



# SORGHUM POTENTIAL OPPORTUNITIES

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# USDA Sorghum Projections – 2015

## SUPPLY-DEMAND OF KEY SORGHUM STATES, 15-16

Sorghum Anal CBosx, GTB-15-04, Apr-09-15

State	Area Planted	Area Har- vested	Yield	Pro- duction	Carry In	Supply	Carry Out	Dis- appear- ance	Feed & Residual Use	Indus- trial Use	Total Use	Net Export(+) Export(-)
	000ac	000ac	bu/ac	milbu	milbu	milbu	milbu	milbu	milbu	milbu	milbu	milbu
AR	250	295	92	27	0	27	0	27	17	0	17	-10
IL	40	40	98	4	0	4	0	4	4	0	4	0
KY	0	0	0	0	0	0	0	0	0	0	0	0
LA	75	65	103	7	0	7	0	7	0	0	0	-7
MO	200	176	90	16	0	16	0	0	0	0	0	-16
MS	90	110	90	10	0	10	0	0	0	0	0	0
TN	0	0	0	0	0	0	0	0	0	0	0	0
River	655	686	92	63	0	64	0	0	0	0	0	0
CO	375	354	35	12	0	12	0	0	0	0	0	0
KS	2900	2745	71	195	12	207	0	0	0	0	0	0
NE	200	160	85	14	1	15	0	0	0	0	0	0
NM	100	58	42	2	0	2	0	0	0	0	0	0
OK	410	366	48	18	0	18	0	0	0	0	0	0
SD	195	127	61	8	0	8	0	0	0	0	0	0
TX	3000	2100	58	122	5	127	0	0	0	0	0	0
High PI	7180	5910	63	370	18	388	0	0	0	0	0	0
Others	65	27	61	2	6	8	28	-20	24	0	4	28
US	7900	6623	66	435	24	459	28	431	69	41	110	-321

Domestic sorghum plantings will jump 14 percent to 8.148 million acres, the most since 2008, according to a Bloomberg survey of 15 analysts.

# China Future Growth Projections

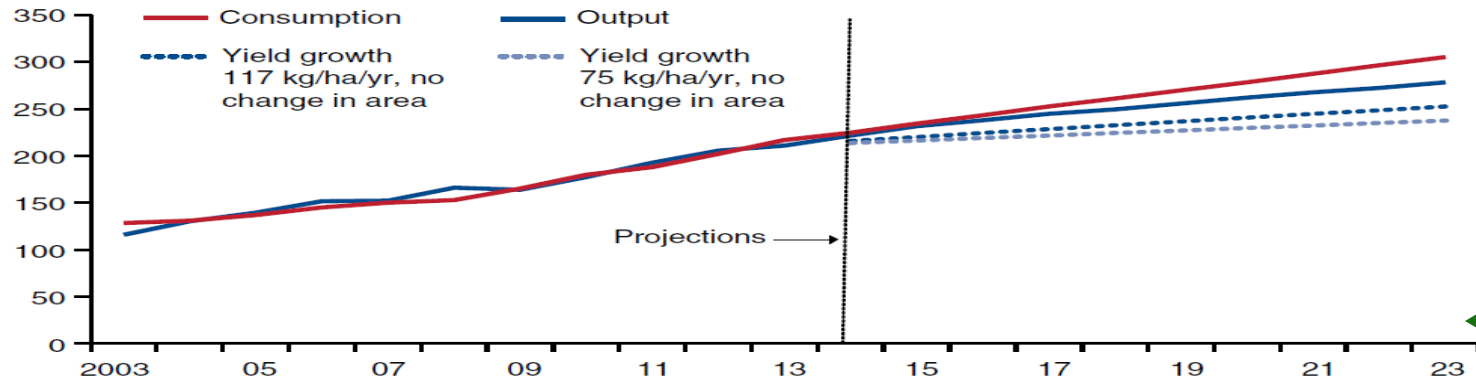
China National Grain and Oils Information Centre (CNGOIC)

- Current corn inventories have risen to 84% of domestic consumption
- Corn output up 7.6%
- Results → Increased China **sorghum** imports to **8.2 MMT** for 2015/16

The U.S. Department of Agriculture's (USDA) World Agriculture Supply and Demand Estimates (WASDE) report April 2015 bumped U.S. sorghum exports up by 1.2 million metric tons from its March projections, to a total of **8.8 million tons (350 million bushels)**.

