

CONVERSATION WITH THE ARIZONA EXPERIMENT STATION DIRECTOR: MITCHEL MCCLARAN

By Julie Murphree, Arizona Farm Bureau Director of Strategic Communications

Question: Do you know how many research projects UArizona’s Arizona Experiment Station faculty supports? Can you guess some of the research being conducted? Better yet, do you know where all the world-class infrastructure is located? If you’re curious about UArizona’s Experiment Station and the amount of research conducted each year, you need to look no further to find answers than Dr. McClaran.

Mitchel McClaran has been the director of the Arizona Experiment Station since 2000 and a professor of Range Management (since 1986) at the University of Arizona’s College of Agriculture, Life and Environmental Sciences.

He obtained his doctorate in Wildland Resource Science from the University of California, Berkeley in 1986. Since 2004, he has served as director for Research at the 50,000-acre Santa Rita Experimental Range and has received an Outstanding Teaching Award from the Range Science and Education Council.

McClaran, in 2014, and was named a Fellow in the Society for Range Management and has authored over 115 scientific publications.

[The Arizona Experiment Station](#) (AES) provides a diverse set of world-class infrastructure essential to generating and disseminating critical knowledge and technologies for Arizona and the world. The Arizona Experiment Station offers 2,600 acres of irrigable land, 122,000 acres of rangeland, 73,600 square feet of greenhouse space, 450 range cattle, 21,000 square feet of shop space, and 17 meeting rooms and 49 dorm beds for use by private and public researchers and educators. In 2023, this set of infrastructure and AES staff supported nearly 950 projects led by UA faculty across 5 UA colleges and over 100 projects for private organizations. The trend has been increasing for the past 5+ years.

The Murphree family even had a small touchpoint under the AES system as dad, Pat Murphree, was Demonstration Manager for Maricopa Agricultural Center when it first opened in the 1980s. So having a question-and-answer session with Dr. McClaran was quite anticipated by me.

Arizona Agriculture: What sets research and experimentation efforts at UArizona apart from other land-grant universities? Maybe a better way to say this is what are the UArizona’s Experiment Station Network differentiators?

McClaran: Our Cyber Experiment Station is the most unique among our peers in other states. I don’t know of any other state that has expertise in information technology within their organization, and as a result, most must rely on generic university resources for that support. Instead, at the Arizona Experiment Station, the staff and infra-



Mitchel McClaran has been the director of the Arizona Experiment Station since 2000 and a professor of Range Management (since 1986) at the University of Arizona’s College of Agriculture, Life and Environmental Sciences.

structure are finely tuned to the challenges and needs of the AES and the stakeholders across the state. The staff includes web app developers and data scientists and the infrastructure includes high-speed data portals, sensors, data science and data management, and decision support tools that are web-based applications such as [Desert AgWise](#), are made available to as many users as possible.

Arizona Agriculture: What current projects should really be noted to my farm and ranch readers right now, including the ones that really excite you?

McClaran: Researchers from the Ecology, Management, and Restoration of Rangelands Program in the [School of Natural Resources and the Environment](#) are using the 50,000-acre [Santa Rita Experimental Range](#) to study the efficacy of a satellite-based system that uses collars on cattle that are equipped with GPS and low voltage output. These collars record the location of animals every 15 minutes and will send a low voltage shock to dissuade cattle from approaching a virtual fence.

The virtual fences can be located anywhere that the satellite signal can be obtained. In essence, because the collar reports the location of the animal, then as that collar approaches the location of the virtual fence, a small shocking stimulus dissuades the animal from moving closer to it. This could be a game changer to support more precise grazing practices without having to build actual fences. Building new fences is very expensive, and once built, a fence is typically not moved for decades or centuries.

Irrigation efficiency research is being performed at Maricopa and Yuma Agricultural Centers by [Cooperative Extension](#) faculty in the [Department of Biosystem Engineering](#). This growing effort, combined with new dedicated dripping irrigation systems at the Yuma Agricultural Center are addressing the increasing value of water as demands increase, and the supplies of water become less certain. Understanding and prescribing the best practices of drip irrigation systems is not simple because there are issues of salt build-up that emerge when too little water is applied.

The [Cooperative Extension 4-H](#) group in Pima County is using the [Campus Agricultural Center](#) for their [Tucson Village Farm](#) where they “connect kids to where food comes from, teach them how to grow and prepare it, and empower them to make healthy life choices. For the last 10 years, they have delivered the program to as many as 20,000 K-12 students annually.

