EMERGING TIMES ...growing toward the future

Volume 10 • Issue 5 | September 2021

CALIFORNIA PRODUCTION





Pictured above is Class 10 at Tanimura & Antle's headquarters in Salinas, Calif.

In July, Class 10 of FFVA's Emerging Leader Development Program toured several farm operations in California to learn about production practices and processing for a variety of crops, including artichokes, celery, strawberries, lettuce, tomatoes, apples, avocados, peppers, and more.

During their final production trip of the year, class members heard from producers in the Salinas Valley on how they grow, harvest, process, and ship specialty crops despite water and labor issues, and the ongoing COVID-19 pandemic.

The class also had a unique opportunity to witness autonomous tractors in the field from a local ag-tech startup and listen in as emerging companies pitched their innovations at the Western Growers Center for Innovation & Technology.

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Artichokes at heart of **Ocean Mist operations**



By Ariel Bauer Hardee Fresh LLC

huge thank you to Ocean Mist Farms and its director of operations, Glen Alameda, for setting the bar high during our first farm stop in California! Ocean Mist has been in business for nearly 100 years in the Salinas Valley. The farm that first began growing artichokes, broccoli and brussels sprouts, now boasts 30 different varieties, including 22 organic crops. Being that

Ocean Mist is the United States' largest conventional and world's largest organic artichoke grower, it was only fitting for us to visit their 'thistle' field of artichokes. The unique crop is harvested for its edible flower bud. Traditionally, the artichoke is grown as a perennial crop. Thanks to Ocean Mist's team of plant breeders, the artichokes here are grown as an annual to allow for crop rotations and increased yields. The crop is hand harvested seven to 10 times in a season before it is mowed down and tilled back into the soil. Ocean Mist doesn't just grow and breed artichokes, they are a fully integrated company. Their expertise reaches from transplants to picking,





packing, marketing, and shipping.

Due to water shortage issues in California, Ocean Mist uses water conservation methods of drip irrigation. They also participate in the recycled water program. This program uses runoff water that is treated and then redistributed to those who participate in the program. This serves as water security as well as helping with salinity intrusions from the nearby ocean coast.

With a stretch of 35,000 crop acres, its safe to say Ocean Mist has made its mark on the produce industry.



Eyeing peppers at George Chiala Farms



Bv Shane Mart H&A Farms

e had the opportunity to visit George Chiala Farms in Hollister, Calif. Chiala Farms is a little different than your normal farming operation in that the processing plant always comes first. This blueprint allows them to grow on specific timelines for dedicated customers. Decisions driven by the plant can become quite the headache, as harvest schedules are often set more than 18 months in advance and some vegetables may be grown out of season. Our ELDP group caught the team when they were growing Anaheim green chiles, destined for IQF (Individual Quick Frozen).

Currently, Chiala Farms is farming more than 700 owned acres as well as 1,300 leased. George Chiala started with peppers, growing and brining them himself. This has evolved into selling millions of pounds of brines for salsas and pepper jack cheese, among other food items. Chances are, if you are eating an American-made pepper jack cheese, it has some Chiala peppers in it.

The growing condition in the area allows them to grow more than 15 commodities, including jalapeños, carrots, beets, cilantro and more. However, these ideal growing conditions do not come without problems. The Regional Water Quality Control Board keeps lowering the amount of residual nitrogen allowed in the soil. This, coupled with more and more water restrictions coming down the pipeline, will prove to be a major challenge in the coming years.









Family experience at Gizdich Ranch is core business



By **Sherri Atwell Feeding Florida**

e arrived at Gizdich Ranch just in time for lunch. We were welcomed by the vibrant and lovely Nita Gizdich, the owner of this fourth-generation farm. Nita guided us to the picnic tables where we were served a scrumptious lunch of freshly squeezed lemonade, juices, sandwiches from the deli and homemade pies from

the farm. Gizdich is known for its olallieberry pie, which draws people from all over California to purchase. We learned that during the Thanksgiving week, they bake and sell 8,000 pies! We all agreed that the pies were award-winning and such a special treat.

