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Starting a Nursery from Scratch

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Summary

Doug Torn, founder and owner of Buds & Blooms, outlines the process of starting a nursery - locating in another state - without the luxury of inheriting land or having a rich uncle to bankroll the operation. Literally: starting from scratch, but doing so after gaining invaluable, professional nursery expertise – having a well-researched, thought-out business plan of what niche nursery products to produce, select markets to service, designing efficient/cost-effective production systems, growing methodically to not outpace sales, minimizing debt – and managing cash flow. The nursery has grown to 60 acres, with 25 employees - producing over 325,000 containerized plants. The four keys to his success are: 1) building a team of outstanding employees – hard-working with creative solutions, 2) managing dollars and cents, 3) efficiency, efficiency, efficiency, and 4) the love and joy of producing exceptional, quality plants – with satisfied customers.

INTRODUCTION

Starting a nursery was a goal of mine since my sophomore year of college. While working for various nurseries and growers during and after college, I would always search for possible better and more efficient ways to grow plants. When it came time to put my goals in motion, the very first question that had to be answered was, "What do I want to grow?". The choices are many: woody ornamentals, bedding plants, perennials, trees - to name a few. Your answer to this question will dictate so many of the decisions that follow. The plants you choose and the climate that is required to produce them will determine where you locate your nursery. You will also need to think about whether you want a container nursery or field production. Do you want to grow 1-gal, 3-gal or 15-gal containers? Who will be your main customer base? These are all important decisions that must be weighed before starting your nursery from scratch.

Dollars and Cents

Once you ave made a decision on what you will be growing and have started thinking about a location, the next big question you must ask yourself is, "How will I fund this endeavor?"

In other words - your dollars and cents. There are three main options for funding: banks, farm credit services, or investors. If you choose a bank, go with smaller banks where the banker can analyze your business and make decisions without going through multiple management levels for approval. Going the farm credit route, you may find they are easier to work with and understand agribusiness much better than your average bank. If you can find them, investors are another solid avenue and source of funding. But be warned, you may bite off more than you can chew with some of their interest rates.

So how much do you need to borrow? Well, that all depends on where you are thinking of starting your nursery and how many acres you want to purchase. Bear in mind, if you have chosen field grown production it will take considerably more land and you will need to factor in soil types before purchasing your land.

As a container grower, I started on 24 acres with an option on 10 more acres. I looked at land both visible and hidden from major highways and ultimately decided on a property with road visibility. Having visibility gave me immediate exposure, free advertising, and most of all, increased the value of the land over time. In my case, I borrowed $150K from an investor to purchase the land at $3,000/acre. In 1983, the local farmers said I was paying way too much for the property; but as of today, the land is now worth 6-10 times more than what I paid (or 5-6% return on investment). Had I chosen land with no highway visibility in the countryside, I would not have the same kind of valuation. After the major land purchase, the remaining $78K that I borrowed went towards grading, irrigation set up, payroll for one employee, and the purchase of our very first liners.

Determining Your Location

My decision to primarily grow ericaceous plants: Rhododendron, Azaleas, Pieris, Kalmia etc., meant I needed to be in somewhat of a cooler area - and definitely not near the coast due to its higher humidity and disease pressures.

After college while I was working at Mid-Western Nursery in Alabama, I subscribed to newspapers from various areas and began looking at ads for land and farms for sale. I called brokers from multiple states and narrowed my options down to northwest Georgia, northwest South Carolina, east Tennessee, or the western half of North Carolina.

We did not have all this fancy Google stuff back in those days. We were still operating rotary phones and typewriters (**Fig. 1**). Our first computer weighed over 30 pounds – which we would not utilize until the mid-late 1980's! So, what did I do? I pulled out the handy-dandy Statistical Abstract of the United States to do my research (**Fig 2).** I looked at everything from growth potential, road systems, logistics, proximity to metropolitan populations, and of course - climate. Then, for six months, I traveled on weekends and holidays to scope out my potential regions. I visited the future competition of the areas, networked through friends and family, and ultimately, I decided to locate on the Piedmont Triad in North Carolina.

Figure 1. Putting 1983 technology into perspective: (left top & bottom) an earlier desktop computer and IBM typewriter (arrow) – prior to word-processing; (right) the non-digital, non-cloud-connected - Ma Bell rotary telephone.

