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A CONVERSATION ABOUT GLOBAL DISRUPTIONS IN THE AGRICULTURE SUPPLY CHAIN: KARL WYANT

By Julie Murphree, Arizona Farm Bureau Outreach Director

An Arizona agriculture soil scientist at heart, Karl Wyant is an enthusiastic transplant to this desert state. This transplanted Ph.D. inadvertently discovered he loved agriculture by traveling all over Arizona, Colorado, Wyoming, and South Dakota collecting and analyzing soil samples. He worked in the Sky Islands of Southeast Arizona, the high Rocky Mountain elk habitat, crawled through cave systems in South Dakota, and did some cool experiments on the rangelands of northern Colorado. It was here that he discovered that medical school wasn't for him and that he was meant to be a soil scientist.

And Wyant is keen on supporting an ever-advancing agriculture industry. "Agriculture is becoming increasingly data rich. Future agriculture scientists will have to do a better job of collecting, synthesizing, and presenting information from multiple data streams to different end users. For example, these data sets will need to be used by growers to optimize inputs, use water efficiently, organize harvest data (e.g., yield maps), and comply with increased regulation," he explains.

So today, Arizona Farm Bureau member Wyant serves as the Director of Agronomy at Nutrien, a multinational Canadian agriculture fertilizer and retail company. In this position, Dr. Wyant contributes to agronomic leadership in growing the Nutrien commodity and premium fertilizer product lines and promotes advanced sustainability initiatives.

Before working at Nutrien, Dr. Wyant served as the Vice President of Ag Science for Heliae Agriculture (2019-2022) and as an agronomist for Helena Agri-Enterprises in California and Arizona (2014-2019).

Dr. Wyant earned his advanced degrees at Arizona State University (Ph.D. - 2014) and Colorado State University (MS - 2008). Dr. Wyant is a Certified Crop Advisor and Certified Professional Agronomist (CPAg) and has his California and Arizona Pest Control Advisor licenses.

As we'd connected several years ago and kept in touch since then, knowing the challenges in the agriculture supply chain, I wanted his take on the global disruptions.

Arizona Agriculture: At 30,000 feet, discuss the current global potash, nitrogen and phosphate markets and the supply chain challenges we've been dealing with, at least from your perspective.

Wyant: While buying your fertilizer nutrient inputs might feel local, there are complex global supply chains in place that help deliver dry and liquid fertilizers to the local ag retailer, and ultimately to the farm gate.

Beginning in 2021, we have seen several disruptions that range from the war in Ukraine, economic sanctions, sharp energy and transport cost increases, and fertilizer production curtailments. Each input class (nitrogen, phosphate, and potash) has not come out of the 18 months unscathed. We are hopeful that the markets can find some resolution soon, but most experts agree that we need some patience.

Arizona Agriculture: What are some long-term impacts of some of the challenges we've seen in the markets, both positive and negative?

Wyant: I will start with the positive impacts we have seen in the last 18 months. Growers and their crop advisors are now having great conversations about how to make



Says Dr. Wyant, "Challenges always open the supply chain up for innovation, which should ultimately benefit the market."

sure that they are maximizing the amount of fertilizer nutrients going into the crop and reducing the loss pathways (e.g., leaching, tie-up, etc.). We call that "fertilizer use efficiency" or crop made (e.g., lb crop/ac) per unit of applied fertilizer (e.g., lb N/ac). Folks, now more than ever, are concerned with utilizing different technologies, amendments, and the 4R practices (right rate, right time, right place, and right fertilizer source) to optimize the use of their input dollar.

Negative impacts seen over the past 18 months include significant inflation of the cost of our food in part due to higher fertilizer input costs seen at the farm gate. An extreme negative impact I have seen is some growers trying to eliminate nutrient inputs altogether, which often leads to yield declines.

Arizona Agriculture: What encourages you about the current and future markets? Do these supply chain challenges bode well for innovative improvements in the markets?

Wyant: Challenges always open the supply chain up for innovation, which should ultimately benefit the market. For example, I work

for Nutrien on the fertilizer mining and manufacturing side, and we have innovation challenges in place across our NPK operations to help better serve the markets in the future. We are currently working on innovating our potash mining capacity to help bring more product to the market safely and in a swift manner. This commitment will help ensure growers have tools at hand to produce stable yields, which ultimately benefits food security concerns.

Arizona Agriculture: Discuss the historic average for fertilizer costs and the market for corn prices and corresponding ag commodities. While we've seen a rise in ag commodity prices, it has been offset by rising fertilizer prices.