Arizona Agriculture: Are there any expansion plans and if so, where?

McClaran: We have a conceptu-

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PROTECTING BOTH FARMS AND FRESH AIR AMID OVERREGULATION

By Daniel Harris, Arizona Farm Bureau Government Relations Manager

Arizona Agriculture is no stranger to the importance of clean air. Healthy air quality is not just a public health issue; it directly impacts the well-being of those who work the land and the communities they support. However, as the Arizona Department of Environmental Quality (ADEQ) advances new recommendations for PM2.5 boundary expansions in Maricopa, Pinal, and Santa Cruz Counties in response to the Environmental Protection Agency (EPA) tightening the National Ambient Air Quality Standards (NAAQS) for particulate matter, aiming to reduce activities that emit PM 2.5 and PM 10.

These changes, while aimed at improving air quality, have significant implications for agricultural practices. The agricultural community finds itself at an all too familiar crossroads: how to support necessary environmental protections while safeguarding the viability of farming operations from overreaching regulations.

UNDERSTANDING PM2.5 AND PM10: WHAT’S AT STAKE?

PM2.5 refers to fine particulate matter that is 2.5 micrometers or smaller, while PM10 refers to particles that are 10 micrometers or smaller. Both pose health risks when inhaled, particularly for vulnerable populations like children, the elderly, and those with respiratory issues. The difference in size also means PM2.5 can penetrate deeper into the lungs, making it a more pressing concern for public health.

In Arizona, the focus on PM2.5 is relatively new compared to PM10, which has been regulated for longer due to its association with dust from agricultural activities, construction, and unpaved roads. As the state takes steps to address PM2.5, the agricultural community seeks to ensure that new regulations do not unfairly burden the agricultural sector or overlook the significant strides already made in reducing PM10 emissions through existing Best Management Practices (BMPs), practices that reduce dust.

THE PROPOSED PM2.5 BOUNDARY EXPANSIONS

ADEQ’s proposed boundary expansions for PM2.5 are aimed at improving air quality in Maricopa, Pinal, and Santa Cruz Counties. These recommendations are supported by detailed technical analyses and are part of broader efforts to meet federal air quality standards.

The Arizona Farm Bureau, alongside other agricultural organizations, has been actively involved in discussions with ADEQ to ensure that the agricultural community’s concerns are heard. One major point of discussion has been how these new boundaries

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RINSE AND REPEAT – GREAT BEND OF THE GILA NATIONAL MONUMENT

By **Chad Smith**, Arizona Farm Bureau Director of Government Relations

The natural beauty of Arizona is undeniable, a treasure worthy of admiration and protection. However, it is crucial to remain vigilant about how land use and special designations can affect all stakeholders. Protecting our pristine landscapes doesn't necessarily require national monument designations. Recently, Congressman Grijalva reintroduced a bill to designate the Great Bend of the Gila as a national monument. This proposal seeks to include over 350,000 acres of the Great Bend of the Gila and the Sonoran Desert landscape in Southern Arizona.

Despite broad tribal support and backing from groups advocating for the removal of cattle from the land, it is disheartening to see this initiative resurface. With the upcoming November election and potential shifts in national politics, there are concerns about whether there might be a push to advance this bill before the Presidential election. We have seen past Presidents issue executive orders just before leaving office, raising further apprehension about the timing of this bill's introduction.

Although the bill's text states that it will not prohibit grazing, history shows that such designations often lead to the cancellation of grazing leases. The Arizona Farm

Bureau's stance is clear: we oppose any new national monument designations. We have previously confronted similar attempts, and President Smallhouse has strongly testified before Congress, emphasizing our opposition and concerns about the impacts on land use, including recreation, grazing, hunting, and general accessibility for land management. President Smallhouse also highlighted the critical role of grazing in effective land management and conservation.

The same concerns apply to this recurring effort. Our policy remains unchanged, and we will continue to oppose this bill and any attempt at new national monument designations.

Although the bill was introduced only recently, it's important to raise awareness and involve those who will be affected by such a designation. Your congressional representatives need to hear from you. The Arizona Farm Bureau will be organizing a call to action on this issue, and we encourage you to participate and make your voice heard. Even if the boundaries of this designation do not directly impact you, we urge you to unite in opposition to this effort.

ONE MEMBERSHIP MANY BENEFITS

By **Joel Carr**, Arizona Farm Bureau Strategic Communications Manager

Did you know that 76% of associations don't offer benefits or affinity programs, according to Member Press Blog? Arizona Farm Bureau is part of the remaining 24% that offer a robust set of member benefits for its 27,000 members. And most of these benefits represent items you, our members, requested.

