



# California Farm Equipment Magazine

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## California Walnut Commission Celebrates USDA's Announcement of Regional Agricultural Promotion Program (RAPP) Awards



The California Walnut Commission, representing more than 4,600 California walnut growers, mostly multi-generational family farms, and nearly 70 handlers, is pleased to announce it has been awarded \$7 million in funding as part of the Regional Agricultural Promotion Program (RAPP) to expand distribution and sales of California Walnuts in international markets.

The CWC thanks Agriculture Secretary Tom Vilsack, the U.S. Department of Agriculture, and the Foreign Agricultural Service for enacting the Regional Agricultural Promotion Program and recent award announcements to help support the expansion of California Walnuts and other US commodity exports into emerging markets. This additional funding will allow the industry to expand programs into new markets as well as boost activities in existing strategic export markets, with the goal of increasing distribution and driving sales of high-quality California walnuts globally.

RAPP funding will enhance the Commission's work by expanding market access in new opportunity

markets, in conjunction with driving sales of California walnuts in international markets currently funded through the Market Access Program (MAP). The CWC plans to attain success by leveraging the combined funding to conduct similar programs and activities as it was able to achieve in the United Kingdom (UK) utilizing the one-time Agricultural Trade Promotion Program (ATP) funds. In the UK, the industry was able to build programs that drove additional displays and distribution, resulting in increased retail sales and growing California walnut shipments +65% since 2018. The UK is now a top ten export market.

"Funding from the Market Access Program has been essential to our success over the years, and the introduction of RAPP funds will provide additional opportunities to drive new distribution and grow sales for California walnuts in even more new and exciting ways" said Robert Verloop, CEO for California Walnut Commission. "We're eager for the opportunity of RAPP to expand sales of and expand market access for California walnuts."

# Learn how to use drones to collect field data June 24-28



DroneCamp participants look up at drone flies overhead.

## People who attend DroneCamp in person will have an opportunity to fly drones

By Pamela S Kan-Rice

Assistant Director, News and Information Outreach

Want to learn how to use drones to map and collect field data? DroneCamp 2024 will be held at California State University, Monterey Bay in Marina on June 24-28. For people who cannot attend in person, there is also an online option available.

No experience is necessary. Training will accommodate beginners as well as intermediate users who want to learn more advanced flight, data processing and analysis skills.

Now in its 8th year, DroneCamp is a five-day short course covering everything you need to know to get started using drones for mapping and research. The curriculum covers equipment, safety and regulations, flight planning, manual and autonomous flight, photogrammetry, data processing, data analysis, data management and research talks.

New for 2024 is a concurrent track for educators. Within these breakout sessions, instructors will present topics and methods for teachers developing drone programs, and will discuss drone technology, safety culture and remote-pilot code of conduct.

DroneCamp is led by a team of 21 instructors from UC Merced, UC Santa Cruz, CSU Monterey Bay, UC Davis, UC

Berkeley, UC Santa Barbara, Lakeland College, American River College and UC Agriculture and Natural Resources.

Participants attending the presentations in person will get hands-on experience in flight workshops, where they will have the opportunity to:

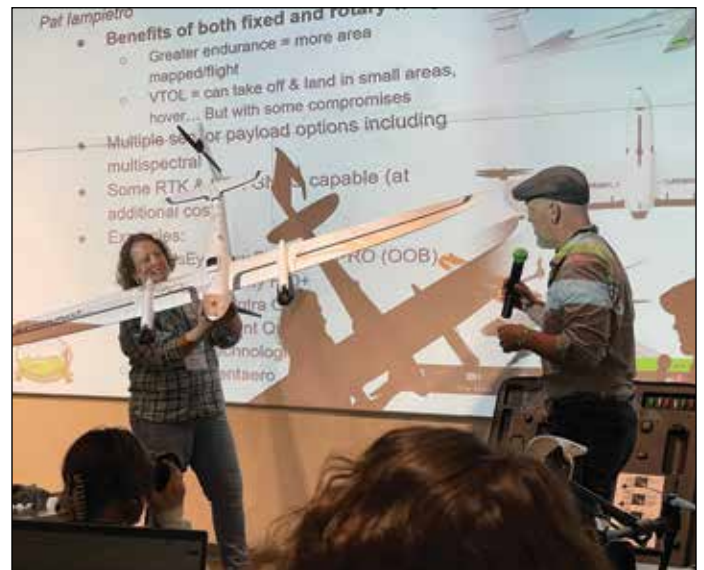
- Fly a variety of drone platforms.
- Directly engage with instructors and other participants.
- Expand their networks.
- Gain access to all the software used throughout the week.
- Explore the iconic Monterey Bay Area.

Light refreshments, daily lunches and a Monday evening dinner social are included with in-person registrations. Participants must make their own lodging arrangements as housing is

not available through campus.

Registration for in-person classes will close on June 5 or when capacity is reached. The registration fee is \$1,200 for in-person participants, \$700 for academics and students, and \$120 for virtual participants. To register, visit <https://bit.ly/DroneCamp2024>.

For more information, see the agenda at <https://dronecampca.org/2024-agenda>, watch video highlights from 2023 or contact [info@dronecampca.org](mailto:info@dronecampca.org).



Becca Fenwick of UC Santa Cruz leads a discussion of different drone models.

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## UPCOMING AUCTION

**Saturday, June 8, 2024, 9:00 AM**

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**NEXT AUCTION:** Bankruptcy Case, **Saturday July 27, 2024**, Inspection  
Friday July 26, 2024, 9:00 to 4:00 PM, 2020 Toyota Camry TRD, 2009 Nissan  
Maxima, 2009 Jeep Wrangler, 2000 Freightliner, 2016 Freightliner Missing  
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Chevy 3500's, (92,000 to 200,000 Miles), (2) 2014 Chevy 3500's, 2014  
Chevy 1500, 2008 Ford 650 W/124,000 Miles, 2014 Chevy 2500 W/78,000  
Miles, (3) 2018 GMC 3500's, 47,000 to 128,000 Miles, 2020 Ford F150  
W/83,000 Miles, Champ Forklift, 2011, 2013, 2014 Carson Trailers, '78  
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# Small Farm Conference Continues to Provide Needed Education

## Annual event, sponsored in part by Farm Credit, helps California's small farms thrive



Anthony Blondin, center, the coordinator of farm operations at Santa Rosa Junior College, answers questions from participants during the Small Farm Conference in-person gathering earlier this year. Photo courtesy of Kelsey Joy Photography

Since the beginning of production agriculture, the vast majority of farming operations have consisted of small family farms. That's true today as well, as these farms comprise nearly 90% of all the farms in the country, according to the U.S. Department of Agriculture.

Providing the education needed to help California's small farms thrive is the top priority for the Community Alliance with Family Farmers, a nonprofit that provides information and ideas that will allow small farmers to succeed, said Evan Wiig, CAFF's director of membership and communications.

"By equipping small-farm operators with the tools and education they need, and by working to promote programs that really benefit small farms, such as more farmers markets and making direct-to-consumer sales easier, we can help them be successful," Wiig said.

CAFF's major initiative each year is its Small Farm Conference, sponsored in part by Farm Credit associations doing business in California. The 36th annual conference was held earlier this year and drew more than 1,200 small farmers from around the state to the hybrid event, consisting of 60 online workshops as well as 10 in-person gatherings from San Diego to Humboldt County where people could network and exchange ideas.

Wiig said sponsorships such as Farm Credit's support are vital for nonprofits such as his.

"We could not put on the conference without sponsorships. That's the short of it," Wiig said. "We strive to make sure our education is accessible to all farmers, including new farmers, students and farmworkers. To make the conference accessible to those people, we have to keep our ticket prices down. We really

appreciate everything Farm Credit does. They're still our rainmaker sponsorship. They really do make it rain and we appreciate it."

Kevin Ralph, California State President for AgWest Farm Credit, said providing ongoing education to farmers and ranchers is a top priority for California's Farm Credit associations.