Wyant: I remember when corn prices were the only soap opera in town! Unfortunately, the past 18 months have also been marked by volatility in the NPK fertilizer markets after several decades (except 2008) of relative quiet. Growers that have invested in their soil fertility in the past, have optimized their fertilizer use efficiency, and have deployed recent developments in precision agriculture (e.g., soil sampling and variable rate spreading) have been able to enjoy the high crop prices without sacrificing their yield due to wide swings in fertilizer use. Using these tools, growers have been able to dial in the optimum rates of fertilizers for their ground. On another extreme, some growers have made severe cuts in fertilizer inputs and have lost yield, and the potential for historic financial gain, as a result.

Arizona Agriculture: Are market alternatives to these traditional inputs viable and what do you see shaping the markets?

Wyant: One market that has become more popular recently is the local compost and manure markets as a source of plant nutrients. Some growers have called their local dairies or egg production facility and sourced their NPK inputs this way. These markets are viable but there are always concerns about trucking logistics since manures and composts are often applied at the tons-per-acre rate as opposed to the pounds-per-acre rate that we see in the modern NPK fertilizers. The rate difference is attributed to fewer nutrients per pound of applied material in composts and manures as opposed to something like urea or monoammonium phosphate (MAP).

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WHAT'S NEW IN THE 2022 CENSUS OF AGRICULTURE?

By Dave DeWalt, State Statistician, USDA NASS, Arizona Field Office

USDA's National Agricultural Statistics Service (NASS) will be conducting the 2022 Census of Agriculture (COA) toward the end of 2022. It will be only the 6th time since the Department of Agriculture assumed the responsibilities from the Department of Commerce in 1997. Over the last quarter century, NASS has tried to stay current with new technologies or include new commodities that have recently been in the public eye.

After each COA, NASS gleans any comments and concerns from producers and others in the agricultural industry who may have had difficulty filling out the COA form or wished there was data about a particular commodity. Before each Census of Agriculture, a series of testing occurs, seeking feedback from a sample of producers and others in the agricultural industry about potential new items or newly worded questions to include in the next COA. Results dictate how the COA may be improved.

WHAT'S NEW

The 2022 Census of Agriculture will ask new questions about precision agriculture, hemp, and hair sheep, and include updates about internet access.

Precision agriculture practices include the use of global positioning (GPS) guidance systems, GPS yield monitoring and soil mapping, variable rate input applications, the use of drones, electronic tagging, precision feeding, robotic milking, and others. Responses to these questions will help determine the proliferation of technology in U.S. agriculture.

Due to renewed interest, NASS added hemp, known for its fiber, floral (CBD or other cannabinoid usages), grain, etc., to the list of field crops grown across the United States. Also added to the Nursery/Greenhouse section of the COA form is hemp for transplants, and hemp grown for seed. Responses to hemp questions will show the size and value of hemp production.

As requested by data users, the 2022 COA form will again include hair sheep questions left off of the previous COA. Responses will show the growth of the hair sheep industry.

Internet access questions combined cable modem, DSL, and fiber-optic service into one category referred to as broadband (high-speed) internet service. No longer are these separate categories. Another option more clearly stated in the 2022 COA form is a cellular data plan versus a satellite internet service. Dial-up service is still listed but not as a first option as in the 2017 COA form.

USDA NASS will be mailing out just under 3 million COA forms and letters by the end of November 2022. NASS recommends you respond online using the new Respondent Portal at agcounts.usda.gov. On the portal, you can complete your surveys, track upcoming surveys, access data visualizations and reports of interest, link to other USDA agencies, and more. In accordance with federal law, your responses will be kept confidential and will not be disclosed in an identifiable form. We look forward to hearing from each and every known producer in Arizona. 📧



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OCTOBER SCOTUS TERM OFF TO A BIG START FOR AG

By Chelsea McGuire, Arizona Farm Bureau Government Relations Director

As the government’s new fiscal year began, court-watchers were gearing up to celebrate the start of another consequential term in Washington, D.C.: the October 2022 Term of the United States Supreme Court.

While normally, we don’t spend a lot of time watching Supreme Court of the United States (SCOTUS) arguments, this term is unique. Two of the very first cases argued in front of the nine justices were about issues of incredible consequence to agriculture: the Clean Water Act’s “Waters of the United States” rule, and California’s Proposition 12.

In fact, Arizona Farm Bureau contributed to arguments in “friend of the court,” or amicus, briefs in both cases. And now that the cases have been argued, we can start to (or continue to) speculate as to the outcomes.