Arizona Farm Bureau Members receive unique member benefits with discounts and special offers for entertainment, travel, food, and more, available online or via your smartphone.

BENEFITS FOR AGRICULTURE PRODUCERS

The Arizona Farm Bureau offers excellent benefits that are specific for agriculture

producers. John Deere, Case IH, Caterpillar, Grainger, Ford Motor Company, and Vantage UAV offer special discounts to our ag membership.

BENEFITS FOR AG AND ASSOCIATION MEMBERS

Additionally, the Arizona Farm Bureau offers many benefits that satisfy agriculture and non-ag members alike. These benefits include discounts at Knotts Berry Farm, Legoland, SeaWorld, The Phoenix Zoo, Harkins Theaters, and many other great local and regional businesses.

Arizona Farm Bureau members also receive discounts on rental vehicles from Avis Car Rental, Budget, Budget Truck Rental, Enterprise Rent-a-Car, Alamo Rent a Car, and National Car Rental.

Use your membership to also receive discounts on lodging at Choice Hotels, Motel 6, and Wyndham Hotels & Resorts.

You can view all our excellent benefits online at www.azfb.org/membership. The Member Benefits page is categorized by benefit type and lets you quickly see what's available.

Also, don't forget to download our mobile app, FB Benefits. It's available on both Apple and Android devices. The FB Benefits App also contains an electronic copy of your membership card, making it easy to show proof of membership.

If you have questions regarding you member benefits or suggestions for new benefits including "local or regional" ones, contact Joel Carr at 480.635.3609.



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MENTOR PROTÉGÉ CAMP CLASS 3, PROFILE 5: NANCY CAYWOOD AND JIM THOMAS

By **Julie Murphree**, Arizona Farm Bureau Director of Strategic Communications

The CAMP mentor/protégé 2024 series continues for Class 3 with farmer Nancy Caywood and NRCS employee, Jim Thomas. The Caywood/Thomas team met in person and Jim is looking forward to learning more about Arizona farming operations in Pinal and Pima counties.

The Conservation Agricultural Mentoring Program (CAMP) in Arizona, in partnership with the Arizona Farm Bureau, has now been at it for three years. This program, unique in its regard, has a double dose of uniqueness as the Arizona NRCS team approached the Farm Bureau to partner with them in the effort.

The Caywood/Thomas partnership, along with all the mentor protégé partnerships for Class 3, works to understand Arizona agriculture and conservation opportunities, joining forces to provide firsthand experience of the conservation practices and agricultural happenings.

FOR THE MENTOR: NANCY CAYWOOD

Talk about the first meeting. Enthusiasm and curiosity, especially with the cotton growing in the fields near our house, best describe my first meeting with Jim. I offer farm tours on our family farm throughout the year and have written a comprehensive PowerPoint Presentation so our farm tour guests can gain an understanding about agriculture in our area. This is also a great way to start out Protégés in the NRCS CAMP Program. Throughout the presentation he could ask questions, and we could have discussions. Following the PowerPoint Presentation, we drove around the farm getting out of the vehicle at various points so he could get up close to the cotton, see irrigation in progress and observe other crops growing. A quick trip to the main canal gave Jim a first-hand view of water transportation and delivery to our farm. After about two ½ hours I knew Jim was getting saturated

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MENTOR PROTÉGÉ CAMP CLASS 3

with information, but I offered to take him to see a Central Arizona Project Canal and he was more than willing to take in the opportunity.

What did you notice Jim was most curious or keen to learn about: Jim seemed very interested in learning about the crops grown in the area and some of the challenges farmers are faced with. He works on an NRCS Farm in Tucson in a Plant Materials Program. He asked many questions and explained that information he receives from farmers helps him understand what possible resources can be offered to producers.

Share specifics about what you got out of it as the producer: It gave me the opportunity to meet an NRCS Employee and have a one-on-one discussion regarding challenges and issues we face with soil and water. Hopefully he will create more awareness by sharing this information with his co-workers. Perhaps this information will lead to solutions!

Why are you so enthusiastic about this program: I see the CAMP Program as an avenue to bring NRCS employees together with producers. I will be inviting Jim to a West Pinal NRCD Board Meeting soon. Other proteges that have come to one or more board meetings and have expressed the value of meeting board members. The West Pinal Board members have also appreciated the opportunity to be introduced to these NRCS employees. This type of interaction will hopefully be beneficial for future communication with NRCS employees whether it be in the office or in the field.

