

REDUCING
CARBON | p. 10

SORGHUM
SMARTFARM | p. 12

SORGHUM SILAGE
ECONOMICS | p. 26



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SORGHUM *Grower*

WINTER 2020

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TABLE OF CONTENTS

FEATURES

- 6** Sorghum Farmers & NRCS Partner for Soil Health
NSP & NRCS to collect sustainability information.
- 10** Carbon Reduction
Capturing carbon is a complex issue, but it starts with the soil.
- 16** 2019 NSP Yield Contest Results
See who came out on top in this year's yield contest.

DEPARTMENTS

- 5** From the CEO
- 8** From the Field
- 12** Lab to Cab
- 14** Capitol Hill
- 26** Sorgonomics
- 28** Serving Up Sorghum



ON THE COVER: Sorghum farmers are partnering with NRCS to track conservation and farming practices to help better understand sustainability in U.S. agriculture. This will not only benefit NRCS by giving them data, but it will also benefit sorghum farmers by helping them better understand their farm's productivity and sustainability.

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NATIONAL SORGHUM PRODUCERS

4201 North Interstate 27
Lubbock, Texas 79403
806-749-3478 (phone)
800-658-9808 (toll free)
806-749-9002 (fax)
www.SorghumGrowers.com

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From the CEO

New Decade, Same Commitment



Water. Yield. Energy. Sustainability. These buzzwords that drive our daily conversation and this issue of *Sorghum Grower* are, in many cases, the same themes that have defined the sorghum industry since I arrived at the National Sorghum Producers 25 years ago.

As we open a new year and a new decade, it is important to look forward as well as reflect on where we have been. In this issue, we are focusing on energy and sustainability. But looking back, these have always been significant issues.

I believe water is the single most important factor in the agriculture industry today. Themes of water are woven through our conversations about sustainability, environmental impact, bio-energy and agronomics. And so, it serves as an umbrella for all our other conversations in this issue.

Sorghum remains a star when it comes to water use (Page 26 focus on forages), and with the work of NSP, this fact continues to press forward into the national consciousness.

Sorghum also shines as a renewable energy crop. The ethanol industry has come of age over the past decade, and sorghum demand has benefitted from renewable energy policies both domestically and abroad. We have worked diligently to position sorghum with hopes that trading partners will favor sorghum for ethanol exports as well as for traditional uses. Countries around the world are adding sustainability criteria to their energy policy, and sorghum is ripe to compete in both new and established markets.

Domestically, California energy policy has moved the ethanol marketplace from a commodity business to a market pull business that incentivizes conservation and carbon savings practices. See page 10 for more on that. Sorghum is ideally positioned to be the crop of choice for sustainable energy production over the coming decade.

Glancing at the industry from the direction of Washington, D.C., we are expecting another significant research investment on sorghum sustainability from the Department of Energy in 2020 (Page 12).

Meanwhile back on the farm, we are encouraged by the release of a number of new hybrids from various companies that will boast higher yields and critical new and improved traits (Page 8). The pipeline is paying off.

At NSP, we are the voice of the sorghum industry. For six decades now, we have been proud to represent you to the world. The words we use may be different, but we remain driven by producer profitability and look forward with great expectations to another decade as your trusted partners.

Tim Lust

Tim Lust
Chief Executive Officer

PARTNERING

FOR

SOIL HEALTH

SORGHUM FARMERS ARE COLLABORATING WITH NRCS TO IMPROVE SUSTAINABILITY

By John Duff

For over a decade, U.S. agriculture has been struggling to understand sustainability. While many unanswered questions about how much consumers are willing to pay for sustainability remain, markets like the one driven by the California Low Carbon Fuel Standard (LCFS) have helped define the term. Fortunately, the conservation and stewardship practices employed by thousands of sorghum farmers each year are rewarded in the carbon footprint models that underlie California's LCFS. This means adoption of these practices is rewarded through higher demand for grain in addition to positive environmental outcomes for farms and rural communities.

Given this connection between two of the most important policy areas for sorghum farmers (i.e., conservation and low carbon fuels), a partnership with the Natural Resources Conservation Service (NRCS) was a logical step. Early in 2019, National Sorghum Producers initiated conversations with the Kansas NRCS office, based in Salina, Kansas, and in late February applied for a Conservation Collaboration Grant. The agreement was made official early in the fall of 2019, and work on the project has already begun.

The project will center on the development of a software platform, the Kansas Conservation in Agriculture with Technology (KansCAT) platform, which will be used to track the type of conservation and sustainability information farmers and NRCS staff need for conservation planning and LCFS administrators need for verifying carbon footprints. Information on farm practices will be collected from at least 75,000 acres in areas of Kansas where farmers supply ethanol markets, and this information will be used to quantify carbon footprints for farmers, NRCS staff as well as LCFS administrators.

Why are conservation and stewardship practices rewarded in carbon footprint models? The answer lies in fertility—from how fertilizer is applied, to the timing of applications, to the specific fertilizers used. Not surprisingly, nitrogen is the most important fertilizer in this case as 80 percent of the footprint of farming is driven by applications of the element. This fact owes to the dual impact nitrogen has on the footprint: First, nitrogen fertilizer production is a very carbon intensive process, and a large portion of these carbon emissions must follow the grain through the supply chain. Second, after nitrogen fertilizer is applied, a portion of it leaves the field through runoff, leaching and volatilization, and all of these emissions must follow the grain through the supply chain, as well.

What other practices are rewarded in both conservation programs and carbon footprint models? Fortunately, the list doesn't stop at fertility. Sorghum farmers have historically taken full advantage of the benefits offered through conservation programs, and

this is undoubtedly due in large part to the fact sorghum farmers are some of the nation's most conservation conscious. For example, sorghum leads among crops in the area of conservation tillage adoption with 74 percent of sorghum acres annually being cared for using conservation tillage. Not only does conservation tillage mean less need for carbon-intensive fuel usage, but it also means healthy soil, as well. What does healthy soil mean? As you might have guessed, it minimizes nitrogen requirements along with runoff, leaching and volatilization. In sorghum production, sustainability breeds sustainability.

According to the agency's strategic plan, the mission of NRCS is helping people help the land. Through hundreds of regional and local programs, NRCS promotes positive conservation and stewardship outcomes that will not only benefit individual farms, but whole rural communities, as well. This holistic approach made a partnership with the 80 year-old agency a perfect fit, as ethanol plants constantly strive to shrink their carbon footprint and provide environmental leadership to the rural communities they were founded to strengthen. These and other businesses across the sorghum supply chain are ready to provide the leverage NRCS needs to amplify the effects of their programs to ensure even more farmers and communities reap the benefits of conservation.

As always, it is important to remember rooting for lower carbon intensity and positive environmental outcomes is possible—even necessary—regardless of one's stance on climate change. Healthy soils are fundamental drivers of farm productivity, conservation and carbon footprint reduction, so there are opportunities for a true win-win-win. Add in the value of a smaller carbon footprint to ethanol plants selling fuel into markets like the one driven by California's LCFS, and the significant need to highlight what sorghum farmers are doing in this area becomes clear.

The 2018 Farm Bill included the words "soil health" 47 times while the 2012 bill included these words just once. Clearly, promoting conservation and stewardship is a key priority for policymakers at all levels of government. With the leadership already provided by sorghum farmers and only the bridge linking conservation programs and activities with sustainability-driven markets like the LCFS left to be built, now is the perfect time for this partnership. Armed with the KansCAT database and the knowledge gained through this partnership, sorghum farmers will be even better positioned to lead in the area of sustainability. NSP is still actively working to recruit farmers to participate in this partnership. For more information on participating in the development of KansCAT, please contact me at john@sorghumgrowers.com or 806-638-5334. 🌱

From the Field



BRIGHT FUTURE FOR SORGHUM HYBRIDS

By Brent Bean, Sorghum Checkoff

Sorghum growers can expect more choices in grain sorghum hybrids in 2020 than in previous years. There are many new grain sorghum hybrids that have been released by seed companies this year, and that is on top of several new hybrids released in 2019. These new hybrids are not limited to certain regions, but most growers around the U.S. will have access to a new hybrid or two to try on their farm. Generally, in the first year of release, seed supply will be limited, but growers should take the opportunity to plant a few acres of new hybrids to compare to what they have been planting.