Nita was a true treasure of information as she shared the decades of history surrounding this family farm. The farm was originally purchased in the 1930s on 10 acres (five acres dedicated to apples and five of open ground used for chickens, pigs, and tomatoes), a small house (without running water), and a small packing shed. Over the years, they added additional acreage to include over 20 acres to grow their world-famous olallieberry, which we got to taste in the beloved pie.

Vince Gizdich, Nita's son, joined us after lunch and shared how over the years they have diversified their business model to include direct-to-consumer and family agritourism. Today, the farm is just



truly built a successful small business around "homemade" with love. A day with a stroll through Nita's antique shop, a stop for a deli lunch and a slice of pie à la mode from the bakery make this one unforgettable family day trip. It was a memorable stop on our California tour and humbling to see how a family can adapt and overcome challenges to meet the needs of their customers.





Strawberries from East to West







By Sasha Burgin **Burgin Farms**

rom the East Coast to the West, Wish Farms' strawberries are delicious as always. While taste and quality remain excellent no matter the location, we learned that farming practices and challenges are a little different in California as opposed to Florida. Operating on over 900 acres and within three farming districts, Wish Farms grows with increased labor and wage minimums, more stringent spray and pest control management laws and water shortage issues that Florida does not face. Next year, California will see a \$15 minimum wage take effect which will be an obstacle to overcome along with hardto-find housing for H2A workers. California also has strict bureaucracy on crop spray and management that must be taken into account in the daily farming practices.

Interestingly, since California has a milder climate than Florida, Wish Farms is able to grow strawberries for a much longer period. Strawberry harvest takes place March through November and yields, on average, 8,500 trays to the acre. That is unheard of in Florida. We also learned of the different strawberry varieties growing in California, including the Monterey and Cabrio berry, which is the bulk of what Wish Farms grows on the West Coast.

While we may be thousands of miles across the nation, a farmer is a farmer, and we all struggle with many of the same issues within the industry. It was enlightening to see a company from both states successfully adapting and thriving in different environments but doing the same thing. I had a wonderful time visiting this farm and learned so much, including how to properly pick a strawberry. Twist and pull!





Pezzini Farms charms with heirloom artichokes



By Kelly Smekens **Bonduelle Fresh Americas**

ucked between Castroville and Marina, Calif., are 20 acres of heirloom artichokes at Pezzini Farms, growing on the same rootstock for over 80 years! Pezzini Farms got its start in 1929 and continues to sell artichokes to local restaurants and out of its retail store at the farm site.

With a moderate fall crop and a strong spring crop, the Pezzinis are able to share their specialty with the locals of the area, and tourists alike! To tap into the tourist market a little more, they now offer two Airbnb locations at the farm (one is even the house that Sean Pezzini

grew up in). Adding to the opportunities to enjoy the artichoke charm, visitors can try one of many artichoke dishes from "The Choke Coach" food truck, as well as dozens of artichoke-inspired items in the retail store.

What really sets the heirloom artichoke apart from the average commercial choke is that they will remain planted in the same area for about 20 years. After that time, they are dug up, the roots are cleaned, and they are replanted to produce for another 20 years, and to continue the heirloom cycle. The largest risk to these plants are gophers and mice, but by keeping them at bay, the plants can truly take advantage of the rich soil and be fruitful for many years to come.

ELDP Class 10 even learned the proper way to peel and prepare an artichoke. In my opinion, you have to try it grilled!





From pushcart to powerhouse: A look at DiMare's West Coast ops



By Clay Pederson Agromillora Florida

he first stop of the second day for the Class 10 California trip was with Jeff Dolan of DiMare Fresh, in Gilroy, Calif. On the edge of one of DiMare's tomato fields, Dolan was kind enough to teach the class about the history of DiMare Fresh and share some of the challenges they are currently facing. Here we learned how a third-generation farm family grew from selling produce from a pushcart in Boston into the national powerhouse it is today.

