Laulima

A Special Orchid Edition

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Dendrobium Ted Takiguchi, one of Hawaii's most floriferousness dendrobium cultivars

In ancient Hawaii, working together was a matter of survival. The arrival of the first Polynesian voyagers was a feat beyond measure, probably after many unsuccessful attempts. Building upon the knowledge of many, as well as reading the stars, understanding how the seasons affect winds, and finding advantageous currents and highways, they finally made landfall in this new land. Helpful beacons included illuminating volcanoes and curious seabirds helped to mark the path.

Once here, the main focus was on survival, but they didn't come unprepared. Unsure of what they would find here, they brought food and utility plants key to their survival, over 18 of them called canoe plants. They also had to organize themselves around family units to form communities because working together in unity with each other was the only way to get through the early years and overcome famine.

By pooling their resources, human and otherwise, they were able to endure difficult beginnings of a new civilization. Maintaining a fishpond wall to provide protein during seasons of rough seas or moving water from one source throughout an entire valley called for the coordination of hundreds if not thousands of individuals working as one.

This multiplier effect was referred to in ancient Hawaii by many names, including 'Laulima' or 'many hands working together in cooperation and harmony'.

Sugar cane was one of the canoe plants introduced by the early Polynesians, and missionaries-turned-capitalists and others saw business opportunities if they could mobilize the Hawaiians, but that was not to be. Another option was bringing in slave labor to work the hot, humid fields in Hawaii.

Sugar plantations gained traction by the 1840's and continued to grow, facilitating a need for more labor to fuel this new economic engine. After the mid-1800's, slavery wasn't an option in the U.S. but many plantation owners

maintained vestiges of the old colonial system by creating a hybrid slavery system, maintaining some basic rights, but not all liberties, rights, and freedoms afforded U.S. citizens in that day, similar to a dog on a long chain.

Immigrants came to Hawaii from Japan, China, the Philippines, the Azores, Portugal, Puerto Rico, and other places to work in sugar and pineapple plantations as contract laborers. Arriving in a place similar in some respects to their native homes, many understood the concept of living on islands.

However, they were foreign to this land and to each other, and had to learn each other's customs and ways in order to live together. To communicate with each other, a universal language called Hawaiian Pidgin was created using key words from each other's culture.

On the plantation, ethnic groups were kept in separate camps or communities such as Filipino camp, or Portuguese camp, or Japanese camp, and paid wages based on their ethnicity as a way of keeping groups at odds with one another in a 'divide and conquer' business strategy. With this new language, immigrants were able to come together and agree what was important to their survival.

By organizing as a group, workers were able to advocate for changes and concessions from their employers, who owned the plantation towns and everything in it, but this took a long time, even several decades. Plantations created a system of vertical integration that also included all your basic needs in a plantation store, and even control of politics and laws; the plantation was the law, including judge and jury.

Early attempts by workers at organizing workers seemed futile as some of them paid a dear price, even death and also brought peril to relatives supporting any form of organized labor. There were incidences of lynchings and assassinations of early leaders on Hawaii Island and Kauai in the early- to mid-1900's.

A bi-colored Dendrobium anosum or Hono-hono orchid, a favorite species of Hawaii hobbyists

Without unions, vestiges of a colonial plantation system would probably still be in place today. Workers wouldn't be able to improve their standard of living,

including wages and benefits, and advocate for equal rights in a caste system created by plantations to keep ethnic groups suspicious of each other.

Sylvia Yuen, an antelope-type Dendrobium selected as a potted plant, and named after a former CTAHR Dean, and Director of UH Center on the Family who retired recently.

Today, we still have vestiges of the past in some of the corporate systems in Hawaii. In many ways, we've come a long way, but in other ways we've never budged. Many of the old folks or kupuna, such as my 85 year old Mom still carry this ethic of 'don't cause trouble, just go with the flow' and this lack of empowerment can still be seen in many communities across the state with a lack of leadership that embraces the needs of all as opposed to just themselves.