As an educator, you're natural as a mentor. What's one key to being successful with this. When I became a part of the CAMP Program I had to think about objectives. What is important to NRCS employees and to producers in our area and how can I best present this information? I outline my list of objectives and divide them into time blocks.

Each time I meet with a protégé I know what objectives we have met and what we need to cover during the next meeting. I also outline objectives in each block of time so we will not overlook important information. They become my lesson plans. Some of the meetings are on the farm and some are "road trips." I feel organization is best, so I do not waste anyone's time.

During my first meeting, I always ask the protégés what they expect to gain from this program. I can take this informa-

tion and redirect objectives if I need to.

FOR THE PROTÉGÉ: JIM THOMAS

What's been the biggest takeaway from your first gathering? Subsequent ones if they occurred? The biggest takeaway for me during our meeting was the commitment and passion that producers have for their land, but also the great work that is being done at Caywood Farms. Nancy and I talked about their farming operations, conservation practices, outreach participation, challenges that they face, and results, and this information has been very valuable.



How do you see this helping a broader set of NRCS employees? What's key for you? I believe the CAMP program helps NRCS employees connect with producers in their area by allowing them to connect and broaden their knowledge about the agricultural industry and their challenges to provide better assistance. A key for me is to understand what the current situation is and what is needed, make those personal connections, and ultimately express what our NRCS Plant Materials Program could provide.

Why have you felt this program has been helpful? This program has been helpful because it has helped me have a better understanding of Arizona agriculture production from the source, in this case from the producer's point of view. It has also helped me narrow down information on how the work we are doing can positively affect and provide further aid to producers in the region, and the possible resources we can offer to address those needs.

What more do you hope to learn? I hope to learn more details about agriculture production in Arizona, unique challenges that are being faced, as well as the producer's implementation of cover crops in the region. 🚜




Nancy Caywood and Jim Thomas recently met at her farm in Pinal County, touring the area and learning more about desert agriculture.

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al [plan for new lab and meeting buildings](#) at the Yuma Agricultural Center. It is only conceptual now because we are in search of funding, but we already have a need to increase lab and meeting space because we have been hiring new faculty researchers, and more industry scientists and researchers from outside the University of Arizona have been coming to do research. These researchers are attracted to the Yuma Agricultural Center because of 1) the overall importance of leafy greens and winter vegetable production that supplies 90% of US demand from November to April, 2) access to our fields and staff who can put the experiments in the ground, 3) collaborations with UA faculty and the Yuma Center for Excellence in Desert Agriculture (YCEDA), and 4) the new high-speed 10 GB per second internet connection. Essentially, we have many pieces of an innovation hub for research and development, except we need more space to house the researchers and their labs.

We have a growing partnership with the new College of Veterinary Medicine, which graduated its first class in 2024. They have been delivering courses and performing research on the Campus Agricultural Center since 2019. They expanded to include use of the Al-Marah Equine Center in 2023 to assist with animal care and they plan to perform research and instruction in the near future. Together, the AES and the College of Veterinary Medicine will begin a planning process to build new teaching, research, and animal handling facilities at the V Bar V Ranch near Camp Verde, AZ. With that plan in hand, we will search for financial support.

We are pursuing a designation as a Long-Term Agroecosystem Research (LTAR) site in the USDA Agricultural Research Service (ARS). The designation would provide financial support for equipment, data management, and personnel to perform and measure the long-term (5+ years) changes in productivity, soil conditions, and pests among different practices such as drip versus flood irrigation, levels of fertilization, and seasonal cropping mixtures. We are exploring partnerships with the University of California and USDA ARS units in California to create more than one LTAR site. There is considerable interest at the USDA in our efforts because only one of the 19 existing LTAR sites has irrigation (rather than rainfed crops or rangelands), and that site is in Nebraska. Establishing LTAR sites in Arizona and California where irrigation is practiced throughout would fill the void in the LTAR network.

Arizona Agriculture: Everyone is looking at AI, not artificial insemination but artificial intelligence. What role do you see it serving within the Experiment Station network if any? What are the sideboards that need to be established to make it truly valuable in agriculture?