Seed companies spend a lot of time evaluating sorghum hybrids before they are made commercially available and will not bring them to the market unless they have some significant advantage over other hybrids that they sell. Higher yield is always the goal and can be accomplished in basically two ways. The first is through parent selection and heterosis that results in better yield potential under optimum conditions. The second way is through better defensive traits. These defensive traits equip the hybrid to better withstand abiotic (nonliving) and biotic (living) stress.

Abiotic stress is typically caused by drought and high temperatures. Since sorghum tends to be grown in dry environments, sorghum breeders spend a large portion of their efforts in developing hybrids that can withstand periods of drought and still maintain yield potential. Often overlooked by growers is the importance of heat stress. Much of the Sorghum Belt has experienced

elevated temperatures the last few years, and this is not expected to change any time soon. More effort is going into breeding for heat stress than in the past.

Biotic stress is usually from insects, diseases or weeds. Since the infestation of U.S. sorghum with the sugarcane aphid in 2013, seed companies have worked to identify hybrids and parent lines with sugarcane aphid tolerance. Many of the new hybrids being released in 2020 have superior sugarcane aphid tolerance while maintaining or even increasing yield potential.

For those regions where diseases are an issue, better anthracnose resistance has been incorporated in some of the new hybrids.

Although we will not see any new hybrids with herbicide tolerance on the market in 2020, sorghum growers in 2021 and 2022 may very well have three different herbicide traits to choose. Hybrids are in the pipeline with ACCase, sulfonylurea and imidazolinone tolerance to aid in weed control. Field demonstrations are being planned with these technologies in 2020.

The rate at which new sorghum hybrids have come to the market has lagged behind many of the other crops. For example, it is not unusual for a corn grower to make a hybrid change every 3-4 years. One of the reasons for this is that corn and some of the other crops have greatly benefited from what is called double haploid technology.

This technology was discussed in detail in the Summer 2019 edition of the *Sorghum Grower* magazine and can be accessed at SorghumGrowers.com. Due to a

large investment of grower dollars, through the United Sorghum Checkoff Program, sorghum is well on its way to having this technology. The result for growers will be that breeders will soon be able to reduce the time in half that it takes to develop new hybrids. And just as importantly, breeders will be able to screen many more parent line combinations for hybrids than they currently are able to screen.

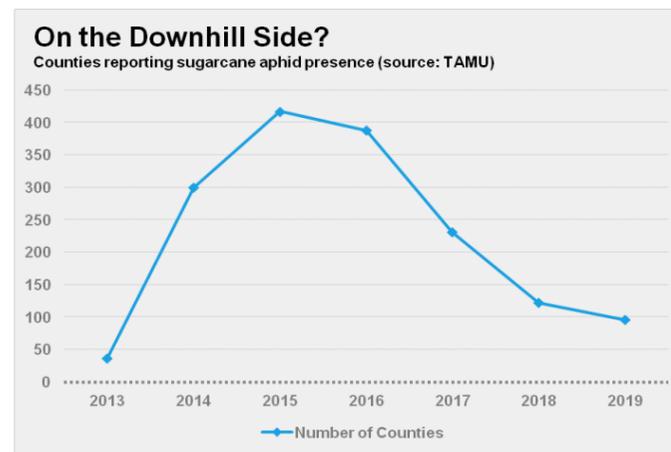
Research the last few years has brought a wealth of knowledge of the DNA of sorghum. The entire DNA of an organism is called its 'genome.' Breeders working with molecular biologists now have a much better map of where key genes are located in a sorghum plant's genome.

By using this knowledge, along with computers and statistics, breeders are able to make better predictions on the outcome of crossing two parent lines. The term given to this technology is called genome-wide association studies (GWAS). In other words, GWAS should take a lot of the guess work out of developing new hybrids. This in turn should lead to not only better, but faster, development of sorghum hybrids.

Although all of the new technologies that are coming to sorghum are not going to be implemented over night, because of them, the future looks bright for new and better sorghum hybrids this growing season and in the coming years.

NEW HYBRIDS AVAILABLE IN 2020 FROM NATIONAL SORGHUM PRODUCER'S INDUSTRY PARTNERS		
ALTA SEEDS	CORTEVA (PIONEER)	DEKALB
ADV G1329 (EARLY)	85P75 (MEDIUM-FULL)	DKS27-80 (EARLY)
	82P83 (FULL)	DKS29-95 (EARLY)
DYNA-GRO SEED	83P11 (FULL)	DKS36-07 (MEDIUM-EARLY)
M54GR24 (VERY EARLY)	85P81 (FULL)	DKS44-07 (MEDIUM)
M57GC29 (EARLY)		DKS45-60 (MEDIUM)
M59GB94 (MEDIUM-EARLY)	S&W (SORGHUM PARTNERS)	
M62GB77 (MEDIUM)	SP 43M80 (MEDIUM-EARLY)	WARNER SEEDS
M71GR91 (FULL)	SP 74M21 (MEDIUM-FULL)	W 5916 (MEDIUM)
		W 7506 (MEDIUM-FULL)

*This is not an exhaustive list.





CARBON REDUCTION STARTS WITH THE SOIL

By Patrick Wade, Texas Sorghum Producers

In his 1928 paper titled “Soil Erosion: A National Menace,” Hugh Hammond Bennett wrote of soil, “Conservation of this most fundamental and important of all resources is seldom seriously considered by any one not directly or indirectly associated with the ownership or management of a farm... Erosion is a very big problem. It is doubtful if the farmer can handle it alone.” This paper was instrumental in the founding of the Natural Resources Conservation Service (NRCS) seven years later (then known as the Soil Conservation Service), of which Bennett was named the first chief. In turn, federal government resources were trained on studying and mitigating the wastage of soil and moisture resources.

Since Bennett’s missive and the founding of the NRCS, many of the same on-farm concerns for soil health have persisted. Erosion, nutrient loss, flooding, and more all threaten a farm’s productivity. There has been, however, one particularly critical development. While Bennett lamented the general public’s disinterest, 21st century farmers and ranchers are far from alone in caring about soil health. In fact, some of the wealthiest and most influential forces on the planet have become deeply involved in the relationship between soil health and environmental sustainability.

In this century, there is now a wide world to whom soil health is a key part of carbon footprints. The goal of reducing carbon footprints – the total carbon dioxide emissions associated with a product – has led to policymakers incentivizing billion-dollar markets that target every step of the supply chain, including soil where crops are grown for biofuel production.

For crops, carbon footprints are often captured from “cradle to farm gate.” This method attempts to measure the carbon footprint of a crop until it leaves the farm for the next step in the supply chain. Emissions generated by burning diesel in trucks, consuming energy for irrigation, manufacturing required pesticides and herbicides, and so on are all considered in a crop’s carbon footprint. By measuring required inputs, carbon footprints allow for crops to differentiate themselves based on their relative efficiencies.

It all comes back to the soil, though, as no farming activity generates more carbon emissions than fertilizing. Specifically, nitrogen, both in its carbon-intensive manufacturing and the runoff, leaching, and volatilization processes following its application, contributes a majority of the carbon emissions in agricultural production.

One of the most influential means of incentivizing carbon footprint reductions in sorghum and other crops is California’s Low Carbon Fuel Standard (LCFS). Adopted in 2009, the LCFS was a response to growing public desire in the state of California to reduce the carbon emissions related to transportation. The system develops its own carbon score based on the total emissions for an alternative fuel source, i.e. sorghum ethanol, throughout the entire pathway of production for the fuel. The greater the reduction in carbon emissions, the higher the price California pays for the fuel source.

Thanks to the hard work of National Sorghum Producers, sorghum farmers are beginning to see some of

their inherent advantages incentivized in the LCFS economy. Some minor carbon reductions come from saving on irrigation-related energy costs and other similar efficiencies in sorghum operations. Largely, though, sorghum farmers’ tendencies toward conservation are being recognized as a significant advantage in the crop’s carbon footprint. The majority of sorghum farmers in the United States practice conservation tillage, which significantly mitigates fertilizer-related carbon emissions.

All sorghum farmers, not just those who sell their crop into these ethanol markets, stand to gain from this. As more grain moves into carbon markets for fuel, traditional sources of sorghum demand must still be met. Furthermore, it is important to note that participating in these markets should not be construed as political activism, but as economic practicality. The practices incentivized by LCFS are often fundamentally sound practices that beget healthier, more productive farms. As the sorghum industry continues to better understand the role we play in the carbon economy, the rising tide can lift all boats.

