

Research

Sprouted Grain Has Uses in Ethanol & Feed

Like all crops, too much rain at harvest can really play havoc on sorghum. After a hurricane and tropical depression have recently dropped more than 12 inches of rain in parts of South Texas, some producers are wondering what to do with sprouted sorghum. The goal of recent research conducted by USDA/ARS and Kansas State University labs in Manhattan, Kan., and funded by the Sorghum Checkoff was to see if there is a silver lining in all of these dark clouds at harvest. The study found that sprouted sorghum may actually be beneficial to the ethanol industry.

Sorghum has been malted and used for production of traditional alcoholic and nonalcoholic beverages for thousands of years. Malting conditions must be controlled to achieve uniform, high quality sorghum malts and to ensure the quality required for food products. Ethanol, on the other hand, does not have the same strict requirements. The most important issues in industrial ethanol production are yield, efficiency of conversion and energy consumption. Laboratory results from this study using sprouted sorghum for industrial ethanol production might benefit the producer and end user by expanding market uses for sprouted sorghum, which historically has been a damaged commodity.

Field sprouting changes the chemical composition and other properties of grain sorghum, which could shorten the fermentation time without decreasing ethanol yield. Using weathered or sprouted sorghum from regions affected by unusually high moisture events during grain fill and harvest may provide an opportunity for ethanol producers to maintain ethanol production efficiency, while shortening processing time. This could offer sorghum producers an opportunity to receive a fair market value for sorghum when such environmental events occur.

"Research has proven that sprouted sorghum is not only beneficial in ethanol, but is also an effective feed source for livestock," said Sorghum Checkoff Research Director, Jeff Dahlberg. "So, it is still a valuable commodity even after surviving extremely wet weather."

Regional Production Guides Available for Order

The Sorghum Checkoff is glad to announce the Regional Production Guide project completion. These pocket-size booklets are filled with information on how to grow sorghum. From planting tips to information on nitrogen and water use, these guides are a resource for better sorghum.



These regions are split up into the High Plains, Mid-South, Eastern Plains, Western Plains and Southern Plains and Rolling Hills. To view a map of the production guide regions visit www.sorghumcheckoff.com.

To request your copy of the Regional Production Guide for your area contact the Sorghum Checkoff program at info@sorghumcheckoff.com or call us at (877) 643-8727.

SORGHUM CHECKOFF MISSION:

Investing your Sorghum Checkoff dollars to increase profitability for the sorghum industry.

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Sorghum Breaks into Food Industry

When you think of sorghum, you may not picture a decadent chocolate cake or a satisfying loaf of bread. However, these are things sorghum is very good at producing with many health benefits. The Sorghum Checkoff is working to prove that sorghum can be competitive in the food market.

The Sorghum Checkoff hosted a conference to help educate the food industry about opportunities with sorghum. They invited representatives from several different food companies to join in a two-day conference to learn about the health benefits and potential of sorghum as a food.

"When we started the Sorghum Checkoff we knew we had to fund research to increase yields and profitability for sorghum producers," said Bill Greving, chairman of the Sorghum Checkoff and sorghum producer from Prairie View, Kan. "We also knew we needed to market the crop if we produce it. We hope that some of sorghum's characteristics will provide an avenue for it in the food market."

More than 60 people from the food and sorghum industry, attended the workshop and heard presentations on the use of sorghum in the gluten-free market, its low glycemic index, and several other research projects that are currently underway to bring more information about sorghum to the food market. Researchers also discussed sorghum's high antioxidant levels, gluten-free properties, and its potential in cancer prevention.

Those attending the seminar sampled foods made from sorghum by ADM, the American Institute of Baking and university researchers. Some of the treats included gluten-free breads, cookies, cakes, brownies and sandwich rounds, all made with sorghum. Participants also toured AIB and observed the making of gluten-free chocolate chip cookies.



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-DON SULLINS, ADM MILLING CO.**

"This conference was one of the first opportunities to bring food companies, researchers and sorghum industry people together to discuss the utilization of sorghum in food systems," said Don Sullins of ADM Milling Company. "There was a lot of excitement and interest in the potential use of sorghum in the food industry."

Lloyd Rooney, a researcher from Texas A&M University, noted in his presentation that while most sorghums do not contain tannins, there are certain sorghums containing tannins that produce healthy foods. Sorghum is high in antioxidants and dietary fiber, and has a low glycemic index. Rooney said that because sorghum can be ground into gluten-free flour, it is attractive to those with celiac disease.

Speakers discussed sorghum's value in the health food market and its benefits to human health. Nancy Turner, associate professor at Texas A&M University, said her research found some sorghums are able to suppress early lesions that form in colon cancer with dietary compounds found in sorghum brans. She said if these sorghum brans and the bioactive compounds could be incorporated into a variety of foods, then it could have real health benefits to the population.

Other speakers included researchers Scott Bean and Jeff Wilson, both from the USDA-ARS in Manhattan, Kan., who discussed the digestibility of sorghum starch and proteins. Mark Haub, Fadi Aramouni and Yong-cheng Shi, all Kansas State University researchers, discussed sorghum glycemic index testing, and milling and flour quality. Brook Carson of ADM Milling Company, presented a few gluten-free applications. Tim Carr of the University of Nebraska at Lincoln, examined the health benefits from lipids in sorghum, which have potential for lowering "bad cholesterol levels."

