



“Spotlight on Sorghum:
New Markets – Expanded Uses – New Developments”

January 21, 2016



On @GMA @RobinRoberts and @RachelBellerRD talk about #sorghum during Re-Boot Camp: 2016 food trends! Check it out abcnews.go.com/GMA/video/ro...

**What a difference
a year makes**



Our new normal. I get more excited.



**SORGHUM: THE
SMART
CHOICE®**

Observations

- we are fighting above our weight class
- we have to make our crop more valuable
- consumer demand is king
- sorghum is making noise. This is making some uncomfortable.
- Leadership Sorghum
- strategy

- ✓ \$330,000 invested on sugarcane aphid
- ✓ record research investment overall
- ✓ China pace
 - ✓ Started in 2012 (3k MT)
 - ✓ 8.3 million MT in 14/15
- ✓ ethanol





Who We Are

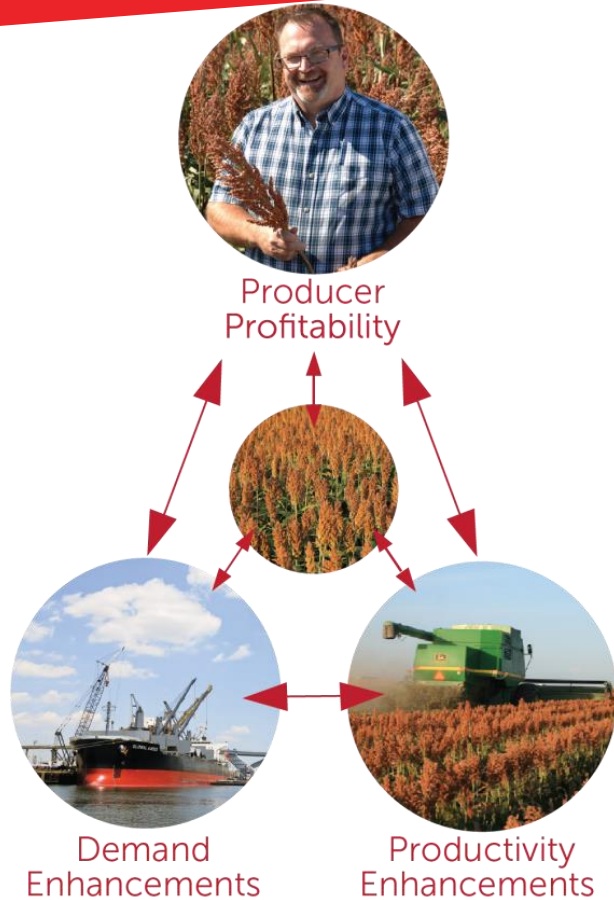
What We Do



Checkoff Program

The Sorghum Checkoff is a producer funded program intended to improve the sorghum industry for the benefit of producers.

Strategic Model



Building Productivity

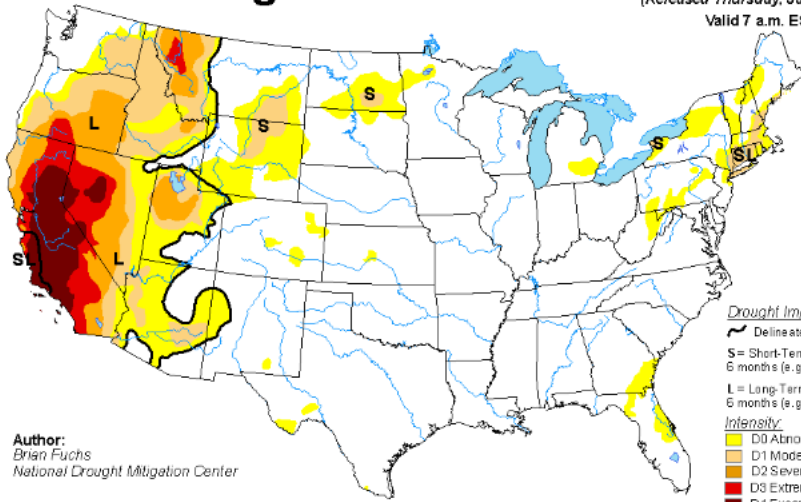
- **Over the Top Grass Control**
- **Yield Developments & Enhancement**
- **Seed Innovation**
- **Informational Management**

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U.S. Drought Monitor

January 12, 2016
(Released Thursday, Jan. 14, 2016)
Valid 7 a.m. EST



Author:
Brian Fuchs
National Drought Mitigation Center

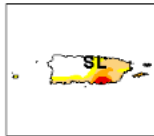
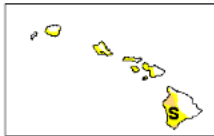
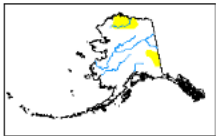
Drought Impact Types:

- Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl.edu/>

Forage
CA ethanol
Conservation

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FY 2016 Ogallala Aquifer Initiative - Focus Areas

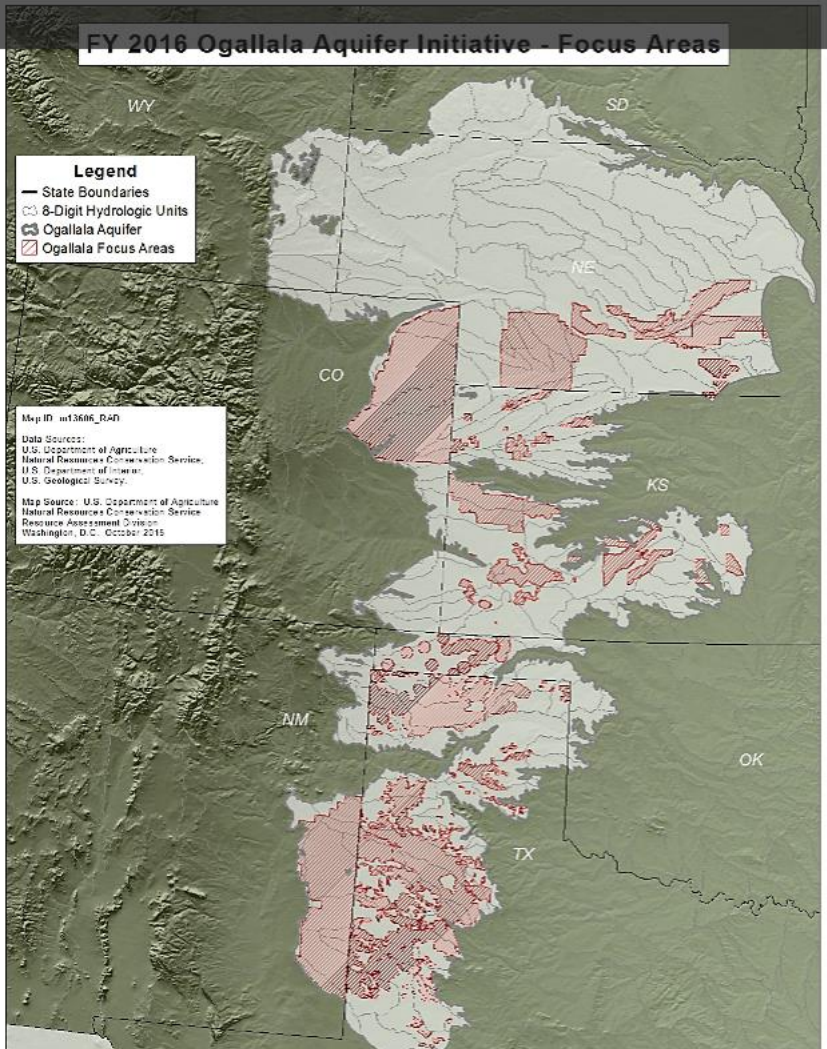
Legend

- State Boundaries
- 8-Digit Hydrologic Units
- ☒ Ogallala Aquifer
- ☒ Ogallala Focus Areas

Map ID: m1366_R40

Data Sources:
U.S. Department of Agriculture
Natural Resources Conservation Service,
U.S. Department of Interior,
U.S. Geological Survey.

Map Source: U.S. Department of Agriculture
Natural Resources Conservation Service
Resource Assessment Division
Washington, D.C. October 2015



UPPER REPUBLICAN

Develop & adopt a water conservation management plan that provides maximum flexibility while reducing overall actual use, in concert with GMD 4, to extend the aquifer life and economic well-being by January 1, 2017. Utilize a time-phased implementation approach, not less than 2 years or greater than 5 years, to phase in conservation measures to lessen economic impacts & allow user transition. Conservation Plan shall address all types of use while considering flexibility tools & overall actual reduction.

SOLOMON-REPUBLICAN

Within the next two years, develop a clearinghouse of technical tools, agreements & agency personnel for use alternatives for Solomon-Republican region waters. An example could be the marketing contract for Keith Sebelius Reservoir/Almena Irrigation District that reached agreement to convert irrigation to recreation use.

Reduce the cumulative water supply lakes years through imp practices.

UPPER SMOKY HILL

By 2025, reduce irrigation use by 25% based on recent average pumping history per water right. Allow water right transfers & other flexibilities as long as a net reduction is achieved. In addition, annual water use for all irrigation users will not exceed net irrigation requirement for that county.