DiMare Fresh has operations in Florida, Texas, Pennsylvania, and California. DiMare is known for not only growing tomatoes but for the entire value-added chain, from ripening and

and distribution of the product. Being known as a tomato company, I was surprised to hear that DiMare also deals

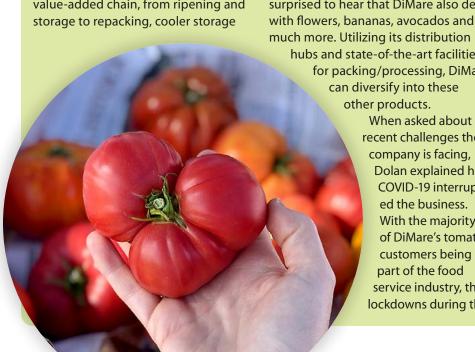
hubs and state-of-the-art facilities for packing/processing, DiMare can diversify into these other products.

> When asked about recent challenges the company is facing, Dolan explained how COVID-19 interrupted the business. With the majority of DiMare's tomato customers being part of the food service industry, the lockdowns during the

pandemic had a fundamentally negative impact for them as it did for many of the country's producers. With lockdowns easing and cafeterias and restaurants opening back up, there is good news on the horizon.

Other hurdles during the past year have been freight and a shift in labor. In the past, Dolan mentioned that they have always been fortunate to have a strong domestic labor source. Now, they are needing to add H-2A labor to fill the gaps. Hard-to-find labor and the skyrocketing price and lack of availability of freight are issues we heard echoed throughout are tour.

Although Jeff Dolan is growing on the opposite side of the country, his issues and challenges are shared with our Florida growers and growers across the nation.







Ag startup showcases cost-saving tech



By Jennifer Schaal **Dundee Citrus Growers Association**

ust as most fairy tale tech startup companies begin in a garage, so did Bear Flag Robotics. Four years ago, Igino Cafiero and Aubrey Donnellan co-founded the company with a guiding principle of increasing food production and reducing the cost by automation. Labor has been an issue in agriculture for many years and being able to utilize driverless tractors within operations tackles both pieces of their mission at the same time.

The initial focus of the driverless tractor was to provide land preparation activities such as mowing, discing and leveling. The system was designed to accommodate any make and model of tractor. It uses lidar and radar to guide the tractor up, down and around the fields and to keep the tractor, along with all that surrounds it, safe. If the system senses the tractor going off course by a predetermined interval, the tractor will shut down on the spot and

wait for an operator to make corrections.

ELDP Class 10 had the privilege of seeing the tractor in action on a farm. We met with Igino Cafiero, co-founder and CEO, Brent McKinsey and their team. They gave us background on the company, explained the technology, answered our many, many questions and even let us take a seat inside the tractor before sending it out in the field all by itself. I was a bit nervous as it started to drive away, thinking of everything that could go wrong, but the team at Bear Flag has already thought of those things and more. The innovative, forward-thinking technology they have built and continue to improve upon is amazing to me. I hope farmers will embrace it and see it as another tool within their reach to help operations continue for generations to come.

As impressed as I was with the short introduction to the company, the technology, and the cost-savings it can provide, John Deere was even more impressed. In 2019, Bear Flag Robotics joined John Deere's Startup Collaborator program, which focuses on building a relationship with startup companies whose technology could align with and add value

for their customers. At the beginning of August, John Deere announced it had reached an agreement to acquire Bear Flag Robotics. I would like to offer congratulations to the Bear Flag Robotics team, and I look forward to seeing their technology utilized on farms very soon.







Western Growers innovation center

helps startups thrive



By Nathan Carson Chemical Dynamics, Inc.

s agriculture grapples with problems such as food traceability, nutrient leaching, and labor shortages, ag startups are developing innovative solutions to propel the future of the industry. At the Western Growers Center for Innovation & Technology, these startups are able to obtain feedback from growers to refine their business proposals and to better position themselves for funding from nearby Silicon Valley.

During Class 10's visit to the center, seven startups shared their solutions and received feedback from the class. A brief summary of each startup pitch is as follows:

- **PAGO** is an ag labor platform that connects growers with labor contractors to provide farm labor on-demand at a per-employee rate. The platform offers a dashboard that displays key performance indicators such as costs, productivity and hours. Additionally, PAGO is compliant with piece-rate pay.
- **iFoodDS** is a traceability platform that enables end-to-end transparency of the agri-food supply chain from production to packing to distribution. This will help stakeholders address problems such as food safety and food quality in a more timely and cost-effective manner.
- KipTraq is an integrated business platform that enables agribusinesses to more efficiently manage data. This

platform enables entities to import data from other ERP platforms and leverage barcodes to generate new documents as well as create custom dashboards for rapid insights.