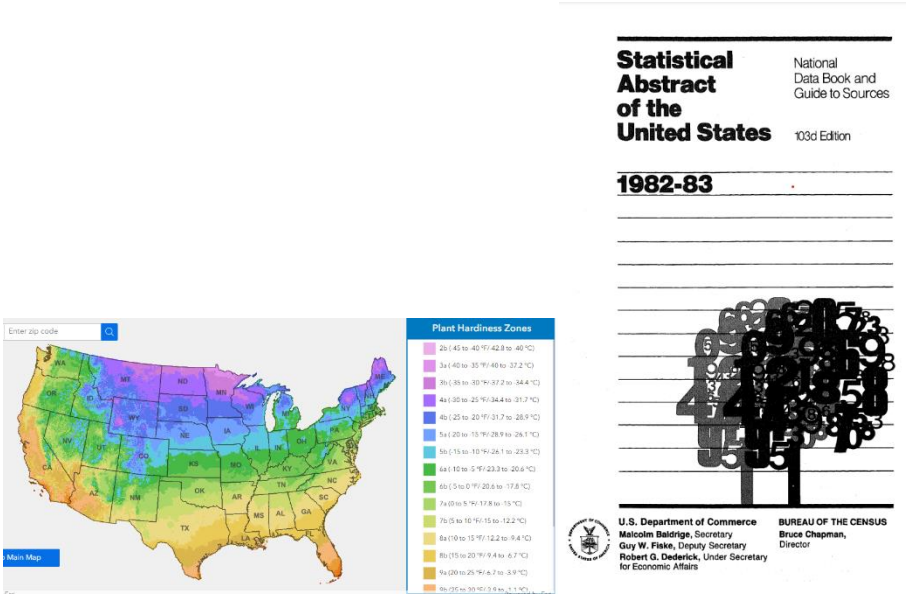

Figure 2. Determinining the nursery location. (left) USDA Plant Hardiness Zone Map, and (right) 1982-83 U.S. Dept. of Commerce Statistical Abstract Data Book & Guide to Sources.

Choosing the Piedmont Triad region meant that within 300 miles I could ship north to Washington D.C., south to Atlanta or west to Knoxville and within 500 miles I could access 44% of the nation's population. Back then, Greensboro was the 2nd largest city in the state. Now, it is third behind Charlotte and Raleigh and possibly on its way to 4th as the Wilmington area continues to grow.

I could have settled somewhere closer to the mountains where my crops surely would have thrived, but the growing season was much shorter. Additionally, had I chosen to go any further east where there are warmer temperatures and higher humidity, I would be dealing with a heck of a lot more disease pressure.

Last, but certainly not least, when choosing a location, you must consider your water source. How will you be irrigating your plants? Does the property already have a well or will you need to drill one? What about ponds and surface water? These are all factors that must be thoroughly evaluated before you purchase your land.

Land Preparation, Structures and Irrigation

Once your land is purchased you can start the grading. If possible, you should aim to grade at a 2-3% slope (**Fig. 3**). This will prevent water stagnation which could expose your plants to "wet feet". Any more than 2-3% you could end up experiencing washout. After grading you will need to decide the layout of your nursery. This is an extremely important step in your business planning and will be the foundation for running your nursery efficiently.

Figure 3. In the beginning: (left) Buds & Blooms Nursery, November 1983; (right) leveling and grading the former row cropped fields for containerized nursery production.

When planning our layout, we first had to determine the width of our beds and roadways. Initially, I chose a bed width of 50-ft, but have since then widened them to an average of 72-ft. Our roadways, which separate each of our blocks, are 14-ft wide. Each of these decisions was made with efficiency in mind. I chose these widths to reduce labor costs when potting plants, spacing plants, and pulling orders. It also allows great coverage from both sides when applying pesticides with our mist blower.

Congratulations, your land is prepped and you can finally start building some structures! But what kind of structure will you use? In the beginning we used shade structures rather than greenhouses. However, after a few very crucial winters, we swiftly made the switch to greenhouses. Today, the cold frames are pivotal to the protection of our plants. In the summer months, we cover netted shade cloth (between 30% - 50%) over the top and stretch it between greenhouses to protect plants from the heat. During the winter months we use poly to cover our houses, insulating our plants and protecting them from cold snaps and snowfall (**Fig. 4**).

Over the years, our regime for covering our houses with poly has changed significantly. Initially, we started out only using clear or 70% poly. Now, we use four different opacities: clear, 30%, 55%, and 70%. This not only allows us to push growth on our plants in the early spring, but it has also made a significant difference in the winter months. If you have ever spent a day manually knocking snow off greenhouses, you know that it is long and exhausting work. Adding the 30% and 55% opacities, we now see far less snow and ice sticking to those houses in comparison to the traditional 70% shaded poly.