SMOKY HILL-SALINE

Reduce sediment & TSS concentrations within the lakes & streams within the Smoky Hill-Saline Region. Method of attaining goal can include the continued support of BMP implementation for practices which reduce sediment runoff. Focus BMP implementation within priority areas identified in Big Creek Middle Smoky Hill River Watersheds 9 Element Watershed Protection Plan. Timeframe of implementation: Complete by 2040 - Final year of 9 Element Watershed Protection Plan is 2034. Result of efforts: 26% reduction of TSS concentrations on the Smoky Hill River at Ellsworth as noted within the 9 Element Watershed Protection Plan. Remove sediment-impaired waters from KDHE TMDL list.

GREAT BEND PRAIRIE

Achieve water use sustainability within the Great Bend Prairie Regional Planning Area by 2025 with a starting point being no new net depletions that includes a reasonable raising or lowering of the water table based on average weather conditions.

Redmond 2065 by reducing 1 an average of 300

UPPER ARKANSAS

Extend the usable lifetime of the Ogallala Aquifer for at least 25 years in the planning region through the promotion of multiple Local Enhanced Management Areas (LEMAs), Water Conservation Areas (WCAs) & other incentive-based programs. Slow the depletion of the Ogallala Aquifer by 25% in 10 years in the planning region maximizing the opportunity to make use of emerging technologies. Encourage conservation through added flexibility. Find additional sources of water & a place to store water for irrigation & recharge. Increase the opportunity to use wastewater for other beneficial uses. Increase education of aquifer conditions.

EQUUS-WALNUT

Implement & maintain watershed protection activities to maintain regional reservoir storage capacity for an additional 100 years beyond the design life.

CIMARRON

If individuals elect to conserve then they would be afforded flexibility (e.g. - allowing quantities to be moved, water bank movement, water conservation areas, etc.) Individuals may choose to remain with

RED HILLS

Reduce the rate of water use by 10% throughout the region collectively by 2025. Conservation should be



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LEMA Data

Item	Water Use (in/ac)	Yield (bu/ac)	Cash Flow (\$/ac)	Cash Flow (\$/in)
Corn Weighted Average - Inside LEMA	10.7	194.0	\$463	\$43
Corn Weighted Average - Outside LEMA	13.2	197.0	\$476	\$36
Sorghum Weighted Average - Inside LEMA	4.1	152	\$446	\$110

Bill Golden, KSU
Preliminary data**

Building Demand

- **International Markets**
- **Consumer Markets**
- **Livestock Nutrition**
- **Specific Attribute Id and New Use Development**
- **Bio-fuels Enhancements**
- **Co-product Development**
- **Supply Chain Facilitation**



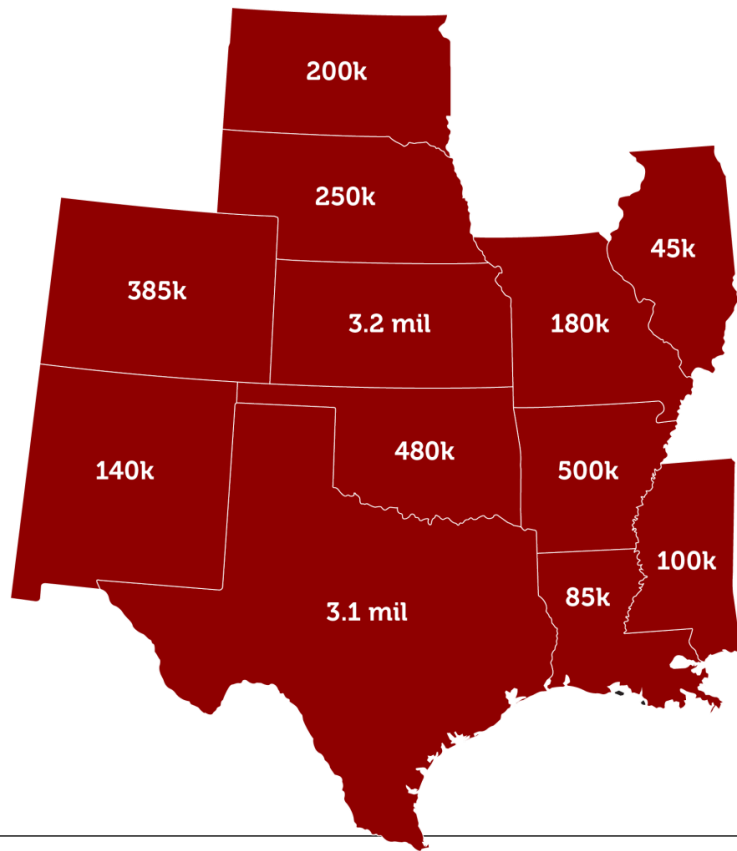
Attribute Based Marketing

- Reduced environmental impact
- Meat and fat quality enhancing properties
- Gluten free, ancient grain, fit the health conscious population
- Low glycemic index
- Comparable starch values for ethanol production
- High protein levels to reduce high cost inputs
- Antioxidants for enhanced health of animals
- Palatability