While it is the key player right now, California’s LCFS is far from the only carbon economy on the horizon. The state of Oregon already has an existing LCFS program and the state of Washington is finalizing rules in 2020 to implement their own, potentially targeting twice the carbon reduction of California’s LCFS. New York and Colorado are also exploring forming similarly ambitious carbon markets.

Agriculture is a global industry now, though, so these opportunities do not end at the American border. The European Union, of which the reemerging sorghum market of Spain is a member, continues to upwardly revise biofuel and carbon emission reduction targets vis-à-vis their established carbon economy. Japan, a consistent sorghum market with whom the United States just entered a new trade agreement to further streamline agricultural trade with, has set ambitious carbon reduction targets for 2030, as well. China, both the 21st century’s largest emitter of carbon dioxide and largest international market for sorghum, has responded to global scrutiny by redoubling pledges to reduce emissions. The Chinese market for sorghum originally opened in large part due to their preferences for non-GMO grain. As consumers across the globe continue to mount pressure for increased sustainability, sorghum may again see an opportunity to fill a unique niche.

There is still so much to study about the relationship between agricultural production and carbon emissions. A strong need still exists for better quantitative, deliverable data about sorghum’s carbon footprint, which makes the work NRCS and NSP are doing to develop a database all the more important (read more on Page 12). Policymakers across the world will continue to debate and tinker with their programs. One thing can be certain though; today, unlike in Hugh Hammond Bennett’s time, the farmer is far from the only one who cares about their soil. ♻️

SMARTFARM

CHANGING WHAT'S POSSIBLE FOR AGRICULTURE

By Dr. David Babson, Program Director, ARPA-E, DOE

There is an old proverb: you can't have your cake and eat it too. It means that one cannot have two incompatible things, but it is too often applied to things that are not necessarily incompatible, they are only perceived to be. Take, for example, how economic growth is often thought to be incompatible with environmental sustainability. The truth is that when it comes to addressing global resource limitations, environmental challenges, and economic growth, we are able to both have our cake and eat it too.

This is especially true for agriculture as we depend on this sector for food, and increasingly, for renewable bioenergy feedstocks and ecosystem services (e.g., soil carbon storage). What if farmers could diversify their product portfolio and simultaneously offer seemingly incompatible services – ecosystem services and low-cost commodity products – to support an environmentally sustainable bioeconomy? They can.

Technical developments anticipated from ARPA-E's Energy SMARTFARM (Systems for Monitoring and Analytics for Renewable Transportation Fuel from Agricultural Resources and Management) program will simultaneously promote greater profitability for farmers and greater environmental sustainability for our planet. We will have our cake and eat it too.

Biofuels Have The Potential To Be A Carbon-negative Source of Energy

Biofuels are, by far, the largest product in the bioeconomy. Their benefit to the broader economy and environment could be substantially improved by making them carbon negative. It seems counter intuitive to view something that is being combusted, and thereby generating CO₂, as carbon negative. But accounting for the full lifecycle of emissions associated with the production and use of biofuels accommodates numerous carbon drawdown opportunities that could more than offset fossil carbon

emissions. Negative-emissions fuel – fuel that throughout its lifecycle removes and sequesters more carbon than it emits – is ARPA-E's vision for advanced biofuels.

Economic Incentives Exist to Promote Cleaner Fuels, But They Don't Extend To Feedstock Production

An obstacle to that vision is that growing biofuel feedstocks is not easy, and the profit margins are small. High-volume, low-cost biomass is key to market viability, and thus yield is essentially the only driver for on-farm optimization. However, the value of the finished biofuel is dependent on its lifecycle GHG emissions on a per-energy basis. This metric, expressed in grams of CO₂ equivalent per mega joule (g CO₂e/MJ), is the fuel's carbon intensity (CI). Since the accounting of the fuel's CI includes feedstock production, farmers could theoretically increase the value of their crop by implementing technologies and strategies that would decrease the CI of their crop.

In fact, established low-carbon fuel markets can confer nearly \$200 per ton of carbon reduced to the product. At this level of carbon pricing, implementing strategies to reduce farm-level CI by as few as 10 grams per mega joule of biofuel energy could provide farmers with an additional \$100 per acre. This would be a sizeable new revenue for farmers, but in order to properly account for lifecycle GHG emissions throughout the entire biomass to biofuel supply chain, robust accounting of feedstock production practices and outcomes is needed.

ARPA-E's Energy SMARTFARM Will Fill A Data and Technology Gap to Connect Feedstock Production to Biofuel Carbon Markets

Field-level CI can currently be quantified, but the cost and complexity of current technologies limits data collection on commercial farms. The development of

low-cost sensors and systems to measure farm-level CI would fundamentally change farming as it would support greater on-farm analytics, provide a basis for more efficient precision agriculture and, for the first time, it would allow farmers to consider optimization strategies beyond yield. These strategies would complement, not detract from, existing incentives for improving yield by enabling farmers to evaluate the economic and environmental impacts of their decision making in a reliable, and quantitative, manner.

Quantifying CI for biofuel feedstocks would immediately connect feedstock production to established markets, and research into reducing the CI of bioenergy feedstocks would be relevant throughout the agriculture sector. This would enable new ecosystem markets for products beyond fuels.

ARPA-E is Building A New Community to Change What Is Possible or the Ag-based Bioeconomy

If successful, the Energy SMARTFARM program will establish new revenue streams for farmers, generate new datasets for stakeholders, and stimulate new commercialization pathways for other ARPA-E technologies. This program will not seek to develop technologies to reduce on-farm CI, rather it creates the possibility to quantify the value proposition of any and all new technologies and

strategies that reduce on-farm CI. This will catalyze their rapid development and adoption to drive efficiency and emissions reductions in the agriculture sector.

ARPA-E Needs to Identify and Select The Best Teams to Ground-truth Field-level Carbon Intensity

The Energy SMARTFARM program is intended to proceed in three stages. First, it will build a network of ground-truth sites at commercial feedstock production farms to generate "gold-standard" data sets for farm-level CI quantification. Second, it will fund advanced research to develop low-cost GHG and soil carbon sensor and validation systems to allow for broad adoption of CI quantification infrastructure on production farms. Third, it will administer a grand challenge in which performing teams will compete for prizes by demonstrating novel low-cost on-farm CI quantification and CI optimization decision support systems.

While the final metrics and structure for phases two and three are currently under development, the critical first step is recruiting the best teams to establish the ground-truth sites. Please review the recent funding opportunity announcement, and share it with your networks to ensure we can elicit the best set of proposals for this effort.

This article was originally published by the Advanced Research Projects Agency-Energy on arpa-e.energy.gov.

THE NATIONAL SORGHUM PRODUCERS' PARTNERSHIP WITH THE NATURAL RESOURCES CONSERVATION SERVICE WILL FOCUS ON DATA COLLECTION ON THE GROUND. HOWEVER, WITH THE EXPLOSION OF INTEREST AND INVESTMENT IN REMOTE SENSING AND DATA ANALYTICS IN AGRICULTURE, THE FUTURE IS BRIGHT FOR SATELLITE-BASED COLLECTION OF SUSTAINABILITY INFORMATION. THE SPACE IS STILL IN NEED OF A SIGNIFICANT AMOUNT OF SEED FUNDING, SO THE ADVANCED RESEARCH PROJECTS AGENCY-ENERGY (A DEPARTMENT OF ENERGY AGENCY WHICH HAS INVESTED ALMOST \$100 MILLION IN SORGHUM RESEARCH OVER THE LAST DECADE) HAS STEPPED UP TO PROVIDE THIS EARLY LEADERSHIP.

WHILE AMERICA IS WATCHING THE DEBATE STAGE, WE ARE WATCHING OUT FOR YOU

By Joe Bischoff, Cornerstone Government Affairs

If you have questions about how the government's work will affect your farm in the year ahead, you are in good company. But while the politicians will wring their hands over elections all year long, business as usual will continue in much of the government complex, and we can provide some solid analysis on how that action may affect your bottom line.

The farm economy and trade aid

The financial challenges facing the agricultural community will continue to garner considerable attention in 2020. Fiscal year 2019 saw the highest number of farm bankruptcies since FY11, according to calculations by the American Farm Bureau. The number of farms filing

for Chapter 12 bankruptcy increased by 24 percent from FY18 to FY19.