This lack of assertiveness is also cultural and has stymied a move away from a 'plantation mentality' by maintaining not only a provincial, conservative attitude, but the unwillingness to advocate for equality in society. However, some ethnic groups were able to take the good and bad from the colonial days, and create something positive.

One of the best examples is the evolution of the orchid industry in Hawaii, something that didn't previously exist until someone or many of them came up with this idea. At the turn of the 18th century, impressive orchid collections were amassed by rich families in Hawaii, some who made their fortunes here.

Many of the orchid collections were cared for by Japanese gardeners who were taught to care for them by their owners, but they were also able to build upon their innate knowledge and keen observation of growing plants.

During this early period, few individuals really knew how to grow orchids, and even in Europe many early arrivals of orchids perished because owners and gardeners misunderstood tropical conditions or the needs of these special plants.

Many Japanese gardeners would take orchid 'keiki' or babies home to raise them, refining their skills, and sharing their successes with close confidantes. During that time even into the mid-20th century, racial discrimination was rampant toward Asians and non-whites, and it kept many efforts to create this new industry 'underground' and out of the public eye.

Buddhist churches were important gathering places for Japanese to come together and discuss their challenges, their mutual goals, and also their triumphs. This was a spawning ground for new ideas, the sharing of successes, and a nexus for the creation and coordination of a new economic and political alternative to empower families.

Orchid seeds grown in sterile agar media fortified with essential nutrients – Orchidworks at Hakalau, Island of Hawaii

They later learned that in the wild, many orchid species were dependent on *endomycorrhyza*, microbes that grew into orchid roots and expanded the roots ability to scavenge nutrients from tree surfaces and also the forest floor.

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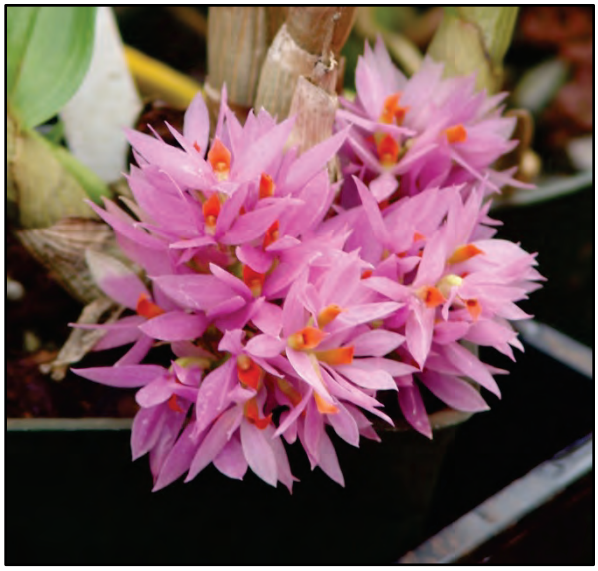
Many Japanese gardeners would take orchid 'keiki' or babies home to raise them, refining their skills, and sharing their successes with close confidantes. Learning to grow orchid seeds was no easy task since most seeds were minute and contained no food or endosperm to keep them alive after germination. Through trial and error, first using fruit juices such as tomato, green and ripe banana, and others, pioneers such as Rev. Masao Yamada succeeded in germinating tiny orchid seeds, continually refining skills and sharing successes with others in their circle of influence. These rudimentary methods of growing seeds would later be refined to a high degree of sophistication unmatched in the agricultural technology of its time.

Slowly, this hobby blossomed into an industry through the collection and sharing of planting material, and refinement of growing systems through an increased understanding of how these plants grew.



Dendrobium bracteosum, a diminutive species that can be forced to flower by placing plants in a refrigerator.

Once considered a rich hobby reserved for European aristocracy, these plants were getting into the hands of the

common people. Some orchids were easy to propagate and increase, while others required much effort to 'break the code'. Hawaii's location as a gateway between east and west created a pipeline for orchids to Hawaii, especially from the Asian continent and the Pacific.