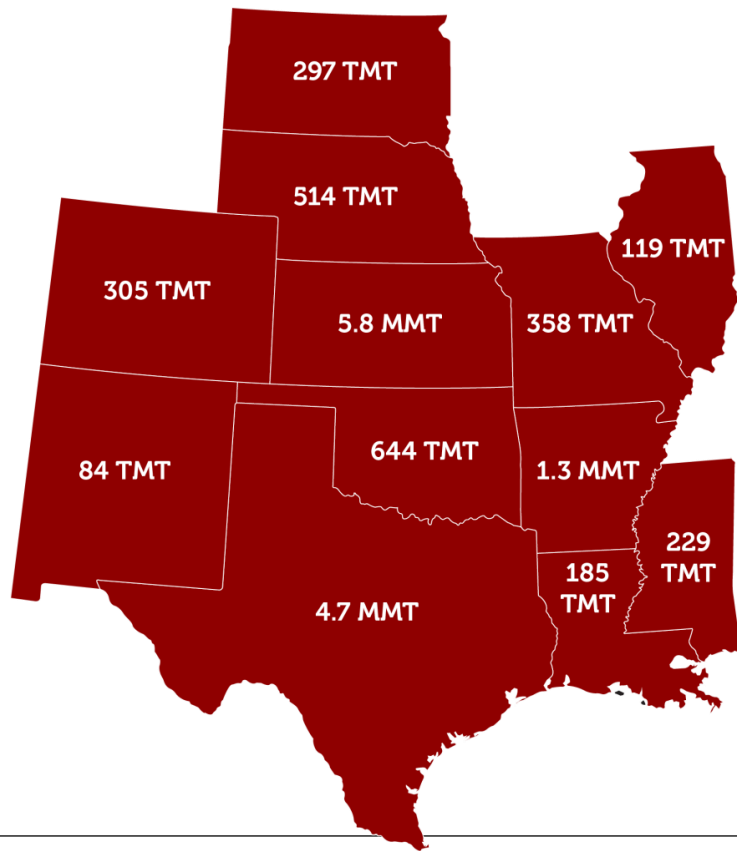
Sorghum Industry Basics

8.74M Acres Planted in 2015



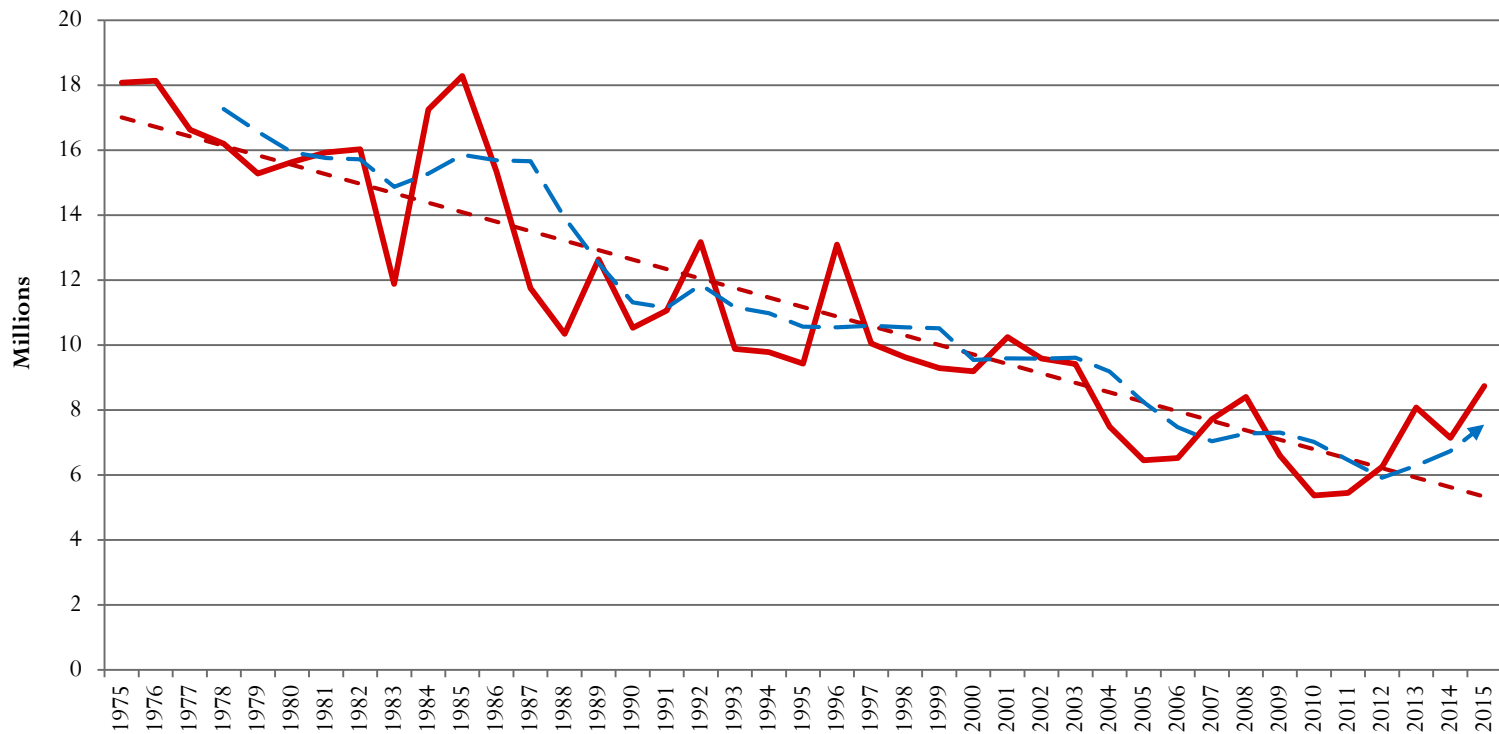
 22.4% Increase
from 2014

14.55 Million MT Current Mkt Yr

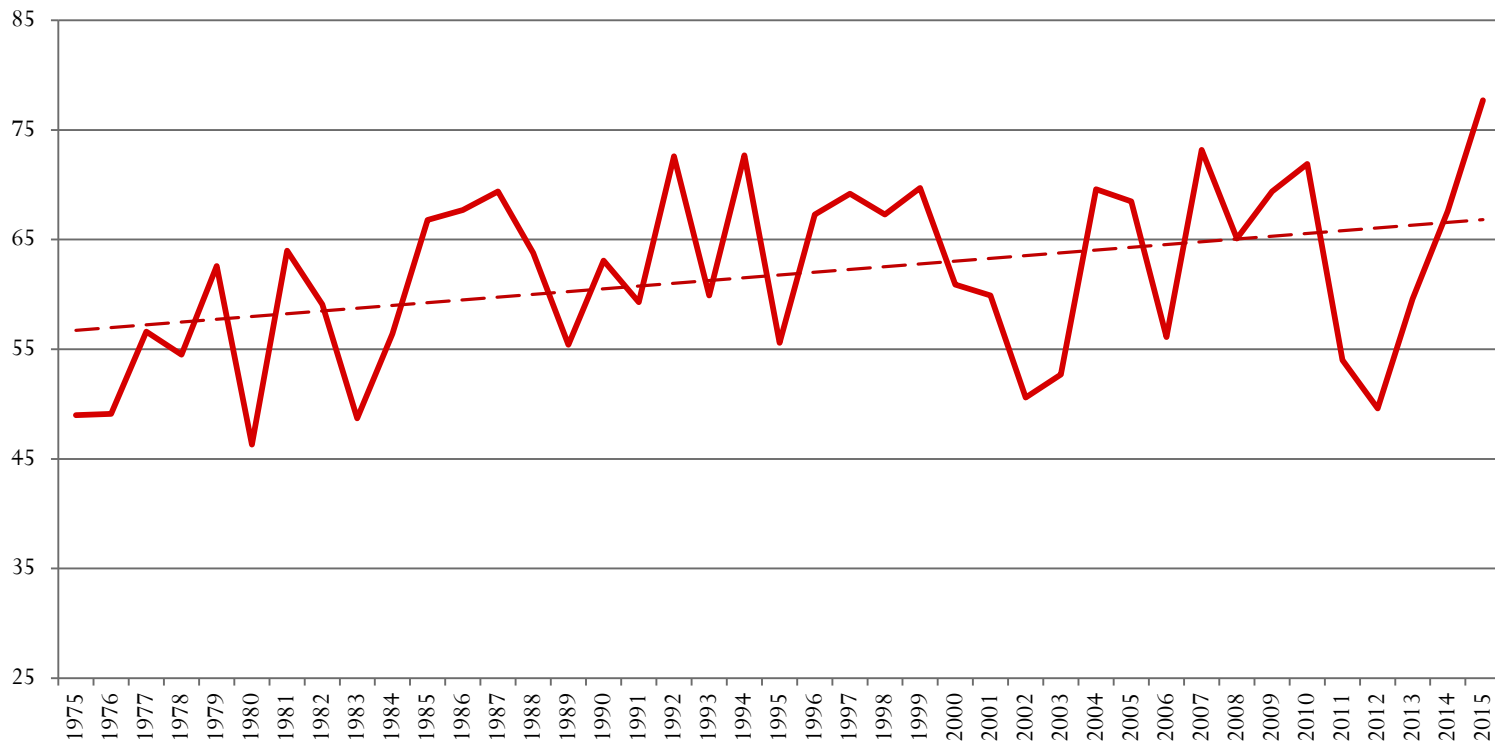


 **32.4% Increase
from 2014**

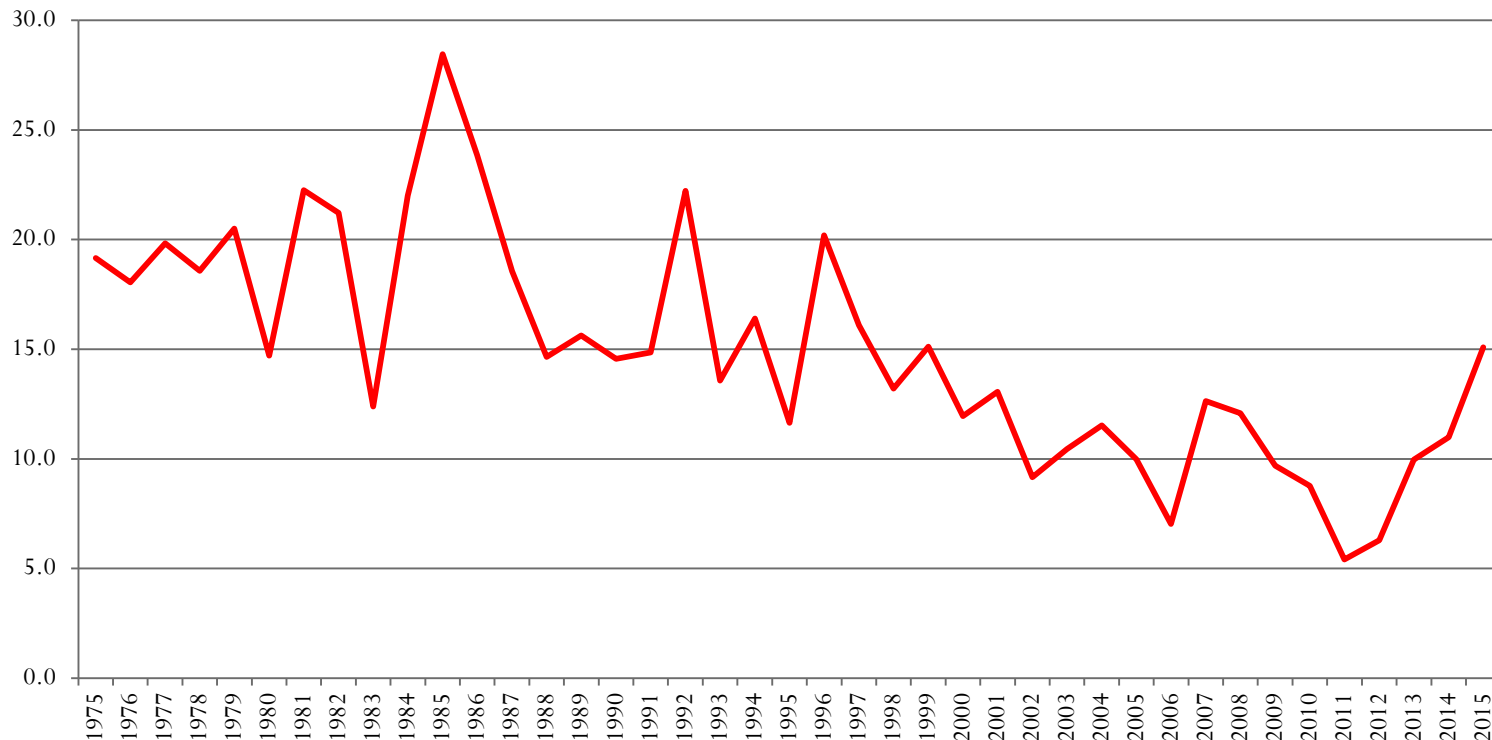
US Sorghum Planted Acres



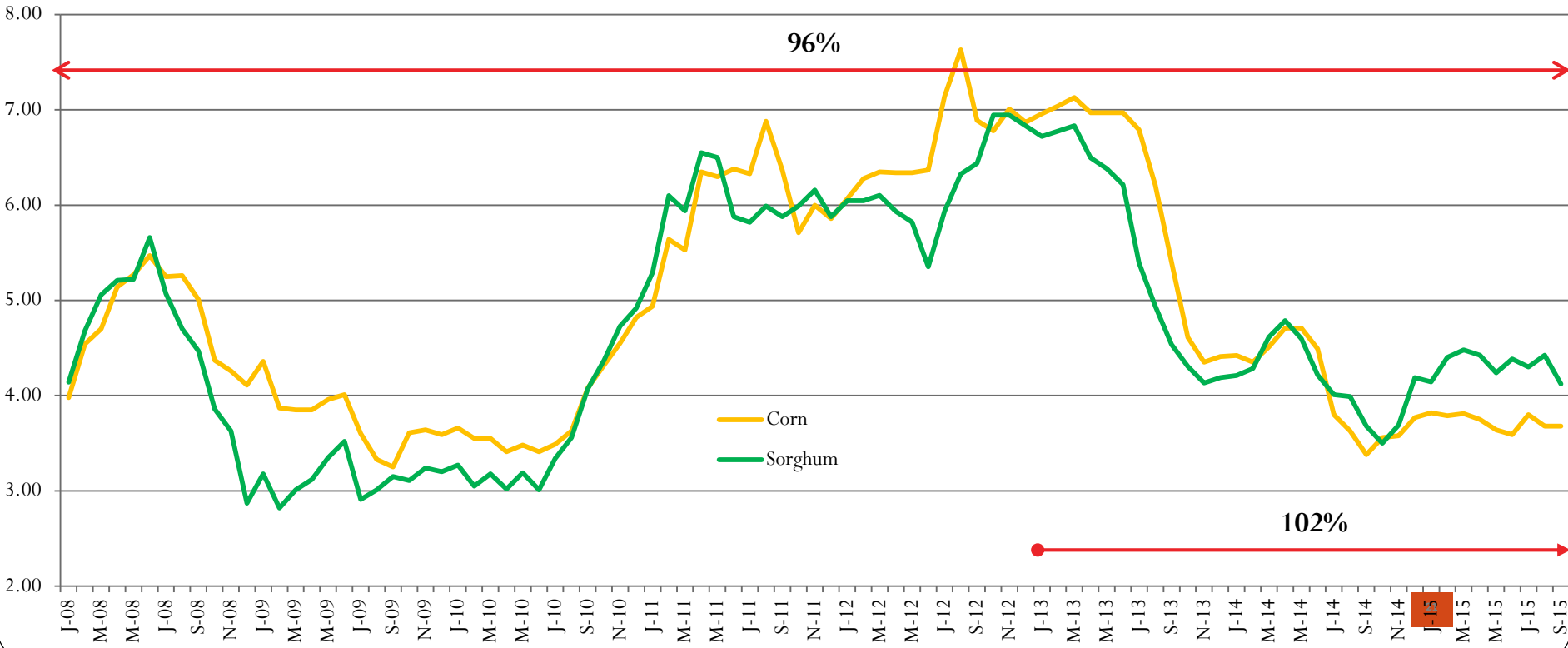
US Sorghum Yields (Bu)



US Sorghum Production (MMT)

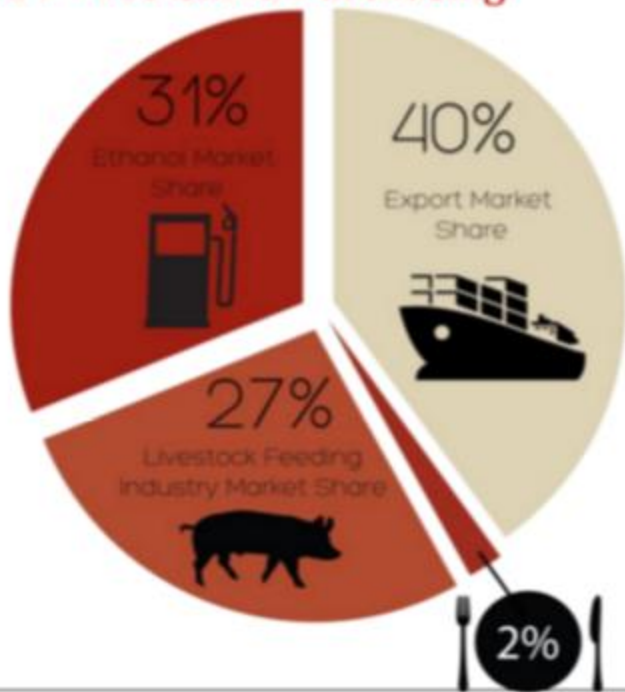


US Corn/Sorghum Prices Paid

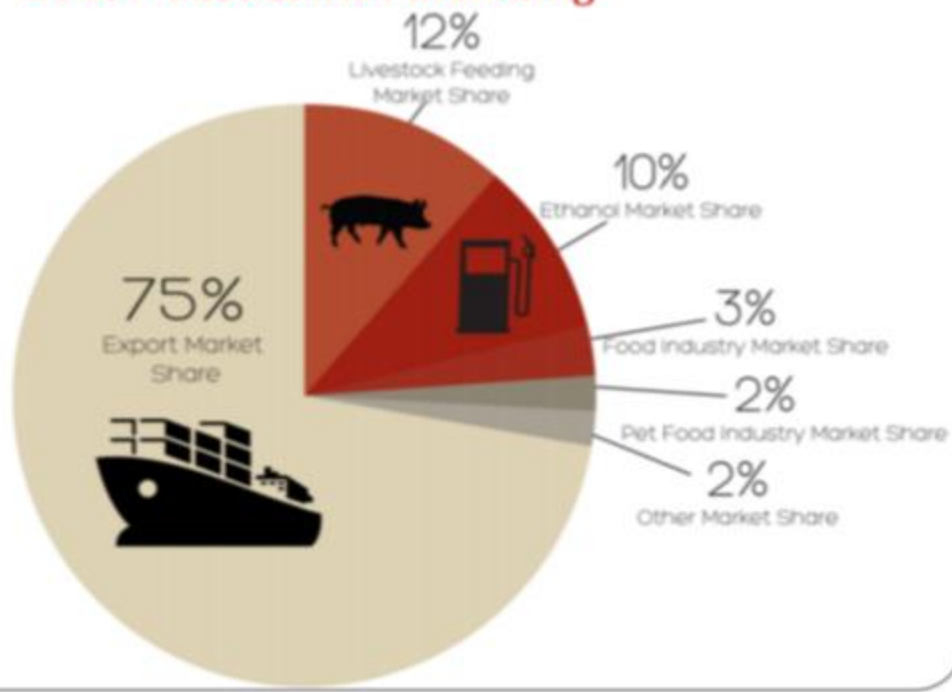


Sorghum Usage

2014 – Pre China Purchasing



2015 – Post China Purchasing



PRX FORECAST SUMMARY, MAJOR CROPS, NEW CROP YEAR

PRX_A1_Overview_Start_New, GTB-16-01, Jan-12-15

Item	Unit	US CORN		US SORGHUM		US SOYBEANS		US WHEAT	
		PRX 15-16	PRX 16-17	PRX 15-16	PRX 16-17	PRX 15-16	PRX 16-17	PRX 15-16	PRX 16-17
Carry-in	mil bu	1731	1947	18	19	191	470	752	910
Area planted	thou ac	87999	89000	8459	7900	82650	84500	54644	51229
Area harvested	thou ac	80749	81142	7851	6983	81849	83702	47094	44359
Yield	bu/ac	168.4	166.1	76.0	66.4	48.0	45.0	43.6	45.5
Production	mil bu	13601	13478	597	464	3930	3768	2052	2018
Imports	mil bu	40	30	0	0	30	30	120	125
Supply	mil bu	15373	15455	615	483	4151	4268	2924	3053
Feed/Residual Use	mil bu	5210	5325	171	80	150	150	272	330
Industrial Use	mil bu	6515	6567	100	103	1850	1860	967	965
of which, fuel ethanol	mil bu	5197	5237	100	103				
	mil gals	14534	14697	280	288				
Total Domestic Use	mil bu	11725	11892	271	183	2000	2010	1239	1295
Foreign Exports	mil bu	1700	1700	325	275	1681	1725	775	800
Total Use	mil bu	13426	13592	271	183	3681	3735	2014	2095
Carry-out	mil bu	1947	1863	19	25	470	533	910	958
US Farm Price	cts/bu	350	308	350	302	915	771	500	401

PRX supply-demand factors are based on independent analysis, and will frequently be different than USDA's.