Figure 4. Covered and uncovered overwintering production houses used today.

Your structures may have been built - but do not fill them with plants yet! How will you prevent disease pressure and weeds from spreading? Will you use gravel, ground cover, or both? Due to the sensitivity of our crops to Phytophthora - we use

gravel and more recently have been putting ground cloth over gravel beds for additional weed control.

What about the irrigation? This may be one of the most important questions you ask yourself. Water is life. It is the key to everything. You will need to determine your source of irrigation, the type of sprinkler, what type of pipes to use, what irrigation system to use, and many other factors surrounding your water.

The main types of sprinklers typically used in nursery production are impact sprinklers, and wobblers or spinners. However, we chose something totally different. We first set up our irrigation using Rainbird shrub heads. However, it was a more costly endeavor, so we later began switching over to impact sprinklers to reduce installation costs, use less pipe, and dig fewer ditches. It was a big mistake! Impact sprinklers take 60-80% longer to wet plants than a shrub head, and when you are growing disease sensitive plants that should only be watered between 10:00 am and 2:00 pm, time is of the essence. Today, less than 20% of our nursery irrigates with impact sprinklers and we have continued to convert back to shrub heads **(Fig. 5)**. Efficiency is key!

Figure 5. (left) Rainbird shrub head irrigation sprinkler used for (right) container irrigation at the nursery.

Each day for the first 15 years or so, we manually opened valves by hand to water our zones. It was not until sometime in the late 1990's that we installed all electric 3-inch valves -which are controlled by two time clocks that are stationed in the office. This is the same system we use today.

Irrigation will be your saving grace some days and it can be your worst enemy. So, whenever it is your turn to make these decisions - the biggest piece of advice I can give you is to plan carefully and utilize professionals who are knowledgeable of these systems. Irrigation contractors, specifically those who work on golf courses, nurseries

or even wineries, will be immensely helpful in creating the design and layout of your irrigation. Even if you chose to self-install like we did, they can guide you and help make many decisions regarding pipes, sizes, pressure, location, and so much more **(Fig. 6).** Happy irrigating!

Figure 6. (left) Setting up the irrigation system and (right) our first – and last! – shade structures.

POND DEVELOPMENT

If I have said it once, I have said it 1,000 times: water is the most essential element in growing container plants. Ponds, creeks, streams, or wells must be accessible on the property when looking at a site to locate a nursery. In our case, we started out with one pond (**Fig. 7**). Since then, we have built two more conventional ponds plus one small well-fed pond. Additionally, we have all our land graded so that we capture 100% of our run-off and can recycle our water. In doing so, we treat our water with chlorine using a Regal chlorinator. This helps clean the water of any pathogens and bacteria to prevent the spread of diseases on our already disease- prone plants.

Two of our ponds are located on a small creek that is fed by a 1,000-acre water shed. Thankfully, this means little rainfall is needed to fill them to capacity. In addition to our irrigation ponds, we have also added three silt ponds, now referred to as forebays.

When building ponds or forebays, or excavating silt from ponds, talk to your local Soil & Water Conservation District Service. They will help you engineer your damns and spillways. They can also provide cost-sharing funding. These are federal funds provided to the state for these intended purposes and are available to nurseries and farmers. By doing so, I have a 70% cost share on removing silt from one of our ponds.

Figure 7. (left**)** Building our first irrigation pond in the early 1990's and its current condition in 2023 as an established water source.

POTTING

Okay, now that you have your land graded, structures built, and irrigation set up you can finally get to the good stuff… the plants! But how are you going to pot without the proper equipment? Well, like many nurseries, when we first started, we were can filling and plugging plants. Luckily for us, light weight plastic pots were the standard means for potting, unlike some of our nurserymen predecessors who were using tin cans! But why would we spend all that time potting and plugging by hand?

It all comes back to your dollars and cents. Your costs can seem limitless when you are first starting out, so you have to very carefully and methodically consider where to invest your money.

One year later we built our first hand-potting machine that we hitched to the back of truck and would haul from block to block. Another 5-years later and still today, we have fully automated both potting and mixing by using a Javo Super potting machine and an HC Davis mixer (**Fig. 8**). These days, there are countless options at your disposal when choosing your potting equipment.

Continuing to keep efficiency in mind, we choose to pot our liners directly into the pot in which it will be sold, avoiding shifting. This means less time moving or handling the same plants and ultimately reduces our production time.