- Tailwater Systems is a water treatment company that provides growers and agri-manufacturers with water treatment systems to address problems such as nitrate runoff, salinity, and chloride concentration. It offers multiple service offerings to best tailor its products to customer needs.
- Naio Technologies is a startup that specializes in farming robotics. Utilizing GPS guidance, Naio robotic weeders address shortages in farm pesticide applicators while reducing the overall need for pesticides. Currently, Naio is also de-

veloping autonomous robots that will oversee planting and fertilization.

- **Heavy Connect** is a data-management company that specializes in the collection and analysis of field data. Utilizing mobile applications, Heavy Connect enables rapid input of data in the field in a single cloud-enabled platform. This eliminates problems caused by data silos and enables field managers to rapidly share data insights with off-site team members.
- Boost Biomes is a biotech company

that utilizes DNA sequencing to identify possible microbes for use in agriculture, particularly used as biopesticides. This would provide growers with safer, organic solutions to disease pressures.

While no single company has all the answers, ag startup ecosystems such as the Western Growers Center for Innovation & Technology provide opportunities for overcoming the challenges facing growers and ensuring agriculture remains a vital part of America's agri-food supply chain.





How the Grower-Shipper Association navigated COVID-19



By Morgan Stuckert **Lipman Family Farms**

t the beginning of 2020, many industries across the world had experienced a sudden and unexpected change in daily operations. This created many challenges throughout the produce industry, and associations like Grower-Shipper Association of Central California (GSA) were forced to shift focus. Class 10 was able to sit down with Chris Valadez, president of GSA, to have a candid conversation about their experiences from COVID-19.

GSA is the trade association for Salinas and surrounding counties, servicing over 350,000 acres of farmland in the area. The association's services benefit grower, shipper and processor members of fresh produce with tasks such as media representation, government engagement, labor, pest management, and one that has had an impactful focus over the last year, crisis management.

GSA recognized the need for protection of farmworkers, harvesters and frontline workers alike, as this group has been the most vulnerable since the onset of the pandemic. Due to the community-style housing many H-2A and frontline employees reside in, they are easily susceptible to infection and



limited to the amount of space available to quarantine.

Valadez and his team worked with the hotels in Salinas and surrounding counties to house COVID-positive harvesters while they quarantined and recovered. They were able to block entire floors, and sometimes entire hotels, for frontline workers in need, while also supplementing these hotels as they also struggled to host usual travelers and quests.

As the year went on and vaccines became available, GSA fought for frontline agriculture workers to get priority access. They sent a request to the federal level and received approval for vaccines to be distributed in the Salinas area. Starting February 25, 2021, they offered vaccines every weekend to those that needed it. Today, approximately 75% of agriculture employees in the area are fully vaccinated largely due to the efforts of GSA.

Their support helped slow the spread of COVID-19, protecting agriculture employees and their families, and allowing for crops to continue to make their way across the supply chain to feed families across the country.





Duda's research facility seeds future of celery

n the Salinas Valley, we were able to tour Duda Farms' high-tech seed research facility. There, we saw firsthand the dedication Dr. Larry Pierce has put into the celery breeding program - even resulting in some allergic reactions. You heard that right, Dr. Pierce has



Bv Shane Mart H&A Farms

committed so much of his time to celery breeding programs that he has actually developed allergies to celery.

Duda has invested millions of dollars into celery germplasm and celery processing facilities. They realized early on the need to invest into a solid breeding program. All varieties are 100% proprietary, and most equipment is specifically built for celery seed harvesting. Currently, there is enough celery seed in storage to feed the world for many years. Let's celery-brate!

To stay current in the celery game, Duda aims to create two new varieties a year. To do this, over 1,000 new "lines" are grown. Some date back more than 70 years. They have over 40 patents on varieties. Older varieties are stored as well because you never know what will work well and where. This

allows them to find the right varieties to better combat diseases and get the resistant variety out to growers faster.

The lab not only does research on the seed, but the finished product as well. Flavor, smell, shelf life, and packaging are just some of the parameters that are routinely tested. Comparisons to competitor processors on sweetness over time due to the breakdown of fructose are also conducted. Always, they strive to be one step ahead of the competition. Celery used to be white, now it is green, and even comes in the color red, a miniature size and as a straw for your favorite tomato drink.