UNITED STATES SORGHUM SUPPLY-DEMAND, 06-07 to 16-17

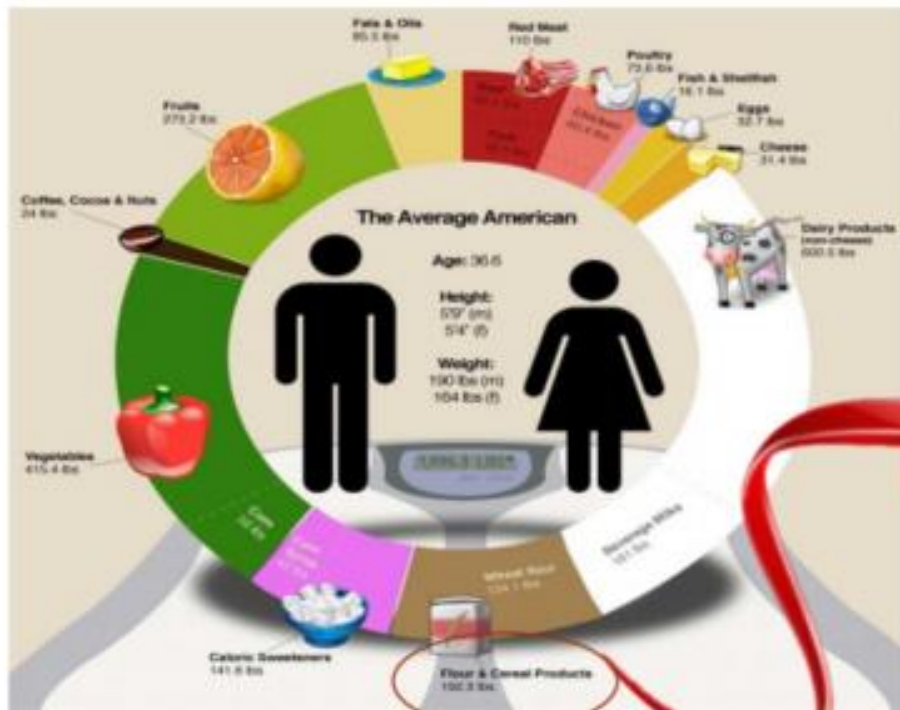
PRX_A1_Overview_Start_New, GTB-16-01, Jan-12-15

Item	Unit	Crop year (Sep-Aug)										
		06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
Carry-in	<i>mil bu</i>	66	32	53	55	41	27	23	15	34	18	19
Area planted	<i>thou ac</i>	6509	7697	8273	6633	5404	5481	6244	8076	7138	8459	7900
Area harvested	<i>thou ac</i>	4932	6789	7268	5520	4813	3929	4955	6585	6401	7851	6983
Yield	<i>bu/ac</i>	56	73	65	69	72	55	50	60	68	76	66
Production	<i>mil bu</i>	276	496	472	383	346	214	247	392	433	597	464
Supply	<i>mil bu</i>	343	528	525	438	387	241	270	408	466	615	483
Carry-out	<i>mil bu</i>	32	53	55	41	27	23	15	34	18	19	25
Disappearance (Use)	<i>mil bu</i>	311	476	470	397	360	218	255	374	448	596	458
Feed/Residual Use	<i>mil bu</i>	113	165	232	127	125	78	92	93	80	171	80
Industrial Use	<i>mil bu</i>	45	34	95	105	83	85	92	70	18	100	103
Total Use	<i>mil bu</i>	158	199	327	232	208	163	184	163	98	271	183
Foreign Exports	<i>mil bu</i>	-153	-277	-143	-165	-152	-55	-71	-211	-350	-325	-275
US Farm Price	<i>cts/bu</i>	329	408	320	322	502	599	633	428	400	350	302
As share of corn	<i>pct</i>	108%	97%	79%	91%	97%	96%	92%	96%	109%	100%	98%

What's Trending Now

- Gluten-free
- Ancient/ Whole Grain
- Organic
- Craft foods
- Traceability
- Sustainability
- Eco Friendly
- Local
- Fermented/ Sprouted
- Food Box

Sorghum – Food Market Potential



@ 192 lbs (Flour & Cereal) per person
for ~ 325 Million People (USA) =

➤ **1.2 Billion Bushels**

➤ **10% = 120 Mbu**

➤ **(Currently < 10Mbu)**



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Moving "The Needle"



PRODUCTS FLOUR BRAN GRAIN MIXES

RECIPES ABOUT NEWS RESEARCH

ALWAYS GLUTEN FREE



General Drivers

- Label conscious consumer
- Health conscious consumer
- Low food costs
- Availability of food dollars
- Selection availability

Gluten-Free

- **\$10.5 billion dollar industry**
- **\$23.9 billion dollars by 2020**
- **Breads, cookies and snacks** are largest category
- more than **1,600** new products / year
- **56 %** of consumers say they prefer it

Why Gluten Free

- **Health**
 - **Celiac disease**
 - **Gluten sensitive**
 - **Wheat allergy**
 - **Autistic spectrum disorders**

Antioxidants

Like most grains, sorghum contains polyphenols, which are compounds found in plants that fight pathogens and harmful ultraviolet light.

Research has shown that polyphenols play a role as antioxidants in the body. Antioxidants are responsible for fighting free radicals in the body.

Diabetes defense

Phenols in sorghum help to inhibit glycation, which is a process that raises blood sugar. Early glycation has been shown to be a contributor to diabetes complications.

Policosanols

The outer waxy coating of sorghum contains compounds called policosanols, which are made up of strings of long-chain alcohols. Research studies have shown that varieties of policosanols have lowered bad cholesterol, raised good cholesterol, and lowered the risk for plaque buildup in the arteries.

Sugar cane, beeswax, and yams also contain policosanols in their outer coatings.

3-Deoxyanthoxyanins (3-DXA)

3-DXA is a compound mostly found in the darker sorghum varieties. Some research studies have shown that this compound (in extract form) is effective in slowing cancer cell growth, particularly various (GI) cancer cells.

Research on 3-DXA is fairly limited as of publication, but a few studies have shown promising results

Sorghum Forms of Use

- Whole grain
- Pearled grain
- Whole grain flour
- Pearled grain flour
- Popped
- Colored varieties
- Syrup
- Crisps
- Rolled
- Extracts
- Certified Organic

Who Is In This Game?

- **Private Companies**
 - NuLife
 - Bobs Red Mill
 - Sage V Foods
 - SKS
 - Kansas Organic
- **Major Companies**
 - ADM
 - Cargill
 - Bay State Milling
 - Scoular

Expanding Markets

Exports 52% Marketshare

Exports were dominated by China in 2014, which imported 168 MBU, 90% of total sorghum exports. Overall, exports increased 64% from the 13/14 marketing year, increasing basis and viability for growers. Various efforts including hosting trade teams, attending export events and overall relationship building helped stimulate growth with both new and long-term export partners.

Livestock 22% Marketshare

Continues to be a mainstay for sorghum use in beef cattle, dairy, swine and poultry feed.

Working toward producer profitability: gaining marketshare

Diverse demand continues to signal the need for increased sorghum acres. Enhancing existing marketplaces and developing new ones will continue to be a key priority of the Sorghum Checkoff.

Other Uses 2% Marketshare

New uses for sorghum are sprouting on a regular basis. Sorghum can now be found in cat litter, insulation, packing peanuts, fiber board and more. The checkoff continues to take every chance to expand market opportunities for growers.

Pet Food 2% Marketshare

The companion animal industry is booming with opportunity. Sorghum can be found in high profile brands like Iams and Eukanuba. In fact, 9 brands have 25 products containing sorghum.

Food

2% Marketshare
Food-grade sorghum is adding overall value for growers across the nation. Sorghum products are reaching niche markets as well as mainstream brands like Kellogg's. The checkoff will continue working with food manufacturers to ensure the use of sorghum.

Export Sorghum



The checkoff hosted the first Export Sorghum in 2014, which brought together 30 domestic and 20 international grain buyers from China, Japan, Mexico and Spain. The event was geared toward creating networking opportunities while providing insight on sorghum markets, trade opportunities, contract education and logistics.

Sorghum360



Sorghum360 was a unique opportunity to bring together food companies, manufacturers, processors, formulators as well as research institutions where they were able to see sorghum in action. The event resulted in sorghum menu items on Iron Chef Marc Forgione's three New York restaurant menus and sparked interest in using sorghum on menus and products across the nation.

Building Demand

Studies:

Swine study indicates current sorghum has 98% value to corn.

Poultry study indicates no adverse affects to growth rate or feed conversion.