WOTUS – SACKETT V. EPA

The first case heard this term, and Justice Ketanji Brown Jackson’s first ever case as a Supreme Court Justice, was yet another dispute over the EPA’s application of the term “Waters of the United States,” this Court accepted a case asking whether the Ninth Circuit used the correct test for determining whether a wetland was, in fact, a WOTUS. The petitioners in the case, the Sacketts, want to build a home on their property, but have been prohibited from doing so because the EPA has determined that the wetland is a jurisdictional WOTUS. The Sacketts have appealed that decision, and the Court now gets to make a decision as to whose definition is correct.

Based on the argument, we anticipate one of three possible outcomes. First, the Court could stick to the EPA’s definition of a WOTUS as a water with a significant nexus to a navigable water. Some will remember that the term “significant nexus” came from Justice Kennedy’s concurrence in the Rapanos case and stands in stark contrast to Justice Scalia’s plurality opinion in that case which would have held that a WOTUS must be a relatively permanent, flowing body of water. However, if the argument indicated anything, it is that the Justices were not convinced by the significant nexus test due to its vagueness: where does a Court or an agency draw the line of significance?

The second possible outcome could be that the court continues with a significant nexus test but refines it with additional parameters – something more akin to the Scalia test, but not quite as restrictive as “it must touch a traditional navigable water to be a WOTUS.” The Sacketts argued for a test of adjacency, meaning that unless a water feature is adjacent to traditional navigable water, it

should not be under the jurisdiction of the Clean Water Act. This too seemed a difficult line for the Court to walk based on the language of the Act itself.

And that leads us to possible outcome three: the Court develops an entirely different, compromise test that is true to the Act’s language but easier to administer than prior decisions. While this seems a likely option, it’s also difficult to tell whether the current makeup of the Court would be so willing to write an opinion that smacks of lawmaking in that way. So, only time will tell what the ultimate outcome is.

Note also: EPA has announced that it will continue with proceedings to re-write the WOTUS rule (after it repealed the 2020 Rule, which repealed the 2017 Rule). We have long argued that it would be premature for the agency to do so until we have a decision from the Court: no WOTUS before SCOTUS. Nevertheless, the agency seems set on continuing down that path, and we believe that we will see a final rule from EPA before the beginning of 2023.

PROP 12 – NPPC V. ROSS

The next week, the Court heard arguments from the National Pork Producers Council and the American Farm Bureau Federation that California’s Proposition 12 is unconstitutional. Proposition 12 sets forth gestational housing requirements for sows. All pigs produced in California – and all pork sold in California, regardless of origin – must comply with Proposition 12’s standards. But, because less than 1% of the nation’s pork is produced in California, this law has the effect of regulating animal husbandry practices in every other state in the nation.

The agricultural industry argues that this is an unconstitutional overreach of state power. Congress, not the States, has been given the right to regulate interstate commerce. Long ago, the Court set forth a balancing test in a case called Pike v. Bruce Church. That case said that state regulatory action that burdens out-of-state commerce must be no more burdensome to the out-of-state actors than it is beneficial to the in-state actors. To say it another way, the regulation must be balanced in terms of the costs to those out of state and the benefits to those in-state. Here, the pork producers argued that the extreme burden of a state that holds 13% of the pork market has placed on the pork producers who are equipped to provide that pork far outweighs the benefit to California – largely because that benefit is a perceived “moral” benefit, not rooted in science, health, or safety concerns.



The outcome of this case is even harder to handicap than Sackett. It seems safe to say that Justices Thomas and Gorsuch, who have long been critics of the Dormant Commerce Clause, will not appreciate the pork producer’s argument based in that clause. But the other Justices were articulate in grappling with the weaknesses of the argument on both sides. Of note was a significant amount of discussion as to whether moral concerns, rather than scientific health or safety concerns, actually could constitute an in-state benefit. The Court’s final analysis on that particular aspect will have huge impacts on agricultural initiatives, especially as radical animal rights activist groups continue to use the ballot box and state Legislatures to impose unscientific animal husbandry standards across the nation.

As to the outcome, it’s likely that the Court will refine or articulate the appropriate test for what constitutes an impermissible burden on interstate commerce, then send the case back to California courts to apply that test to the facts. It’s also possible that the Court will adopt a test and conclude that, under the facts alleged, there is one side with no chance of prevailing (depending on the test they craft).