Dendrobium Ethel Kamemoto 'Splendor', a rare mutation with a pansy-type lip. UH Magoon Lab

An interesting entryway for orchids was as packing material for the movement of wicker furniture from the Philippines to Hawaii. Before the advent of bubble wrapping, large Dendrobium 'antelope' orchids growing in profusion served as a viable alternative to packing material that helped to cushion and protect wicker furniture on their long ocean voyage to Hawaii.

It wasn't until the end of the war that the orchid industry came out of hiding. Orchid species were also making their way to Hawaii from Europe via the mainland not only by rich orchid collectors in Hawaii, but also by those residents who travelled to the mainland. Unable to afford expensive orchids, they were satisfied with seedlings where they could still exploit its genetics.

Hawaii's isolation from the world turned into a breeding advantage as flower colors and plant types developed in Hawaii were very unique from its counterparts in other places, such as vibrant and flared yellow and orange cattleya, and many other unique characteristics.

The advent of the Boeing 707 jet created another venue for the movement of new orchid blood and even jet pilots got involved in the orchid import and export business. The arrival of tourists also spawned a new market for orchids as leis, especially an orchid hybrid named Vanda 'Agnes Joaquim' originally from Singapore.

As I grew up, I would come to know some of these individuals through my grandfather and his network, and many were pioneers of this industry they created.

Dr. Tessie Amore, UH Orchid Breeder, Magoon Lab

Orchid growers in Manoa included Kawamoto and Kamemoto, Kirch, Fujiwara, Yamamoto, and Otaguro. In Palolo, there was Kamiya who was a barber by day and a consummate orchid

breeder by night known for his yellow, orange, and brown dendrobiums. In Waimanalo, there was John Noa, a Hawaiian Homesteader who focused on the Vanda alliance.

Dendrobium Pua'ala, a potted plant type created by crossing three Dendrobium species, D. macrophyllum, D. bibbigum, and D. spectabile

There were the Oka brothers known for their dark purple dendrobiums, and also Takiguchi of Waipahu known for his art-shade dendrobiums. There was Okinaka in Kapalama refining two-tone brown-red-yellows, and many others.

There were the Mizuta's in Pauoa, and Takafuji's in Honolulu and later Waianae whose operations refined Cattleya and many other lesser known orchid species. In Waianae, there was Kodama and Miyamoto, the latter known for his discovery and identification of ploidy in dendrodium orchids. There were dozens more on Oahu and the neighbor islands.

Names such as Iwanaga, Moir, Kirch, Warne, and Kirsch were legends in identifying clones and creating crosses of seemingly unrelated species for this emerging industry, as well as teaching others how to grow these little-known orchid cultivars. There were many other giants who led the industry through its dark ages.

Most of the buyers of my grandfather's hapu'u and cinders were Japanese backyard growers and members of the 100th Battalion, 442nd Infantry veterans who had returned from the World War II as the most decorated war heroes, and they were in the forefront of this new agricultural industry.

What they lacked in money they gained by working together sharing ideas, technology, and orchid germplasm. Very secretive and guarded about their work, orchid growers kept information within their network, but others outside of their ethnic group also became allies in this new industry. Later, they would join forces with mainland breeders.

Many members of the 100th Battalion 442nd Infantry took advantage of the G.I. Bill, attended college, and became leaders in many areas of Hawaii society, and this same network would become the backbone of a new Hawaii Democratic Party, with a former police officer named Jack Burns at the helm of this new political machine.

The discovery of *ploidy* led to the development of the cutflower Dendrobium orchid industry in Hawaii spawned by Dr. Haruyuki Kamemoto of UH Manoa, himself a Nisei and whose older brother Kazuo was a member of the 442nd Infantry 100th Battalion and an excellent orchid grower in his own right. Dr. Kamemoto received his bachelors and masters degrees at UH and his PhD at Cornell University, conducting research on chromosome counts on Cattleya.