- Crop Improvement
 - Higher yields. World record yield contest. at 239.85 bushels per acre, which is a new world record non-irrigated sorghum yield.
 - Breeding technology
 - Double haploid

Sorghum

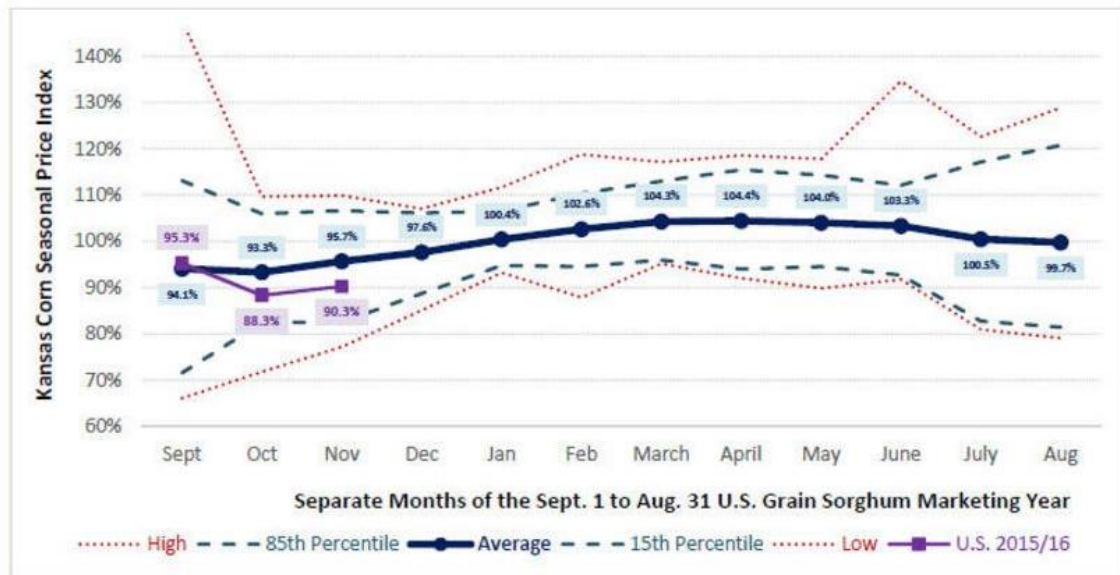
Pricing







Figure 1. Kansas Grain Sorghum Seasonal Price Index – Last 15 Marketing Years (MY 1999/00 – “Old Crop” MY 2014/15) plus “New Crop” MY 2015/16 Estimates (Source: KSU www.AgManager.info)

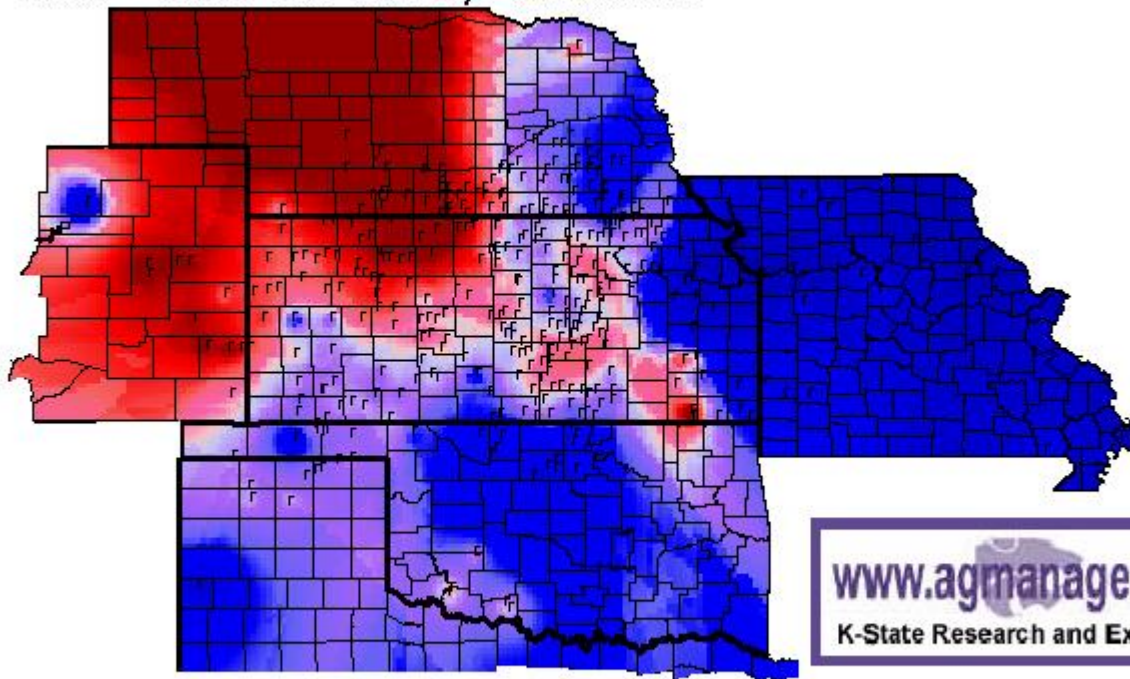
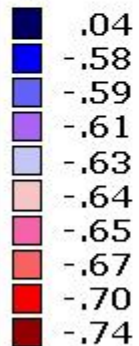


Grain Sorghum Basis, 01-13-2016

Basis = Cash Price - Nearby Futures Price

CBT Corn
Mar Futures
Price: \$3.58

\$/Bushel



www.agmanager.info

K-State Research and Extension

New Crop Sorghum Bids

Though end-of-year ledger maneuvers made this week small on balance, China made a significant purchase of over 1.9 million bushels. Japan also purchased over 700,000 bushels, and Mexico and South Korea made purchases as well. Basis was mostly steady on the week. Here are this week's spot and new crop 2016 bids (respectively, where applicable):

- Cargill Houston old: +55, new: +0
- TMA Canton old: -45, new: -50
- DeLong Edgerton new: +0
- AgMark Concordia old: -52, new: -60
- Aurora Coop Superior old: -55, new: -45
- WB Johnston Enid new: -30



STILL EXPORT DEMAND

SORGHUM: THE SMART



CME Corn Price Volatility

CME Group
powered by TradingView

Where is U.S. Sorghum Going?

TOP U.S. EXPORT CUSTOMERS¹



Dollar amount

1	CHINA	\$1.97 BILLION
2	SUDAN	\$51.8 MILLION
3	KENYA	\$27.8 MILLION
4	JAPAN	\$17.7 MILLION
5	ETHIOPIA	\$12.8 MILLION
	Djibouti	\$9.1 million
	Chad	\$5.2 million
	South Africa	\$2.4 million
	Somalia	\$1.8 million
	Canada	\$1.6 million

Metric tons

China	8,369,562
Sudan	232,150
Kenya	112,624
Japan	71,362
Ethiopia	55,760
Djibouti	37,820
Chad	22,960
South Africa	10,000
Somalia	7,000
Canada	6,121

Source: ¹ USDA Global Agricultural Trade System report for marketing year Sept. 1, 2014 to Aug. 31, 2015

China trip Nov. 2015
FoodChina Conference
Mission





Guangdong Province

- GDP similar to Los Angeles
- largest importer/exporter
- most billionaires in China

U.S. Sorghum Exports

Table 8--U.S. feed grain exports by selected destinations (1,000 metric tons) 1/, 1/14/2016

Export and country/region	----- 2013/14 -----		----- 2014/15 -----		2015/16
	Mkt year	Sep-Nov	Mkt year	Sep-Nov	Sep-Nov
Sorghum China (Mainland)	4,263	359	8,371	1,860	2,669
Sub-Saharan Africa	444	226	484	224	102
Japan	293	115	72	31	16
Mexico	251	146	21	6	49
All other countries	112	2	17	4	38
Total 2/	5,362	848	8,965	2,125	2,874

1/ Grain only. Market year (September-August for corn and sorghum, June-May for barley) and market year to date.

2/ Totals may not add due to rounding.

Source: U.S. Department of Commerce, Bureau of the Census, Foreign Trade Statistics.

Date run: 1/13/2016

“Sorghum Quality Report”

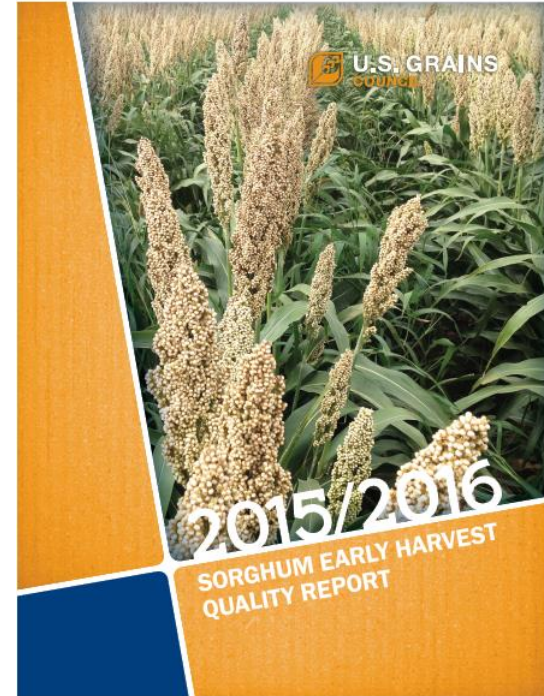
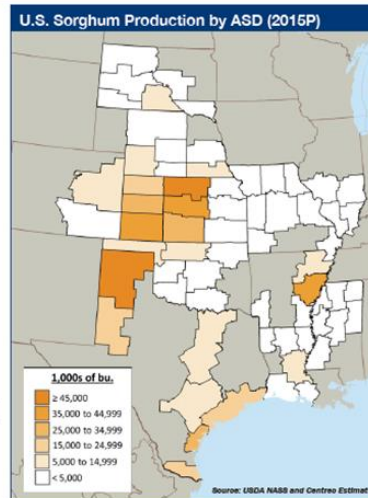


2015/2016 SORGHUM EARLY HARVEST QUALITY REPORT (Preliminary)