"Each year, Farm Credit supports nonprofits focusing on ag education because educational opportunities offered by nonprofits such as CAFF are vitally important to the success of agriculture," Ralph said. "Helping small farmers is something we should all support and keeping them up to date on the latest tools and techniques is a great way to ensure that they continue to thrive."

Farm Credit organizations members AgWest Farm Credit, CoBank, Colusa-Glenn Farm Credit and Fresno Madera Farm Credit are proud supporters of CAFF. The organizations are part of the nationwide Farm Credit System – the largest provider of credit to U.S. agriculture.

The conference was abruptly transformed in 2021 into a virtual conference due to the pandemic, which turned out to be wildly popular since by definition small farmers often have a difficult time leaving their farms for four days and bearing the travel expenses to get to a central location.

"We're hearing from the farmers that they really appreciate this format," Wiig said. "Attendees were posting on Instagram pictures of themselves tuning into the conference while doing all sorts of things on their farms. It was cool to see that we're meeting them where they're at and glad to see that they're getting a lot out of it."

Workshops this year ranged from marketing a small farm to business administration to crop-specific workshops for commodities including strawberries and wine grapes. It also included innovative ways to do sales, such as online sales and selling to schools and hospitals.

Wiig said programs are developed after a listening tour CAFF's staff takes each fall to learn about what problems were keeping farmers up at night and where they should focus advocacy efforts in Sacramento.

"A lot of the things that we've been hearing about for a long time continue to rise to the top – access to water and land, adaptation to climate change, dealing with wildfires, floods and droughts – the continued craziness of farming in California," Wiig said.

"But we also saw that because they are small operations, they struggle to access equipment and markets. We want to make sure smaller and new farmers have access to capital, pro-

See *Small Fam* next page

# California Farm Equipment

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## Small Farm

*continued from previous page*  
cessing equipment and infrastructure. We're looking at things like helping start farm cooperatives and distribution collaboratives. We're also cosponsoring a bill for tool-sharing programs so groups can get access to equipment they couldn't otherwise afford on their own," he said.

Keith Hesterberg, President and CEO of Fresno Madera Farm Credit, said it's encouraging to see nonprofits sponsored by Farm Credit continue to come up with new ideas to promote agriculture.

"CAFF does a great job of understanding the needs of small farmers and developing support systems to help

them," Hesterberg said. "We are proud that our support makes a difference and look forward to continuing to support CAFF and our state's small farmers."

Next year's conference is tentatively scheduled for February 23-28, and Wiig said after reviewing feedback and evaluations from participants, one thing CAFF will try to do is expand the local gatherings.

"Clearly, there's a desire to add more in-person workshops and field days. This year's field days sold out within days and it's clear that people want to get onto other farms and see how they do things. We want to make that a central focus of the conference going forward," he said.

# Grape seeds, stems and skins can reduce dairy cattle emissions



A UC Davis-led pilot research project, to be detailed in a paper later this year, found that mixing in grape pomace reduced methane emissions, improved feed efficiency and increased healthful fats. *Archive photo by Elena Zhukova*

## Low-cost wine industry additive also improved feed efficiency and milk quality

By Emily C. Dooley, UC Davis

Researchers at University of California, Davis, added fresh grape pomace left over from winemaking operations to alfalfa-based feed for dairy cows and found that methane emissions were reduced by 10% to 11%.

The preliminary findings could offer a low-cost sustainable pathway for vineyards to reduce waste while helping dairy operations maintain quality while cutting back on emissions of methane, which is a powerful greenhouse gas.

"This is the first time anybody has shown that this can work in California," said Ermias Kebreab, an animal science professor and associate dean of global engagement at UC Davis. "You're reducing emissions, you're improving the quality and it may also reduce the cost of production."

The pilot research project, which will be detailed in a paper later this year, also found that mixing in grape pomace improved feed efficiency and increased healthful fats, said Selina Wang, an associate professor of Cooperative Extension in small scale fruit and vegetable processing.

"We found that the feed with the additive of grape pomace changed the fatty acid composition of the milk and, in particular, increased the polyunsaturated fats, which are the

main fats in grape pomace," Wang said. "This suggests that supplementing the feed with an optimal fatty acid profile may have positive impact on the fatty acid profile of the milk and increase their health benefits."

### Symbiotic commodities?

In 2022, California was the leading dairy producer in the country, generating \$10.40 billion in sales, while 90% of wine production came from the Golden State, with a market value of \$5.54 billion.

Processing grapes for wine generates thousands of tons of waste in the form of grape pomace, which consists of leftover seeds, skins and stems. Dairy and livestock are responsible for more than half of the state's methane emissions, owed largely to cow burps.

They are the top two agricultural commodities in California, according to state production statistics, and reducing waste and emissions for both industries are key to the state meeting its climate goals.

### Tannins for emission reductions

Wine grapes are high in fats and tannin, which is known to reduce methane emissions, so Kebreab sought to test if adding grape pomace to feed could have a positive effect while not adversely affecting production.

"It's a byproduct that's not being used much," he said. "This is something that can be included in our efforts to try to reduce emissions."

**See Cattle Emissions next page**





From left to right: wet, dry, and dry and ground grape pomace.  
Photo by Edwin Grey, UC Davis

## Cattle Emissions

continued from previous page

### A mix of feed options

To do the research, scientists worked with Holstein dairy cows and gave the animals feed consisting of alfalfa, wheat, almond hulls, cottonseed and grain. After two weeks, the cows were split into three groups: A control group with no change in diet, another where the feed combination included 10% grape pomace and a third that received 15% grape pomace.

Every four weeks, the cow groups would change feed combinations.

They were fed twice daily by postdoctoral students and interns, and emissions were monitored daily. Milk production was documented in the morning and evening and milk samples were collected weekly to analyze for fat, protein, lactose and other measurements, which showed no differences between the control and other groups.

Methane and hydrogen emissions were reduced compared with the control group, suggesting that grape pomace reduced enteric emissions without affecting production.

"I think the dairy industry will be very interested in this," Kebreab said. "Sometimes when you're using additives, they have palatability issues. With grape pomace, they absolutely love it."

Next on the list is a trial with olive pomace and working to understand the mechanism that reduces emissions. "If we have a better understanding of the mechanisms, we can select the feed additive or a mix of feed additives to reduce dairy cattle emissions and make dairy milk healthier while making use of the agriculture byproducts," Wang said. "There's a lot of room to grow in this space and we're excited about this work."

The research was supported by the California Dairy Research Foundation.



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## Commodity Classic Announces Preliminary Schedule for 2025 Show in Denver

by Kris Martinez

Plans for the 2025 Commodity Classic are well underway as America's largest farmer-led agricultural and educational experience takes place March 2–4, 2025, in Denver, Colo. The theme for the 2025 show is "Elevating Excellence in Agriculture."

The preliminary schedule for the 2025 Commodity Classic can be found online at [CommodityClassic.com/2025-schedule](http://CommodityClassic.com/2025-schedule). The schedule highlights tentative dates and times for the dozens of sessions, presentations, special events, and trade show. Approximately 30 educational sessions on the newest farming technologies will be added to the schedule beginning this fall.

The Denver show also features a new schedule that will run from Sunday, March 2 through Tuesday, March 4, which is a change from past years' usual format. The new format will also include a pancake brunch, closing reception, and other exciting farmer-focused events.

"Our 2024 show in Houston was a record-breaking event with over 11,500 attendees, so we're excited to see what happens for the show's first time in Denver," said Deb Gangwish, a Nebraska farmer, NCGA member, and co-chair of the 2025 Commodity Classic.

Fellow 2025 co-chair Rob Shaffer, an Illinois farmer and ASA member, echoed Gangwish's comments. "This show is the best of the best, and our record-breaking attendance the past two years shows how much farmers and exhibitors love coming to Commodity Classic. It's an experience unlike anything else."

