

The Migrant VOICE

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Tim A. Hire, County Superintendent of Schools



The amazing Ag Expo!

By: Ximena Delgado and Erick Minguela

Can you imagine what it would be like to attend the largest agricultural event in the world and view hundreds of the most innovative agricultural exhibits all in one place? Well, the Ag Expo in Tulare, California is the perfect place for you!

Our journalism team had the opportunity on Thursday, February 15, 2024, to explore unique ag exhibits, learn information about various organizations, and interview exhibitors about their innovative products at the Ag Expo.

The Ag Expo is the largest outdoor agricultural event in North America with over 1,200 exhibitors and over 100,000 visitors each year. Visitors from 65 different countries attend this large event that covers 2.6 million feet of exhibit space to view the latest innovations in farm equipment, technology, and communications. The event was established in 1976 to showcase the achievements of the nations and is held at the International Agri-Center located at 4500 Laspina Street in Tulare. A nonprofit International Agri-Center organizes this three-day event annually on the second Tuesday of February. This year's event was held on Tuesday, February 13 and Wednesday, February 14, from 9:00 until 5:00 pm and Thursday, February 15, from 9:00 am until 4:00 pm. Tickets for the Ag Expo cost \$20 for adults if you buy them at the gate or online and children ages 6 and under are free. If you preorder your tickets online, you can save \$3 with a promo code. This year marked the 57th year for the Ag Expo, which not only generates millions of dollars for the city locally, but also has a global impact.

One of the exhibits that we visited during our time at the Ag Expo was the Sequoia Adult Education Consortium booth. The school, which is located in Visalia,



Ximena and Erick entering the World Ag Expo.

California, covers parts of the Tulare and King county areas and is made up of the College of the Sequoias community college in Visalia, along with the ten school districts within the boundaries of the college district. Maribel Delgado, who was one of the school's exhibitors, provided us with useful information about the school. We were told that some programs that are offered at the school are Adult Secondary Education, English as a Second Language, Citizenship Preparation, High School Diploma, Agriculture, Automotive and Transportation, Business Pathway, and Computer Science, just to name a few. The best part about these programs is that all of the classes are provided for free! We were also given promotional items to take with us.

At the World Ag Expo, there is a lot of food and every food booth has a variety of foods to choose from. All of the food booths are from different organizations. A few of the food vendors were Palo Verde Elementary School, Sundale Elementary School, Central Valley Christian School, Tulare Western, Boys and Girls Club of the Sequoias, Abundant Life Center, and Salt + Light. Most of the booths have hamburgers, corn dogs, breakfast burritos, deserts, soft drinks and water. Sundale Elementary raised \$100,000 over the three-day event this year by selling their famous rib-eye steak sandwiches. Students at Sundale get the week off from school in order to help with their booth at the Ag Expo. A few booths away from the Tulare Western food booth, where we ate, was the Salt + Light food booth that sold veggie and protein bowls for the first time at the Expo. The Salt + Light organization plans to donate all of their proceeds to help the homeless. They

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Meet the unmanned spraying heroes!

By: Eliana Miranda, Kayleen Chavez, Josemaria Hernandez, Yusef Fayad Barich, Raquel Miranda

In the world of farming, there is a super cool invention by the company GUSS Automation that has made farming way better. It is called the GUSS Autonomous Sprayer and it is the first driverless sprayer! GUSS stands for Global Unmanned Spray System.

We had the opportunity to interview Chase Schapansky, CTO of GUSS Automation at the World Ag Expo on February 15, 2024. He is in charge of making sure this invention runs smoothly. After about 40 years in the farming business, GUSS Automation decided to invent this amazing technology that would make farming safer and easier. So, they started with a machine that could spray crops in the orchards by itself.

During the process of designing the autonomous sprayer, the team faced a lot of challenges. "Our boss was very determined to make it work, so we kept going even when things were hard," said Shapansky. "We made the autonomous sprayer because we saw a need for it in our own farming work. We realized it was hard to find people to drive tractors at night, and it was not safe because of all the chemicals in the air". This is what led to the decision of designing



Kennedy Journalism team pictured with the famous autonomous sprayer and CTO of the company GUSS

a sprayer that could be operated by a person who did not need to be near the sprayer. GUSS solves the problems that are associated with spraying orchards.

GUSS Automation spent about four years creating the GUSS Autonomous Sprayer. They started in 2014, and since late 2019, it has been helping farmers around the world. To make sure that the sprayer works well, the machine is tested a lot before giving it to farmers. They make sure everything is safe and works right. GUSS Automation uses a combination of GPS, LiDAR, sensors, and software to guide GUSS safely and efficiently through orchards.