These two cases have prompted some to call this SCOTUS term the most consequential of our lifetimes in terms of its impact on agriculture, and we tend to agree. So now, we will anxiously await the Spring, when we will see the Court’s decisions and opinions explained – hopefully to the benefit of farmers and ranchers across the nation. 🚜

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THIRD QUARTER 2022 REGULATORY COMMENT REVIEW

By Ana Kennedy Otto, Arizona Farm Bureau Government Relations Manager

As the third quarter comes to an end, there has been no slowdown in responding to regulatory proposals. And this quarter you will see a couple of comment letters responding to state-level issues. Below is a summary of the regulatory dockets AZFB responded to during the third quarter of 2022.

USDA Agricultural Marketing Service – Request for Information on Access to Fertilizer: Competition and Supply Chain Concerns – AZFB’s comments supported those prepared by the American Farm Bureau Federation (AFBF), which responded to several questions from USDA addressing fertilizer trends, impacts of transportation, foreign supply of fertilizer and global disruption, as well as other ways USDA can support farmers’ ability to adapt to variability in fertilizer costs.

Arizona Department of Water Resources – Proposed Surface Water Protection Rules – AZFB comments addressed our concerns regarding ADEQ’s timeline for reviewing stakeholder input, evaluation of the WOTUS Protected Water List based on the pre-2015 regulatory regime, and the addition of waters to the proposed WOTUS list. AZFB recommended that ADEQ not move forward with its proposed WOTUS list and modify its process to reissue a revised draft of the proposed rule.

Environmental Protection Agency – Proposed Interim Decision for Several Pesticides (Diuron) – AZFB’s comments highlighted the importance of diuron as an herbicide for several Arizona crops and as a defoliant in cotton. Our comments noted concerns with EPA’s risk modeling for diuron and the need for the agency to include new data from the Diuron Task Force that would support the continued registration of the product. EPA’s current proposal would terminate nearly all uses of diuron on food and feed crops and non-food agriculture sites, as well as revoke all food tolerances (except for that pertaining to uses as a cotton harvest aid).

U.S. Fish and Wildlife Service – Designation of Experimental Populations – AZFB’s comments noted our opposition to the FWS’s proposal to delete references to a species’ “historical range,” which would thereby allow for the introduction of experimental populations into habitat outside of their historical range. We also noted our opposition to FWS’s assessment that this proposed rulemaking would not have a significant economic effect on a sub-

stantial number of small entities.

Bureau of Reclamation – Request for Input on Development of Post-2026 Colorado River Operational Strategies for Lake Powell and Lake Mead under Historically Low Reservoir Conditions – AZFB’s comments urged BOR to consider the following as it moves forward in developing its Post -2026 Colorado Operational strategies. (1) In the near-term, BOR should use the funds allocated through the Inflation Reduction Act to support these efforts to create the storage necessary to avoid a crash on the river. (2) Ensure all stakeholders have a seat at the table, including agriculture. Any decisions about use of the river must recognize the economic significance of agriculture dependent on Colorado River water – it extends beyond the scope of farms and rural communities to include safeguarding our domestic food security. (3) In the upcoming NEPA process BOR should include further encouraging conservation and efficiency measures by all users, augmenting water supplies where feasible, and evaluating increased storage capacity to capture seasonal precipitation in sub-watersheds likely to be impacted by the reverberating impacts of less water in the Colorado River system. Additionally, we recommended the NEPA process needs to include specific analysis to streamline upper watershed projects, intended to improve forest and rangeland health, across multiple federal agencies.

Environmental Protection Agency – Proposed Interim Decisions for Several Pesticides (Tebuconazole) – AZFB’s comments noted the importance of tebuconazole as a fungicide in numerous Arizona crops and highlighted our concerns regarding EPA’s proposal which would limit the usage of tebuconazole under certain conditions resulting in increased costs and potential yield losses.

Bureau of Land Management – Hopper Renewable Energy Project, IP Land Holdings, Variance Application – AZFB’s comments urge BLM to disapprove a variance application that would allow for the siting of a solar installation on two active grazing allotments in Graham County. The proposed solar project would take valuable agricultural land out of production and creates a negative precedent for future solar development on public lands with grazing allotment or other agricultural uses.

Environmental Protection Agency – Draft Endangered Species Act Biological Evaluation for Sulfoxaflo

– AZFB’s comments highlighted the importance of sulfoxaflo to several crops grown in Arizona and stated our concerns with the spray drift distances used in EPA evaluation. The docket also allowed commenters to respond to Corteva’s proposed label amendments for their products which contain sulfoxaflo. Our comments recommend that any label restrictions related to endangered species or critical habitats apply only to those defined areas of concern.