Limited space is still available for the nearly sold-out trade show. Companies who wish to exhibit at the 2025 show are invited to look for the exhibitor application on the Commodity Classic website at [www.CommodityClassic.com](http://www.CommodityClassic.com). For additional information, exhibitors may contact the Trade Show office at 636-745-3008 or [tradeshow@commodityclassic.com](mailto:tradeshow@commodityclassic.com). Registration for the Denver show will open in November of 2024.

# No Love for Mealybug Menace of Vineyards



ARS scientists examine new ways to foil love lives of costly vineyard pest. (Photo by Jessica Griffiths)

Fake pheromones offer a way to foil the love lives of vine mealybugs and keep populations of these prolific, soft-bodied insect pests from reaching damaging levels in vineyards of wine, raisin and table grapes.

Producing large amounts of the chemical insect sex attractants for release into the air to prevent lovelorn male mealybugs from finding females to mate with can be difficult and expensive. Now, however, clues to less costly synthetic pheromone alternatives are emerging from Agricultural Research Service (ARS) scientists' studies of the pest's olfactory system.

Keeping vine mealybugs from meeting and mating is a big deal, considering they can produce multiple generations over the growing season. Unchecked, the pests suck sap from the grape plants, weakening them and reducing their fruit yields and quality. They also secrete honey dew, a waste that can drop onto grape clusters and promote the growth of black sooty mold—both of which can diminish the fruit's marketability. Adding insult to injury, and perhaps most importantly, the pests also transmit a group of viruses that cause grape leafroll diseases. The presence of these viruses can necessitate the destruction of entire vineyards when infection rates hit 25 percent or higher.

Using a genomic map of the vine mealybug together with sophisticated analytical procedures, the scientists discovered two key olfactory receptors (from among 50 total) that alert male mealybugs that love is in the air in the form of lavandulyl senecioate, the sole chemical constituent in a female's pheromone.

The receptors are so specific that no other known chemical odorant found in nature will prompt the males to take flight in search of females to mate with, noted Jacob Corcor-

an, an entomologist with the ARS Biological Control of Insects Research Laboratory in Columbia, Missouri.

To confirm this specificity, Corcoran and colleague plant pathologist Walter Mahaffee at the ARS Horticultural Crops Disease and Pest Management Research Unit in Corvallis, Oregon, used a specialized cell line cultured in the lab to express (examine the function of) two of the vine mealybug's olfactory receptors. Next, they exposed the cells to various doses of lavandulyl senecioate. This triggered the activation of cell signaling pathways indicating the receptors' detection of the pheromone. The cells were also exposed to grapevine odors that the mealybugs normally find attractive in nature.

However, no signaling pathways were activated, confirming the two receptors were highly specific to the sex pheromone compounds.

With this method, the scientists have begun contemplating more diabolic ways to mess with the pest's love life.

On the one front, they envision using the method to screen for molecules called antagonists that could be used to deactivate the pest's olfactory receptors in nature, preventing their detection of pheromone and dooming male vine mealybugs to a sad, lonely life of buggy bachelorhood. Or, in the reverse, proteins called agonists could be formulated to put the receptors in "overdrive," compelling males to chase phantom pheromone signals where none exist.

On yet another front, the researchers are pursuing the use of the olfactory receptors in biosensors—pheromone-sniffing devices that can be deployed throughout a vineyard to alert growers to where and when the pest's numbers are on the rise so countermeasures can be timed accordingly.

As the scientists see it, the use of pheromone-based tactics like mating disruption is part of a multi-pronged fight against the mealybug that includes the application of insecticides, organically compatible products like natural oils and biological or cultural control methods.

Details on their latest advances on the anti-olfactory front against the pest were reported in the January 2024 issue of *Current Research in Insect Science*.

The Agricultural Research Service is the U.S. Department of Agriculture's chief scientific in-house research agency. Daily, ARS focuses on solutions to agricultural problems affecting America. Each dollar invested in U.S. agricultural research results in \$20 of economic impact.



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# USDA Forecasts Larger Almond Crop



*Harvest 2024 is estimated to be up 21% percent from last year after solid bloom.*

The 2024 California Almond Forecast published Friday by the U.S. Department of Agriculture's National Agricultural Statistics Service (USDA-NASS) estimates that the crop harvested in 2024 will come in at 3 billion pounds, 21 percent higher than last year's 2.47 billion pounds.

Forecasted yield is 2,170 pounds per acre, up 380 pounds from the 2023 harvest.

"This larger crop estimate is what the industry expected after a productive bloom this spring, but it is also a testament to the hard work done by almond farmers throughout California during difficult times," said Clarice Turner, president and CEO of the Almond Board of California. "Demand for California almonds around the globe continues to grow and our almond farmers constantly deliver on producing high quality California almonds to meet that demand."

The report said, "The 2024 almond crop experienced fluctuating, but mostly favorable weather for the first half of the growing season. The bloom began the second week in February for the early varieties. There were a handful of storms that brought rain, wind, and hail to some areas, but overall mild temperatures and excellent weather from the end of February into early March helped boost pollination. Bee hours were reported to be significantly higher than last year ... There was minimal to no threat of frost damage and water allocation is not an issue for the second year in a row.

This Subjective Forecast is the first of two production reports from USDA-NASS for the coming crop year. It is an estimate based on opinions from a survey conducted from April 19 to May 5 of 500 randomly selected California almond growers. The sample of growers, which changes every year, is spread across regions and different sized operations, and they

had the option to report their data by mail, online or phone.

On July 10, USDA-NASS will release its second production estimate, the 2024 California Almond Objective Report, which will be based on actual almond counts in approximately 1,000 orchards using a more statistically rigorous methodology to determine yield. If the 3.0 billion pounds holds, it would be the second largest crop on record.

This Subjective Forecast comes two weeks after Land IQ's 2024 Standing Acreage Initial Estimate found that bearing almond acreage in California has decreased about 600 acres from the previous year to 1.373 million acres.

USDA-NASS conducts the annual Subjective Forecast and Objective Report to provide the California almond industry with the data needed to make informed business decisions. These reports are the official industry crop estimates.





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# Five Reasons To Savor California Avocado Season

## *California Avocado Month Marks the Ideal Moment to Enjoy This Year's Crop*

As the sun-drenched days of summer officially arrive, it's also time to celebrate one of California's most beloved treasures: the avocado. June is California Avocado Month, the heart of California avocado season and the perfect opportunity to discover, explore and enjoy the state fruit at grocers and restaurants primarily available throughout the Western states.

Whether you're an avocado aficionado or simply enjoy local, delicious fruit, consider these five reasons to celebrate California Avocado Month and savor the entire California avocado season:

1) Limited availability. California avocados have a short but delicious season - spring through summer. Now is your opportunity to enjoy them

2) Locally grown. California avocados travel from grove to grocery stores and restaurants in just a few days, which means the fruit is at its optimal freshness. And locally grown = less transport = fewer carbon emissions.

3) Sustainably farmed. California avocado farmers grow premium quality avocados and prioritize responsible, sustainable farming practices, worker well-being and support for their communities.

4) Quality taste. Grown in the rich soil of California, warmed by its sunshine, cooled by gentle coastal breezes and tended by local growers, California avocados are known for their premium quality, creamy texture and delicious flavor

5) It supports local economies. Each year, California avocados generate about \$1.5 billion in business activity for the state's economy. Remember to look for the California avocado label when shopping

"California Avocado Month is not only a moment to celebrate how approximately 3,000 farmers produce California avocados with such great care and dedication, it's also the perfect time to simply relish the exceptional taste and quality of the state fruit," said Terry Splane, California Avocado Commission vice president of marketing. "That's the best part of the California avocado experience. Because of their freshness, flavor and creamy texture, they make your favorite summer dishes even better - and they are even more satisfying knowing you are supporting local farmers."

Consider making a California Avocado Pesto Pizza, one of the most popular recipes on CaliforniaAvocado.com. A vegan take on the classic pesto pizza topped high with seasonal green veggies and California avocados that will satisfy any pizza craving.