People may wonder if this cool driverless invention will replace people's jobs. Shapansky says it is not true! "We do not think GUSS will take away jobs. Instead, it changes jobs," explains Shapansky. Now, instead of sitting on a tractor all day, farmers can sit in a comfy truck and still do their job safely. They can control exactly where and when the sprayer goes without being near any chemicals. A single employee can monitor up to eight GUSS sprayers at a time! What a time saver!

During our interview, we learned that GUSS Automation keeps working hard to make the Autonomous Sprayer even better. They improve it by adding new

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Cow Manager, a revolutionizing monitoring system

By: Yovani Mendoza Manzano

Farmers have relied on traditional methods to monitor their animals for years, often facing obstacles in detecting early signs of health issues. Now, with innovative technology, farmers can track the health and well-being of their livestock using the Cow Manager, a system founded by Gerard Griffioen in the Netherlands in 2012.

Our journalism class had a tremendous opportunity to experience the World Ag Expo on February 15, 2024, in Tulare, California. We were in awe of the many innovations in agriculture. We had the pleasure of meeting Stef Booijsink, who informed us about the Cow Manager. He stated, "It was manufactured and developed in the Netherlands."

Cow Manager is an activity monitoring system designed to provide complete information on the behavior and health of individual animals. This system, placed in the animal's ear, registers every movement and monitors temperature changes. The data is wirelessly transmitted to a central system for real-time analysis, allowing farmers to track the behavior patterns of their livestock as they happen. Imagine a dairy farmer receiving hourly updates on each cow's activity, allowing them to promptly identify any changes that could signal potential health concerns. The Cow Manager system offers 24/7 monitoring, empowering farmers to take proactive measures to ensure the well-being of their livestock.

But how does it work? The system uses advanced sensors with a range of up to 450 feet. It can be placed inside the barn or outdoors, and these sensors capture vital data on the animals' movements and behaviors, even in remote areas. Crucially, the monitoring system tracks activity levels, eating habits, and rumination time, and can provide insights into the animal's overall health. For example, a decrease in rumination time might indicate a potential health issue, prompting timely intervention from the farmer.

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Yovani and Jose getting ready to interview CowManager's Stef Booijsink

Less weeds, more plants!

By Ximena Delgado and Erick Minguela

Have you ever wondered what it would be like to combine art, science, and technology to create and design innovative products that people can use to help the environment? Well, by attending the Ag Expo in Tulare, California, you can meet several exhibitors who have achieved that goal!

On Thursday, February 15, 2024, our migrant journalism team interviewed Bo Stallman, a sales representative for a company named Carbon Robotics. Stallman stated that his part in producing the products for this company is setting the foundation for a lot of the necessary research. Carbon Robotics' exhibit at the Ag Expo featured a LaserWeeder machine to assist farmers with getting rid of weeds in an innovative manner. Our team's goal was to attend the Ag Expo, to interview exhibitors about their products.

Stallman stated that their company currently has about 60 LaserWeeder machines in the field that are located all over the world and in eight different countries. The LaserWeeder's computers are designed to be operated by the farmer and are programmed to understand up to eight different languages allowing diverse people the ability to operate them. This technology also allows the user to replace around 75 hand weeders in the field.

During our interview, we learned that the LaserWeeder machine was designed to help farmers get rid of the weeds in their fields without the use of pesticides. The LaserWeeder is run by an autonomous robot that moves the device around the field by itself. A hupheus state-of-the-art computer system of high powered lasers along with high resolution cameras are used by the LaserWeeder to assist it with determining the difference between a weed and a crop. The machine is designed to zap 100,000 weeds per hour. We learned that the spark from the LaserWeeder's flash boils and ruptures the cell walls of the weed's seed which causes the weeds to



Ximena and Erick interviewing Bo Stallman

die. Stallman says the goal of this machine is to remove as many chemicals from the crop as possible in order to create a better food source for the population.

We were told that some of the benefits of using the machine's thermal energy to kill weeds instead of pesticides is that it helps with increasing a farmer's crop yield of a healthier organic crop, supports sustainable farming practices, and cuts the costs for farmers. The LaserWeeder is powered by a tractor's fuel system. The LaserWeeder operates day and night, 24/7, burning weeds throughout an entire field. This machine is also able to maintain high accuracy in various types of weather conditions and works on all types of weeds as well as in various soils. This machine is 20-feet-wide with three rows of 10 lasers that are pulled by a tractor. As the machine is roaming through a field, there are thirty lasers that are working to destroy weeds while preserving the farmer's plants. The cost of the LaserWeeder is

between \$25,000 and \$50,000.

Our journalism team had a great time interviewing Stallman about the LaserWeeder machine at the Ag Expo. We learned that although it is expensive, it burns weeds without the use of harmful



Ximena and Erick observe the wooden coins as they burn

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No fuss with GUSS!

