

The Times, They Are a Changin'

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Keywords: Adaption to change, automation, climate change, consumer preferences, digital communication, green industry, marketing, metathesiophobia, new crops, plant breeding, personnel development, propagation, technology, sustainable growing practices, tissue culture

Summary

The thriving horticulture world has seen its share of changes. How we as an industry have evolved over the years is simply the beginning of bold, bright changes the future holds. Advancements in technology, especially the science of plant-breeding and increasingly automated operations are even more striking. Our industry can adapt and evolve to create the landscape - both literally and figuratively - to ensure longevity and success. Where will we position ourselves as an industry? Technology affects the labor force, climate change affects consumer habits and so on; change is here and accelerating. New crops and their specific regulations have created opportunities for technologies and growing operations never seen before. We must change our market outlook on customer bases - from local to state, region, country

and beyond. Climate change has the potential to alter the horticulture industry in a way no other outside threat has before. The industry must remind consumers that plants are a partial solution to environmental change and global warming. The curse of cloud access to information is the loss of credibility of science and truth - dismissed by bloggers and trolls disguised as news sources. While we are competitors, our green industry relies heavily on one another to succeed. Our industry can remain united to speak truth to those unwilling to protect our environment - lead by example in instituting positive change in regulation, land and water use, and sustainable growing practices. The future is bright, and change is constant. We must remain diligent as partners going forward in uncertain times.

INTRODUCTION


The ancient philosopher Heraclitus said, “We both step and do not step in the same rivers. We are and are not.” Explaining change in the context of dipping one’s toe into the moving waters of a river is an indictment of the river meandering through the unique topography of the land. We also change from our first eager steps in to the water as a child to becoming more measured, thoughtful and experienced as we age. The thriving horticulture world, both academic and industrial, has seen its share of changes over the years. Just like that child dipping into the always new river, horticulture has evolved through changes in technology, the labor force, globalization, consumer awareness and participation - and now more than ever, political uncertainty and climate change.

Dr. Lowell Catlett, a futurist and change embracer, gave a presentation over twenty years ago which still stands out to me today. He shared and warned that markets were about to become increasingly different and that change would continue and accelerate. Just recently, he wrote that more new data is created every day than existed in the entire world less than fifty years ago.

Change is both simple and complex, quick and sometimes excruciatingly slow, inexpensive and a checkbook buster, exciting and terrifying. How we as an industry have evolved over the years is simply the beginning of the bold, bright changes the future holds. Studying the history of gardening, commercial and consumer horticulture and floriculture in the United States is fascinating. Seeing where the industry has been only shows the potential for innovation is ever increasing. Advancements in technology, especially the science of plant-breeding and increasingly automated operations are even

more striking - when comparing today with past generations. Just one hundred years ago, the industry would have been buzzing about a brand-new mechanical animal to pull a plow: the farm tractor. In that short hundred years, technology has hit its stride and is now in overdrive, turning over the new ground of the future.

Metathesiophobia is the fear of change. No one likes to be accused of being afraid, but we as an industry have some tough choices to make in the coming years and uncertainty can and will overwhelm some of our colleagues. People are naturally hesitant to change, reluctant to try something other than: “It’s the way we’ve always done it.” Death and taxes are not the only constants; “change” needs to be added. (Fig. 1). Change is frightening sometimes. Our industry can adapt and evolve to create the landscape, both literally and figuratively - to ensure longevity and success.



“...you better start swimmin’ or you’ll sink like a stone, for the times they are a changin’.....”

– Bob Dylan

The 3 constants: death, taxes & [Change!](#)

- Jim Berry



Figure 1. The challenge of adapting to change for the green industry.

It is time to look toward the future, to changes on the horizon. Where will we position ourselves as an industry? Where will we have our voices heard to affect change positively? From our vantage point at J. Berry Nursery, here are a few of those areas of opportunity. While each category will have a great deal of overlap - technology affects the labor force, climate change affects consumer habits, and so on - change is constant and accelerating (Fig. 2).



Figure 2. Jim Berry of J. Berry Nursery, Grand Saline, Texas

The previous mention of the farm plow is an excellent example. A simple, single-bladed, walk-behind tool powered by a domesticated animal led to the remarkable horsepower of fuel-driven tractors where farmers rode and guided heavy equipment - championing a future of artificial intelligence, robots and precision agriculture. Before long, one could plow a field from miles away! Automation will continue to become a hotter and hotter topic in academic and industrial circles as technology improves, becomes more reasonably priced and attainable by a larger cross-section of producers. When asked by the Greenhouse Grower Survey if automation was on the investment horizon for growers, 67% said yes in 2019, up from 59% in 2018.

