

## Home Grown Innovation at Lancaster Farms Inc.

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*Keywords:* Mechanization, labor efficiency, pruning, machine design, technology adaption.

### INTRODUCTION

In the modern-day nursery business when we hear the word innovation the first thing that comes to mind is technology. Whether it is sensors helping us make better irrigation decisions. Smart sprayers allowing us to quickly and efficiently apply chemicals. Pumping stations that have turned into water treatment facilities. Potting machines that increase output while decreasing labor or drones that give us a bird's eye view. They are all great examples of innovations that allow us to be more efficient while producing the same if not higher quality product. While all of these aforementioned innovations allow us to produce higher quality products more efficiently while reducing our impact on our environment and bottom line; they are big investments for our companies - and all too often we must update our facilities to accommodate them.

At Lancaster Farms we love to innovate and strive to find better, more cost-efficient ways to produce our products. While we have implemented several of these innovations - we embrace home grown ideas

and I hope that some of ours will spark you to come up with some of your own.

Traditionally, every year when we plant our trees, we have a process - like everyone else. For us, the process has always started with prepping our beds drip lines and cleaning them up. Lastly, we will spray them with a pre-emergent herbicide, using our roadway sprayer, which typically gives us 10 to 14 months weed control. This process works great for our faster crops. The problem comes with our slower crops. Historically we would apply granular herbicide to older beds 4 times a year. The problem with this was that in our pot-n- pot production we do not have overhead irrigation. This left us trying to apply our herbicides when rain was in the forecast and we all know how that goes. It never rains when you need it to, and we never know how much we are going to get when it does!

So, we decided to start spraying the beds with backpacks, because moving the trees out of the bed was unrealistic. This was painstakingly slow and inefficient; 'painting' the beds - 3.5 gallons at a time - took forever

and was poster child for waste. We knew that we had to find a better way. We looked everywhere and at everything, it was either too expensive and needed modifications, or too cheap and did not work. So, we went back to the drawing board. Honestly, our first attempt was a huge bust!

We took an old riding lawn mower modified the tires and added a pull-behind 40-gallon tank. The idea actually worked but driving in the beds with this piece of equipment was deadly to the trees. Even with a trusted employee using the equipment - we still would run over or scare trees by the dozens. It was just too hard to control. So, we went back to the drawing board and I stumbled across the Jacto PJB16 battery powered backpack (Figure 1).



Figure 1. Jacto PJB16 battery powered backpack. Used for watering in granular herbicide applied to pot-n-pot containers.

It had everything we were looking for. It had preprogrammed setting for speed and pressure, and a battery that could run all day.

All it was lacking was capacity. With a 3- gal capacity, it would require countless refills. So, we took off the tank, put some wheels on a frame and added a bigger tank. The backpack comes with everything you need, and we have killing weeds ever since!

Weeding on a nursery has always been one of the most hated jobs. It is painstakingly slow and hard on your back. Luckily, we have herbicides which allow us to prevent weeds and the awful job of weeding. They work great when used properly and can really save us some money. There are several issues with these chemicals though. I am not going to go into all the problems - just one. Not all crops are labeled for herbicide use. Our perennial and annual herbicide program needed help. We were not using herbicides either because we were not comfortable using them or they were not labeled for use. So, we stumbled upon rice hulls as a weed barrier. They worked great. The problem was applying weeds to the surface of containers was even slower than weeding to put them out. So again, we went to the drawing board. I do not remember who came up with this idea- but it has worked great for us! We simply use an insulation blower to apply rice hulls as a weed barrier (Figure 2). While it is surely not perfect, it gets the job done in a timely manner!

In today's nursery industry so many things are changing! Even how we load and ship our plants! Over the years rolling racks have become the standard - and using racks adds new variables to loading that were not previously a problem. When we started using racks years ago, they were solely for our annuals and perennials. The racks we purchased were perfect for them. However, when we started loading all our plants on racks, we started to realize that these were not necessarily the best "fit" for all our different plant sizes.



Figure 2. Using an insulation blower to apply rice hulls as a weed barrier to the tops of containers.

So, we started looking for different sized racks - looking at different dimensions to find the rack that worked the best for us! Once we found a rack that was to our liking - we realized that we would have to wrap our racks because they had no sides - and plants were falling off during every step of the process. After a spring of hand-wrapping our racks - we knew there had to be a better way! Our loading dock manager found out how other industries were wrapping pallets. The problem was the high cost of the wrapping machines! So as always true to our roots - we started building our own machine - and now have our own for a fraction of the cost (Figure 3)!

Our retail customers are demanding more of us now than ever - and it is just not the quality of our plants that they require. Every year it seems that something else gets added to the list. One of our customers thought that our pots were too dirty and did not like the way they looked sitting on their retail nursery lot. I know it seems stupid; we do all



Figure 3. On-site, nursery-built machine for wrapping pallets with plastic to prevent plants from moving and falling during shipping.

work in dirt, soil and mud - and as soon as the plant is sold and planted - the pot is not going to matter. But if it matters to our customers - we should at least look into how we can better serve them. So yet again we went back to the drawing board! Our new solution allowed us to clean our pots without adding another step in our process. We simply modified our loading belt and added a spray system to clean the pots as they moved down the conveyor system for loading (Figure 4). We were off to the races! The best part about it was that almost all of the parts needed for the spray system were already on the farm. So it worked ideally with the conveyor system - and was relatively inexpensive to construct!



Figure 4. To make sure container walls are clean and free of dirt, the spray system in the shipping area was built which cleans the container as they move along the conveyor belt system during the loading of trucks.

These are just a few examples of how with a little thought and ingenuity - we can solve problems on our own. Not every problem we have can be solved in house, but when we can we like to for many reasons. I hope the some of our ideas will get your creative juices flowing and allow you to come up with a better version of what we have built or something else to help your company become more efficient.

Here are some other ideas we also use that are inexpensive and very simple! Scales can be used to “count” everything. For instance, we weigh several bundles of 50 unrooted cuttings held with a rubber band - to get an idea of the “average weight” per 50 unrooted cuttings. With the “average” weight, we can weigh cuttings to reach the approximate cutting numbers needed - without having to individually count cuttings for making bundles of 50 (Figure 5).



Figure 5. Scales are great for “counting” anything. Rather than counting 50 unrooted cuttings per bundle, propagators can weigh cutting bunches to determine the number of cuttings needed by weight.

It is much faster. Rather than manually picking up blown over shrubs and trees by hand - inserting containers into used tires is a great way to prevent plants from blowing over (Figure 6).



Figure 6. Inserting containers into used tires is a great way to prevent plants from blowing over.

Likewise, for pruning larger shrubs and trees, having the worker walk around on drywall stilts is a great way to quickly and efficiently prune (Figure 7).



Figure 7. Drywall stilts are a great way to quickly and efficiently prune trees.