McClaran: At the AES, artificial intelligence is largely synonymous with precision agriculture, where large amounts of data are collected and processed in “real-time”, and it is used to apply practices that are precisely applied only where and when they are needed. For example, imagine the use of drones that are equipped with sensors that detect the presence of plants that are stressed by too little nitrogen in the soil, and within 2 seconds the drone applies nitrogen only where those plants are suffering, rather

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than the entire field. That kind of real-time data collection and processing, and eventual treatment response, requires high-speed data processing without wires. Fortunately, the Cyber Experiment Station group was part of a large National Science Foundation funded proposal that is bringing a high speed 10 GB per second connection to the Yuma Agricultural Center to support this type of research and development.

Arizona Agriculture: You’ve spoken on the importance of UArizona becoming a global leader in arid land agriculture and climate resilience and certainly we know it’s important in a desert state like ours. But explain how critical this research is on a global scale and what it means for the future of the network and the future of agriculture?

McClaran: Human populations are continuing to increase, 30% of the world’s population is in dry environments that are getting hotter and dryer, and these environments produce 60% of our food. In short, the demand for healthy and dependable food is increasing, much of that increase in production will occur in dry areas, but issues of uncertainty in precipitation and water supplies, unintended consequences of increasing water use efficiency such as salt build up, and increasing temperatures leading to challenges for plant growth and increases in pest and disease will require innovations that include precision agricultural practices. These challenges apply to the lettuce and vegetable production in the Yuma area, as well as range livestock production on the arid rangelands. But the research in precision at the Yuma and Maricopa Agricultural Centers, and the virtual fence technology at the Santa Rita Experimental Range are at the cutting edge of science and innovation in dryland agriculture.

Arizona Agriculture: What are the biggest challenges and opportunities to ensuring our experiment stations in the UArizona network operate at their highest level?

McClaran: Good and important research is taking place on across our 11 locations in the AES, but we need 1) to improve the quality of our infrastructure, including new equipment and new buildings to keep up with the changing needs of science like precision agriculture, 2) to address the challenges of water uncertainty, and 3) to provide space for people to work.

Given the lean financial times at the University of Arizona, we need to look to other sources of funds, including the USDA Long-Term Agroecosystem Research program (described earlier), the Marley Foundation (described earlier), and the State of Arizona to help us improve in these areas.

Arizona Agriculture: With this forum to speak to a great majority of Arizona’s farmers and ranchers, what do you think they need to hear from you and the Experiment Station Network you represent?

McClaran: Important research and development activities are taking place at the Arizona Experiment Station. The scientists using our facilities are developing technologies to address challenges in Arizona and other dryland regions globally, but we need better infrastructure and the support from our community to obtain that infrastructure. 🚚

THREE REASONS TO CELEBRATE ARIZONA WINE

By Julie Murphree, Arizona Farm Bureau Director of Strategic Communications

Certainly, I could list more than three reasons. But these three reasons come directly from an Arizona winemaker.

The 2024 Arizona viticulture wine grape harvest has been underway since August. In wine grape farming in general, according to CEO Mark Beres of Flying Leap Vineyards and Distillery, when vines are stressed, the fruit they produce can have enhanced concentrated flavors and aromas.

“This underscores the ability of Arizona winemakers to produce high-quality wines from Arizona-grown fruit,” he said. Interviewed a few years back, his points continue

to resonate with our winemakers here in the state.

The berries produced in Arizona’s unforgiving desert climate, when vinified and properly aged, can result in world-class vintages that are unique, dense in flavor and age worthy. Beres and other wine makers emphasize some of these unique growing conditions are not exclusive to Arizona. But our climate qualifies the state for being

will be amazing. In the meantime, look for some quality Arizona wine to add to your shopping list. 🍷



The 2024 wine-grape harvest is rolling along. Did you know that 80% of the Arizona wine grapes are grown in Cochise County.

ing one of the wine-growing regions wine aficionados can and should celebrate.

So, what are some specific elements that allow Arizona winemakers to achieve these kinds of vintages. Beres suggest three possible reasons.

A little stress never hurt any grape. Again, a degree of hardship means Arizona wine grapes have the capability of producing some great wine. “Great wine generally comes from grape vines that have struggled,” says Beres.

Arizona’s wine country enjoys favorable temperature extremes, referred to as diurnal shift. In other words, the temperature range within a 24-hour period can have wide variations, conditions which enhance the balance between sugar and acidity in wine grapes.

Especially in southern Arizona, grapes can enjoy a long growing season. Arizona’s southern latitude affords wine growers an extended growing season. This means Arizona wine grapes benefit from an extended hang time, which results in grapes with more nuanced flavor, color density and aroma. It also tends to produce wine with higher alcohol and bolder flavors.