Environmental Protection Agency – Petition to Revoke Tolerances and Cancel Registrations for Certain Organophosphate Uses – AZFB’s comments urged EPA reject the petition to revoke organophosphate tolerances and cancel registrations. Our comments further noted the EPA’s obligation to adhere to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) which outlines the registration review process and requires the agency to balance these risks and benefits in the pesticide decision-making process by considering the economic, social and environmental costs and benefits of the use of any pesticide.

Arizona Department of Water Resources – Hualapai INA Designation – AZFB’s comments explained how basin conditions do not warrant an irrigation non-expansion area (INA) designation. AZFB also posed several questions relating to the data and modeling used by ADWR in its most recent assessment of the Hualapai basin.

For more information about a specific comment letter, contact Ana Kennedy Otto at advocacy@azfb.org.



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USDA OFFERS GRANTS UNDER THE FERTILIZER PRODUCTION EXPANSION PROGRAM

Staff Reports

The U.S. Department of Agriculture (USDA) invites U.S. farmers and agricultural producers to apply for grants under the Fertilizer Production Expansion Program. The current administration recently announced it is making \$500 million in grants available through the program to increase American-made fertilizer production, spur competition and combat price hikes on U.S. farmers.

USDA is accepting applications via www.grants.gov. Applicants have two opportunities to submit their applications:

- Applicants may apply until **Nov. 14, 2022**, to receive priority for projects that increase the availability of fertilizer (nitrogen, phosphate, or potash) and nutrient alternatives for agricultural producers to use in crop years 2023 or 2024.
- Applicants may apply until **Dec. 29, 2022**, to receive financial assistance to significantly increase American-made fertilizer production to spur competition and combat price hikes. This application window supports applicants who need more time to make additional capacity available.

Eligible entities are for-profit businesses and corporations, nonprofit entities, Tribes and Tribal organizations, producer-owned cooperatives and corporations, certified benefit corporations, and state or local governments. Private entities must be independently owned and operated to apply.

The maximum award is \$100 million. The minimum award is \$1 million. The grant term is five years. Potential applicants and stakeholders may email questions to fpep@usda.gov.

For more information, visit www.rd.usda.gov/fpep or <https://www.farmers.gov/global-food-insecurity>.

Background

The program will support fertilizer production that is:

- **Independent, and outside the orbit of dominant fertilizer suppliers.** Because the program’s goal is to increase competition, market share restrictions apply.
- **Made in America.** Products must be produced by companies operating in the U.S. or its territories, to create good-paying jobs at home, and reduce the reliance on potentially unstable, inconsistent foreign supplies.
- **Innovative.** Techniques will improve fertilizer production methods and efficient use technologies to jumpstart the next generation of fertilizers and nutrient alternatives.
- **Sustainable.** Ideally, products will reduce the greenhouse gas impact of transportation, production and use through renewable energy sources, feedstocks and formulations, incentivizing greater precision in fertilizer use.
- **Farmer-focused.** Like other Commodity Credit Corporation investments, a driving factor is providing support and opportunities for U.S. agricultural commodity producers. 🚜

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GAME, SET, MATCH: NRCS MENTORING PROGRAM SECURES CLASS 2

By Julie Murphree, Arizona Farm Bureau Outreach Director

Successful American Actor Denzel Washington is credited with saying, “Show me a successful individual and I’ll show you someone who had real positive influences in his or her life. I don’t care what you do for a living — if you do it well, I’m sure there was someone cheering you on or showing the way. A mentor.” He’s right and the Natural Resources Conservation Service’s (NRCS) mentor program is proof.



Caywood and Truelove: Nancy Caywood (left) and NRCS Protégé Meredith Truelove gathered at Coolidge Dam early in their mentoring process to witness the extent of the drought in this reservoir.

Arizona Farm Bureau and The National Resource Conservation Service began a partnership in 2021 to engage in an exciting program that aids NRCS employees in understanding Arizona agriculture at the ground level. CAMP provides a mentoring structure between farmers and ranchers and the NRCS employees. While several other states have the NRCS CAMP program, Arizona is unique in that it partners with Arizona Farm Bureau due to our extensive network of farm and ranch members.

Arizona Farm Bureau and NRCS will continue to shine a bright light on this exciting program and the experiences our mentors and protégé are going through. Watch for

protégé/mentor profiles in the coming month with Class 2 in the pages of Arizona Agriculture, Arizona’s leading farm and ranch publication.

NRCS’s Arizona producer-employee mentoring effort creates an organic partnership approach between the agricultural community and NRCS. This effort assists with the completion of the national NRCS’ goal of connecting NRCS employees to local producers for regionalized, hands-on knowledge of production agriculture and local natural resources in Arizona.