The Market Facilitation Program (MFP), or trade aid, went a long way toward keeping many farms afloat with nearly \$20 billion paid out to farmers over the last two years. Already, there are murmurs about an additional round of MFP payments in 2020, even as China and the U.S. have reached a tentative truce in the trade war.

China Phase I offers some tariff relief

Meanwhile, December saw an encouraging de-escalation of tensions between China and the U.S. after months of a punishing trade war. All sides admit the latest deal

is just the first step in a larger negotiation, but sorghum producers will welcome the tariff relief after months of market loss.

Before the U.S.-China trade dispute began, China was a \$1 billion market for U.S. sorghum. We are optimistic that 2020 may be marked by a return to these levels and greater. The sorghum industry has continued its strong advocacy in markets around the world, even as the trade wars waged on, and we trust that those strategic efforts will pay off now that U.S. sorghum growers have regained access to this critical market.

NAFTA 2.0 breakthrough

December was a big month for trade negotiations in the U.S., as Congress broke months of deadlock and passed the U.S.-Mexico-Canada (USMCA) trade agreement, or NAFTA 2.0, with bipartisan support. USMCA makes a number of changes to North American agricultural trade, including increasing U.S. dairy exports to Canada. After passing the House in December, we anticipate the final passage of USMCA in the Senate yet this winter.

Watch for Senate action in 2020

The Farm Workforce Modernization Act of 2019 is intended to bring some labor certainty to the agricultural workforce. It creates a program for agricultural workers to gain legal status over time and aims to reform the H-2A visa program by making it more flexible for employers and by providing opportunities to use the program in agricultural sectors that require year-round employment. The bill passed with broad bi-partisan support in the House in December but the prognosis in the Senate, particularly in a presidential election year, is unclear.

USDA reorganization tensions may flare again

In June 2019, USDA announced Economic Research Service (ERS) and National Institute of Food and Agriculture (NIFA) would relocate to Kansas City. This highly controversial move was especially reviled by career staff in Washington, D.C., who had to decide whether to move with the agencies or change jobs. While the books on this move are almost closed, we anticipate some animosity will continue.

There has been some talk in the Administration of combining the Animal & Plant Health Inspection Service (APHIS) headquarters with the Agricultural Research Service (ARS) headquarters. While the agencies would remain in the Washington, D.C., area, the concept of shrinking their respective footprints may cause some on the Hill to recoil and use this consolidation as a proxy for their lost battle over ERS and NIFA relocations. Expect fireworks.

Renewable Fuel Standard disputes

In August, the EPA approved 31 waivers for small oil refineries, exempting them from biofuel blending requirements under the Renewable Fuel Standard (RFS).

This prompted backlash from biofuel producers, so the Trump Administration responded by proposing a supplemental rule in October that would increase blending requirements for larger refineries. Biofuel producers argue the supplemental rule does not go far enough since it bases blending requirements on the estimated amount exempted rather than the actual amount.

Finding it difficult to make everyone happy, this month EPA decided to withdraw the proposed rule and go back to the drawing board. National Sorghum Producers and its ethanol partners continue to watch this issue closely.

Waters of the United States gets an overhaul

In October, the Environmental Protection Agency (EPA) finalized its repeal of the 2015 Clean Water Rule, which changed the definition of "waters of the United States" (WOTUS) to include some isolated waterways, causing huge headaches for farmers in the normal course of business. A coalition of environmental groups is now suing the EPA, and the case could determine the fate of the 2015 rule. While the debate will rage on in the courts, at least for now, we should see a proposed new definition of WOTUS from EPA before spring 2020. For you, this means more flexibility and less legal exposure as you steward your land and waterways in the best interests of your farm and future.

Critical new breeding technology rule

Access to new breeding innovations through biotechnology has been an emphasis area for sorghum producers in recent years. Being able to quickly develop new sorghum varieties that require fewer inputs would be immensely attractive to the sorghum industry.

Multiple administrations have tried and failed to update the 30-year-old biotechnology regulations at USDA, but it appears that Trump's USDA under Secretary Purdue is mere months away from finalizing a rule that will make new breeding technologies, like CRISPR and other gene editing techniques, available to sorghum breeders. The new rules would provide fewer regulatory hurdles and rightly avoid the requirements associated with breeding transgenic, or GMO crops.

We know that the work we do in D.C. has long ranging impacts for your farm, but from the outside the Beltway it can be hard to measure those effects. While the country is focused on the debate stage over the coming months, we will stay focused on how everyday policy work in D.C. impacts your farm.✂

2019 NSP YIELD CONTEST

Sorghum farmers rallied through some of the most strenuous conditions to complete a harvest during the 2019 season, and National Sorghum Producers is very pleased with the overall crop. Yield achievements in sorghum are reflected not only through the national average trend yield but also through this year's contest yields, and we congratulate all of our winners. We will celebrate and honor the winners at our annual NSP Yield Contest Gala on Friday, Feb. 28, 2020, in conjunction with Commodity Classic in San Antonio, Texas. NSP will also honor a new inductee into the sorghum yield contest Hall of Fame - Winter Johnston of Pennsylvania. Congratulations winners, and we wish you success in 2020!

NATIONAL WINNERS

NOTE: National winners selected from state first place winners

DRYLAND - NO TILL EAST

1 206.80 bu/ac
CHRIS SANTINI
Warren County, NJ
Pioneer 84G62

2 204.70 bu/ac
ELLA JOHNSTON
Fulton County, PA
Pioneer 84G62

3 179.05 bu/ac
GALT PORTER
Mercer County, MO
Pioneer 84G62

DRYLAND - NO TILL WEST

1 194.99 bu/ac
KI GAMBLE
Kiowa County, KS
Pioneer 85P44

2 187.50 bu/ac
LYLE FISHER
Johnson County, NE
Pioneer 84P72

3 137.21 bu/ac
LIVINGSTON FARMS LLC
Kit Carson County, CO
Pioneer 87P06

DRYLAND - TILLAGE EAST

1 212.57 bu/ac
SANTINO SANTINI
Warren County, NJ
Pioneer 84G62

2 209.06 bu/ac
GAGE PORTER
Mercer County, MO
Pioneer 84G62

3 201.32 bu/ac
HARRY JOHNSTON
Fulter County, PA
Pioneer 84G62

DRYLAND - TILLAGE WEST

1 172.04 bu/ac
RONALD GLISSENDORF
Aurora County, SD
DEKALB DKS29-28

2 156.76 bu/ac
NICHOLAS SCHOENTHAL
Moniteau County, MO
Pioneer 84G62

3 140.13 bu/ac
DODSON FAMILY FARMS
Nueces County, TX
Pioneer 83P27

IRRIGATED - NO TILL EAST

1 206.18 bu/ac
RIVER HOLLOW FARMS
Warren County, NJ
Pioneer 84G62

2 181.41 bu/ac
JOHN SCATES
White County, IL
Pioneer 84G62

3 138.93 bu/ac
FRANK G. HRUPSA
Kent County, DE
Pioneer 84G62

IRRIGATED - NO TILL WEST

1 160.25 bu/ac
NATHAN MILLER
Custer County, OK
DEKALB DKS33-07

2 156.11 bu/ac
GAUNT FARMS
Barton County, KS
Pioneer 84G62

3 148.09 bu/ac
LYNN BORN
Lipscomb County, TX
Pioneer 84P68

IRRIGATED - TILLAGE EAST

1 199.66 bu/ac
SANDUFF FARMS
Warren County, NJ
Pioneer 84G62

2 178.59 bu/ac
TOM KRULL
St. Joseph County, MI
Pioneer 87P06

3 173.63 bu/ac
JEFF SCATES
White County, IL
Pioneer 84G62

IRRIGATED - TILLAGE WEST

1 204.54 bu/ac
KIMBERLY GAMBLE
Kiowa County, KS
Pioneer 84G62

2 203.08 bu/ac
MICHAEL BALL
Canyon County, ID
Pioneer 85Y40

3 198.90 bu/ac
CHAD DANE
Clay County, NE
Pioneer 84P72

FOOD GRADE

1 107.76 bu/ac
MATTHEW J. BLOSS
Pawnee County, NE
Alta Seeds AG 1401

STATE WINNERS

STATE	COUNTY	NAME	YIELD	SEED VARIETY
DRYLAND-NO TILL EAST				
Delaware 1st	Kent	Vogl Brothers Prt.	145.32	Pioneer 84G62
Delaware 2nd	Kent	A. Downes Warren Jr.	122.06	Pioneer 84G62
Delaware 3rd	Kent	Frank G. Hrupsa	99.05	Pioneer 84G62