I recently visited Emil Molin of Cove Mesa in the Cornville, Arizona area. He was hauling 6 tons of wine grapes from Cochise County to Yavapai County for his 2024 season just a few weeks ago. A wine connoisseur and Arizona winemaker, he has a passion for making great wine. Having visited his tasting room in Cornville, I can attest to the quality of wine he makes. The 2024 Season is looking bright.

So, get ready! Regardless of the size of the wine grape harvest in 2024, this vintage

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FUNDRAISER RAISES THE BACON FOR AG EDUCATION

By Katie Aikins, Arizona Farm Bureau Director of Education

The 7th Annual Racin’ for the Bacon Derby Dinner is happening on Saturday, October 12th! This year’s event, presented by the Arizona Pork Council, supports the Arizona Farm Bureau Educational Farming Company. Our Education Foundation works to support programs that educate youth and others about agriculture in the state of Arizona. Over 152,000 students, teachers, and community members have received the FREE resources, programs, and materials provided through the Foundation’s support this past year alone.

With the average consumer being 3-4 generations removed from the farm and ranch, there is a major gap in consumers’ food story. Help us close that gap by attending this year’s event. We want to be sure that the food story comes from those that are producing it.

Join us at this year’s Racin’ for the Bacon Derby Dinner on Saturday, October 12th from 4:30-8:30pm. We promise delicious Arizona Grown appetizers and desserts, a BBQ dinner from the BBQ Master Bruce Cain, and Live and Silent Auctions full of can’t miss items. Oh, and we can’t forget the pig races and derby hat competition. So, pull on your boots (or your most comfortable shoes) and your favorite hat and join us to support ag education in Arizona! Your attendance alone assures that we can teach nearly 3 Arizona classrooms about their food and fiber this year. Tickets can be purchase by calling Katie Booth at 480-635-3605 or online at www.azfb.org.



CELEBRATING THE ARIZONA COTTON FLOWER

By Julie Murphree, Arizona Farm Bureau Director of Strategic Communications

It’s a Caywood Farm Family Tradition. Nancy Caywood’s grandfather always picked the first cotton flower each year and gave it to Nancy’s grandmother. Carefully placing it in water to keep fresh for a while, her grandfather and grandmother believed this would bring a bountiful harvest.



Following tradition, Nancy’s own dad, Tom, anxiously watched for the “first flower” so that he could give it to Nancy’s mom. “She looked forward to it each year,” explained Nancy.

Now, Nancy’s son, Travis Hartman, searches his cotton fields for that “First blossom” so that he can present it to his wife, Amanda, keeping the Caywood family tradition alive.

According to Flower Advisor, cotton flowers symbolize wealth and well-being in your life. This odd, yet stunning flower means we are to cherish the people around us and certainly those who grow cotton, making it one of the best gifts for birthdays, proposals, or anniversaries. Also from Flower Advisor, seeing cotton plants in your dreams is a message that you are awakening.

So, it’s appropriate that the Caywood Farms family tradition is to give the first bloom spotted in a cotton field to the one you love.

“The search for that first blossom makes us optimistic we will have a great harvest,” said Nancy!

Arizona’s cotton harvest season is not too far off. Most of the cotton blooms for the 2024 season are gone. But knowing that cotton grows so well in Arizona means we can look forward to these beautiful flowers in 2025.

Trivia notes about the cotton bloom: What is a cotton bloom, or flower? The creamy or white petals of the flower turn pink after 24 hours and shed within a week as the fertilized ovules of the ovary grow into a boll that will eventually open and reveal the fluffy white cotton. Arizona is known for growing so well. In most of the Cotton Belt (those states that annually grow cotton), the effective bloom period occurs from late June or early July to mid-August.

NEWLY AVAILABLE VIDEOS TEACH ARIZONA’S 5 C’S AND FEATURE ARIZONA AGRICULTURE COMMODITIES FOR THIRD GRADERS

Staff Reports

The Arizona Foundation for Agricultural Literacy (AFAL) just announced the release of five educational videos that highlight top Arizona agriculture commodities. Featuring beef, citrus, cotton, dairy and leafy greens, the videos complement Arizona’s third grade educational requirements and supplement lesson plans that teach about Arizona’s 5 C’s – cattle, cotton, citrus, climate, copper.

Each video features the agriculture commodity from fields, farm and ranch to harvest, processing, and distribution. Along the way, Arizona farming and ranching families are introduced from across the state. Each video’s story is enhanced by beautiful imagery of Arizona’s diverse landscapes where crops and livestock flourish.