The core goals for this partnership effort are that participating NRCS employees (protégés) advance their professional expertise related to:

1. Production of agriculture in their local areas,
2. Local resource concerns, and
3. How NRCS and producers can address local resource concerns.

The outcomes already show a deeper **awareness of the types of challenges and decisions our farmers and rancher face each day** and enhance their local community relationships and capacity to provide excellent customer service. It’s also fostered great relationships between mentor and protégé.

Says Class One NRCS graduate Brett Myers, “My mentor, Sonia Gasho, has taken the time to explain production agriculture, natural resources in her area, and the hurdles they face. Furthermore, expressing the fact that the best technical solution is not always the best for the producer, partnered conservation plans should address that.”

The biggest insights for NRCS employee and Class 1 participant Meredith Truelove involve Arizona’s water challenges. “For me, the biggest takeaway so far is learning about the drought in Arizona. Nancy [Caywood] has shared with me some of the backgrounds on her family’s farm Caywood Farms, and how the drought continues to impact their ag production. There have been a lot of emotional and mental takeaways from listening to Nancy talk about the drought and its impact on all agricultural land in southern Arizona. Many questions have been raised especially when it comes to the agricultural future of the area.

Truelove adds, “As a Casa Grande local, Nancy [Caywood] knows a lot about the people and the environment in the Pinal County area. She has taught me a lot about the goals and challenges of the producers when it relates to the ongoing drought. Overall, this program has been helpful for me because as a soil conservationist, I need to know more about the needs, goals and challenges of the producers, farmers and ranchers in the area.” 🚜



PRODUCTION SPONSORS

GLOBAL DISRUPTIONS continued from Page 1

If you can make the trucking and spreading costs work for your operation, a quality compost and manure source can help provide critical nutrients for your crop and supplement what you are doing in your fertilizer program.

Arizona Agriculture: How can farmers and ranchers mitigate their costs in these unusual times?

Wyant: Data is a great tool to help with planning and management. A solid set of soil samples and updated forecasts for nutrient needs based on recent yield goals can help fine-tune fertilizer applications to help eliminate excess spending where you don't need it. Moreover, a crop advisor can be an invaluable team member to help with the planning and execution of an updated crop nutrient plan and help with interpreting the numbers. On the ranching side, a good nutritionist can help with ration alternatives as feed supply and source ebbs and flows through the year.

Arizona Agriculture: As a scientist, what gets you excited about what's going on in agriculture?

Wyant: I am encouraged by the recent infusion of precision agriculture technologies that have begun to become more accessible at the farm gate level. For example, many growers are now mapping the nutrient variability in their soils and then writing prescriptive plans that apply just the right amount of fertilizer where it is needed. The 'low' areas get more fertilizer, and the 'high' areas get less. As a result, I have seen yield averages tighten up and growers get a more uniform output as a result.

Other recent technology infusions include the ability to monitor and schedule irrigation with your smartphone and look at real-time crop stress during the season from satellite systems. This can help a grower quickly figure out where irrigation nozzles or emitters might be plugged so they can fix the problem and not lose yield. Technology keeps improving and, at the same time, barriers to the access and utilization of said technology continue to fall away. As a result, growers get better tools in the field.

Arizona Agriculture: Where do you see the biggest gains in the ag industry's development?

Wyant: I want to stress that the existence of modern NPK fertilizers should be discussed more often and be recognized as a massive technological gain for humanity.

Sometimes fertilizers are seen as a commodity and perhaps even taken for granted. It has been said that more than half of the globe's population owes their calories to the relatively recent development of the fertilizers we use every day (e.g., urea, UN32, MAP, SOP, MOP). Thus, our food security is tied directly to the use of fertilizer-based crop nutrients, and I think the broader public is just starting to understand the connection.

Arizona Agriculture: What sets Arizona's agriculture apart from other regions of the world, separate from our 300+ days of sunshine?

Wyant: I have been working in Arizona agriculture since I was at Arizona State University as a Ph.D. student, and I love telling our ag story when I travel. Arizona has a unique climate that can support high yields of both commodities (corn, cotton, and wheat) and specialty crops (leafy greens, wine grapes, citrus, and melons). I have observed that this combination is quite rare from a global ag perspective.

Due to our climate and infrastructure, we can grow an incredibly diverse array of healthy crops that can be directly consumed by people or indirectly (alfalfa that is fed to dairy cows; feed for cattle). We also have an incredible ranching community that helps put protein and calorie-dense meat on the table across the globe. Arizona's agricultural diversity gives our local production systems a good deal of resiliency when times get tough as opposed to other areas that have just one or two major crops. Our ag portfolio is unique and should be celebrated more!