PROPAGATION

There are many factors to consider from a production and efficiency standpoint when propagating. Will you propagate all your plants? What size liners will you use? What kind of environment do your plants require? How long will your plants take to root? When do you need to finish the crop to make a profit?

In our case, we direct stick all cuttings into 3-inch, 4-inch, or 1-gal containers. For some crops, we will double or triple stick cuttings to speed up production time. This reduces losses in hard-to-root cultivars.

Figure 8. (top, left) container hand-filling in 1984, (top, right) a custom made portable potting machine (arrow), and (bottom) automated container potting machine used today.

Choosing to propagate rhododendron required even more planning. To propagate rhododendron, we use a Ray-Pac boiler and BioTherm Systems tubing on the ground for bottom heat (**Fig. 9**).

Figure 9. (left) BioTherm bottom heat, hot water tubing system for mist propagation, and (right) a Ray-Pac hot-water boiler.

This allows us to maintain 68-70˚F soil temperature which helps initiate rooting. This is a must have for our crops - and it is important to consider any specialty needs that your crops may require in propagation.

We have toyed with producing our own tissue culture plants with a local basement lab but found there were too many variability issues from cultivar to cultivar (**Fig. 10**). These days, we purchase some tissue cultured plants from commercial labs.

Figure 10. (left) An earlier system of tissue-cultured rhododendrons produced at Buds and Blooms in collaboration with a local lab with plantlets being extracted from their shipping vessels; (right) tissue-cultured micropropagules are hand-planted with forceps into propagation trays to be acclimated, hardened-off, and grown-off as liners for future transplanting.

Figure 11. (left, right) Azaleas propagated under mist in propagation houses.

Ultimately, you will need to evaluate your upfront costs, maintenance costs, time, and margin before deciding which of your plants you will propagate and which you will purchase as liners (**Fig. 11**).

SHIPPING

Alright, now we are getting somewhere! Your plants are finished and ready to take to market. Now how are you going to get them to your customers? When it comes to shipping, we have always used shelved trucks to make sure our plants arrive looking as good as they look when they are loaded (**Fig 12).** In addition to shelving, there are two other commonly used methods to consider when shipping: lean stacking and racking (**Fig 13**).

Figure 12. (left) Handloading pulled nursery product from tracking trailers onto a delivery truck; (right) a shelving system to better protect plants in transit to retail nursery customers.

Lean stacking is efficient from both a time and space standpoint. It takes less time and labor not having to throw boards on a shelf and you can fit substantially more plants on a truck when they are bunched together rather than on a rack. However, with no stable structure, you run the risk of having plants arriving to your customer either damaged or flattened and therefore, less marketable.

Racking will get your plants to your customers looking good. It may also save you time and labor. However, racking requires up-front costs of purchasing either disposable wooden racks or metal racks. It also requires the use of a loader or forklift to load and unload trucks which is another added expense. With that in mind, this may not be the best option starting out when funds are limited.

Figure 13. (left) lean stacking and (right) racking containers with disposable wooden racks & pallets for moving with a forklift.

When we load our trucks, we pull our plants and place them on tracking trailers. From there, we load them straight into the truck. I am a firm believer in handling plants a minimal number of times. The more times you touch a plant, the more labor going into that plant and ultimately, the less profit margin you make on that plant (**Fig. 14**).

Figure 14. (left) Buds & Blooms 1st delivery truck, and (right) current trucking system.

Disaster Strikes

It is not a matter of if, but when you will experience a devastating disaster or problem. They can come in many forms, but ole' ruthless mother nature has been the source of most of our problems. And what has been her destruction weapon of choice? Snow: a four-letter word around here!

In our early years we only had shade structures which were wrapped with foam in the winter as a wind barrier. This was quite common in our area at the time. But twice we got caught with much more snow than predicted and had major issues with snow load damage.

The first time it broke a tremendous amount of our shade structures and ripped our shade cloth to threads. Remember all the time, money and energy spent putting those up in the first place? Now it is all crumbled-up on the ground. For the second snowstorm I tried thinking outside the box. I hired a helicopter pilot and had him fly over the shade structures in an attempt to blow the snow off. Unsuccessful! I ended up asking our employees and many friends to come in and cut the shade cloth along the isle below to reduce breakage of the plants and take the weight load off the structures. In the end it worked, and we only had to replace the shade cloth. All the plants and structures remained intact. Note to self: ***Sometimes you have to cut your losses, literally!***

Fast forward to 25 January 2000. After fully switching over from shade structures and building overwintering greenhouses, we still had one major snowstorm which dropped over 24 inches within 24 hours. Overall, in a two-day period, we had 30 inches of snow and ice. This time, 100 greenhouses were lost just like that. Including a newly built gutter connecting greenhouse (**Fig. 15**). We later replaced all of them with heavier gauge metal and more crossbow trusses. We also fortified the remaining 200 plus greenhouses with more crossbow trusses and some upright pipes along the center line of the houses.