Figure 8  
Growth in China corn production and consumption, 2003-23

Million metric tons



Note: Kg = kilogram; ha = hectare; yr = year. Consumption and output are USDA projections. Other output values are extrapolations based on constant growth in yield with no change in corn area.

Source: USDA Agricultural Projections to 2023, and USDA, Economic Research Service calculations.

Current Coarse Grain Need at ~15 MMT

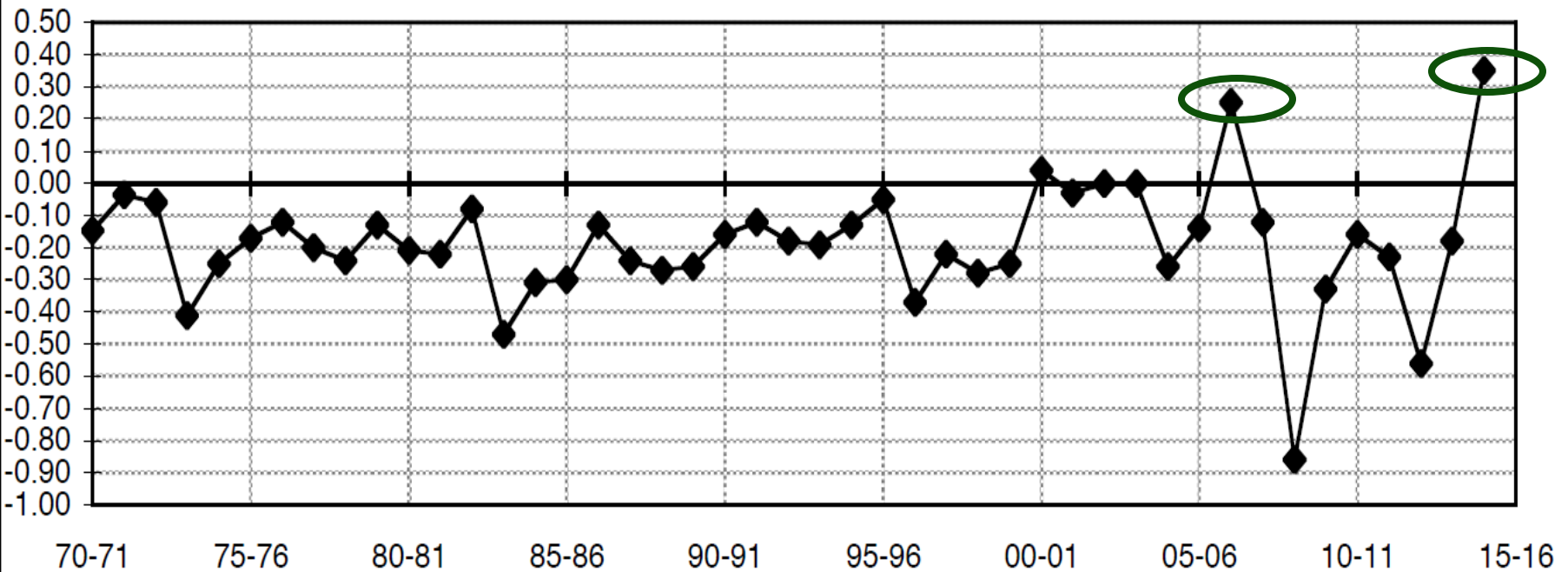
USDA Projects Coarse Grain Need at 22 MMT

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Source: "Prospects for China's Corn Growth Yield and Imports" – FDS – 14D-01 (Gale, Jewison, Hansen) – April 2014

# Export Market Impact

SORGHUM FARM PRICE DISCOUNT TO CORN, DOLLARS per BUSHEL



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<https://www.proexporter.com/clientfiles/>