INDUSTRY EVENTS CALENDAR

August 9-10	Sorghum Checkoff Board of Directors Meeting Omaha, Neb.
August 24	Seminole Ag Day Seminole, Texas
August 26	Southwest Field Day Garden City, Kan.
September 1-2	University of Missouri/Delta Research Center Field Day Portageville, Mo.
September 14-16	Husker Harvest Days Grand Island, Neb.

Sorghum Offers Sweet Incentives for Ethanol

Grain sorghum has become a popular option in the feed industry, it's breaking into the food industry, and is successful in the biofuels industry. While grain sorghum is an excellent feedstock for ethanol, its cousin sweet sorghum is becoming an exciting biofuel feed stock.

Grain sorghum has become a popular alternative to corn in the ethanol industry. Grown in areas where water is scarce, grain sorghum offers the same ethanol yield per bushel as corn, and requires fewer inputs. Some ethanol plants are even switching to 100 percent sorghum in areas where sorghum is steadily available.

For example, the Levelland-Hockley County Ethanol plant uses 100 percent sorghum from around the South Plains and Texas Panhandle and offers incentives for delivering sorghum in August and September. These options give sorghum farms the opportunity to capitalize on having their sorghum harvested early.

One advantage that grain sorghum presents as an ethanol feedstock is its by-product known as dried distillers grains (DDGs), which have been found to make a high protein feed for livestock. The Sorghum Checkoff is currently funding research to identify the value that sorghum and sorghum DDGs have to livestock and dairy producers. These feeding trials will also determine the positive impact of DDGs on swine carcass quality and on milk production.

But exactly what is sweet sorghum, you ask? Sweet sorghum is a tall, leafy plant that looks similar to sugar cane or forage sorghum. It is versatile enough to be grown from South Texas and Florida all the way up to Wisconsin and New York. Yields vary depending on location and climatic conditions.

Now, it would be appropriate to say there's a new kid in the biofuels arena, but sweet sorghum itself isn't all that "new". For several centuries, sweet sorghum has been produced in small quantities and processed on-farm to make sorghum syrup for human consumption. This process is quite labor intensive as there are no

commercial harvesters available for sweet sorghum. However, Case IH and John Deere both have harvesting equipment under development that reports say are testing very well. This equipment will continue to advance commercial scale production of sweet sorghum.

The Sorghum Checkoff is teaming up with BioDimensions Inc., to fund research on sweet sorghum for biofuels. BioDimensions is currently installing a pilot plant in western Tennessee that should be running by fall 2010. They intend to harvest, crush and process sweet sorghum, running five days a week from September through December. They will use sugar crushed from the stalk to make ethanol while the by-product, called "bagasse", will be evaluated for fuel pellets and animal feed.

For most ethanol plants, there are incentives for using grain sorghum to make ethanol. The Bioenergy Program for Advanced Biofuels of the 2008 Farm Bill (section 9005) has boosted markets by encouraging ethanol plants to use sorghum. The Biomass Crop Assistance Program (BCAP) assists

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with the establishment, collection, harvest, transportation and storage of biomass crops for bioenergy production. This means that companies who use sorghum to make ethanol can actually be compensated just for using sorghum. Sorghum's lower input costs and incentives from BCAP would allow

farmers and ethanol producers to potentially capitalize by choosing sorghum.

Through research, market development and information the Sorghum Checkoff works to increase the demand for sorghum in the biofuels industry. Whether you're talking about grain sorghum or sweet sorghum, there are many opportunities for this versatile crop in bioenergy.



From the Field

South Dakota Field Day

Dusti Fritz participated in the South Dakota State University Field Day in Highmore, S.D., on June 23. The demonstration focused on weed and grass management, with the new over-the-top herbicide resistant traits for sorghum from DuPont as a main feature. It was evident that the different treatments were already effective and were providing control of the intense grass pressure that this region faces. The recent rains greatly enhanced the weed and grass pressure in these plots and they were described to producers as a worst case scenario.

For more information about field days in your area contact info@sorghumcheckoff.com.



Sorghum producers at the South Dakota field day listen to an explanation of DuPont's new over-the-top herbicide technology in sorghum.

Buyer Mission from Mexico

Kristin Heinemann-Utterback, with the Texas Sorghum Producers Association, accompanied a group of Mexican sorghum buyers on a tour of elevators in South Texas and Kansas on June 20 – 26. The purpose of this mission was to show the group the value of importing U.S. sorghum for the Mexican pork and poultry industries.

"This is the first time for many of the country elevators to know directly who their end users are in Mexico," said Troy Skarke, Sorghum Checkoff Market Development committee chair and sorghum producer from Claude, Texas. "Elevator operators had the opportunity to discuss potential issues and learn how to better serve their end users. By strengthening these relationships, we hope to see continued business with Mexico."



The foreign buyer group from Mexico tours Atteberry Grain in Saginaw, Texas. This was the first time for a buyer group to tour this facility.

Dairy Producers of New Mexico Annual Meeting

Sue Ann Claudon represented the Sorghum Checkoff at the Dairy Producers of New Mexico annual meeting on June 11, where she discussed the value of sorghum in the dairy industry. Sue Ann reported that many dairy producers were interested in sorghum and its value to their operations.

"The scarcity of water in New Mexico is raising concern with dairy producers, who are now seeking a lower input feed for their livestock," Sue Ann said. "Sorghum's water sipping traits and economical growing conditions make it an attractive option."

The Sorghum Checkoff has introduced new Dairy Feeding Guides that will help dairy farmers utilize sorghum to the fullest extent in their rations.