Arizona Agriculture: What have I not asked you that is important to share with our Arizona farmers and ranchers?

Wyant: I would ask the Arizona farmer and ranchers to hang in there as several supply chain issues eventually work themselves out. Many folks, across the globe, are actively looking for solutions to the challenges we have seen over the past few months across the ag input spectrum, including fertilizers. For example, Nutrien has recently committed to safely producing 40% more potash (relative to 2020 levels) by 2025 to help keep farmers and food security in good shape. I expect we will see similar initiatives across the ag input spectrum (fertilizers, chemicals, adjuvants) over time and we (the ag industry) will come out in better shape on the other side of all this as new innovations take hold. 🚜

THE RACIN' FOR THE BACON DERBY RAISED THE BACON FOR AG EDUCATION!

By Katie Aikins, Arizona Farm Bureau Education Director

The 5th Annual Racin' for the Bacon Derby Dinner presented by the Arizona Pork Council benefitting the Arizona Farm Bureau Educational Farming Company was a squeal of a time! Over 130 attendees gathered to enjoy local eats, local drinks, silent and live auctions, pig racing, derby hat contests, and more. This year's generous attendees, sponsors, and donors helped raise more than \$30,000 to support the mission of the Foundation!

100 percent of the proceeds are utilized in our continuing efforts to educate Arizona's youth and consumers with the opportunity to come back to the farm and learn where their food



Our Auctioneer, Janel Rogers, helped raise \$14,500 in the evening's Live Auction.

comes from. The funds raised through this event will help us provide education to 3,000 classrooms and reach over 90,000 students with ag education through the Arizona Farm Bureau Agriculture in the Classroom Program!

The mission of the Arizona Farm Bureau Educational Farming Company is to educate the public of all ages about the importance of Arizona's agriculture through educational programs that teach about the production of food, fiber, and natural resources highlighting Arizona agriculture's diversity and dynamic. 🚜

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CELEBRATING ARIZONA PECANS ON ROSIE ON THE HOUSE

By Julie Murphree, Arizona Farm Bureau Outreach Director



"Pecans are America's nut," explained Deborah Walden Ralls, Green Valley Pecans Vice President of Industry Relations, last month on KTAR's Rosie on the House show during the "Farm Fresh" hour that Arizona Farm Bureau helps host. When you discover Pecans are indigenous to North America and that the approximately 1,000 pecan varieties are mostly named after Native American tribes, it makes sense to call these very popular and healthy tree nuts America's nut.

In Arizona, 2020 cash receipts for pecans were at \$52 million (most recent figures available), according to USDA-NASS. And, while that's "cash receipts" it doesn't count the other aspects this agricultural commodity contributes to the state's economy.

Walden Ralls is part of a third-generation family farm in Arizona that started with her grandfather Keith Walden after switching from traditional crops like wheat, cotton and alfalfa. In fact, Green Valley Pecans was once the world's largest vertically integrated, family-owned pecan farm until another American-based pecan farm took over the distinction a few years ago.

While our pie bakers may know it takes an average of 78 pecans to make a pecan pie, they may not know that pecans are heart-healthy and contain 19 vitamins and minerals. And pecan trees are alternate bearing and have a bountiful crop only every other year.

During the show, we asked Walden Ralls all sorts of questions about the pecan including other health benefits, how to care for a pecan tree, what inspired her grandfather to plant a pecan orchard, and more. Our favorite part was hearing her recipe suggestions.

JUST THE FACTS

These facts below are provided by the National Pecan Shellers Association, the American Pecan Council and the Walden family.

- A handful of pecans (about 19 halves) is packed with fiber, zinc, important vitamins

such as E, and other essential minerals that support strong bones and good digestion.

- Pecans also contain superior levels of antioxidant flavonoids and natural plant sterols, known for their cholesterol-lowering abilities, more than any other tree nut.
- In fact, pecans have the highest antioxidant content of any tree nut and are the only nut to rank in the top 20 antioxidant-rich foods.
- Each one-ounce serving is lower in carbohydrates and higher in dietary fiber compared to other nuts and contains 12 grams of monounsaturated (good) fat.
- A one-ounce serving provides 10% of the Daily Recommended Intake for fiber.
- Pecans are high in healthy unsaturated fat that can lower total blood cholesterol and preserve high-density lipoproteins (HDL) or "good" cholesterol.
- Sixty percent of the fats in pecans are monounsaturated and another 30 percent are polyunsaturated, leaving very little saturated fat in pecans. In addition, pecans contain no trans fat.
- Pecans contain more than 19 vitamins and minerals – including vitamin A, vitamin E, folic acid, calcium, magnesium, phosphorus, potassium, several B vitamins and zinc.
- Pecans are naturally sodium free.
- Today, the U.S. produces about 80 percent of the world's pecan supply. The top states are Georgia, New Mexico, Texas and Arizona.
- Perhaps due to glaciation, pecans died out in Europe about 2 million years ago. The tree survived in North America and Mexico, however.
- Before 1920, pecans were "hand-shelled" by consumers. In 1920, commercial shelling equipment made it much easier for us to enjoy these delicacies and consumption dramatically in the 1920s and after.
- According to National Pecan Shellers Association consumer research conducted in 2011: Pecan halves are the preferred form of nut used in cooking and baking.
- The pecan's merits as a wholesome and convenient snack are just now starting to be discovered. 🍷