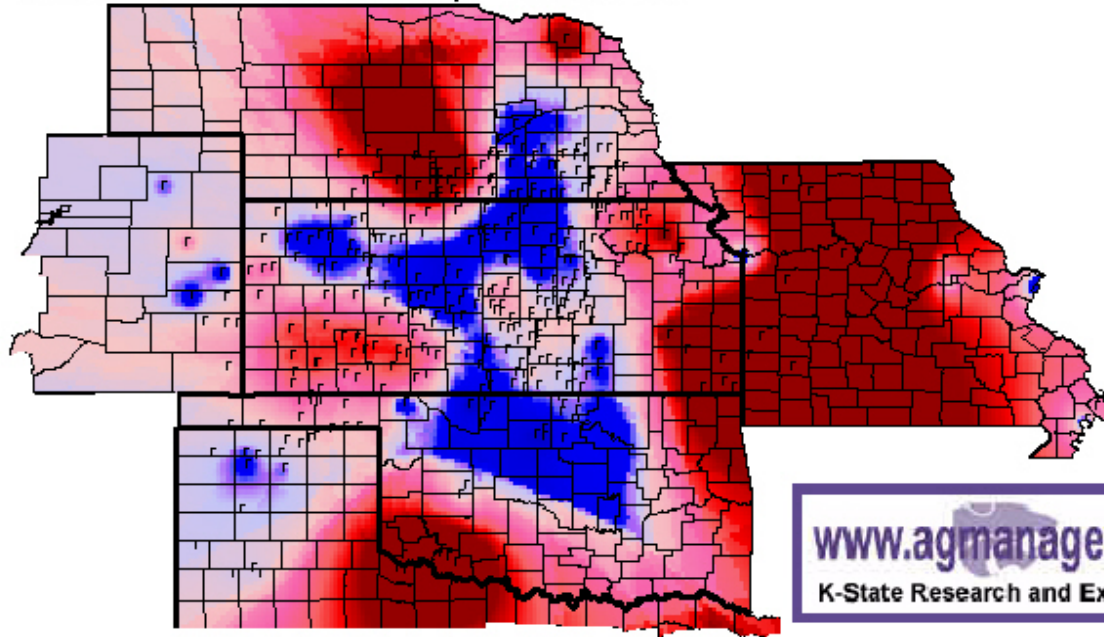
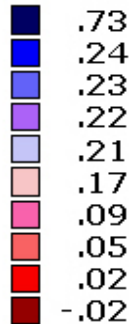
# New Crop Bids...Regional