Creating art shade Dendrobium phalaenopsis (above) was the focus of Waipahu orchid breeder Ted 'Toto' Takiguchi

His research breakthrough was in the identification of orchids with doubled chromosomes that produced uniform progeny through seed propagation. This innovation opened the door to the production of millions of affordable orchid plants to spur the industry.

These special plants were called *amphidiploids*, a type of tetraploid with two sets of chromosomes from each parent. What makes them special is when crossed with another amphidiploid orchid plant, seeds produces progeny that were uniform, which is rare in nature.

Plants were also more robust with larger flowers and a longer shelf-life than their diploid counterparts. Seed propagation of normal or diploid orchids usually resulted in not only wide variability in plants, but inconsistent flower quality and yield as well.

Cloning plants, the standard for increasing orchid plants, was cost prohibitive and would have been a major bottleneck in the continued growth of this industry. Dr. Kamemoto and his students, including Dr. Tessie Amore, who is the present orchid breeder at UH, were also able to create more amphidiploids by inducing the doubling of chromosomes through the use of Colchicine, and also by growing thousands of seedlings and identifying natural amphidiploids in the batch.

Long arching sprays characteristic of large flowered Dendrobium phalaenopsis at the UH Magoon Lab in Manoa

Through their research and focused breeding, over thirty-five Dendrobium varieties were developed utilizing Dendrobium 'Jaquelyn Thomas', a primary hybrid between two species,

Dendrobium phalaenopsis and Dendrobium gouldii.

Evaluating Dendrobium 'Palolo Sunshine' crosses for cutflower potential; a stellar yellow cultivar that combines well with other colored cultivars. Developed by Kenjiro Kamiya of Palolo. UH Magoon Lab

Dendrobium phalaenopsis produced large flowers which bloomed in the winter with a long shelf life with few sprays, while Dendrobium gouldii produced many sprays that bloomed in the spring, but were small and had a poor shelf life. By combining the best attributes of the two species, high-quality cut-flowers could be available year-round as opposed to certain times of the year.

The best qualities of both parents emerged from an intermediate-sized flower with a shelf life exceeding four to even six weeks in some cases. This cross is found in white, pink, blush, purple, and even striped types. Under ideal conditions, each plant could produce over 50 sprays a year. Closely related varieties were also used for breeding, including Dendrobium Neo Hawaii, a cross of two species, *Dendrobium grantii* and *Dendrobium gouldii*.

My second exposure to this industry was when just out of high school, a neighbor friend tried to talk me into helping him build a shade house to grow orchids. His hair-brain idea was to buy an underutilized orchid hybrid in Manoa Valley from some of the old growers, increase plants, and cash in.

He said we could create a new niche if we bought out some hard-to-find orchids from old hobbiests, such as warm-blooming *Dendrobium nobile* and also miniature honohono-type dendrobiums such as *Dendrobium parishii* and *Dendrobium 'Nestor'*.

Iwanagawara 'Apple Blossom' - This multi-generic designation was named after Hawaii orchid pioneer Ernest Iwanaga. H&R Orchids, Waimanalo

To learn more about the industry, we first visited orchid growers in our neighborhood, and then branched out around Oahu visiting many more orchid growers. Most were tight-lipped, but

others shared almost freely. Orchid societies and clubs throughout the state stimulated the sharing of knowledge, stud plants, and also created markets. It was also a way of exposing Hawaii's orchid 'muscle' to the rest of the world.

Cattleytonia Why Not 'Malama Ke Akua' incorporating genera of Cattleya and Broughtonia

The American Orchid Society anointed orchid judges to rate and rank Hawaii orchids, and soon many of Hawaii's best orchids received the world's highest accolades.

The breeding of show plants, and down the road, potted plants were driven mostly by backyard growers and their network, some of which blossomed into pretty impressive orchid operations.

Although much of this network operated independently from the breeding conducted by the University of Hawaii, they would occasionally share superior clones with Dr. Kamemoto.

One day we visited a grower in Kapahulu by the name of Mahjong Yoshimura. He was also a member 442nd and was a retired lumber salesman. After telling him my name, he mentioned a Teves in Manoa who sold him hapu'u and cinder, and would take care of him. I told him that he was my grandfather, and this opened a important door as Mahjong started teaching us things that would take us a lifetime to learn if we could even find someone to teach us.