STATE	COUNTY	NAME	YIELD	SEED VARIETY
Florida 1st	Hamilton	Sam Jones & Mark Randell	91.64	Pioneer 84P80
Georgia 1st	Oglethorpe	Russ Moon	95.16	Dyna-Gro Seed M74GB17
Illinois 1st	Bond	Jim Stoecklin	147.29	Pioneer 85G03
Illinois 2nd	Gallatin	Mike Scates	142.60	Pioneer 84G62
Indiana 1st	Lake	Bob Little	167.26	Pioneer 85G03
Indiana 2nd	Gibson	Phil Scott	127.25	Pioneer 87P06
Iowa 1st	Mahaska	S & A Farms Inc.	148.03	Pioneer 84G62
Kentucky 1st	Webster	Pat Thompson	135.46	Pioneer 84P80
Kentucky 2nd	Webster	Joe Thompson	116.02	Pioneer 84P80
Maryland 1st	Montgomery	William F. Willard Farms LLC	135.69	Pioneer 84G62
Michigan 1st	Van Buren	Ryan Drozd	103.31	Pioneer 88P68
Missouri 1st	Mercer	Galt Porter	179.05	Pioneer 84G62
New Jersey 1st	Warren	Chris Santini	206.80	Pioneer 84G62
New Jersey 2nd	Warren	New Village Farms	184.13	Pioneer 84G62
New York 1st	Oneida	Bob Pawlowski	95.04	Channel 6B02
North Carolina 1st	Davidson	Billy H. Bowers Farm Trust	177.45	Pioneer 84P80
Pennsylvania 1st	Fulton	Ella Johnston	204.70	Pioneer 84G62
Pennsylvania 2nd	Fulton	Winter Johnston	183.93	Pioneer 84G62
Pennsylvania 3rd	Lancaster	Peter Hoffines	161.62	Pioneer 85Y40
Virginia 1st	Rockingham	Kevin K. Craun	159.95	Pioneer 86P90
Virginia 2nd	Hanover	John N. Mills III	94.83	Pioneer 83P17

DRYLAND-NO TILL WEST

Colorado 1st	Kit Carson	Livingston Farms LLC	137.21	Pioneer 87P06
Colorado 2nd	Phillips	Bamford Farms	128.49	Pioneer 87P06
Colorado 3rd	Kit Carson	Tim Stahlecker	108.54	DEKALB DKS 28-05
Kansas 1st	Kiowa	Ki Gamble	194.99	Pioneer 85P44
Kansas 2nd	Nemaha	Stephen Aberle	152.60	Pioneer 84P80
Kansas 3rd	Gove	Kirk Zerr	149.34	DEKALB DKS 45-23
Nebraska 1st	Johnson	Lyle Fisher	187.50	Pioneer 84P72
Nebraska 2nd	Harlan	Duane Vorderstrasse	184.66	Pioneer 84G62
Nebraska 3rd	Furnas	James Gustafson	160.32	Pioneer 85Y40
Oklahoma 1st	Beaver	Bob Dietrick	87.84	Pioneer 85Y34
South Dakota 1st	Charles Mix	Dylan Knoll	135.32	Pioneer 88Y47
Texas 1st	Ochiltree	Kevin Pshigoda	128.44	Pioneer 86P20
Texas 2nd	San Patricio	Rieder Farms	118.14	DEKALB DKS53-53
Texas 3rd	Ochiltree	Tregellas Family Farms	114.18	Pioneer 85Y34

DRYLAND-TILLAGE EAST

Delaware 1st	Kent	A. Downes Warren Jr.	116.47	Pioneer 84G62
Florida 1st	Hamilton	Jimmy Murphy, Rusty Mcleod, Mark Randell	83.87	Pioneer 84P80
Indiana 1st	Lake	Kathy Little	186.63	Pioneer 85G03
Indiana 2nd	Gibson	Will Scott	120.93	Pioneer 87P06
Iowa 1st	Wayne	Grey Porter	137.45	Pioneer 84G62
Michigan 1st	Allegan	Jake Drozd	155.92	Pioneer 86G32
Missouri 1st	Mercer	Gage Porter	209.06	Pioneer 84G62

STATE	COUNTY	NAME	YIELD	SEED VARIETY
Missouri 2nd	Cooper	Brumback Farms Inc.	161.66	Pioneer 84G62
Missouri 3rd	Livingston	David Hughes - Hughes Farms	130.93	Pioneer 84G62
New Jersey 1st	Warren	Santino Santini	212.57	Pioneer 84G62
New Jersey 2nd	Warren	Promise Land Farms	185.16	Pioneer 84G62
New York 1st	Oneida	Bob Pawlowski	94.30	Channel 6B60
North Carolina 1st	Perquimans	Laurence Chappell	153.89	Pioneer 84P80
North Carolina 2nd	Davidson	Billy H. Bowers Farm Trust	151.36	Pioneer 84P80
North Carolina 3rd	Perquimans	Wallace N. Ownley	145.20	Pioneer 83P17
Pennsylvania 1st	Fulton	Harry Johnston	201.32	Pioneer 84G62
Pennsylvania 2nd	Lancaster	Twin Lane Farm LLC	176.96	Pioneer 84G62
Virginia 1st	Rockingham	Kevin K. Craun	153.76	Pioneer 84P80
Virginia 2nd	Hanover	John N. Mills, Jr.	90.64	Pioneer 83P17

DRYLAND-TILLAGE WEST

Colorado 1st	Baca	Smith Bros.	102.38	Pioneer 85Y34
Kansas 1st	Comanche	Darrol Miller Farms Inc.	107.34	DEKALB DKS 37-07
Kansas 2nd	Morton	Smith Bros.	100.30	Pioneer 85Y34
Missouri 1st	Moniteau	Nicholas Schoenthal	156.76	Pioneer 84G62
Nebraska 1st	Pawnee	Matthew J. Bloss	115.91	Pioneer 84P72
Oklahoma 1st	Texas	Roger & Marilyn Fischer	95.14	Pioneer 85Y34
South Dakota 1st	Aurora	Ronald Glissendorf	172.04	DEKALB DKS29-28
South Dakota 2nd	Charles Mix	David Knoll	170.19	Pioneer 88Y41
South Dakota 3rd	Charles Mix	R C Farms	155.11	DEKALB DKS 28-05
Texas 1st	Nueces	Dodson Family Farms	140.13	Pioneer 83P27
Texas 2nd	Tom Green	Bernie Fuchs	139.96	Pioneer 84P68
Texas 3rd	Nueces	Legacy Farms	134.45	Pioneer 83P73

IRRIGATED-NO TILL EAST

Delaware 1st	Kent	Frank G. Hrupsa	138.93	Pioneer 84G62
Florida 1st	Suwannee	Jack Flowers & Rusty Mcleod	110.15	Pioneer 84P80
Illinois 1st	White	John Scates	181.41	Pioneer 84G62
New Jersey 1st	Warren	River Hollow Farms	206.18	Pioneer 84G62
New Jersey 2nd	Warren	Jeffrey Barlieb	198.67	Pioneer 84G62
Pennsylvania 1st	Lancaster	Mast Farms	122.41	Pioneer 84G62

IRRIGATED-NO TILL WEST

Kansas 1st	Barton	Gaunt Farms	156.11	Pioneer 84G62
Kansas 2nd	Republic	Darin Saunders	129.32	Pioneer 84P68
Oklahoma 1st	Custer	Nathan Miller	160.25	DEKALB DKS33-07
Oklahoma 2nd	Cimarron	Brandon Rattray	134.49	Pioneer 86P20
Texas 1st	Lipscomb	Lynn Born	148.09	Pioneer 84P68
Texas 2nd	San Patricio	Rieder Farms	128.42	DEKALB DKS53-53
Texas 3rd	Sherman	David Meyer	112.22	Pioneer 85Y34