## Grain Sorghum Basis, 05-27-2015

Basis = Cash Price - Nearby Futures Price

CBT Corn  
Jul Futures  
Price: \$3.50

\$/Bushel



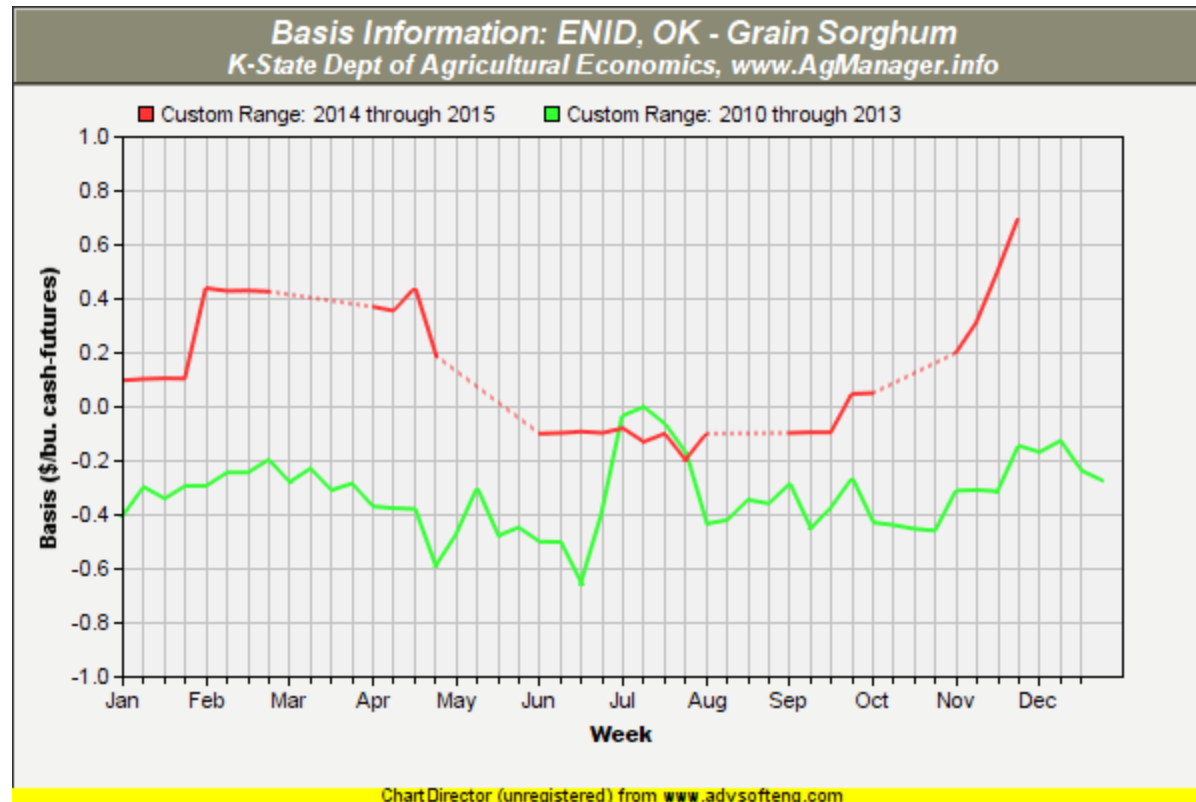
[www.agmanager.info](http://www.agmanager.info)  
K-State Research and Extension

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<http://www.agmanager.info/marketing/basis/maps/archives/2015/May/4/basismaps.asp?image=Basismilo201520.jpg>

# New Crop Bids...Snapshot vs. Trend

ADM – St. Louis +16  
CGB West Memphis +70  
Cargill Memphis +75  
CGB Mt. Vernon +52  
Cargill New Madrid +60  
Cargill – Houston +165  
Ag Producers CoOp – Sunray +10  
Dalhart Consumers +10  
Cargill Spearman +10  
ADM – Hutchison +20  
TMA – Canton +15  
AgMark – Concordia +5  
W.B. Johnston – Enid +20



<http://www.agmanager.info/marketing/basis/>

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NSP – Sorghum Notes (May 2015)



# Sorghum Acre Growth Opportunity - Biofuel

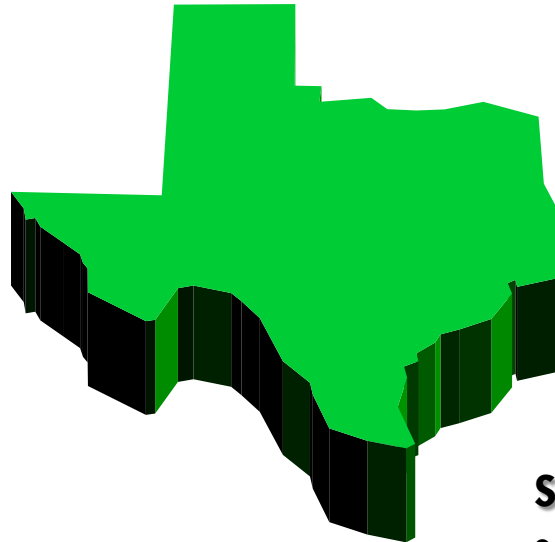
## California

4 plants - 215 Million  
Gallons  
of Production  
77 Million Bushels  
Needed  
Sorghum  
Today - 0 Bushels



## Texas

4 plants - 355  
Million Gallons of  
Production  
127 Million Bushels  
Needed  
Sorghum  
Today - 20 Million  
Bushels