He talked about Sander's Book of Lists, a registry of orchid crosses from England. He made us memorize the different crosses, and also talked about 'givers and receivers', orchid varieties that made good pollen parents versus those who were good pollen receivers. Sometimes, the best clone made the worst parent, and knowing this ahead of time accelerated breeding programs.

Mahjong had access to many Hawaii breeders, and understood their breeding philosophy. He also taught us their codes, a universal language that identified the source of each plant, usually a letter or letters followed by a number. W stood for Miyamoto (Waianae), K for Kamemoto, KO for Kaoru Oka, T for Takiguchi, and so on.

Many years later, I remember visiting an orchid grower in Happy Valley, Maui with a former Extension Agent, Clark Hashimoto. This grower was tight-lipped and wouldn't tell me anything. At the end of the tour, I told him where all his plants came from and the name of the orchid breeders. I could tell from his expressions that he was flabbergasted, but he didn't say anything.

The sources of your plants were an important economic advantage, and if

someone got access to your sources, they could be a competitive threat to your business. The next day, he called Clark and asked him, “How does this guy know where I get all my plants from?” This was from knowing the codes that Mahjong had taught me.

One of the key technologies allowing this industry to mushroom, and who many believe led to its decline in Hawaii was micro-propagation and more importantly, cloning. When I was young,

Cymbidium mosaic virus, a major disease and production challenge for Dendrobium producers

I called it ‘growing plants in bottles’, and I would see whole rooms of these bottles, even houses erected for the sole purpose of growing them under lights on specially erected shelves. One of the first commercial orchid growing media formulas developed for micro-propagation was the Murashige and Skoogs formula, containing agar, a kind of seaweed with the right combination of plant nutrients.

Dr. Toshio Murashige was born on the Big Island, and graduated from the University of Hawaii and worked there for a while. He was a professor at the University of California-Riverside, and upon retirement worked for the Rockefeller Foundation in many third-world countries, especially West Africa. I had the fortunate privilege of knowing this man, who would stop by to visit on Molokai when he passed through Hawaii, and encouraged us to create a micro-propagation facility on Molokai in order to grow disease-free plants.

At that time, he wanted us to venture into elite woods, special pineapple varieties, bamboo shoots, wicker bamboo, and others because he saw a market for these crops in the future. He sent seeds of elite woods such as Pheasant Wood, Teak, and Ebony but we were afraid of introducing the next invasive species much like Albizzia. Dr. Murashige was one of the many who played a role in creating this industry.

The weird-looking Dendrobium spectabile

A Miltonia orchid with its regal spotted picotee lip

What many orchid growers lacked in money they gained in cooperation, sharing information, and also planting material. Soon, orchid labs sprung up throughout Hawaii as many shared ideas and germplasm to create a new industry in Hawaii, orchid production.

It seems as though every valley on Oahu had an orchid nursery and laboratory. Hawaii became the envy of the orchid world, and soon growers from around the world converged on Hawaii to buy its orchid stud plants.

While other parts of the world were creating the orchid industry through large infusions of cash to build large orchid infrastructure, including greenhouses with expensive cooling and heating systems along the East and West Coast, small Hawaii growers, isolated from the rest of the world, worked closely like a giant cooperative building small low-cost operations.

With their limited resources, they would buy plants they could afford, but by their sheer numbers, they were a world power to be reckoned with. The book, American Cattleyas, by Courtney T. Hackney, describes the rise of Hawaii cattleya orchids as an example of Hawaii grower's unique interdependence:

"Orchids could be grown (in Hawaii) by anyone without regard to income…The incorporation of cattleyas into the Hawaiian orchid scene was fueled by the import of two horticulturalists, (Oscar Kirsch and William Kirch)…Parallel to the import of growers was the development of self-taught Hawaiian growers and hybridizers…By freely sharing pollen with each other, Hawaiian hybridizers accomplished what required enormous wealth in England and the Mainland, the creation of a large selection of proven cattleya parents or studs.