IRRIGATED-TILLAGE EAST

Florida 1st	Suwannee	Jack Flowers & Rusty Mcleod	114.08	Pioneer 84P80
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STATE	COUNTY	NAME	YIELD	SEED VARIETY
Illinois 1st	White	Jeff Scates	173.63	Pioneer 84G62
Iowa 1st	Van Buren	Indian Kreek Farms	83.93	Pioneer 84G62
Michigan 1st	St. Joseph	Tom Krull	178.59	Pioneer 87P06
Missouri 1st	Livingston	David Hughes - Hughes Farms	145.66	Pioneer 85G03
Missouri 2nd	Livingston	Matthew Hughes - Hughes Farms	140.11	Pioneer 85G03
New Jersey 1st	Warren	Sanduff Farms	199.66	Pioneer 84G62
New Jersey 2nd	Warren	Carly Barlieb	189.66	Pioneer 84G62
Pennsylvania 1st	Lancaster	Ernest Mast	127.79	Pioneer 84G62

IRRIGATED-TILLAGE WEST

Idaho 1st	Canyon	Michael Ball	203.08	Pioneer 85Y40
Idaho 2nd	Canyon	Ball Family Farms	178.25	Pioneer 87P06
Kansas 1st	Kiowa	Kimberly Gamble	204.54	Pioneer 84G62
Nebraska 1st	Clay	Chad Dane	198.90	Pioneer 84P72
Nebraska 2nd	Buffalo	Max Schubauer	185.51	Pioneer 84P80
Nebraska 3rd	Harlan	Scott Jewett	168.43	Pioneer 83P27
Oklahoma 1st	Cimarron	Brandon Rattray	121.67	Pioneer 86P20
Texas 1st	Ochiltree	Kevin Pshigoda	194.52	Pioneer 84G62
Texas 2nd	Tom Green	Matthew W. Wilde	155.73	Pioneer 84G62
Texas 3rd	Medina	Stinson & Stinson Inc.	145.45	Pioneer 84P80



LET'S MAKE WAVES

Tune into the Sorghum Smart Talk podcast on iTunes, Google Play, Spotify or sorghumsmarstalk.libsyn.com

February 28, 2020

PAC CASINO NIGHT

San Antonio, Texas • Marriott Rivercenter
Salon I - Third Floor • 8:00 p.m.

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NEWSLETTER

sorghumcheckoff.com | Winter 2020

Herbicide Trait Technologies On the Horizon

For years sorghum growers have expressed a need for an effective postemergence grass control option. Soon, farmers will be able to choose between three herbicide tolerant traits in grain sorghum that directly address this need. These traits have been integrated into elite sorghum germplasm through standard crop breeding techniques, and three up-and-coming technologies are expected to be commercially available for either the 2021 or 2022 growing seasons.

The three technologies are being developed by different seed companies, each using a different herbicide trait. Hybrids with ACCase, sulfonyleurea or imidazolinone tolerance are now in the pipeline to aid in sorghum weed control.

Fortunately, the industry has learned from other crops on how to best use and pro-

long the life of herbicide tolerant trait technologies. The Sorghum Checkoff will work with seed and crop protection companies to ensure sufficient information and guidelines are provided on how to avoid the occurrence of weed resistance when these technologies enter the market. Although the specific set of guidelines and educational materials provided may vary slightly with each technology, many similarities will exist for best management practices.

The goal is to use these technologies responsibly to ensure their effectiveness and viability for many years. Having three herbicide technologies available for use should help minimize resistance to any one particular technology and is a very positive step for U.S. sorghum producers.

Sorghum Farmers Graduate from Leadership Sorghum Class IV

On Dec. 11, in conjunction with the Sorghum Checkoff annual winter board meeting Leadership Sorghum Class IV graduated from the 15-month program. The 14-member class participated in five different sessions, each showcasing

different aspects of the multifaceted sorghum industry.

The Sorghum Checkoff recognized each member with a certificate of completion and photobook presented by Sorghum Checkoff Chairwoman Verity Ulibarri to commemo-

WHAT'S INSIDE

1

Herbicide Trait Technologies On the Horizon

2

Sorghum Farmers Graduate from Leadership Sorghum Class IV

3

U.S. Sorghum Meets International Demand In Europe, Africa and Asia Through Global Expeditions

4

Sorghum Industry Events



rate their time in the Leadership Sorghum program. The 14 graduates are Auden Aranda of Keyes, Oklahoma; John Bergkamp of Garden Plains, Kansas; Jon Berning of Scott City, Kansas; Dustin Borden of Gruver, Texas; Michael Brooks from Walsh, Colorado; Matthew Davis from Manhattan, Kansas; Jaden DeVore of

Cheney, Kansas; Jace Gibbs of Dighton, Kansas; David Junker of McCook, Nebraska; Larry Kendig of Osborne, Kansas; Kevin Pshigoda of Perryton, Texas; Cole Rohr of Quinter, Kansas; Tony Watson of Healy, Kansas; and Matthew Winter of Canyon, Texas.

"We would like to congratulate each graduate of

Leadership Sorghum Class IV," Sorghum Checkoff Executive Director Floretino Lopez said. "It is our sincere hope that each graduate leaves this program equipped with the skills and knowledge to make a meaningful difference in agriculture, the sorghum industry, on their operations and in their communities."



Back row, from left to right: Kevin Pshigoda, Perryton, TX; Matthew Winters, Canyon, TX; Tony Watson, Healy, KS; Michael Brooks, Walsh, CO; David Junker, McCook, NE; Jon Berning, Scott City, KS; Matthew Davis, Manhattan, KS
Front row, from left to right: Jace Gibbs, Dighton, KS; Jaden DeVore, Cheney, KS; Cole Rohr, Quinter, KS; Larry Kendig, Osborne, KS; John Bergkamp, Garden Plain, KS; Dustin Borden, Gruver, TX; Auden Aranda, Keyes, OK

U.S. Sorghum Meets International Demand In Europe, Africa and Asia Through Global Expeditions

Spain, Portugal Expedition

Sorghum Checkoff Secretary Jim Massey participated in a six-member, week-long mission to Spain and Portugal to promote U.S. sorghum and DDGS to international markets in conjunction with the U.S. Grains Council.

The delegation consisting of a variety of industry representa-

tives and USGC staff visited various Spanish and Portuguese industry sectors to both promote U.S. sorghum and discover the demand from different markets. A culmination of market availability and biosecurity make U.S. sorghum an attractive alternative to other feedstocks and biofuels, like corn.

"We wanted to have someone on the trip to represent sorghum, talk about U.S. farmers and the difference between sourcing sorghum through the U.S. versus other countries," Massey said. "Because U.S. sorghum is non-GMO, versatile and sustainable, it

fits into several international marketplaces.”

The team’s primary focus was interacting with the Spanish and Portuguese feed industries. In Spain, they attended various meetings and

conferences to discuss potential exports into the Spanish market. In Portugal, the team attended the 50th annual gala dinner for the Portuguese animal feed association to network and promote U.S.

grain among the event’s 200 guests. Overall, the expedition proved that European buyers are interested in U.S. sorghum eager to take advantage of market opportunities.



Sorghum Checkoff Secretary Jim Massey poses among his peers, consisting of U.S. sorghum industry representatives and U.S. Grains Council staff members, during their Spanish and Portuguese mission to explore the sorghum and DDGS industry in the Iberian Peninsula.

Japan Expedition

Sorghum Checkoff Board Director Shayne Suppes will be traveling to Japan Jan. 18 through Jan. 24, 2020, promoting U.S. sorghum to the emerging Japanese market. Suppes’s main goal for the trip is to reconnect with Asian

buyers he met during Export Sorghum, an exclusive, one-day educational seminar for grain buyers from around the world, while promoting American grain with particular focus on food-grade varieties.

“I think the Japanese market

may be the hidden gem U.S. sorghum farmers have been looking for,” Suppes said. “The potential for market expansion in Japan is great because they’re interested in both specialty and bulk sorghum varieties.”

East Africa Expedition

Sorghum Checkoff Board Director Adam Schindler from Reliance, South Dakota, recently

traveled to eastern Africa on a food aid mission with the U.S. Grains Council. The Council is

leveraging its market development work in Tanzania to create new opportunities for U.S.

sorghum exports. The primary purpose of the trip was to identify the needs of east Africans in terms of food aid and to understand how U.S. sorghum could penetrate the market combating food insecurity.

