Potting

- Two potting machines.
- Set down in configurations for Trike and robots.
- Bark is watered in.
- Liners are planted in the field.

Figure 2. Potting is facilitated with potting machines and robots.

Weed Control

- Applied in-house, no longer in field.
- Both liquid and granular herbicides are used
- Rice hulls and sawdust are used for weed control on sensitive species
- Contract areas with hand-weeders

Figure 3. Weed control with liquid herbicide application.

Pest Management

- Air-Tek Sprayer.
- Drench Quarterly.
- Chemigate.
- Granular Insecticide.

Figure 4. Pest management using Air-Tek Sprayer for liquid application.

Shipping

- Pallets.
- Use Racks.
- Decreases Loading/Unloading.

Figure 5. A pulled order for shipping using pallets to more efficiently load and unload.