Generously funded by the Kemper and Ethel Marley Foundation, each video is crafted to complement lesson plans that cover diverse topics, including Science, Technology, Engineering and Mathematics (STEM), Science, Technology, Engineering, Arts and Mathematics (STEAM), environmental sciences, technology, sustainability, water use, animal care, food safety, nutrition, and agriculture.

All five videos are hosted on AFAL’s YouTube channel: www.youtube.com/@AzAg-Foundation

Founded in 1997, the Arizona Foundation for Agricultural Literacy (AFAL) provides programs that develop an agriculturally literate society that understands and can communicate the source and value of agriculture as it affects our quality of life in Arizona. More information can be found at azagfoundation.org.



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PROTECTING FARMS AND FRESH AIR

continued from Page 1

will interact with the current Agricultural BMP Program, which is currently focused on PM10. There is ongoing debate about whether PM2.5 should be integrated into this program and how it might affect reporting and compliance requirements for farmers.

PINAL COUNTY: A UNIQUE CHALLENGE

The situation in Pinal County highlights some of the unique challenges that come with these boundary expansions. The proposed PM2.5 boundary largely mirrors the existing PM10 boundary, but there is concern about how this will impact local agriculture, particularly in the West-Central Pinal non-attainment area. Pinal County is even seeking special consideration from the Environmental Protection Agency (EPA) to be evaluated separately from the annual boundary due to its unique conditions.

Farmers in Pinal County have expressed concern that new PM2.5 regulations could place additional strain on their operations, especially if they are required to adhere to more stringent emissions reporting requirements. Historically, agricultural operations have been exempted from such reporting, but proposed amendments to the Air Emissions Reporting Requirements (AERR) rule could change that.

AIR EMISSIONS REPORTING REQUIREMENTS: A NEW BURDEN?

One of the most concerning aspects of the recent discussions is the potential for agricultural operations to be subjected to annual emissions reporting. This is a significant shift from the current practice, where most agricultural activities are exempt. The EPA's proposed amendments to the AERR rule could require farmers to submit annual reports on their emissions, including data on agricultural burning, which is currently being discussed as a possible new requirement.

There is also talk of using satellite data to estimate and report agricultural burns, a move that has raised eyebrows within the farming and ranching community. The accuracy and fairness of such data, as well as the potential for misinterpretation, are key

concerns for farmers who already feel overburdened by regulatory requirements.

STRIKING A BALANCE: CLEAN AIR AND AGRICULTURAL SUSTAINABILITY

The Arizona Farm Bureau and other agricultural groups are committed to working with ADEQ to find a solution that balances the need for clean air with the realities of farming. The inclusion of PM2.5 in the Agricultural BMP Program is still under consideration, and there is a strong push to ensure that any new requirements are both practical and fair.

Public participation in this process is crucial. ADEQ has opened an informal public comment period and will soon host a formal comment period and public hearings. The agricultural community is encouraged to stay informed, participate in these discussions, and ensure that their voices are heard. In the end, the goal is to achieve clean air without compromising the agricultural industry that is so vital to Arizona's economy and way of life. By staying engaged and advocating for reasonable, science-based solutions, the agricultural community can help shape a future where both the environment and farming can thrive.

STAY INFORMED AND INVOLVED

As the discussions around PM2.5 boundary expansions and air quality regulations continue, the Arizona Farm Bureau remains committed to ensuring that agriculture has a seat at the table. Farmers and ranchers are encouraged to participate in the upcoming public comment periods and to stay in touch with the Farm Bureau for updates and advocacy opportunities.

Maintaining clean air is a shared responsibility, but it is essential that the path forward respects the contributions and challenges of Arizona's agricultural community. With continued collaboration, it is possible to protect public health while also preserving the livelihoods of those who feed and fuel our state. 🚜

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THE ESSENTIAL NATURE OF AGRICULTURE AND CERTAINLY OUR ARIZONA AGRICULTURE

By Julie Murphree, Arizona Farm Bureau Director of Strategic Communications

Modern agriculture seems so out-of-sight, out-of-mind for the average American. This is mainly because so few of us farm and ranch and those of you that do the farming and ranching are not front and center in the landscape. You're often out in the hinterlands, away from urban centers. But Arizona and American agriculture is essential. Here's why.