This group of hybridizers, working out of small nurseries, effectively created a large stud collection. When nurseries on the mainland were jealously guarding each grain of pollen, many of the great hybridizers were sharing…There are many different stories regarding the direction cattleya hybridizing took in Hawaii.

Without a doubt, it was toward more vibrant colors and patterns that were not developed on the Mainland…Every business trip to Europe or the Mainland resulted in a suitcase of seedlings and a few inexpensive stud plants on the return trip."

I remember a very wise boss of mine telling me once that you become successful when others allow you to

become successful, and I believe this to be true. He was also a member of the 442nd Infantry, and yet we were different in many ways he understood my passion for helping people and saw to it that I continue this effort in my extension work. The 'well laid plans of mice and men' can easily be co-opted by one who doesn't think it's a good idea or doesn't believe in you or your philosophies.

A Blc Williette Wong cross, a famous Hawaii yellow cattleya named after a consummate orchid grower and hobbyist.

In this hustle and bustle world, we strive for individual achievement and seek recognition for our achievements. The ego can be a driving force for good or evil, but it can lose the human element critical to our survival, and that's interdependence. 'It's about me!' is when individuals are more than willing to trample over others to get ahead. Working together is still a matter of survival on these little islands, but it's also contingent upon everyone doing their part, and carrying their load.

If everyone is productive, and maybe this is just a utopian dream, then we'll always have surplus. Otherwise, a few will have to take care of the rest and that's not good for morale, productivity, and self-esteem and everything else that's important in our little communities. I think Laulima is more important today than it's ever been before.

A special MAHALO to Dr. Tessie Amore for her critical review of this article!

Hawaii Orchids Today

"Go west young man, go west!"
Horace Greeley

The western movement of orchid production centers is even tied to the Western growth and expansion of the U.S., first from Europe prior to the formation of the states, then to the eastern U.S. and beyond. Again, quoting from his book American Cattleya, Courtney Hackney states, "The source of hybrids gradually shifted west, first from the West Coast, then Hawaii, and finally farther west outside of the U.S."

Attitudes toward flowers have changed, and the young set doesn't seem to have the same attraction to and passion as the older generation for orchids, as seen in the explosion of substitutes for fresh flowers, including balloons, and also candy and plastic flowers.

Dendrobium orchid production, once a major export crop and an important player in Hawaii's ornamental production sector has seen a continual decline. An indication of Hawaii's productivity in orchid breeding is measured by the amount of new orchid

cultivars registered with the International Register of Orchid Hybrids.

Striped Phalaenopsis clones produced in Taiwan and finished in Hawaii

In the 1950's, Hawaii breeders hit their peak in the number of registrations. Hawaii's dominance in orchid breeding was evident. Breeders from Thailand and the Philippines would also visit Hawaii to purchase whole benches of orchids from Hawaii growers to take back home with them to expand their genetic base.

Passing down the knowledge of orchids to the next generation was illusive and may have preserved the industry for a while longer, but the great American dream was to send your children to college and this is what many members of the 100th Infantry 442nd Battalion did.

Their children attended college in Hawaii and abroad, many returning with prestigious degrees as professionals in medical, business, and law fields, far away from orchid breeding and nursery production. Few were willing to carry on the breeding legacies of their parents, and this added to the decline of the Hawaii orchid industry and was probably a factor separate from the influx of foreign competition.

However, some of their children and others who attended agricultural colleges carry on the legacy today, including Roy Tokunaga, the Takasaki family of the Big Island, Sheldon, Gerrit, and Carmela, and others.

Hawaii's proximity to Asia proved to be an advantage at first in the development of the orchid industry in making it easier to inject new species into Hawaii's orchid mix, but soon became its downfall as other Asian countries followed Hawaii's lead. With economic advantages such as cheap labor, cheap land, and a supportive government subsidy, nations such as Thailand and Taiwan expanded and soon dominated these orchid industries worldwide, and continue to grow by commercializing other orchid species.