By: Jefferson Elementary Journalism Club of Dinuba, CA: Daniel Fraga, Anthony Reyes, Yovanny Ramirez, Faustino Olea, Rafael Aguilar, Damian Olea, Alfredo Martinez, Haillie Cardenas, Camila Garcia, Alisson Hernandez

Breadbasket of the world! California's Central Valley has been traditionally called the "Breadbasket of the World." However, what isn't traditional is its farming practices. Agriculture is changing in the Central Valley of California, and one of its biggest changes is technology in the fields.

On February 15, 2024, Jefferson Elementary Journalism Club of Dinuba, had the opportunity to experience the 2024 World Ag Expo in Tulare, California. As we navigated through countless exhibits looking for the latest cutting-edge technology that is being used in farming, it was GUSS that intrigued us the most.

Upon approaching the exhibit, we were greeted by Chase Schapansky, CTO and co-founder at GUSS Automation. He kindly agreed to allow us to interview him. We began by asking him, "How is GUSS changing agriculture in the valley?" He responded, "GUSS is changing agriculture in the valley by doing a job that's normally done by someone driving a tractor and a sprayer out in the environment, but we're doing that job autonomously."

He went on to explain that GUSS stands for Global Unmanned Spray System, and that they build autonomous orchard and vineyard sprayers to go out in the field day and night and do the spray job of what a tractor and sprayer would normally do. This



Jefferson Migrant Club at the Guss booth

way, one person gets to sit in an operator truck and monitor usually four machines at a time while they're out working.

We continued our interview by asking him, "How does GUSS improve farming?" Schapansky replied, "GUSS improves farming by doing a more precise job and doing it more efficiently. Because everything is done electronically and controlled with computers, we can do a lot of documentation that's not done with the traditional herbicide spray method." He added that this shows exactly what they did, what rates they sprayed, and what rows they drove in. This allows them to make sure that the job is getting done correctly and more efficiently.

For our final question, we asked, "How long does it take to make GUSS?" He replied, "It takes about six weeks to build one, but they're throughout all different stages in the shop so we build about one machine per week. From the time we start a frame to the time we build that frame, we paint it, put it together, and test it, that's usually about six weeks."

Schapansky went on to say that up until this point, all the GUSS sprayers have been diesel engines, but now there's a battery electric vehicle sprayer. It's called Electric GUSS and it is the first electric autonomous herbicide orchard sprayer in the world. This sprayer enables one person to operate and monitor up to eight GUSS machines from his or her vehicle using a laptop computer. His final comment was that all GUSS sprayers are made in Kingsburg, California.

In a region often referred to as the "Breadbasket of the World," the integration of autonomous systems like GUSS represents a greater shift toward more efficient, precise, and sustainable farming practices. Through meticulous documentation, enhanced precision, and increased efficiency, technologies like GUSS are not only improving yields but also minimizing environmental impact and optimizing resource utilization.

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help homeless people by providing them with meals.

At the Ag Expo, we had the opportunity to visit the Ag Career & Education Pavilion. There were 12 educational exhibitors. A few of the college exhibits that we visited were College of the Sequoia, Fresno State, and Chico State. They gave us a lot of information about their colleges. Each college exhibit also had a question wheel that we were able to spin, answer a question, and win free souvenirs. Fresno State representatives even gave us free ice cream samples.



Spinning the prize wheel at the college of the Sequoias booth

We also visited the FarmDroid booth located at the Corteva Agriscience Center. There we met a sales representative who provided us with a lot of information about their FarmDroid. We learned that their FarmDroid robot is the world's first automatic seeding and weeding machine. The robot is powered by solar energy. The solar energy that is produced allows the robot to operate for about 18-24 hours each day. The solar panels are located on the top of the robot. There are about 50 or more types of crops that this robot is compatible with. The sales representative also mentioned that you can control the robot with an Ipad.

Our journalism team had a great time at the Ag Expo in Tulare, California. We gained a lot of information about a variety of products, learned about various

organizations, explored innovative products, ate great food, and so much more. We learned that this event takes hundreds of volunteers to make it a success. The exhibitors are also provided assistance from the volunteers with setting up their booths. A local Tulare farmer, Stan Creelman, was quoted as saying, the Tulare Ag Expo is "One of the only shows in the world that the volunteers unload all of the equipment. They will take it from your truck, and put it in your space, and that's all done for free." Another amazing thing about this event is that as you roam from exhibit to exhibit, you are given logo promotional items that represent each booth along with product information packets. The exhibitors at each booth were available to answer questions and provide information about their product as well as pass out promotional items. Our team each ended up leaving the event with a large bag full of goodies from the various booths!



When you visit the Ag Expo, you'll need to bring comfortable shoes if you are planning on staying for a while because there will be a lot of walking if you choose to explore the exhibits up close. However, there is also a complementary trolley that provides transportation around the event as well. I hope that you gained some valuable information about the Ag Expo and that if you have an opportunity to attend next year's event, you enjoy the Ag Expo as much as we did!