The moral of the story? ***Learn from your mistakes, prepare for the worst, and pray for the best. Build back stronger!***

Figure 15. Disasters: (left) snowstorm with cut shade cloth, and (right) twisted house structure from the snow storm of January 2000.

Marketing

Now, after purchasing and prepping your land, setting up irrigation, constructing your greenhouses, and finishing your first potting, you finally have some plants to bring to market! But how will anybody know that? Marketing is how you speak to your customers.

Using our custom logo and tagline, "Bloom After Bloom, Year After Year", we hit the ground running by putting out ads in magazines. Those were the days when people still enjoyed reading a magazine with their morning cup of coffee. Now, you may not generate much buzz feed at all using ads.

In addition to our ads, I personally went door to door with plants to potential local customers and then worked my way out little by little. When you do not have word of mouth or a standing reputation regarding your quality, the customers have to be able to see the plants you are producing. They will not take a chance on you.

While door-to-door works, it takes a long time to cultivate a few potential customers and nothing beats the comradery of a good old-fashioned trade show.

Another way to generate conversation is sending out a company newsletter (**Figs. 16 and 17)**. They can provide industry insights, company updates, and can spark conversation between customers the next time you see them. Our own *Blooming Journal* has since been retired, but if you have the time, newsletters can add a fun and personal touch to your nursery.

This generation is lucky. There are hundreds of ways to get the word out about your product. With just a few clicks of a button you can send pictures and information about your plants right to the customer's hand. Now, we primarily utilize our email, website, and social media to market to our customers https://budsandbloomsnursery.com/ However, every year we still take the time to stuff, stamp and snail mail our new catalog and spring order form for the upcoming year. What can we say… old habits die hard, and everybody loves a hard copy!

Figure 16. Marketing, advertising, and connecting with customers using (left) ads and (right) newsletters – *The Blooming Journal*.

Figure 17. (left, right) Creating our own brand and tagline: "Bloom After Bloom, Year After Year".

CONCLUSION

When I think about the many nuances that go into starting a nursery from scratch, there are four overarching elements that in my opinion have gotten me to where I am today.

The first and without a doubt the most important are my people. Buds & Blooms Nursery has flourished by hiring great personnel that have stuck with us for many years.

Over our 40 years of operation, I have been lucky to work with many incredibly hard-working individuals with strong minds and creative solutions **(Fig 18).** They are the foundation to any successful nursery.

The second is watching your dollars and cents. We have grown very methodically over many years making sure to minimize debt and only using a line of credit if necessary for cash flow purposes. ***Staying out of debt is of the utmost importance***! You never know when the next disaster or economic downturn will roll through and change everything.

Figure 18. Key nursery personnel at Buds & Blooms Nursery. Building a team of outstanding employees, hardworking with creative solutions – is critical to success.

The third element and a point I have mentioned many times, is having efficiency at the forefront of every decision. The decisions you make when setting up your nursery early on will have a major impact on you down the road. There is no amount of money that can make up for lost time, misused space, or poorly managed labor. It is crucial that you stop and take the time to envision the future and consider the potential consequences of your decisions. ***Efficiency is the key that can turn a single generational nursery into a multi-generational nursery*** **(Figs. 19 and 20).**

Figure 19. Buds & Blooms Nursery, 1988 – 5th year in operation.

Figure 20. Buds & Blooms Nursery, 2013, after 40-years of operation. The nursery has grown to 60 acres, with 25 employees - producing over 325,000 containerized plants.

While all these elements are important and play major roles in nursery development, none of them would matter without the love for growing plants. There is nothing that brings more joy or satisfaction than watching your nursery grow, producing exceptional quality plants, and receiving words of praise and gratitude from your customers. That is what it is all about and that is how you start a nursery from scratch!

A SPECIAL THANKS

I would not be where I am today without those who I work with and have supported me over the last 40 years. THANK YOU to Francisco Bribiesca, Rosa Rodriguez, Manuel Rodriguez and Belen Rosas for being outstanding leaders, production managers, and comrades. These four professionals collectively have 112 years of experience at Buds & Blooms Nursery.