“The market opportunities available in eastern Africa, Kenya especially, are virtually untapped,” Schindler said. “U.S. sorghum has the ability to feed about 190,000 refugees in Kenya, and we see opportunity to invest in that market.”

The mission demonstrates both the USCP and USGC’s desire to provide U.S. sorghum to food insecure or vulnerable

countries. Schindler said he is grateful to be a sorghum farmer helping combat malnutrition through his crop. Through programs facilitated by organizations combating food insecurity, like U.S. International Development Agency and UN World Food Programme, U.S. sorghum farmers have the ability to produce grain to help feed thousands of East African citizens and Kenyan refugees.

“We are producing high quality grain to feed not only our nation but the world,” Schindler said.



Sorghum Checkoff Board Member Adam Schindler stands next to bag of U.S. sorghum on East African expedition.

“ “
We are producing high quality grain to feed not only our nation but the world.

— ADAM SCHINDLER —

Industry-wide Collaboration

These expeditions were made possible by funding from the United States Department of Agriculture Agricultural Trade Promotion Program.

The ATP program aims to help U.S. agricultural exports develop new markets and mitigate the effects of tariffs. The U.S. Grains Council was allocated

\$20.8 million dollars this year by the program and is collaborating with USCP to encourage market growth and exploration for U.S. sorghum.

SORGHUM INDUSTRY EVENTS

Jan. 28-30 International Production & Processing Expo
Atlanta, GA

Feb. 26-29 Commodity Classic
San Antonio, TX

March 23-25 Sorghum Improvement Conference of North America
Grapevine, TX

For more events, visit sorghumcheckoff.com/calendar

USCP MISSION

The Sorghum Checkoff commits to reveal the potential and versatility of sorghum through increased shared value.



CONTACT US

Jennifer Blackburn
 External Affairs Director
 (806) 687-8727
jennifer@sorghumcheckoff.com



@SorghumCheckoff

COMPLEX FACTORS INFLUENCE SHIFT TO SORGHUM SILAGE

By Hannah Lipps

Growers, dairies and feed yards across the Texas Panhandle and beyond are in the midst of a dramatic shift from corn silage for feeding rations to sorghum silage. This shift is driven by an overall economic picture that includes nutrition, genetics and equipment, but mostly increasing pressure on agricultural water supplies.

Jerry O'Rear, President of MOJO Seeds is a long-time sorghum breeder and resident of the Texas Panhandle. While the picture is complex, he sees water as the driving force behind the shift to sorghum silages.

"None of these wells are pumping more than they used to," he said.

"And a lot of these dairies are doubling in size and using more feed. They know they can't keep pushing toward corn in a water deficit area."

Meanwhile, farmers are pushing back against end users who are accustomed to using corn silage because they do not have the water to support the crop year after year.

Chris Urbanczyk, a farmer in Deaf Smith County in the Texas Panhandle has been gradually shifting to sorghum silages for the past decade for use in his own feed yard as well as contracting to local dairies.

"As our water supply is going south, we have to come up with more alternatives that are efficient on water," said Urbanczyk.

The switch to sorghum silage has been significant both for dairies and the farmers who sell to them, but each situation has its nuances.

"One of our dairies plants all his corners in premium Sudan grasses," said Larry Richardson, president of Richardson Seeds. "Depending on the rain, they may get two or three cuttings and early or late rain can make multiple crops."

"The question is, what can I grow with the water I have?" said O'Rear. "A lot of people grow a half circle of corn then sorghum silage on the other half, or some

guys will put four circles on a section—one on corn and the other three on sorghum silage."

They can shift the water, then, to meet the most pressing need.

Besides water, a number of other factors have also influenced the switch over the past decade.

Nutritionists have been one key—especially when they recognize the pressures on water supplies. They are more willing to explore adding sorghum to their rations.

O'Rear of MOJO Seeds is well positioned to under-

stand what he calls the "phobia of starch utilization" among some dairy and feed yard nutritionists.

"Years ago," he said, "sorghum silage was not digestible because it had too much lignin, and dairies also didn't like sorghum because they couldn't utilize the grain. That high tannin, small seed doesn't break down, and the mills couldn't process it, so the grain was coming out in the manure."

Today, his company, along with other industry innovators, has developed products that come very close to the starch content of corn, between 25 and 35 percent. The grain in his product runs about 14 percent protein, 35-40 percent higher than other grain sorghum. Once in the silage pile, MOJO products clock in at 9 or 10 percent crude protein.

Meanwhile, MOJO hybrids boast a larger berry size and consumer demand has driven equipment advances like new choppers that do a better job of breaking down the grain so the animal can utilize the entire plant.

"The equipment companies developed this new equipment with some push from the dairies," said Richardson. "The dairies and producers said, 'We are running out of water. We need to grow sorghum, and we've got to have better equipment.'"

The result is a fully utilizable silage product that nutritionists are pleased to feed, and farmers are happy to grow.

"We can process 85-90 percent of the grain, and

whatever you can't process is soft after a month in the silage pit," said O'Rear.

O'Rear said it is critical to get nutritionists on board with solid science.

"You have to work it from the back-end forward. You have to have a product that when dairies switch, you don't cost them any milk," O'Rear said. "Giving them something they can plant on all their acres and not just the water acres, that's an easy sell. But if you're costing milk, you're fighting a battle you won't win."

He's confident they have new products that hit that mark. While the most dramatic shifts have been seen in the Texas Panhandle, Richardson says his sales profile suggests the opportunity is broader.

States with strict water regulations, like Nebraska for example, are shifting to sorghum silage in order to meet water benchmarks and maintain quality rations.

"The number of bags [of seed] we send to California has been steadily growing for several years," Richardson said. "South Dakota is another state that's figuring out how to utilize it."

"The varieties out there are getting better," said Urbanczyk. "They're aphid resistant, have bigger berries, they process better and that makes the silage better."

"Everyone has so many tons they need to feed and it's just a question of how to get those tons," concluded O'Rear. "We have very smart consumers, growers and stewards of the land."¶

“The question is, what can I grow with the water I have?”

Sorghum Recipe

TUSCAN SORGHUM & SAUSAGE SOUP

WHAT YOU'LL NEED:

2 tablespoons olive oil
1 cup onion, (large) chopped
3/4 cups carrots, diced
1/2 cup celery, chopped
1 zucchini, chopped
1 bunch Swiss Chard
3 garlic cloves, minced
12 ounces Italian chicken sausage, remove casing
2 quarts low sodium chicken broth
1 (28 ounce can) diced, no salt added tomatoes
1/2 cup whole grain sorghum
1/2 teaspoon dried oregano
1/2 teaspoon dried basil
1/4-1/2 teaspoon red pepper flakes
1 bay leaf
15 ounces cannellini beans (drained)
Freshly grated parmesan cheese

DIRECTIONS:

- 1 Turn the Instant Pot® onto the sauté setting. Once the pot is hot, add the olive oil, onion, carrots and celery. Sauté, stirring regularly for about 4-5 minutes. Add the zucchini, chard stems and garlic and saute until golden brown. Then add the sausage and cook until lightly browned. Then hit "Cancel" on the Instant Pot®.
- 2 Add the chicken broth, tomatoes, whole grain sorghum, thyme, oregano, basil, red pepper flakes, bay leaf and cannellini beans and stir to combine. Place the lid on the Instant Pot®. Make sure the steam release is set to the sealing position. Press the manual setting and use the "Adjust" button. Use the +/- to set the Instant Pot® to 25 minutes.
- 3 After you hear the timer go off, wait 10 minutes until pressure releases naturally. Then switch valve to the venting position before unlocking the lid to release any additional pressure. When removing the lid, lift it so it is a shield in front of you as the steam releases. Turn the Instant Pot® off. Remove the bay leaf and throw it away. Stir in Swiss Chard. It will wilt quickly. Stir well.
- 4 Serve immediately and garnish with Parmesan cheese if desired.

More at
SimplySorghum.com

SORGHUM Grower Winter 2020



Sorghum Update

Brought to you by the Kansas Grain Sorghum Commission

Working Together for Tomorrow's Energy Needs & Today's Sustainability Goals

There are partnerships in Kansas delivering new energy and sustainability projects that share a common theme: how sorghum can be a 21st Century solution to meet numerous demands. These collaborations include breaking down barriers to sorghum in ethanol, leveraging campus creativity for local sorghum products, and fostering farmer leadership to quantify soil health and water quality, reaping the rewards. Combined, these partnerships demonstrate for sorghum growers a strategic vision of working together to achieve what cannot be done individually.