Seeking a heartier dish? Don't forget it's also burger season. Try the California Burger in a Bowl. All of the ingredients of a classic cheeseburger are in this loaded burger bowl recipe - except the bun. This burger bowl recipe cooks up quickly and you can easily vary the ingredients to fit the way you prefer your burgers. Just don't forget the California avocados.

Put a California Avocado twist on an iconic American dish: the hamburger! For those who crave maximum avocado on their burgers, this is for you. This bunless deconstructed burger is served atop lettuce with all your favorite traditional burger toppings, starring a heaping helping of fresh sliced California Avocado. This delicious avocado burger bowl recipe can be made with crumbled ground beef or with burger patties.

### California Burger In a Bowl

Total Time: 25 min

Serves: 4

#### Ingredients

1 1/2 lb. lean (80/20) ground beef

1/4 cup minced yellow or white onions

1/4 tsp. steak seasoning or seasoned salt, or to taste



2 tsp. Worcestershire sauce

1/8 tsp. ground black pepper

1 head butter lettuce, leaves separated and washed

2 ripe, Fresh California Avocados, seeded, peeled and halved

2 large or 4 small tomatoes, diced

1 cup shredded cheese (Cheddar or your choice)

1/2 cup drained dill or sweet pickle chips, 1 tsp. pickle juice reserved

1/2 small red onion, very thinly sliced, optional

1/2 cup diced cooked bacon, optional

burger condiments such as mayonnaise, mustard, ketchup, optional

#### Instructions

In a large bowl, combine ground beef, yellow onions, steak seasoning and Worcestershire sauce and pepper. Do not overmix. Heat a large skillet over medium high heat. Add ground beef mixture, cooking until browned and cooked through, 5-7 minutes. Line four entrée-size bowls with butter lettuce leaves around the sides and along the bottom. Add the cooked ground beef, tomatoes, cheese, pickle chips, red onion and bacon to each bowl. Slice each avocado half from about 1/2-inch below the top to the bottom into semi-thick strips. Fan the avocado slices over the top of each bowl and sprinkle with reserved pickle juice if desired. Serve with desired condiments.

Variations: To make this avocado burger bowl recipe using burger patties, combine ground beef, onions, steak seasoning and Worcestershire sauce. Form into burger patties, smoothing the edges for even cooking. Heat a large cast iron skillet or griddle to medium high. Place the burger patties in the hot skillet. In the center of each patty make a deep thumbprint. (This helps the centers cook at the same rate as the rest of the burgers.) Cook for 3 to 5 minutes, then flip the patties to the other side. Cook an additional 3 to 5 minutes on the other side depending on how well-done you prefer. Sprinkle with pepper and keep warm. Follow the rest of the recipe as noted. If desired, mash some of the avocado with the reserved pickle juice.

The beef patties for the burger bowl also can be cooked on a grill, in an instant pot or air fryer. Follow the manufacturer instructions. Instead of cooking the onions in the patties, top the burger bowl with caramelized onions for an "extra" presentation. Serving Suggestion: Use a squeeze bottle filled with your favorite burger condiment or dressing to decorate the top of the burger bowl.

Beverage Pairing: Light beer or hard seltzer

\*Large avocados are recommended for this recipe. A large avocado averages about 8 ounces. If using smaller or larger size avocados adjust the quantity accordingly.

"Recipe and photo are courtesy of the California Avocado Commission."

# Case IH Unveils New Axial-Flow Series Combine with Subscription-Free Tech for Unmatched Precision and Productivity



*Axial-Flow 260 series combine features simplified, integrated technology*

Case IH is incorporating industry-leading technology with the heritage of Axial-Flow® combines as the perfect harvesting partner for a wide variety of growers and custom harvesters with the new Axial-Flow 260 series. Purposefully designed for unparalleled productivity, growers can access subscription-free, integrated technology to meet the unique needs of their operations.

The premium technology built within the Axial-Flow 260 series combine sets a new standard for operator experience, while also maximizing throughput and grain handling with single-rotor

Case IH harvesting technology.

“The Axial-Flow 260 series combine represents a significant leap forward in integrated technology throughout the harvesting process for growers,” says Leo Bose, harvesting segment lead at Case IH. “We purposefully bundled precision technologies so there are no subscriptions or activations required to run the machine. The subscription-free connectivity gives customers the ability to remotely view machine and agronomic data via the new Case IH FieldOps™ platform, which will launch later in 2024. The technology stays for the lifetime of the hardware, boosting resale value.”

The Axial-Flow 260 series is equipped with Harvest Command™ combine automation, which automatically optimizes settings to maximize throughput and grain quality, and features high-resolution Pro 1200 Dual Displays, giving operators easy access to machine metrics, field performance and grain quality in real-time. Additionally, growers can experience improved on-row accuracy, minimized header losses and less operator fatigue with the all new RowGuide Pro™ and AccuGuide™ autoguidance systems to maintain

on-row accuracy even when stalks aren’t present. These tech solutions, including AccuSync™ with in-field data sharing between multiple machines, are all provided with no subscription required.

“The Pro 1200 Dual Displays give me complete visibility with all my combine data on one monitor and coverage maps on the other, so I’m no longer flipping back and forth between screens,” says Paul Paplow, farmer, custom harvester and vice president at U.S. Custom Harvesters, Inc. “Within just five minutes of using the Axial-Flow 260 series, with its real-time grain quality imaging feature, I could see the difference in superior grain quality.”

Building upon an enhanced operator experience, the Axial-Flow 260 series offers the new ActiveTrac four-roller hydraulic suspended track system. With a larger footprint, the ActiveTrac system reduces compaction and increases flotation by 14% compared to fixed track offerings. Operators will find a new level of comfort with luxury seating that includes massage, heating, and new air conditioning technology, along with simple seat controls, to easily optimize the operator’s comfort level during long harvest days.

“We engineered this new track system to reduce the machine’s footprint because minimizing soil compaction is important to us and our customers,” adds Bose. “With a new track system, integrated tech and improved accuracy, the Axial-Flow 260 series combine is an operator’s trusted partner for one of the busiest times of year.”

Axial-Flow 260 series combines will be available for ordering in June 2024. To learn more about the Axial-Flow 260 series and the full range of Case IH harvesting solutions, speak to your local dealer or visit [caseih.com](http://caseih.com).

# Kubota Saddles Up Veterans with New Farming Equipment in the Ring at PBR World Finals in Honor of National Military Appreciation Month

Five Farmer Veterans Received Keys to New Equipment Through Kubota's "Geared to Give" Program



In honor of Military Appreciation month, Kubota Tractor Corporation and the Farmer Veteran Coalition (FVC) today announced the selection of the 2024 "Geared to Give" farmer veteran recipients of new Kubota equipment. This year's five awardees, which include both veterans and currently serving members of the Armed Forces, were honored during a special ceremony on the dirt at the 2024 PBR (Professional Bull Riders) World Finals at AT&T Stadium in Arlington, Texas, on Saturday's commemoration of Armed Forces Day. This year's honorees are:

Adam Cason, U.S. Army veteran, Sulphur, Oklahoma

Lt. Col. Rob Moore, U.S. Marine Corps, Fredonia, New York

Chris Pedersen, U.S. Army National Guard veteran, Almena, Wisconsin

Capt. Blaine Underwood, U.S. Air Force, Westville, Florida

Master Sgt. Pangia Xiong, California Army National Guard, Fresno, California

"The 'Geared to Give' program is Kubota's way of honoring our Nation's veterans for their service in the military, but also to empower them with the tools they need as they serve their communities a second time, by helping to feed them," said Alex Woods, Kubota Senior Vice President and a veteran of the Army National Guard. "Veterans play an important role in strengthening our rural communities and we are honored to be a part of their journey by providing them with much-needed tools to build their farming operations so they, too, can give back to the areas they serve."