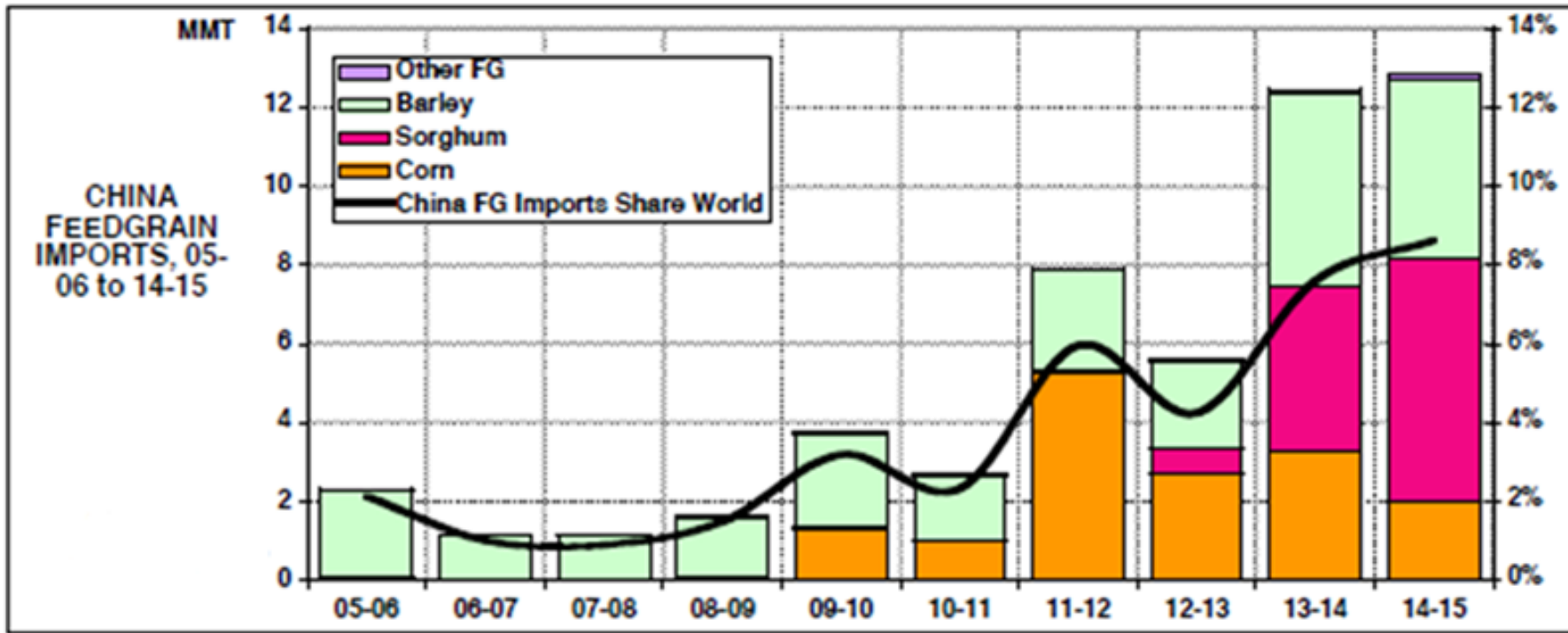
Introduction

The final U.S. Grains Council Sorghum Early Harvest Quality Report 2015/2016, published later this fall, is designed to help international buyers of U.S. sorghum understand the quality of U.S. commodity sorghum harvested and marketed during the earliest part of the 2015/2016 marketing year. This preliminary *Early Harvest Quality Report* presents basic results from the first samples received from the early harvest sampling area and begins to lay the foundation for the quality reflected in the final *Early Harvest Quality Report*.

The U.S. Grains Council is pleased to introduce reports that will become annual measurements of quality of the U.S. sorghum crop. The *Early Harvest Quality Report* will be followed by the *U.S. Grains Council Sorghum Late Harvest and Export Cargo Quality Report 2015/2016*. The *Late Harvest and Export Cargo Quality Report* will reflect the quality of two surveys. The first survey will be of the U.S. commodity sorghum entering the merchandising channel the remainder of the 2015 harvest season. The second survey will be of U.S. commodity sorghum as it is assembled for export early in the marketing year. The *Early Harvest Quality Report* and the *Late Harvest and Export Cargo Quality Report* are intended to provide reliable information on U.S. sorghum quality from the farm to export based on a transparent and consistent methodology. The value of these reports to all stakeholders will increase over time as the information becomes more familiar and as year-to-year patterns in the U.S. sorghum marketing system begin to appear.



Is it any wonder...



JCI: China Major Grain and Byproducts Import in November 2015				
(in MT)				
Grain	Corn	Sorghum	Barley	DDGS
October 2015	42883	681868	998367	660193
November 2015	18674	1065965	556805	464949
November 2014	259090	804407	136927	192310
Change on Month	-56%	56%	-44%	-30%
Change on Year	-93%	33%	307%	142%
Jan-Nov, 2015	4596918	9843002	10275280	6401018
Jan-Nov, 2014	1992148	5192499	4629843	5388695
Change on Year	131%	90%	122%	19%

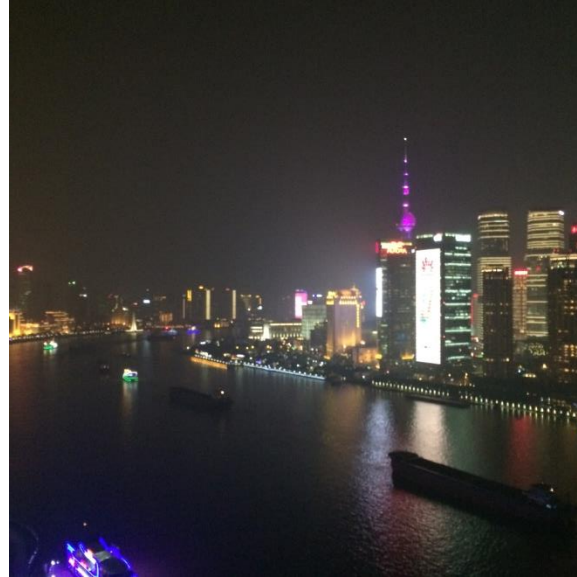
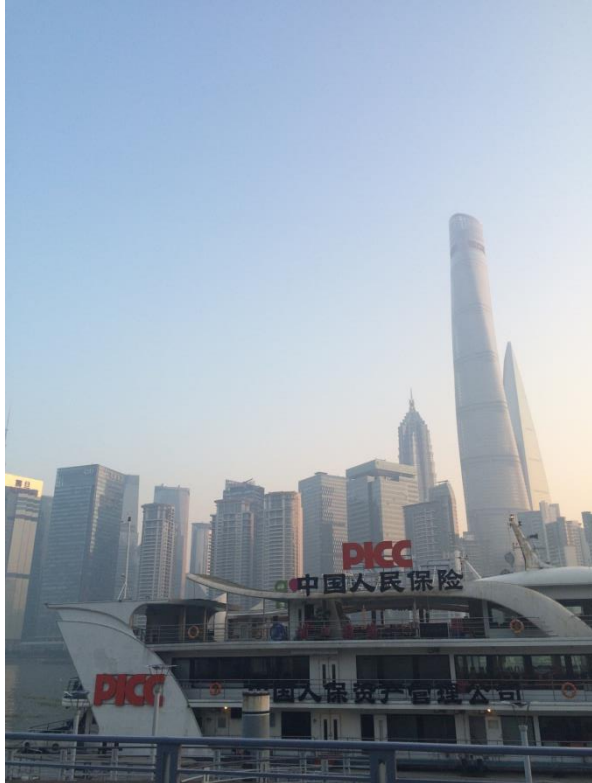


JCIC China
@JCICChina

22 Dec

JCI: China Major Grain and Byproducts Import Further Decreases in November, But Sorghum Rises





China notes



Beijing

- ✓ 21 million people
- ✓ (NYC = 8.4 m)



SORGHUM: THE SMART CHOICE®



Growing appetite

Factory of the world



Prefer corn/sorghum
Domestic stockpile – 1 yr

World Sorghum Trade

October/September Year, Thousand Metric Tons
Date Created 11/10/2015 12:10:43 PM

er/September Year, Thousand Metric Tons
Date Created 12/09/2015 12:23:59 PM

[Download File \(Spreadsheet Format\)](#)

