

Efficiency Through Innovation[®]

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Today, labor is the most premium product and there are four factors that affect the cost of labor:

- Salary
- Training
- Insurance
- Accidents/injuries

Any monetary savings on these factors will help lower costs overall. Savings in one factor may be transferred to another factor as an expense.

One of the ways to minimize labor cost is to mechanize wherever possible. Mechanization may help, but it is not always the savings everyone assumes. When considering mechanization, keep these thoughts in mind:

- Speed - it may not be as fast but will be easier on employees. Will faster production affect quality?
- Safety - will it prevent injuries or accidents? Do you have the manpower to safely use the equipment? Will you be looking at much higher training costs?
- Labor - can it be done with less people? Will adding people dramatically increase production?
- Equipment costs - how soon will the equipment pay for itself? Do you have the manpower to do maintenance and in-house repairs?

When looking for places or methods for innovation or efficiency there are what I consider five options to consider: production efficiency, crop innovation, customer needs, order assembly, and equipment and materials

Production Efficiency. Production efficiency is what I consider for all stages of production that lead up to the sale of plants. It may involve crops or materials. There are several methods we incorporate for production efficiency.

- We chip all plant trimmings for mulch. Benefits we receive include: less watering and better weed control on larger containers. We also save on dumpster fees.
- Pre-filling and palletizing flats. We palletize our CP, 3 in., 4 in. and quart flats. We identify soil mixes by wrapping the flats with different colored plastic/Saran wrap. Pallets are brought to the production area as needed. Pallets are always available for the production crew, so the crew never has to wait for pots to be supplied.
- We will jump container sizes on certain crops, i.e. specific trees will be transplanted from tree tubes to 5-gal or 15-gal containers, depending on the species.
- We are constantly fine-tuning production methods, such as discontinuing B&B production.
- Palletizing used pots.
- New potting machines. Look at new machinery for different potting methods.
- Vertical production space for baskets in greenhouses.
- Signage in houses for production crews to pot numbers by visual inspection of space available.
- Cutting and seed indentation templates.

Crop innovation. Crop innovation is very limited for our type of operation. We grow 4-in. material all the way up to 200-gal trees. Due to the varied crops, we are limited on some of the equipment we can use.

- Trimming machinery options include block mowers on wheels, handheld trimmers with short fixed heads, heads on poles, and articulation heads on poles.
- Tree anchoring depends on your soil types and wind situation.
 - Cable system on posts.
 - Short “T” post, which are low cost, easy to install and remove.
 - Mobile home anchor-cage with a modified tool for installing.
 - Other options - guy wire anchoring for palms.
- Tree rotisserie - rotate the tree in windy areas for straight growth. This is used to rotate trees 180 degrees so that prevailing winds do not force the tree to lean in the container.
- Water Truck to water block edges and for dust control on the roads.

Customer Needs. Designing goods and services for customers is critical to our business. We spend considerable time on crop selection and efficiency to better serve customers. The type of customer base you want to service can dictate what crops you grow and/or how you grow those crops.

- We break our customers down into four categories: retail, wholesale, landscape, municipal / government/ non-profit.
- Look at municipal entities for plant giveaways. Municipal entities are a good guaranteed way to move selected crops. We grow large numbers of trees for heavy culling and what we do not use, we pick through and sell for tree giveaways. This opens the option for possible free advertising.

- Contract growing - most of our municipal/government sales are contract grown sales. This entails guaranteed sales and payment up front. You set the terms and in many cases can charge a premium price for oversized specifications. Working with architects directly allows your input at the beginning of the project.
- Retail customers need high quality plants that may require specialized shipping or sleeves. It can be dependent on weekend weather and is very seasonal. There is also the yearly change in demand for new or patented varieties.
- Wholesale and landscape sales are what we specialize in. You need high quality plants, but they do not always require as much special treatment for shipment. Sales are usually year round due to continued construction and weather will not affect commercial jobs as much as retail sales. Most of your landscape sales are common varieties of plants rather than the new hot plant of the year.

Order Assembly. Order Assembly is for shipping and loading. This includes:

- Rolling ramps for loading onto trailers, from one trailer to the next, or even to move large trees the length of a trailer.
- Pallet forks for Vermeer[®] Skid Steers for loading plants onto trucks.
- Tarping methods - every nursery has their own method and so far we have found there is no best method.
- Hoist for tarps to be loaded onto the truck after delivery.
- Palletizing orders for shipping is becoming a very common method along with rack carts.

These methods work if you are shipping only one or two sizes of containers and plants.

Equipment and Materials. This can include anything from purchasing high-dollar equipment to utilizing scrap materials - to enhance work efficiency.

- PTO driven finishing mowers for pot in pot operation. There is one less motor to maintain, since we can use existing tractors. In the process, we eliminated two Great Dane mowers and now complete the same amount of work in half the man-hours. Maintenance of the finishing mowers are strictly for belts and blades.
- Synthetic oil vs regular oil. We have doubled miles between oil changes and that has saved on filters and oil used. We have also experienced fewer problems on small engines with the synthetic oil.
- Fuel additives have reduced small engine problems from ethanol/biofuels mixtures in gasoline. Costs added to fuel expense is only \$.02-\$.03 per gallon. For more than three years, we have not had any burned out engines from ethanol-gas mixtures.
- We no longer use bulk fluids. It is cheaper to buy oil by the drum rather than in bulk. Common carriers or pick up trucks can deliver drums. Whereas, a shortage of drivers for transporting bulk fluids requires a tanker, increasing shipping costs.
- For storage of filters - we assign a storage bin for each piece of equipment and the list the filters needed on the bin.
- Our supplier checks our bins, reorders and restocks the bins. Hence, there is less labor for us to locate and order filters.
- Multi-use equipment – we use a semi bed that can haul semi trailers or gooseneck trailers. Flat beds allow for transport of up to four pallets of material.
- Vermeer Skid Steers are used to load into trailers, pull large plants out of the drip rows, move pallets, and load customers' trucks and trailers.

- We use a manure spreader system as a field potting machine for large containers. After seeing a few nurseries that used manure spreaders for pot-pot production, we created our own portable potting machine.
- Skid steers - there are many attachments for skid steers that will allow you to expand your equipment selection at minimal cost. Some examples are trenchers, post-hole diggers, brooms, concrete mixers, tree shears, etc. The list is endless.
- We use iPhones for driver-tracking capability (“Find My iPhone“ app), instant photos of accidents, broken plants, delivery site issues, etc.
- iPads enable management to communicate and keep availability list for others to access. Group texting among all management personnel is a huge asset for us. Instant pictures can be sent to customers or office staff, along with live data entry for production and chemical application.
- The Evernotes app is used on iPads and iPhones. This includes sales history, equipment info, crew info, employee info, quotes, shipping schedules, job scheduling, etc. Evernotes allows database type searches on any and all info saved into the program with the ability to email or fax the data.
- Some of our low cost innovations include:
 - Spray paint container sizes on pots to avoid confusion with employees or customers
 - Spray paint color code on pots for trunk height of palms or caliper of trees
 - Pot hooks for 5-gal pots and hooks to pull larger containers
 - PVC pipe to protect mist tubes on sprinklers and avoid sharp edges on tables for water or spray hoses.