PlantTape's automation offers efficiencies for growers



By Eric Greenhow **Optimum Equity Partners**

uring our trip to California, we were fortunate to visit the facilities of Tanimura & Antle—two families who partnered together, jointly growing in the Salinas Valley area for over 90 years. What an amazing, innovative operation. Especially interesting was a company that Tanimura & Antle purchased a few years ago, now called PlantTape.

Simply put, PlantTape is a system by which seeds (provided by the grower) are sown into a blend of peat, coco and vermiculite between two layers of biodegradable paper. This biodegradable paper looks like a "tape," stringing together 840 plants per tray in the nursery. Roughly 1 million plants can fit into a 5,000-square-foot greenhouse. As the seeds grow and are ready for transplanting into the beds in the field, the trays of small plants are loaded onto a proprietary tractor and are then planted into the beds mechanically at a rate of two-to-seven acres per hour. Each machine requires two to three employees, resulting in reduced labor needs.

The biodegradable paper (tape) not only contains a slow-release fertilizer, but after about 100 days, it breaks down and is no longer found in the beds. Fewer workers touching the transplants leads to increased plant uniformity and precise plant spacing, and therefore allows other

in the growing cycle, such as robotic weeders and harvesters.

With labor supply being such a cumbersome and costly factor in most of today's farming operations, any automation that can be successfully implemented is a win for the grower. PlantTape, in my opinion, is revolutionary in helping to reduce these labor constraints.







T&A innovates for growth



By Ariel Bauer Hardee Fresh LLC

animura & Antle is an industry leader with its harvesting management being second to none. Farming 40,000 acres, it all starts with PlantTape transplanting and stateof-the-art robotic weeding. T&A then finishes its 50- to 120-day crop cycle with a strong harvest. A team of 18 to 35 people can harvest three to four acres a day of artisan lettuce. Varieties range from iceberg, specialty romaine, red and green oak, and sweet gem. Each head is individually cut by hand, outer leaves are removed, and the delicate inner lettuce head is placed on the mobile packing tractor. At this point, the lettuce is sprayed with a sodium chloride solution which serves as a disinfectant and cauterizes the cut surface. This will allow for a four-hour cool-time window.

The most remarkable portion of T&A's business is its ability to manage 1,600 harvest employees. T&A is the first company to build its own housing apartments at this scale. These apartments house both domestic and H-2A workers. The need for affordable housing in the area was causing a huge shortage of labor. The two-bedroom, twobath shared kitchen units were the answer. T&A has continued this model in other growing



areas. After leaving Salinas Valley in October, the crews travel to Central Valley for a month before staying in Yuma through March. This housing model allows workers to travel with the harvesting opportunities should the workers choose. Each harvesting opportunity could pay off big for skilled harvesters. A harvester will make a minimum of \$16.05 an hour. Add in a production bonus on top of that, and income could equate to \$62,000 for the year.

T&A's ability to stay ahead of the trend has allowed them the growth they have experienced thus far. Thank you to Brett Champlin for showing us his harvesting operations and Brian Antle for giving us insight on the company's future!







Stout Ag's technology impresses



By Sarah Hillard A. Duda & Sons

t was truly impressive to see the Smart Cultivator in action at Stout AgTech in Salinas, Calif. As the machine is driven over the row of crops, it is both weeding and cultivating at the same time. Weeding mechanically is almost unbelievable, but this has been achieved with a high-resolution camera that can identify and recognize a plant like broccoli and different lettuce varieties. This ability to instantly distinguish between a crop and a weed is vital for success and creates a more efficient process. Jeff Antle and his team designed this innovative machine from the shell of a PlantTape machine using technology similar to that used by NASA for SpaceX.