With \$1.3 billion in estimated production value, increasing sorghum in ethanol will grow its worth further. As grain processors on the Great Plains, ethanol plants must utilize diverse feedstock because growing seasons determine sorghum and corn availability; but, diversifying commodities requires a processor to account for mixed grains within a complex process. The solution? A recent partnership between USDA, the Center for Sorghum Improvement and Western Plains Energy in Oakley, Kansas, adopted high-tech infrared technology to peer inside the active fermentation process.

"This new tool allows us to refine our efficiencies and pursue potential value-added revenue streams," said Derek Peine, general manager of Western Plains Energy, noting the difficulty of blending feedstocks in the production process. "We are thankful for the Center for Sorghum Improvement for bringing together key stakeholders, including government officials and research technical experts, to develop a solution that provides real-time analysis of the feedstock ratio." Advancing the sorghum industry with our energy partners is critical. So is sustaining the next generation of food innovators.

Young people today desire a narrative around their food: who grew it, how and where? This past autumn, The Kansas Department of Agriculture (KDA) received a grant of \$414,000 for FarmUs, a farm-to-campus collaborative to access consumer markets at KSU and KU. FarmUs will develop the creation of direct consumer markets for locally-grown Kansas sorghum and wheat for products in college food services

supported by an undergraduate FarmUs Innovate class with a product development challenge as its cornerstone.

"KDA is pleased to partner with the FarmUs project and the Kansas sorghum industry," said Kerry Wefald, Agriculture Marketing Director for KDA and FarmUs Project Director. "These innovating sorghum products will serve as a link between our Kansas farmers and end retailers – telling the agriculture story via engagement on campus at KSU and KU."

Sharing your story as a sustainable sorghum grower to new innovators and consumers is already in motion at our two largest universities thanks to partners at KDA and academia. New tools to increase sustainability and reap the rewards are just around the corner.

Across the nation, fuel market incentives for producers exist from climate models rewarding soil health and water quality improvements. At the nexus of energy and sustainability, Kansas Grain Sorghum has partnered with National Sorghum Producers to help deliver the KansCAT database initiative. KansCAT hones in on three objectives: collecting conservation data, increasing farmer conservation literacy and capturing low-carbon incentives for added value in ethanol markets. Farmers today have limited technical ability to effectively measure their sustainability practices, providing disincentives for additional conservation practices and resulting in missed opportunities for higher value consumer markets.

With modern farm data, sorghum growers can benchmark and provide documentation on practices to press their advantage in key markets. Partnership between NSP, Kansas Grain Sorghum, farmers and other stakeholders will help align the right incentives to improve today's sustainability, yield tomorrow's energy, and access higher value.

Across the industry, on campus, and in our fields, sorghum represents a 21st Century solution to modern challenges. Working together in these areas and more, we can achieve for our industry what cannot be done individually.

Kansas Grain Sorghum, PO Box 618 Colwich, KS 67030
785-477-9474, www.ksgrainsorghum.org

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Sorghum Shortcuts

Biennial SICNA to be Held March 2020

The Sorghum Improvement Conference of North America will be held March 23-25 in Grapevine, Texas, at the Courtyard Dallas DFW North. The theme of this year's conference is "Innovation and Opportunities," and interested attendees should register at SICNA.net.

SICNA is a biennial conference designed to bring together the leading scientists throughout the sorghum industry. The conference draws a variety of attendees from all facets of U.S. sorghum. Industry representatives, crop protection specialists, collegiate institutions and USDA-ARS are examples of the types of guests the event attracts, encouraging the congregation to share research findings, express ideas and develop potential collaboration with peers. The conference strives to provide scientists and researchers an opportunity for industry interaction to help drive innovation and discovery in response to the industry's greatest challenges.

Presentations at this year's event will include new innovations in breeding, biotechnology, agronomy, technology transfer, entomology, pathology and utilization.



Other topics to be discussed at the event include more specific areas of the sorghum industry ranging from high protein waxy sorghum to stewardship programs for herbicide tolerant hybrids. To view the full agenda, visit the conference's website.

To help foster the next generation of sorghum researchers and encourage growth among existing scientists, SICNA also hosts a contest designed to allow graduate students to showcase their own findings and research. For guidelines and entry criteria, please review the "Abstract Submission" section on the SICNA website.

Commodity Classic Approaching

The 2020 annual Commodity Classic is open for event registration and housing reservations. Rooms in this year's venue city of San Antonio, Texas, are expected to book quickly, so those interested in attending should register as soon as possible! The 26th annual farmer-focused, farmer-led convention and trade show is scheduled for February 27-29, 2020. Register and book rooms at CommodityClassic.com.



National Sorghum Producers will be hosting its renowned Casino Night while in San Antonio. Throughout the night there will be a variety of raffles, auctions and casino games for guests to enjoy with the purpose of raising money to further promote the legislative interests of sorghum producers.

The annual Sorghum PAC fundraiser is a must-attend event at Commodity Classic that raised more than \$95,000 through ticket sales, sponsorships, and auction items last year. Auction items will become available for bidding in early February through our online auction. If you wish to support NSP political endeavors through this event in 2020, please contact Jamaca Battin at jamaca@sorghumgrowers.com.

NSP will also award our 2019 yield contest winners and address issues important to sorghum producers at the trade show and convention. Watch for specific event details at SorghumGrowers.com/Commodity-Classic.



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TOUGH.

Growing sorghum is tough – but you're tougher. Congratulations to the 2019 National Sorghum Producers Yield Contest winners – and to all sorghum farmers. Pioneer is proud to work alongside you in the most complex and rewarding industry on earth.

TOUGHER.

2019 NSP YIELD CONTEST RESULTS

RANK	NAME	LOCATION	PIONEER® BRAND HYBRID	YIELD (BU/A)
DRYLAND-NO TILL EAST				
1	CHRIS SANTINI	WARREN COUNTY, NJ	84G62	206.80
2	ELLA JOHNSTON	FULTON COUNTY, PA	84G62	204.70
3	GALT PORTER	MERCER COUNTY, MO	84G62	179.05
DRYLAND-NO TILL WEST				
1	KI GAMBLE	KIOWA COUNTY, KS	85P44	194.99
2	LYLE FISHER	JOHNSON COUNTY, NE	84P72	187.50
3	LIVINGSTON FARMS LLC	KIT CARSON COUNTY, CO	87P06	137.21
DRYLAND-TILLAGE EAST				
1	SANTINO SANTINI	WARREN COUNTY, NJ	84G62	212.57
2	GAGE PORTER	MERCER COUNTY, MO	84G62	209.06
3	HARRY JOHNSTON	FULTON COUNTY, PA	84G62	201.32
DRYLAND-TILLAGE WEST				
2	NICHOLAS SCHOENTHAL	MONITEAU COUNTY, MO	84G62	156.76
3	DODSON FAMILY FARMS	NUECES COUNTY, TX	83P27	140.13
IRRIGATED-NO TILL EAST				
1	RIVER HOLLOW FARMS	WARREN COUNTY, NJ	84G62	206.18
2	JOHN SCATES	WHITE COUNTY, IL	84G62	181.41
3	FRANK G. HRUPSA	KENT COUNTY, DE	84G62	138.93
IRRIGATED-NO TILL WEST				
2	GAUNT FARMS	BARTON COUNTY, KS	84G62	156.11
3	LYNN BORN	LIPSCOMB COUNTY, TX	84P68	148.09
IRRIGATED-TILLAGE EAST				
1	SANDUFF FARMS	WARREN COUNTY, NJ	84G62	199.66
2	TOM KRULL	ST. JOSEPH COUNTY, MI	87P06	178.59
3	JEFF SCATES	WHITE COUNTY, IL	84G62	173.63
IRRIGATED-TILLAGE WEST				
1	KIMBERLY GAMBLE	KIOWA COUNTY, KS	84G62	204.54
2	MICHAEL BALL	CANYON COUNTY, ID	85Y40	203.08
3	CHAD DANE	CLAY COUNTY, NE	84P72	198.90



Ask your Pioneer sales representative about the industry's strongest lineup of sorghum. pioneer.com/NSP