In addition to receiving new Kubota equipment, the five farmer veteran recipients and their guests received an all-expenses-paid trip to Arlington, Texas, to attend the 2024 PBR World Finals in Kubota's dirt suite. As part of the weekend's events, the group also met with Kubota executives, received a behind-the-scenes PBR tour at AT&T Stadium, and were

brought out onto the dirt for a special ceremony during the PBR World Finals. Kubota is the Official Tractor of the PBR Unleash The Beast, Pendleton Whisky Velocity Tour, and Camping World Team Series.

"PBR wants to thank farmer veterans for their service to our country and their hard work putting food on our tables," said Josh Baker, Chief Revenue Officer, PBR. "We also extend our gratitude to our valued partners at Kubota for supporting farmer veterans in a meaningful way through the 'Geared to Give' program."

The 2024 "Geared to Give" program received more than 500 applications through FVC's Farmer Veteran Fellowship Fund, and in the end, one recipient was selected by and for each of Kubota's five operating divisions across the U.S.

Central Division: Adam Cason served seven years in the U.S. Army which included four deployments in support of Operation Iraqi Freedom. Adam and his wife, Stephanie, own and operate Little Coos Cattle Company, a cow/calf operation, in Sulphur, Oklahoma, where they raise American Highland Cattle Association-registered, mini- and micro-mini Scottish Highland cows and beef cattle. Kubota is awarding Adam an M7060 utility tractor and a Land Pride bale spear and rotary tiller. Adam is supported by his local dealer, Great Plains Kubota in Ardmore, Oklahoma.

Northern Division: Lieutenant Col. Rob Moore currently serves in the U.S. Marine Corps and has more than 19 years of combined service in the Marines and U.S. Army, which includes two deployments in support of Operation Iraqi Freedom and one deployment in support of Operation Enduring Freedom. Rob and his partners, Marine 1st Lieutenant Ryan Deas, and Markus Deas, a commercial airline pilot, own and operate Range Ranch in Fredonia, New York, where they raise

*See Veterans next page*



## Veterans

continued from previous page

chickens, dairy cows, and bees, and grow concord grapes and hay. Kubota is awarding Robert a BV4160 PREM hay baler and he is supported by his local Kubota dealer, Monroe Tractor in Springville, New York.

Midwest Division: Chris Pedersen served more than 20 years in the U.S. Army National Guard which included two deployments in support of Operation Iraqi Freedom and Operation Spartan Shield. Chris and his wife, Abbey, who currently serves in the active-duty Army, own and operate Snowshoe Valley Christmas Tree Farm in Almena, Wisconsin. Kubota is awarding Chris an L3902 compact tractor and a Land Pride rotary cutter, stump grinder, and pallet forks. Chris is supported by his local Kubota dealer, Johnson Tractor in Baldwin, Wisconsin.

Southeast Division: Captain Blaine Underwood is in his eighth year of service as an engineer in the U.S. Air Force. Blaine and his wife, Robin, own and operate Underwood Farm LLC, a grass-fed cattle and sheep farm, in Westville, Florida. Kubota is awarding Blaine an MX5400 utility tractor and a Land Pride bale spear, rotary cutter, and rear auger. Blaine is supported by his local Kubota dealer, Crystal Tractor & Equipment in Panama City, Florida.

Western Division: Master Sgt. Pangia Xiong has been serving in the California Army National Guard since 2005. Pangia and her husband, Ge, who also currently serves in the California Army National Guard, own and operate Sunshine's Farm, a U-Pick strawberry farm in Fresno, California. Kubota is awarding Pangia an RTV-X1140 utility vehicle and a variety of accessories including a canopy, winch kit, and front and rear LED work lights. Pangia is supported by her local Kubota dealer, Pioneer Equipment Co., in Fresno, California.

"Kubota is an amazing longtime partner of the Farmer Veteran Coalition," said FVC CEO Jeanette Lombardo. "Over the years, our work together on the core mission of FVC has continued to expand and the original project that started it all was the 'Geared to Give' program, which is the highlight of my year. The impact that Kubota makes on the lives of our beginning farmers and ranchers and their families is lifechanging. To witness someone being given keys to a new tractor is heart-warming and a moment filled with emotion and hope. I'm so grateful for Kubota and its continued support for our members, their futures, and their dreams."

Every year, one veteran from each of Kubota's five operating divisions is selected to receive new Kubota equipment through the "Geared to Give" program, and since it was established in 2015, Kubota has provided more than \$1 million to FVC in the form of organizational support and grants to veterans, along with an additional 46 pieces of donated Kubota equipment to farmer veterans.

The Kubota program also offers exclusive discounts to Veteran Members of the Farmer Veteran Coalition with instant customer rebates for purchasing select Kubota equipment at all 1,100 authorized- Kubota dealerships nationwide.

Each year, farmer veterans can apply to the FVC Fellowship Fund to be considered for donated Kubota equipment through the "Geared to Give" program. For more information on FVC's 2025 application process, visit [farmvetco.org](http://farmvetco.org). For more information on the "Geared to Give" program, visit Kubota Cares.

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# USDA Reminds Producers of Climate-Smart Opportunities Using Farm Loan Programs

The U.S. Department of Agriculture's Farm Service Agency (FSA) reminds agricultural producers that Farm Loan Programs can be used to support a variety of climate-smart agriculture practices, which build on many practices that farmers and ranchers already use, like cover cropping, nutrient management and conservation tillage.

"Farmers and ranchers are already doing their part to be stewards of our land, but some may lack the financial resources to take their efforts to the next level," said FSA Administrator Zach Ducheneaux. "USDA's Farm Service Agency offers a variety of loans that can help those who would like to explore opportunities in their operations to make them more efficient and make a positive impact on our environment."

Climate-smart agricultural practices generate significant environmental benefits by capturing and sequestering carbon, improving water management, restoring soil health and more. Farm loan funding complements other tools to help producers adopt climate-smart practices, such as FSA's Conservation Reserve Program, crop insurance options that support conservation, and conservation programs offered by USDA's Natural Resources Conservation Service (NRCS).

FSA offers multiple types of loans to help farmers and ranchers start, expand or maintain a family agricultural operation. These loans can provide the capital needed to invest in climate-smart practices and equipment including the establishment of rotational grazing systems, precision agriculture equipment or machinery for conversion to no-till residue management. Additionally, for programs like Conservation Reserve Program and NRCS conservation programs where USDA and the producer share the implementation cost, a farm loan could be used for the producer's share, if consistent with the authorized loan purpose.

Some additional ways farm loans can be leveraged to invest in climate-smart agriculture practices or equipment include:

**Precision Agriculture Equipment** - Eligible producers could use a Term Operating Loan to purchase equipment like GPS globes, monitors, or strip till fertilizer equipment.

**Cover Crops** - Eligible producers could use an Annual Operating Loan for seed costs.

**No/Reduced Till** - Eligible producers could use a Term Operating Loan to purchase equipment.

**Livestock Facility Air Scrubber or Waste Treatment** - Eligible producers could use a Farm Ownership Loan for capital improvements to livestock facilities.

**Cross Fencing** - Eligible producers could use an Annual or Term Operating Loan to purchase fencing and installation equipment.

"There are a multitude of ways our portfolio of loans can be used to support climate-smart practices," Ducheneaux said.

"In some cases, this may even result in lower input costs, higher yields and a positive impact to the producers' bottom line as well as our natural resources."

Visit the Climate-Smart Agriculture and Forestry webpage on [farmers.gov](https://farmers.gov) to learn more and see detailed examples of how an FSA farm loan can support climate-smart agriculture practices.

## Farm Loan Improvement Efforts

USDA's Farm Service Agency has a significant initiative underway to streamline and automate Farm Loan Program customer-facing business processes. For the over 26,000 producers who submit a Direct Loan application to FSA annually, and its 85,000 Direct Loan borrowers, FSA has made many improvements, including:

The Loan Assistance Tool on [farmers.gov](https://farmers.gov) that provides customers with an interactive online, step-by-step guide to identifying the Direct Loan products that may be a fit for their business needs and to understanding the application process.

An Online Loan Application that is paperless and provides helpful features including an electronic signature option, the ability to attach supporting documents such as tax returns, complete a balance sheet and build a farm operating plan.