In the past few years, automation from the beginning of a plant's journey to a consumer's garden has changed how many nurseries propagate. It is broadening the thought process of approaching one task at a time - to adapting nursery-wide automation at scale (Fig. 3).



Figure 3. The importance of discovery, science, technology, new plants and markets - adapting to change. Automation is changing nursery production from propagation to adaption of nursery-wide automation at scale.

New crops and their specific regulations have created opportunities for technologies and growing operations never seen before. *Cannabis* is not just being grown solely indoors, but under a new sort of security most nurseries never thought necessary or possible. Additionally, the cannabis industry has strained certain segments of the supplier market, creating shortages in building materials, operational needs, and even labor. Artificial intelligence now allows nurseryman to monitor plant progress while drones and radio frequency identification (RFID) tags are no longer the toys we remember from trade shows past. They are now tools of the green industry.

Propagation of selected plants has shifted toward tissue culture where working

conditions in laboratories are more desirable than traditional nursery practices. Robotics and biological sanitation mitigate environmental variables that could cause plant loss and help producers comply with regulatory and trade laws worldwide. All this enables “clean” plants to be sold and distributed globally. While still a large investment for most producers, tissue culture propagation may become a necessity for appropriate crops, as opportunities grow and regulations change (Fig. 4).



Figure 4. Adapting to controlled environment agriculture (CEA), such as tissue culture propagation for appropriate crops.

Skilled and unskilled labor costs continue to rise. With over a half a million estimated nursery jobs in the United States, the current labor market is making it more difficult for many nurseries to become and remain fully staffed. Migrant workers face new challenges now that the federal government has failed to maintain guest worker and temporary foreign worker programs. Government policies are more hostile toward individuals and groups the nursery industry has traditionally relied on for labor sustainability. Temporary worker programs have experienced restructuring, delays and increased scrutiny under past presidential administrations - while the present politics of

illegal immigration and undocumented migrant workers have become markedly polarized. As the industry looks to offset the potential loss of unskilled labor, technological advancements in automation, broadly and task-based, offers some relief - but also increases the need for skilled labor to maintain more complicated new equipment.

LEAN and LEAN flow metrics have improved efficiency and reduced waste in nursery production but require a similar pledge to technology. Uninspired commitment to LEAN principals can result in a disjointed process which could negatively impact production and morale with nursery employees. The future of the nursery workforce is a mix of highly skilled personnel with technological backgrounds and efficient, competent management which can lead labor processes and execution - despite the changing political landscape (Fig. 5).



Figure 5. The importance of nursery personnel – selected from diverse backgrounds and experiences; empowering people through inclusion in decision making and encouraging their continuing education.

The changing attitudes toward how Americans shop, both wholesale and retail, have impacted the industry in a variety of ways. The days of administrative staff traveling to trade shows to do little more than

take orders have mostly ended, thanks to e-commerce. This is creating new opportunities for seeing and touching future offerings, building and cultivating relationships and educational opportunities at trade shows and events (Fig. 6). Trade show attendees and exhibitors can now be more focused on specific objectives and spend more time cultivating business relationships, trust and reliability - rather than simply writing orders.



Figure 6. Trade shows are the opportunity promote products, engage, guide and educate clientele.

Training personnel to understand customer issues and opportunities has changed as technology opens the doors for virtual shopping and planning - before the actual show begins. Digital media and the internet allow exhibitors to create a presence and reputation - while not so long ago, decades of leg work might have been required to achieve the same goal. Future trade shows will likely become more virtual, allowing information and education to flow more freely across the industry. The professional grower and trade organizations, like IPPS, are now more in touch thanks to email, social and digital media, e-Learning and the lines of communication more easily accessible for everyone. Organizations that have adapted to the chang-

ing technological capabilities can now disseminate information - on larger scales and more quickly to professionals.

Rapid urbanization has changed the way consumers shop and how producers bring items to market. While the first nurseries appeared a couple hundred years ago, the current ways consumers connect with producers is quite different. Big box retailers have only been offering wide selections of plants for the past 30 or so years, and now the internet and e-commerce have altered previous brick and mortar and catalog sales. Urban dwellers have necessitated a new retail market, where plants are delivered potted in a decorative container -with virtually no post-delivery work on the part of consumers. Customers want instant gratification of a finished product.

Many people looking for plants for their home are now focused on décor over gardening, altering the traditional offerings of some nurseries and retailers. Brick and mortar shoppers are likely using the internet as inspiration long before they step foot on a nursery or retail garden center. Online nurseries are growing quickly with large capital pouring in from investors seeing the trends and consumer habits of today's home gardeners. Shipping methods have improved, allowing once easily damaged live goods to be transported across country through a variety of delivery methods (Fig. 7).