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During our interview, we learned that GUSS Automation keeps working hard to make the autonomous sprayer even better. They improve it by adding new technology, like cameras, to help it see better. They also make sure it is super safe to use. They even have a special safety vest for the person operating the sprayer, which turns it off if they get too close. These safety features are extremely helpful to farmers and ensure that the job is done correctly, safely, and in a timely manner. The company now has the original GUSS, the Mini GUSS, and the new Herbicide

GUSS available to farmers! Shapansky adds, "In the future, we want to help even more farmers. We are planning to expand to new places like Australia and South America. We want to keep growing and helping farmers everywhere".

Thanks to GUSS Automation and their amazing inventions, farming is getting safer, easier, and more high-tech than ever before. So, here's to a future where farmers can sit back, relax, and let the GUSS Autonomous Sprayer do the hard work!

How civil engineering helps our valley

By: Sebastian Mendoza

Did you know that civil engineering dates back to 2700 BC? Civil engineers created pyramids, The Great Wall of China, and The Eiffel Tower. Civil engineering is all around us in our everyday lives from the roads we drive on to the stores we visit.

To become a successful engineer, you need to have a strong foundation in mathematics, physics, and chemistry.

Cole Martin is a civil engineer at 4 Creeks Inc. While interviewing Martin he described the details of his job as being very hands-on. He explained that he helps create the plans that are used to build different things you see in dairies. "My job primarily consists of this same work, but specifically for infrastructures that pertain to the ag industry including dairy barns, above-ground structures along with irrigation pipelines, and below-ground infrastructures. "He also stated that engineers, in general, can be described as those who create blueprints or plans that are used for construction. Think about a set of LEGOs. Engineers create instructions to put the model back together.

Martin has an important job because he helps dairy owners become more efficient in their operations. The valley continues to be the United States' leader in the production of dairy products. Additionally, the latest developments in the state are focused on efforts to reduce greenhouse gas emissions to combat climate change. Agriculture in the valley is doing its part with the development of anaerobic digesters in dairy facilities. For example, the digesters Cole helps create reduce greenhouse gas emissions from the dairy (found in cow manure) and create energy in the process.

At 4 Creeks Inc., he has already built and helped design over 50 dairy digesters in the state. The next time you pass by a dairy and smell cow manure, remember, by integrating innovative technologies and practices, civil engineers play a vital role in creating healthier environments for our community.



Milk Barn designed by Cole Martin



An Aerial View of an Anaerobic Digester



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Ximena and Erick posing in front of the LaserWeeder

chemicals and helps farmers. We enjoyed watching the demonstration of the laser's accuracy to kill weeds. To show the skill of the LaserWeeder, an exhibitor threw round wood chips that were marked with an "X" in the center to represent a weed (onto a rotating belt). As the chips were tossed onto the rotating belt, the laser quickly zapped the center of the chip indicating that the weed had been destroyed. We were even given a laser burned coin as a souvenir! If you ever have the opportunity to visit the Ag Expo, make sure to visit the LaserWeeder exhibit and get a look at this amazing and innovative weed removing machine.



Yovani and Josue at the CowManager booth

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The Cow Manager is distributed in over 35 countries worldwide, including key markets such as the USA, Canada, Mexico, Australia, and Germany. It is transforming livestock management on a global scale. Farmers everywhere now have access to a powerful tool that improves animal welfare and enhances productivity and efficiency. As we look to the future of agriculture, the Cow Manager has paved the way for a new era of livestock management for both animals and farmers alike.

Meet Our Journalist

Tulare City School District - Heritage Elementary School



Mrs. Pearson
Teacher



Ximena Delgado
Grade 4



Erick Minguela
Grade 4

Dinuba Unified School District - Kennedy Elementary School



Ms. Alvarado
Teacher



Eliana Miranda
Grade 6



Josemaria Hernandez
Grade 5



Kayleen Chavez
Grade 5



Yusef Fayad
Grade 5



Mrs. Duenas
Migrant Journalism Teacher



Mrs. Quintanar
Teacher/Farmersville Unified School District



Yovani Mendoza Manzano
Grade 7/Farmersville Junior High



Sebastian Mendoza
Grade 7/ Ridgeview Middle School

Meet Our Journalist

Dinuba Unified School District - Jefferson Elementary School



Mr. Romo
Teacher



Alfredo Martinez
Grade 6



Alisson Hernandez
Grade 4



Anthony Reyes
Grade 6



Camila Garcia
Grade 5



Damian Olea
Grade 5



Daniel Fraga
Grade 4



Faustino Olea
Grade 5



Hailie Cardenas
Grade 4



Rafael Aguilar
Grade 4



Yovanny Ramirez
Grade 6

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