An online direct loan repayment feature that relieves borrowers from the necessity of calling, mailing, or visiting a local USDA Service Center to pay a loan installment.

A simplified direct loan paper application, reduced from 29 pages to 13 pages.

## More Information

Under the Biden-Harris administration, USDA is engaged in a whole-of-government effort to combat the climate crisis and conserve and protect our Nation's lands, biodiversity and natural resources including our soil, air, and water. Through climate-smart agriculture and partnerships, USDA aims to enhance economic growth and create new streams of income for farmers, ranchers, producers, and private foresters. Successfully meeting these challenges will require USDA and our agencies to pursue a coordinated approach alongside USDA stakeholders, including State, local and Tribal governments.

USDA touches the lives of all Americans each day in so many positive ways. In the Biden-Harris administration, USDA is transforming America's food system with a greater focus on more resilient local and regional food production, fairer markets for all producers, ensuring access to safe, healthy and nutritious food in all communities, building new markets and streams of income for farmers and producers using climate smart food and forestry practices, making historic investments in infrastructure and clean energy capabilities in rural America, and committing to equity across the Department by removing systemic barriers and building a workforce more representative of America. To learn more, visit [www.usda.gov](https://www.usda.gov).

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# BeeHero Reveals Groundbreaking Data-Backed Insights from the Latest Almond Pollination Seasons



BeeHero, the pioneer of precision pollination unveiled groundbreaking data-driven bee activity insights from the 2022-2024 almond pollination seasons. The company has revealed bee flight hour and bee frame insights via its cutting-edge sensor technology and AI-powered analysis that contribute to improved pollination practices. In recent months, BeeHero cemented its position as the world's leading provider of precision pollination as it surpassed the threshold of 300K hives under management, from which the company records more than 25 million hive samples daily. The new data was released on World Bee Day, the date that was designated by the UN to raise awareness of the importance of these vital pollinators, the numerous threats they face, and how they contribute to sustainable agriculture and development.

Analysis of the previous almond seasons revealed that BeeHero-managed hives demonstrated a higher degree of effectiveness, with an average of nearly 50% more bee-frames per hive compared to the industry standard. This superior performance translates into stronger colonies and enables BeeHero to optimize hive placement and reduce the number of hives required per acre in almond orchards, resulting in enhanced pollination at a lower input-to-output ratio for growers.

BeeHero also discovered a significant difference in the average daily bee flight hours (BFH) measured by its sensors as compared to the traditional bee flight hour calculations. While conventional bee flight hour methods (based on industry standard hives) recorded a total of 2.7 daily BFH over the 2022 and 2023 almond pollination seasons, BeeHero was able to more accurately measure almost double this amount, at 5.9 daily BFH, demonstrating that bees will indeed fly in

suboptimal conditions. This revelation underscores the higher accuracy of BeeHero's methodology over traditional calculations, which underestimate the actual flying time of bees due to a reliance on and proximity to local national weather stations, affecting industry crop yield predictions. Both this finding and BeeHero's ability to provide stronger hives have widespread implications for not only almonds, but other seed, row, and specialty crops as well.

"We are excited to be consistently achieving new, pivotal milestones on our mission to transform pollination efficiency through transparency and data-driven precision," explained Omer Davidi, CEO and Co-Founder of BeeHero. "Our findings showcase the critical nature of robust data in optimizing pollination activities, and our unique ability to provide previously unknowable insights – and as a result, stronger hives and more accurate yield predictions – to industry stakeholders. We look forward to continuing to reshape industry paradigms, empowering growers and beekeepers to better foster bee welfare and bolstering productivity for greater profitability."

During the 2024 almond pollination season, BeeHero utilized various proprietary tools to extract its unparalleled dataset on bee behavior and pollination efficacy. The company introduced a Deployment Planning Tool, enabling beekeepers to visualize their almond orchards and strategically plan daily tasks for maximum efficiency. Additionally, its Hive Tracker offered growers real-time insights into hive shipment and placement, while BeeHero's new mobile growers platform provided growers with seamless access to hives' frame counts and other critical information and updates.

Following the culmination of the pollination season, BeeHero is providing personalized precision pollination reports for growers with insights into bee flight hours, bee frames, and how BeeHero's data and technology have directly impacted their season. In alignment with this mission, a recent study conducted by BeeHero and the USDA explored how bee colony strength and hive entrance orientation affected honey bee foraging behavior, offering actionable insights to improve pollination efficacy. The research underscores the pivotal role of BeeHero's proprietary technology in gathering data to drive operational efficiency, reduce costs, increase yields, enhance bee welfare, and promote sustainable agriculture.

"The findings from these past pollination seasons – both in our research and in the field – highlight the profound potential of our innovative technology to revolutionize pollination practices, fostering a sustainable ecosystem that benefits both beekeepers and growers," said Yuval Regev, CTO and Co-Founder of BeeHero. "By illuminating intricate bee behavior patterns and ecosystem dynamics, we are pioneering a new frontier in pollination science and technology."

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## New UC study estimates costs for growing coastal organic strawberries

A new study that can help growers and other readers estimate costs and potential returns for Central Coast organic strawberries was recently released by UC Agriculture and Natural Resources, UC Cooperative Extension and the UC Davis Department of Agricultural and Resource Economics.

Organic strawberries represent approximately 13% of all strawberries produced along the Central Coast.

"This study provides growers with a baseline to estimate their own costs, which can help when applying for production loans, projecting labor costs, securing market arrangements, or understanding costs associated with water and nutrient management and regulatory programs," said Brittney Goodrich, UC Cooperative Extension specialist and study co-author.

The cost study models a management scenario for a 30-acre farm, 27 acres of which are planted to organic strawberries. The remaining acres are for the irrigation system, roads, and buildings. The study describes the cultural practices used in organic strawberry production and harvest, including land preparation, soil fertility and pest management, irrigation and labor needs.

The 20-page study shows costs for each operation, material inputs and costs, and cash and non-cash overhead costs in a variety of formats for one production and harvest cycle. A ranging analysis is also included and shows potential profits or losses over a range of prices and yields.

The new study, "2024 Sample Costs to Produce and Harvest Organic Strawberries," can be downloaded from the UC Davis Department of Agricultural and Resource Economics website at <https://coststudies.ucdavis.edu>.

For a detailed explanation of the assumptions and calculations used to estimate the costs and potential returns for each crop, readers can refer to the narrative portion of each study.

Sample cost of production studies for many other commodities grown in California are also available at <https://coststudies.ucdavis.edu>.

For more information about the organic strawberry cost study, contact Mark Bolda, University of California Cooperative Extension farm advisor, at [mpbolda@ucanr.edu](mailto:mpbolda@ucanr.edu) or Jeremy Murdock in the Department of Agricultural and Resource Economics at [jmmurdock@ucdavis.edu](mailto:jmmurdock@ucdavis.edu).

# New Holland FieldOps™, a new platform for real-time farm data management, presented at Agrishow 2024



- An easy-to-use and free platform available for mobile and web for customers worldwide to manage their machines and operation data from anywhere at any time.
- Enables customers to view and monitor all their machines in one place instead of using multiple apps to manage their mixed fleet, with an all-new interface designed to simplify farm management.
- Thanks to collaboration with Intelsat, a leader in satellite communications, New Holland and CNH will be the first in the market to make connectivity accessible to areas that do not have consistent internet access.

At Agrishow 2024 New Holland presented FieldOps™, a versatile and easy-to-use farm management web and mobile platform available for operators worldwide. It brings real-time monitoring, remote display viewing and intuitive user interface together into one comprehensive package to enhance how farming operations manage their data overall.

Agriculture is becoming increasingly digitalized with an exponential growth in cloudconnected machines. This means farmers need to avoid having fragmented digital solutions and multiple apps or platforms. Instead, the industry would benefit from an all-in-one, easy-to-use platform that unifies their core operational management needs into one place.