Figure 7. The dynamic, changing marketplace of the green industry.

Public awareness of climate change and the push for sustainable materials are enabling development of new growing substrate. New containers made from recycled, recyclable and biodegradable resources are taking center stage to the once black-plastic-pot dominated industry. With a focus on better containers, consumers now have an opportunity to purchase branded plants, supplying home gardeners diversified offerings combined with premium packaging. The first woody ornamentals to arrive to market with a brand name appeared in the 1980's. Now, J. Berry Nursery and many other producers provide consumers with a buying experience beginning with a branded product and continuing with supporting items, care advice, plant use ideas and world-class customer service. Because today's customer is especially internet-savvy - suppliers now must be able and willing to provide consumer support, follow-up information and care - beyond what previously would be limited to a plant tag.

Plant tags with RFID technology can track an item through the nursery process, through the retail process and beyond - glean valuable information for producers, garden centers and consumers. All-in-all, the internet and technology continue to build a culture where the world is smaller. Producers can more efficiently target emerging and new markets. Everyone has more access. The future is already telling its story today. Plant producers and nurseries are recognizing that simply producing a good plant is not enough. We must learn how to put plants in the context of what is important in peoples' lives: family, health and happiness (Fig. 8).

Advancements in communication and travel has made our global community immeasurably more reachable. Nurseries around the world can share data, successes and failures, and reach new markets more easily than ever. Investment into emerging economies is on the rise, as well as opening doors in other major world economies for

producers in the United States. We should look to the world for industry allies, understanding their horticultural businesses and history - so to make more informed and wiser decisions domestically.



Figure 8. Connecting with the needs of consumers: family, health and happiness.

One brief example: The Chinese government has a unique ability, even with its faults, to anticipate and plan for problems. Witnessing China's large-scale urban housing construction developments in person is remarkable, not to mention the opportunity for a plant or two on every patio. The middle class in China is burgeoning, creating enormous opportunities for market share in the nursery and horticulture industries.

European producers have responded to consumers' desires for smaller retail marketing and footprint. Plants and plant products are highly packaged, decorated often as standalone gifts. Many indoor plants are accepted as a live decoration with a set shelf-life. This helps secure a customer for life or repeat customer - at minimum. We must change our market outlook on customer bases - from local to state, region, country and beyond.

Perhaps the one area of significant change is climate and global warming. Scientists around the world have been sounding the alarm for years about reducing carbon footprints, concerns about sea-level rise and its

connection to an increasingly warming planet. Many nurseries and producers around the country and world have already begun taking steps to be a more sustainable and responsible climate partner. Water-wise systems, reducing fossil fuel usage, adaption of sustainable packaging and containers are not always easy changes. However, they are necessary as the evidence of human-impacted environmental change reaches a crescendo.

Climate change has the potential to alter the horticulture industry in a way no other outside threat has before. As plant producers, we rely on a certain amount of weather and climate stability to produce our products. Hotter days and longer summers are causing growers to reevaluate product mixes. Standards once never questioned, like geraniums and petunias in European window boxes, cannot hold-up to the soaring temperatures many locations are experiencing. The push toward tropical varieties in areas once thought to be off-limits are allowing for exciting new markets. The industry must remind consumers that plants are a partial solution to environmental change and global warming. Advocating plantings of many sorts convince consumers they can help cool urban heat islands, provide shade and housing for animals, remove toxins from the air and supply life-sustaining oxygen for people.

Sadly, we live in a divided society. Divisions exist on so many fronts from political and religious viewpoints to socioeconomic status and personal backgrounds. The curse of access to information is the loss

of credibility of science and truth - dismissed by bloggers and trolls disguised as news sources. During my time as IPPS President in the 1990's, we were fortunate to carry out a broad cultural and horticultural tour that took participants across our great region from Texan cities of San Antonio and Houston, across Louisiana with stops in Lafayette, New Orleans and then on to Mobile, Alabama. Each area shared its extraordinary personality, customs and celebrated differences. While happy to share unique traits of each area with my guests - deep down we all shared great national pride and a oneness evident to international travelers. How would those same eyes view us today? Would they see us as disparate tribes?

While we are all competitors, our green industry relies heavily on one another to succeed. Our industry can remain united to speak truth to those unwilling to protect our environment. We can lead by example in instituting positive change in regulation, land and water use, and sustainable growing practices. The future is bright, and change is accelerating. We must remain diligent as partners going forward in uncertain times.

On an optimistic note, we must decide how change is going to steer our industry and our business decisions going forward. The choice is quite simple: one day or day one. There is a great quote from the novelist L.P. Hartley: "The past is a foreign country; they do things differently there." We will do things differently in the future - "for the times, they are a changin'".