Lakeview Nursery in Waianae, operated by Taiwan-born growers Stams and Sophie Wu. They were mentored by Hawaiian orchid breeder Kenjiro Kamiya, and introduced new production technology to Hawaii.

Over the last 25 years, Thailand has emerged as the world leader in both dendrobium cut flower and potted plant production. By building upon research, technology, and plant genetics

originating from Hawaii, Thailand moved ahead.

Many Thai students attended the University of Hawaii to learn orchidology, and returned home with this new technology. Many state-of-the-art orchid laboratories driving the development of large scale nurseries moved Thailand to the front of the class. Thailand's proximity to European markets also allowed them to ship both sprays and potted plants there.

Hawaii orchid production is broken down into two segments, cut flowers and potted plants. The orchid cut flower market has been adversely affected by cheap imports into US markets, especially from Thailand. Off-grade or damaged orchid sprays are also sold for lei, which provides additional revenue, but is not enough to offset strong competitive advantages for Thailand producers. Soon, Thailand flowers dominated commercial orchid lei flower sales in Hawaii.

Although potted plant production has been around for a long time in Hawaii, growers shifted to large scale production to supply big box stores on the mainland, taking advantage of our proximity to mainland markets. Potted plant production focuses on compact plants with short sprays facilitating ease of shipping out-of-state, and most of these plants are imported as seedling clones from SE Asia, finished in Hawaii, and air freighted out of state to the West Coast and beyond.

Epidendron, known as 'Epis', are local favorites in the landscape, and a cousin of Cattleya

Potted plant producers have taken advantage of quarantine and trade laws preventing competition from other countries, but these walls have started to fall as globalization policies to encourage trade has opened doors into U.S. markets for other countries. In addition, large scale production on the mainland and partnerships with SE Asian plant producers is starting to take its toll on local producers who find their competitive advantages evaporating.

However, recent monsoon floods in Thailand over the last couple of years have created shortages of lei material for graduations, and Hawaii growers are selling more flowers for lei for these short periods, even harvesting flowers from plants destined for potted plant markets.

Hawaii farmers now realize they have to be more flexible and be able to change directions more quickly. For example, recent demands for potted plant orchids

with red flowers fueled by Cinco de Mayo celebrations in Puerto Rico have shown that farmers cannot look at one market for their products.

Groundbreaking research by early orchid researchers, such as Goodale Moir and others still hold promise to new orchid crop development with little utilized orchid species. Breeding red flowers for Hawaii's subtropical conditions to supply Valentine's Day may be another market that could be developed. New crops, new markets, new species, new colors, and new business models can open new doors for Hawaii growers.

The big question is can Hawaii play ball in a global market place, and what are the tools and strategies farmers will need in order to be on the cusp of market trends?

In Hawaii, it's not business as usual in the orchid industry. Many growers have struggled due to their inability to see trends and shift to new areas of agricultural production, such as utilizing their shade house infrastructure and generational knowledge to produce other crops or even seed. Changes in consumer attitudes and interests call for increased market analyses, consumer education, and market promotion in order to be more calculated in their approach to agri-business.

Staying on the cutting edge includes gambling with little utilized species and identifying our competitive advantages, and finding Hawaii's climatic and market niches in growing new-old cultivars if these niches still exist. Working together would go a long way in strengthening the industry and creating opportunities for all by drawing upon successes of the past, but it still goes back to cost-of-production and being able to compete in a world market.

Ascocenda, a member of the Vanda alliance, is a cross between two genera, Ascocentrum and Vanda

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Well, that's it for this month. A little late, but better late than never, as my Mom used to tell me. The New Year is a time of renewal, of new energy, new priorities, and new directions. One of the priorities should be in working together with those who share the same values because this is the only way we can

survive in the middle of the deep blue Pacific Ocean. Building upon existing alliances and creating new ones is a good place to start, because there's no 'I" in 'WE'.

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