New Holland FieldOps is designed to simplify a customer's entire workflow from the moment they connect to their machines all the way through to post-season analysis. Its all-new interface streamlines workflows, simplifies farm management, and makes data accessible from anywhere.

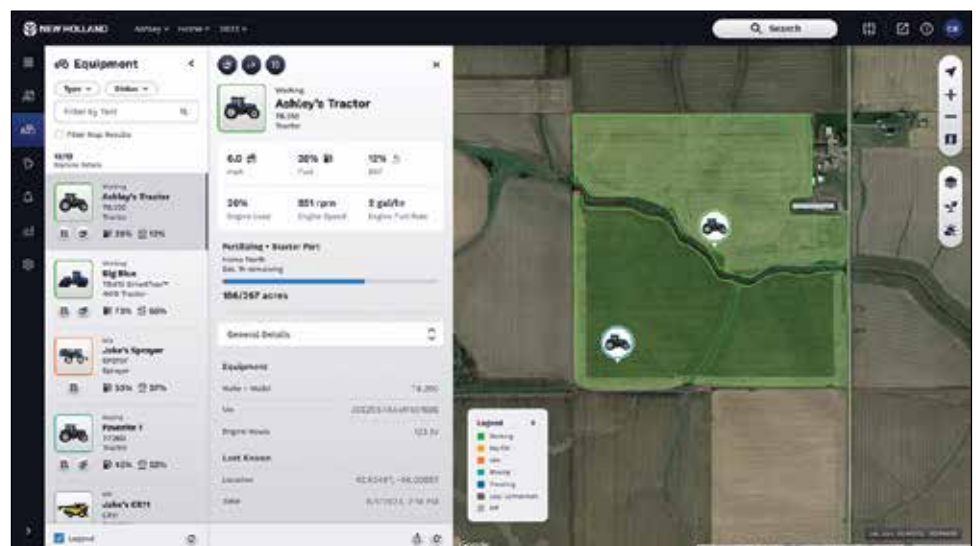
Instead of using multiple apps to manage their mixed fleet, customers will be able to view and monitor all their machines in one place, centralizing tools like New Holland PLM Connect into one platform. This gives customers easier access to their field and farm data and provides any connected operator the ability to manage their machines from anywhere at any time, via FieldOps' mobile or web platform.

FieldOps' key features include real-time machine monitoring — including precise location and duty status —, remote view of in-cab displays for improved operator support, visualization of agronomic data layers for a specific field over the course of the season and machine health and activity monitoring to quickly spot priority issues.

Bolstering the capabilities of FieldOps

is the new collaboration with Intelsat, a leader in satellite communications for over 60 years. New Holland and CNH will be the first in the market to make connectivity accessible to more areas that do not have consistent internet access through conventional cellular or terrestrial networks. This collaboration solves a large customer challenge by providing industrial-grade connectivity that is built for farming. Having this level of connection increases the value and benefits of precision technology for farmers everywhere.

"Agriculture is changing rapidly, and farmers are increasingly asking us to support them with simple solutions for complex problems. Our approach is always putting customers at the center and it is our job to help by developing technological products that improve their productivity", said Carlo Lambro, Brand President at New Holland. "FieldOps was created thanks to our customers' feedback, prioritizing simplicity and intuitiveness for the interface. It enables farmers to improve their efficiency and profitability, whether they're investing in a new fleet or adding automation to their existing machines."





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**11: 2024 One-Stop Truck Event.** Informational event for medium- and heavy-duty vehicle owners, operators, and fleets; free admission & parking. The East Bay/Dublin Event is the first of a 6-stop roadshow throughout Northern, Central, and Southern California. Holiday Inn Dublin-Pleasanton, Dublin, CA 94568. For more information Email: [OneStopEvents@arb.ca.gov](mailto:OneStopEvents@arb.ca.gov) or Website: [ww2.arb.ca.gov](http://ww2.arb.ca.gov)

**26-27: California Cattlemen's Association Mid-Year Meeting.** Attend and be active in setting CCA policy. Come discuss issues with fellow producers and hear updates. Your voice helps develop policy that provides direction for your organization. Nugget Casino Resort, Sparks, NV. For more information Visit: <https://calcattlemen.org/events/>

## JULY 2024

**16-17: Advanced Cheesemaking.** This two-day practical, hands-on course will take place at the Dairy Products Technology Center, Cal Poly, San Luis Obispo. Registration: <https://dairy.calpoly.edu/short-course-symposia!@>

## SEPTEMBER

**12: 2nd Annual Innovation Workshop & State of the Industry at Fresno State.** Registration: [www.cdic.net](http://www.cdic.net)

## OCTOBER 2024

**8-9: Hispanic, Italian and Mediterranean Cheeses.** This practical course will feature international cheese varieties and will take place at the Dairy Products Technology Center, Cal Poly, San Luis Obispo. Registration: <https://dairy.calpoly.edu/short-course-symposia>

## NOVEMBER 2024

**14-17: American Agri-Women 2024 50th National Convention.** Come celebrate our 50th anniversary in Fond du Lac, Wisconsin! Details coming soon, stay tuned! For information visit: [www.americanagriwomen.org/events](http://www.americanagriwomen.org/events)

## DECEMBER 2023

**4-6: 108th Annual CCA/CCW Convention.** Grand Sierra Resort and Casino 2500 E 2nd St, Reno, NV, United States More details to be updated in the coming months.

To list your special event in California Farm Equipment send details to CFEM, PO Box 1128, Visalia, CA. 93279. or email to: [info@cfemag.com](mailto:info@cfemag.com).

# Leading Dairy and Beef Producers from California, Texas, Indiana, and Michigan Invest in Forever Feed Technologies

*Investment Members, Feeding Over 500,000 Animals annually, Join the Coalition to Develop Critical Water-Saving and Decarbonizing Technology*



*News Provided by Forever Feed Technologies - Photo Getty Images*

Forever Feed Technologies today announced an investment coalition of fifteen leading dairy and beef producers from California, Texas, Indiana, and Michigan to accelerate the technology development and complete the world's largest enterprise scale on-farm feed mill growing highly nutritious Automated Sprouted Grain™ (ASG). As future installations of the technology are complete, the group envisions saving billions of gallons of water and significantly reducing the climate impact from feeding cattle. The first FFT Feed Mill is currently under construction at the River Ranch Dairy in Hanford, California.

The Forever Feed coalition includes: River Ranch Farms, Hanford, CA; Bar 20 Dairy, Fresno, CA; Producers Dairy Foods, Fresno, CA; Grimmus Cattle, Hanford, CA; Wreden Ranch, Hanford, CA; Hollandia Farms, Hanford, CA; Central Valley Meat Company & Harris Ranch Beef, Hanford, CA; Rancho Teresita Dairy, Tulare, CA; Associated Feed & Supply, Turlock, CA; Red Triangle Oil Company, Fresno, CA; High Roller Dairy, Hanford, CA; D&J Dairies, Hereford, TX; de Jong Family Farms, Franceville, IN; Prairie View Dairy, Delton, MI; M.F. Rosa Dairy, Hanford, CA. These coalition members consistently lead the charge to deploy innovative technology and climate-smart practices and together they feed over 500,000 head of cattle every year.

"We are extremely pleased with the caliber of our second-round investment coalition," remarked Jack de Jong, owner of River Ranch Farms and co-founder/CEO of Forever Feed Technologies. "Our investors are some of the leading producers and businesses in agriculture and represent the forward-thinking innovators needed to help solve the major

challenges of water shortages and the climate impact facing our industry."

"Bar-20 Dairy is pleased to be one of the founders of Forever Feed Technologies. We are excited to be joined by this esteemed group of innovative ag leaders," said Steve Shehadey, owner of Bar 20 Dairy. "We have great trust in the experience of Forever Feed's co-founders, Jack de Jong and Steve Lindsley, and their management and engineering teams. At Bar-20, we are always looking to reduce our environmental impact and adding FFT feed mills to our operation will complement our sustainability efforts, including the methane reduction fuel cell technology we installed last year."