While not the only reasons, three main reasons do exist as to why Arizona agriculture is essential:

- Agriculture must have a market that can be local, statewide, national, and International. While we often love to glorify our local ag markets (as we should), we cannot do that to the exclusion of our national and international markets that help drive our state's economy.
- Our agriculture must be suitable to Arizona's climate.
- And, most importantly, farming and ranching must be essential to Arizona's food supply.

During a recent interview with Arizona media personality and chef Jan D'Atri, her appreciation for Arizona's farmers and ranchers was brought home to me once again. "Jule, our Arizona farmers and ranchers are amazing. My heart goes out to them daily knowing farm and ranch families that have been in the business for decades with the hope of inspiring the next generation to farm are hard at work making the business successful." So, people like D'Atri get it but she's also been exposed to lots of farming and ranching in our state.

Nobody talks about the importance of our desert agriculture like George Frisvold, Ph.D., Bartley P. Cardon, chair of Agribusiness Economics and Policy, University of Arizona Extension Specialist and who I like to call our Arizona ag economist. "Our warm, dry



climate leads to higher yields, a longer growing season, and multi-cropping."

Frisvold also famously said, "Yuma is to ag what Detroit is to cars and what Silicon Valley is to computers." This has become a favorite quote of mine and was said during the beautiful video produced by Yuma Fresh Vegetable Association, Yuma County Ag Water Coalition and the Yuma Center of Excellence for Desert Ag.

Why did he say this? During the winter months in Arizona, 90% of North America's vegetables and leafy greens come from the most efficient and productive agricultural system in the country, found in Yuma.

He added, "When you go to the grocery store look and see where stuff is coming from. Every kind of lettuce, broccoli, cauliflower, spinach. From November, into April, it's all going to be from Yuma."

Since 2017, when Frisvold and his team last evaluated the USDA Census of Agriculture data set (It's released only every 5 years) and added the other data sets into their calculations, we've been able to highlight that Arizona agriculture contributes \$23.3 billion to our state's economy.

The UArizona economic team is now evaluating and crunching the new Census of Agriculture numbers and will also add the additional food supply chain data sets into the calculation. This November during Arizona Farm Bureau's Annual Meeting we'll unveil a new number and hopefully be able to report gains despite some tremendously painful years during this pandemic era. The Farm Bureau family has the honor of learning the new number first. The value of your ag leadership membership is once again at the forefront.

Regardless of the new number, where do we go from here? Recent commodity reports from the USDA highlights how the cost of farming production currently exceeds

the value of the agriculture crops sold. Any farmer or rancher you talk to can tell us that the lean years seem more plentiful than the abundant years. So in agriculture we plot and plan to make the abundant years pencil out for our lean years.

It often means we diversify our crop and livestock portfolio. Some crops or livestock commodities are tried and true standbys. They are foundational to our farming and ranching. Yet again every agricultural commodity we can produce in Arizona is truly essential.

As stated before, what are our local, statewide, national and international markets? What can be grown or raised in our Arizona climate? And, what's essential to Arizona's food supply. What makes for a healthy food system in this desert state?

These questions by Arizona Farm Bureau and our volunteer farm and ranch leaders are never taken lightly. We are here to ensure a robust agricultural system in the state of Arizona. Everything in the agricultural mix matters.

Let's Take a Look at Alfalfa

Even alfalfa is essential to our local, national, and international food supply. Without this crop, we could not have a local dairy industry, nor could other countries. True, alfalfa is not a direct food crop for humans. You and I don't eat alfalfa. However, Arizona's two largest agriculture commodities, dairy and beef, do. Dairy and beef are so dependent on Arizona's alfalfa that farmers grow that without this crop we couldn't have a dairy and beef industry in our state.

Our ability to produce high-quality forage products like alfalfa for our livestock industry in Arizona reduces the cost of transportation for fluid milk in terms of actual costs and carbon emissions. Plus, dairies must be co-located with population centers to keep costs down. That's why 80% of our alfalfa production stays local.

Not only that, our dairy industry and other livestock operations feed a lot of agricultural byproducts (for example, brewer's spent grain) that would otherwise go to waste, essentially upcycling products not usable for human consumption into highly nutritious food products for all of us.

Just how essential is Arizona agriculture? According to Vice President for Agriculture, Life and Environmental Sciences and Cooperative Extension at the University of Arizona Shane Burgess, if Arizona were to be locked down and no food could be imported into the state (God forbid), Arizona agriculture could feed the entire state for a period of time. This is a testament to the state's agricultural prowess and why Burgess calls Arizona a Nutrition State! 🌱



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