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MEET ARIZONA AGRICULTURE'S HOLCOMB FAMILY

By Joel Carr, Arizona Farm Bureau Outreach Manager

Meet Arizona agriculture’s Holcomb farm family: The Holcomb family of the now-famous Apple Annie’s from Cochise County. They are a part of Apple Annie’s Orchard, which is the definition of a family operation. John, Annie, their son, Matt, and his wife, Alicia, daughter, Mandy, and her husband, David, own and operate the Orchard along with John’s father, Don.

In agritourism since the mid-1980s, Apple Annie’s is synonymous with farm family fun. They’ve become a model for others when farm families decide to open a portion of their farm to the public. They work at keeping the experience authentic and memorable. As Farm Bureau members they’ve also become a favorite for us to feature, along with our other agritourism farms in Arizona.

A farm profile of the Holcomb family with interview answers from daughter Mandy Kirkendall, co-owner of Apple Annie’s in Cochise County. An ongoing series of our farm and ranch families.

Tell us about your farm, ranch, or agribusiness operation(s). Willcox is top-tier for you-pick fruit and vegetable growing thanks to the 4300’ elevation of the Sulphur Springs Valley. The Springs provides Apple Annie’s Orchard with warm days and cool nights. During the early 1980s, our family planted 6,000 trees with the idea of growing commercially. When the trees started producing in 1986, We decided to sell our apples on a you-pick basis. My mom, Annie, and my brother, Matt, were baking pies and apple bread, and my father, John, oversaw growing apples and making cider. I was the sales clerk, and we enjoyed fun-filled, busy days.

We then started planting peaches and pears and grafting some of our original apple trees to new varieties. We wanted to have fruit available for our customers to pick throughout our 4-month season. Today our customers are enjoying the fruits of our labor! Throughout the years, we have added many new activities for our customers to enjoy during their visit, including an Orchard Grill serving apple-smoked burgers on the weekends. Apple Annie’s Attic, our country gift shop, hayrides to the Orchard, a giant corn maze, and many festivals. Be sure to check our Fall Festivities.

Why did you choose to go into agriculture? My big city-raised parents moved to Willcox and got into agriculture in the early 1980s “to make much more money,” ha-ha! They quickly learned the hard work, trials, and failures of it. I joined the family business full-time in 2006 once the company could add another full-time paid staff member. My main job was public relations and advertising, which has evolved to managing that department and our bakery and sales.

What changes have you seen in your life related to farming, ranching, or agribusiness? In the last couple of years, we have seen so many more people out enjoying the outdoors, and it has become trendy to pick your fruits and vegetables and share your experience on social media. We are fortunate to be an “in” activity.

Will anyone in your family – the younger generation - pursue farming, ranching, or agribusiness? Right now, my brother and I are running the business, and we hope our children will want to take over one day.

Would you ever consider changing your business model? We are always looking for ways to improve what we do, but we aren’t looking to change our direction.

What are your community activities? We sponsor many local events/fundraisers benefiting schools, our hospital, FFA, and local tourism. I co-chair the tourism committee for the City of Willcox.

Why are you involved? To benefit local growth and advancement of the community.

What do you enjoy doing, and what is one fact nobody knows about you? I genuinely love my job, but when I take time away, I love traveling and always look for other agritourism farms to visit wherever my travels take me. Fun fact about me that very few people know, I love otters, and I could watch them play all day long.

Why are you a farm bureau member? For the ongoing support for agriculture in Arizona. Also, for the help with our insurance needs.

What’s the best business advice you’ve ever been given and experienced? Keep the farm experience authentic. We could add so many attractions to grow the business, but we want to keep the fresh fruits and veggies as the main attraction.

Editor’s Note: To find out hours of operation and more, go to Apple Annie’s. 🍏



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