"The dairy and beef industries share many of the same opportunities for improving the quality and sustainability of the foods they produce," said Brian Coelho, President/CEO of the Central Valley Meat Company and Harris Ranch Beef. "Having both dairy and beef operators join the Forever Feed investment coalition expands FFT's ability to tap into our expertise as they develop the most dependable and sustainable high-volume feed mill in the world."

The Forever Feed Mill is an enterprise scale system that grows Automated Sprouted Grain™ (ASG) year-round, such as wheat and barley, to enrich the animal's daily diet. The benefits to both farmers and animals are increased productivity, improved animal health, nutritional consistency, plus significant resource savings of water, land, and fuel emissions.

The first Forever Feed Mill is being built at the River Ranch Dairy in Hanford, California, and is anticipated to begin growing Automated Sprouted Grain™ (ASG) by the fourth quarter of this year.



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Bureau of Land Management  
.....www.blm.gov

Farm Service Agency  
.....www.fsa.usda.gov

National Weather Service  
.....www.nimbo.wrh.noaa.gov

### Organizations

Almond Board of California  
.....www.almonds.com

California Assn. of Winegrape Growers  
.....www.cawg.org

California Cattlemen's Association  
.....www.calcattlemen.org

California Dairy Research Foundation  
.....www.cdrf.org

California Poultry Federation  
.....www.cpfif.org

California Raisins  
.....www.calraisins.org

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.....www.rangelandtrust.org

California Strawberries  
.....www.californiastrawberries.com

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# 100% Grass-Fed Organic Dairy Benefits Consumers, Environment, Cows and Family Farms



While the difference between dairy alternatives such as oat, almond and other nut milks is easier to decipher, choosing between organic dairy varieties can be more difficult.

Organic milk certified by the United States Department of Agriculture comes from cows that get plenty of time outside and have not been treated with antibiotics or given hormones for growth or reproduction. However, cows that eat a 100% grass-fed organic diet – no grains, corn or other food – are healthier, produce higher quality milk, have greater positive environmental impacts and support small family farms.

Consider these benefits of 100% grass-fed dairy from the experts at Maple Hill, which provides dairy products as nature intended, including milk, kefir, yogurt and butter. This natural way to produce dairy leads to a rich taste and texture, and you can taste the 100% grass-fed difference.

## Better for You

Providing dairy as nature intended with high nutritional impact and a rich taste and texture comes from feeding cows a 100% grass diet, free from additives, fillers, GMOs, hormones and antibiotics. This practice results in milk that is more nutrient-dense and flavorful. Research conducted by the University of Minnesota Extension highlights the benefits of consuming organic dairy sourced from 100% grass-fed organic farms, revealing a 50% healthier ratio of omega-3 to omega-6 and 40% higher levels of conjugated linoleic acids fatty acids, which contribute to many health benefits including lowering the risk of heart disease.

While traditional organic dairy includes the organic certification, 100% grass-fed dairy includes a second grass-fed certification, ensuring adherence to the highest standards of regenerative farming practices that lead to rich and artisanal dairy products that are natural and healthier.

## Better for the Environment

Producing grass-fed organic dairy necessitates a farm's dedication to regenerating soil and fostering biodiversity within it, a foundation that sustains all aspects of farm life.

Leading with regenerative grazing techniques, Maple Hill farms stimulate microbial activity in the soil, enhance water retention and sequester carbon, which promotes positive environmental impacts.

The grazing herds play a pivotal role in this process. The soil is healthier as a result of the grazing cows, which produces more nutritious grass and leads to healthier cows. This farming system epitomizes the essence of regenerative agriculture and results in nutrient dense dairy products.

## Better for the Cow

In traditional organic dairy farming, up to 70% of a cow's diet can consist of organic grain, whereas 100% grass-fed organic farming eschews grain entirely. Cows naturally thrive on grass, yet recent practices by farmers include feeding them corn, grain and other foods to boost milk production, potentially compromising the cows' well-being and the milk's quality. Because grass is a cow's natural food source, cows with 100% grass-fed organic diets can live more than two times longer compared to cows with traditional organic diets.

## Better for the Farmer

Grass-fed organic farming stands out as one of the most viable pathways for small family farms to thrive in the dairy industry, which has become increasingly industrialized. Smaller than a traditional organic dairy herd with an average of just 50 cows, Maple Hill's 100% grass-fed family farms lead with regenerative practices and produce high product quality control.

Higher milk revenues allow family farms to compete and prosper, ensuring the continuity of their operations for future generations. These farms uphold 100% regenerative farming practices, yielding humane and traceable grass-fed organic dairy – a legacy that endures through the commitment of succeeding generations.

Learn about the 100% grass-fed organic dairy difference at [maplehill.com](http://maplehill.com).

(Source: Family Features | Maple Hill)

# Smoke Covered 70% of California During Biggest Wildfire Years

*Study Examines Impacts of Increased Smoke on California Lakes*

by Kat Kerlin

As much as 70% of California was covered by wildfire smoke during parts of 2020 and 2021, according to a study from the University of California, Davis. The study, published in the journal *Communications: Earth & Environment*, combined lake-based sensors with satellite imagery to find that maximum smoke cover has increased by about 116,000 square miles since 2006.

The study measured lake responses to wildfire smoke in 2018, 2020 and 2021 — the three largest fire seasons on record in California. It found the lakes were exposed on average to 33 days of high-density smoke between July and October, with August and September having the highest number of smoky days.

The extent of wildfire in California has quintupled since the 1970s, the study notes. Yet little is known about the impact of smoke on lake ecosystems.

"We're looking at a scenario where for the next 100 years or longer, smoke will be a feature on the landscape," said senior author Steven Sadro, a UC Davis limnologist and associate professor in the Department of Environmental Science and Policy. "What does that mean for fundamental ecology? What are the implications of those changes? Those are the big questions we're focused on in aquatic systems."

Science and serendipity

Answering those questions requires a bit of serendipity. Scientific instrumentation needs to be present in lakes when and where wildfire smoke occurs to measure effects.

As smoke settled over the state throughout the three main study years, scientific sensors in 10 lakes were taking note of the changes.

The lakes spanned a gradient of California landscapes, from cold mountain lakes to murky warmer waters. They stretched from Castle Lake in the Klamath Mountains, to Lake Tahoe and Emerald Lake in the southern Sierra Nevada, Clear Lake in the Coast Range, and a site in the Sacramento-San Joaquin River Delta.

"We were measuring things like temperature, light and oxygen in the

water," said lead author Adrienne Smits, a research scientist in the UC Davis Department of Environmental Science and Policy. "These are all components of lake productivity and health. We were interested in how those things change under smoky conditions."

The scientists hypothesized that smoke and ash would "dim the lights," affecting rates of photosynthesis and respiration of the lake's plant and aquatic life — the foundation of healthy lake ecosystems.

Changed by smoke

The study verified that wildfire smoke does change light, water temperature and oxygen in lakes — the basic drivers of lake function and health — but those changes are as variable as the unique lakes studied.

Smits said there is no one answer to how wildfire smoke impacts lakes other than, "It depends." Lake size, depth, smoke cover, nutrient levels and more dictate how a lake responds to the changes. But lakes are changing.

"We're seeing changes — often decreases — in photosynthesis and respiration rates that drive almost everything else," said Smits. "Food webs, algal growth, the ability to emit or sequester carbon — those are dependent on these rates. They're all related, and they're all being changed by smoke."

This points to the need for more research to understand how the scale, scope and intensity of recent and future wildfires affect lake ecosystems.

"We need to reframe how we're thinking about wildfire smoke — as a seasonal weather phenomenon and not just an 'event' that happens and goes away," said Smits. "We think about it for our health, but we should be thinking about it for ecosystem health, as well."

Co-authoring institutions include the UC Davis Tahoe Environmental Research Center; UC Davis Land, Air and Water Resources; University of Nevada-Reno; and Universidad Nacional del Sur in Argentina.

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