	2011/12	2012/13	2013/14	2014/15	2015/16 Oct	2015/16 Nov	2012/13	2013/14	2014/15	2015/16 Nov	2015/16 Dec
TY Exports											
Argentina	2,163	3,059	953	954	1,500	1,500	3,059	953	954	1,500	1,200
Australia	1,185	1,425	405	1,700	900	900	1,425	405	1,700	900	1,000
China	36	27	11	25	25	25	27	11	25	25	25
India	132	231	89	50	100	100	231	89	50	100	100
Kenya	16	32	51	40	30	30	32	51	40	30	30
Nigeria	75	50	50	100	50	50	50	50	100	50	50
Ukraine	113	124	229	150	150	150	124	229	150	150	150
Others	180	209	240	190	130	130	208	240	192	130	130
Subtotal	3,900	5,157	2,028	3,209	2,885	2,885	5,156	2,028	3,211	2,885	2,685
United States	1,549	2,136	5,717	9,249	11,000	7,500	2,136	5,717	9,249	7,500	7,600
World Total	5,449	7,293	7,745	12,458	13,885	10,385	7,292	7,745	12,460	10,385	10,285
TY Imports											
Chile	544	404	109	100	100	100	404	109	100	100	100
China	84	631	4,161	10,162	11,000	7,000	631	4,161	10,162	7,000	7,000
Colombia	592	591	104	50	50	50	591	104	0	50	50
Ethiopia	30	50	50	75	50	50	50	50	75	50	50
European Union	126	291	186	130	100	100	291	186	131	100	100
Japan	1,481	1,897	1,003	903	1,000	1,000	1,897	1,003	903	1,000	1,000
Kenya	74	102	94	100	100	100	102	94	100	100	100
Mexico	1,369	1,793	162	29	50	500	1,793	162	29	500	500
South Sudan	13	6	125	75	50	50	6	125	75	50	50
Sudan	125	175	75	75	75	75	175	75	75	75	75
Others	650	674	685	307	305	305	674	685	291	305	305
Subtotal	5,088	6,614	6,754	12,006	12,880	9,330	6,614	6,754	11,941	9,330	9,330
Unaccounted	358	436	988	425	1,005	1,055	435	988	492	1,055	925
United States	3	243	3	27	0	0	243	3	27	0	30
World Total	5,449	7,293	7,745	12,458	13,885	10,385	7,292	7,745	12,460	10,385	10,285

Balance Sheet

SORGHUM	2013/14	2014/15 Est.	2015/16 Proj.	2015/16 Proj.
			Nov	Dec
	<i>Million Bushels</i>			
Area Planted (mil. acres)	8.1	7.1	8.7	8.7
Area Harvested (mil. acres)	6.6	6.4	7.6	7.6
Yield (bushels/acre)	59.6	67.6	77.7	77.7
Beginning Stocks	15	34	18	18
Production	392	433	594	594
Imports	0	0	1	2
Supply, Total	408	467	613	614
Feed and Residual	93	80	130	130
Food, Seed & Industrial	70	15	100	100
Total Domestic	162	96	230	230
Exports	211	353	325	325
Use, Total	374	449	555	555
Ending Stocks	34	18	58	59
Avg. Farm Price (\$/bu) 2/	4.28	4.03	3.30 - 3.90	3.20 - 3.80

USA VCS Export destinations

December 07, 2015

United States Department of Agriculture
Foreign Agricultural Service

**Area/Partners of Destination
And Commodities Exported**

**January - December
Cumulative To Date Quantities**

		2012	2013	2014	Jan - Oct 2014	Jan - Oct 2015	
Partner	UOM	Qty	Qty	Qty	Qty	Qty	% Change (Qty)
Grand Total	MT	1,920,288	2,272,660	7,561,034	6,111,053	8,174,202	34
China	MT	45	445,080	6,378,803	5,077,453	7,502,523	48
Japan	MT	166,239	333,473	371,078	332,169	91,604	-72
Sudan(*)	MT	99,070	133,803	276,330	232,890	103,760	-55
Mexico	MT	1,428,976	993,078	125,706	125,469	138,436	10
Taiwan	MT	6,703	10,518	90,425	83,022	19,701	-76
Kenya	MT	60,471	81,651	54,823	47,773	101,634	113
Ethiopia(*)	MT	-	3,450	50,900	11,460	19,340	69
Djibouti	MT	22,790	69,621	42,620	42,620	32,800	-23
Canada	MT	14,001	24,985	40,275	30,401	83,770	176
Morocco	MT	-	-	27,499	27,499	13,820	-50
South Africa	MT	25,001	31,170	20,644	20,644	10,000	-52
Chad	MT	22,000	-	19,500	19,500	7,960	-59
Spain	MT	295	35,500	18,910	18,910	-	--

Sorghum's Future

Enhancing the Crop

The Sorghum Checkoff's Crop Improvement program is committed to investing in new genetic technologies that will deliver greater field-level profitability. Genetic advancements remain a primary focus of the checkoff. In 2014 investments were made in research geared toward double haploids, elite breeding and new genetic lines, as well as maintaining and developing relationships with private and public breeding sectors.

\$1.2 Million Invested

\$800,220

Identification of inducer line-first component in a sorghum double-haploid program

DuPont Pioneer

\$264,885

Integrating germplasm from sorghum conversion program in elite breeding

Texas A&M AgriLife Research

\$100,000

Improved availability and distribution of sorghum genetic resources

USDA/ARS

\$29,906

Maximizing recombination between elite and exotic lines

University of Illinois

Double Haploids

In 2014, the Sorghum Checkoff partnered with DuPont Pioneer to discover an advanced breeding technology known as double haploids, which will be made available to all breeding companies. This research project is significant due to the fact it **shaves years off of pre-breeding developments**. This means new genetic technology makes it to your seed bag more quickly. This is the checkoff's first investment toward development of this advanced genetic tool.

New Genetics

144 new sources of genetics were released in 2014 through a conversion program conducted by Richardson Seeds, MMR Genetics and USDA-ARS. Wild-type sorghum varieties were converted into genetic lines that can be easily incorporated into any established breeding program. The release of these new genetics means a new pool of untapped sorghum genetics that can unlock new potential for sorghum.

Focus on Relationships

The Sorghum Checkoff held strategic meetings with **6 major** seed and chemical companies to discuss opportunities for improving sorghum. Developing relationships with key entities is crucial to the future success of sorghum.

Seed tour

The 2014 tour showcased the sorghum seed industry to sorghum growers and agricultural media. The tour emphasized the need for solutions that lead to a more viable and profitable crop.

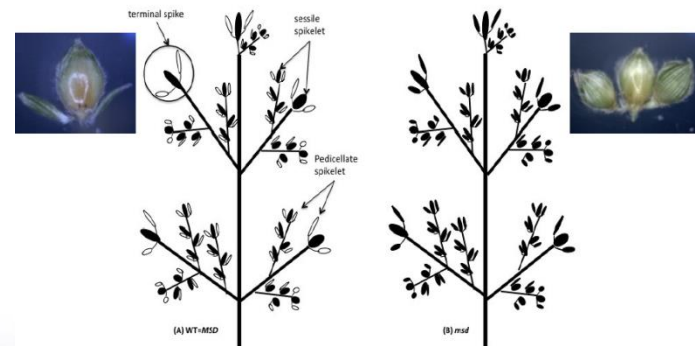
Multiseed

In partnership with USDA-ARS, multiseed was made available to public and private breeders. Multiseed genetics offer up to three times the number of seeds on a sorghum head compared to traditional genetics.

Genetic Mapping

Texas A&M University completed a research project in 2014 to develop genetic maps of private and public industry germplasm in comparison to the entire sorghum genome.

Building Productivity



BTx623
(WT)

BTx623-*msd*
"TRI-SEED"



Crop Improvement

- Section 18s
- Seed industry consolidation
- Not being transgenic
- Board strategy and investment
- Double haploid
- Seed Innovation challenges
 - Game has changed
 - Regulatory system
 - Chemicals, insecticides, seed treatments
 - Uncertainty
 - Geneflow
 - Pollinator health

Renewables

- DOE invests \$62.5 million in calendar '15 – 10 projects – more to come?
- ethanol plants back in sorghum – normal 120 million bushels. Maybe 150/160
- California ethanol plants now railing sorghum from Nebraska
- RFS unclear. Lawsuit. EPA has made some improvement
- will continue to have discussions with ethanol plants

Investment Portfolio

Latest RFP –

- ✓ 114 pre-proposals
- ✓ 37 full proposals
- ✓ invested \$6.198 million

DOE Funding



SORGHUM: THE SMART CHOICE

- IAMS
- EUKANUBA
- PET WANTS
- HILL'S/SCIENCE DIET
- NEWMAN'S OWN ORGANIC
- BLACKWOOD
- ADIRONDACK
- VICTOR
- VERUS
- Other Brands = Cool Canine, Muenster Natural, Mr. Buck's



Sorghum – Pet Food Markets

1. Primary Ingredient
2. Premium Ratings
(Dog Food Advisor)



What is Around the Corner

Continue to ramp up food segment.



New Uses

End-user Education

Setting the Bar

Yield per Acre

- Currently, the 15 year (2000/15) average yield is 61.95 bu/acre
- By 2020 the average yield must increase to 75 bu/acre
- **By 2025 the average yield must increase to 100 bu/acre**

Planted Acres

- Currently, the 15 year (2000/15) average planted acres is 7,672,625
- By 2020 the average planted acres must increase to 10 million acres
- **By 2025 the average planted acres must increase to 15 million acres**

Demand

- By 2020 build consistent, reliable demand of 650 million bushels and hold carry to <5%
- **By 2025 build consistent, reliable demand of 1.25 billion bushels and hold carry to <5%**

Value

- Currently, the 15 year (2000/15) average national value of sorghum to corn has been -4.6%
- **By 2025 build demand in competitive markets to reach a national value of <-2.0%**

**SORGHUM: THE
SMART
CHOICE®**

Export Terminal





美国高粱基金会
Jesse McCurry