With an average payback period of eight months, the automation of this

process saves farmers money and quickly pays back the cost invested to purchase a Smart Cultivator. The savings come from reducing the number of workers which lowers the cost per acre. Weeding with a hand-pull crew of 40 workers costs \$1,000 per acre while the cost is drastically reduced to \$150 per acre with this automated machine. Not only does this computerized solution decrease costs but the machine with an air-conditioned cab

doesn't require breaks like a crew working outside in the heat does. As there are vast labor shortages across the farming industry, this is the answer that addresses the labor shortage issue and helps to move toward less reliance on an ever-shrinking labor pool. This new world of automation really is the future of farming and being there to see it firsthand was an exciting look at the advancements that will continue to be created by Stout AgTech.





Taylor Farms finds success with focus on consumer trends, automation



By Nathan Carson Chemical Dynamics, Inc.

oday's modern consumer values convenience, especially when it comes to food. More than ever, consumers are gravitating toward meal kits that require almost zero prep. In response, companies such as

Taylor Farms are optimizing operations to meet evolving consumer trends. Nowhere is this more evident than in Gonzales, Calif., home to Taylor Farms' third largest food processing and packaging facility.

Occupying 250,000 square feet across 20 acres, the facility manages over 250 bag SKUs and 90 tray SKUs. Despite the complexities involving cleaning, processing, sorting, and packaging, the Gonzales facility produces five million bags of finished produce a

week. Indeed, Taylor Farms' Gonzales location processes two million pounds of broccoli a week, making it one of the largest broccoli processing facilities in the world.

Given the rapid growth in meal kits, this facility often utilizes multi-ingredient processing which further adds to the complexity of operations. Consequently, Taylor Farms is undergoing a mechanization effort to improve operational efficiencies and reduce the chance of mistakes. For instance, this facility recently mechanized its broccoli-cutting process with stunning results. It is estimated that this effort paid for itself within 30 days. The next phase of mechanization is focused on the packaging line which is currently all hand packed. By February 2022, Taylor Farms hopes for its Gonzales packaging operations to be fully automated.

Another major consumer trend is an emphasis on sustainability. Consequently, food retail companies are under increasing pressure to reduce food waste and their carbon footprints. Taylor Farms' Gonzales location takes pride in its sustainability program as it is the first food service facility to receive Platinum Certification under the Zero Waste Program. Furthermore, the Gonzales facility operates its own mini-grid that utilizes solar energy to meet approximate 90% of its energy requirements.

Although the landscape of the agrifood supply chain is changing rapidly, Taylor Farms is positioning itself for continued success by adapting its operations to evolving consumer tastes and trends.







Thinking outside the 'bin' at Kirk Williams Ranch



By Jennifer Schaal Dundee Citrus **Growers Association**

n a quiet picturesque mountainside in Soledad, Calif., you'll find a fourth-generation grower tending to avocados, lemons and wine grapes. Kirk Williams, of Kirk Williams Ranch, has nurtured this land and more his entire life. He is keenly aware of the environmental elements in California and the issues they can present. As Class 10 stood under massive avocado trees listening intently, Williams detailed how the crops have changed and his practices have adapted

over the years.

I was especially intrigued with a contraption he built himself to comply with new ACP regulations on his fresh lemon crop. He was given two rather expensive options he could implement to comply, but instead, he thought outside the "bin" and came up with his own cost-effective option. He even loaded up a canasta, or pick sack as I call it, full of lemons and demonstrated how it worked.

We were joined by Williams' stepdaughter, Kori Violini, as we headed down the mountainside to have a look at the grape vineyard. To our delight, a wine tasting was awaiting our arrival! (Mind you, this was our last stop of the day). All of the wines we sampled were made from grapes grown right where we



were standing. Violini explained how her hobby of winemaking turned into a fullfledged business; she even opened her own tasting room in Carmel-by-the-Sea two years ago. This was a perfect example of how farmers have expanded their operations beyond the fields to diversify and strengthen themselves.

Class 10 thoroughly enjoyed the last stop on our California trip. It is one we will not soon forget.



ELDP News

- 1 Taylor Sewell (Class 9) and her husband Marshal are expecting a baby in February 2022.
- 2 Kevin Yue (Class 5) recently started with Environmental Risk Management, Inc. (ERMI) as a senior project manager and is responsible for being the engineer of record for sites requiring cleanup, as well as assisting in reducing the environmental risk that a client may encounter. ERMI is a full-service environmental consulting firm that has over two decades of experience in property transaction due diligence, site assessment, and remediation.