## Sorghum as “Advanced Biofuel”

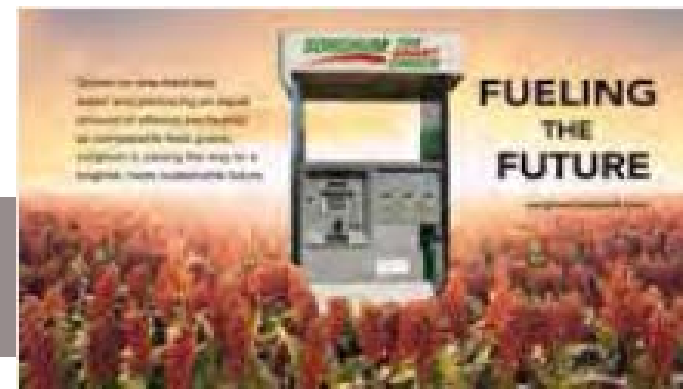
- Grain (Approved) – Biogas/CHP
- Biomass (Pending)
- Sweet (Not Submitted Yet)

When comparing corn and sorghum under LCFS, sorghum has been 3.36 gCO<sub>2</sub>e/MJ less than corn

This amounts to \$1.3 million dollars per year for a 100 MGY ethanol facility

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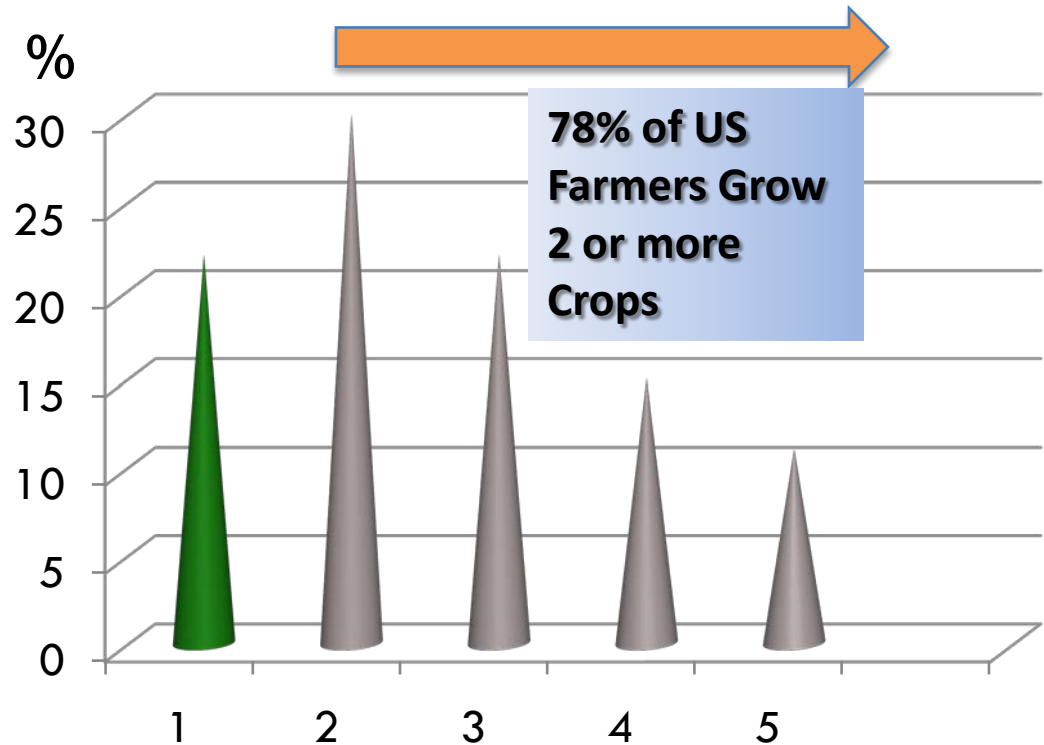
Grain - Stover and Kernel Fiber –  
Classified as “crop residue” and can  
generate cellulosic RINs



# Message For US Farmers

## Many Considerations:

1. **“Carry”** – Forward pricing > current prices; local/terminal elevators “carry” the grain
2. Comparing “basis” and “carry”; > demand = > basis
3. Multiple Markets
  - Soybean-Corn Ratio
4. Crop Rotations
  - Weed Control
  - Pest Control
5. Weather
6. National vs. Regional Pricing
  - Regional Crop Price Ratios
7. Storage Capacity
8. International Crop Supply



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# Sorghum – Profit Margins

## 2014 Estimated Returns - Average

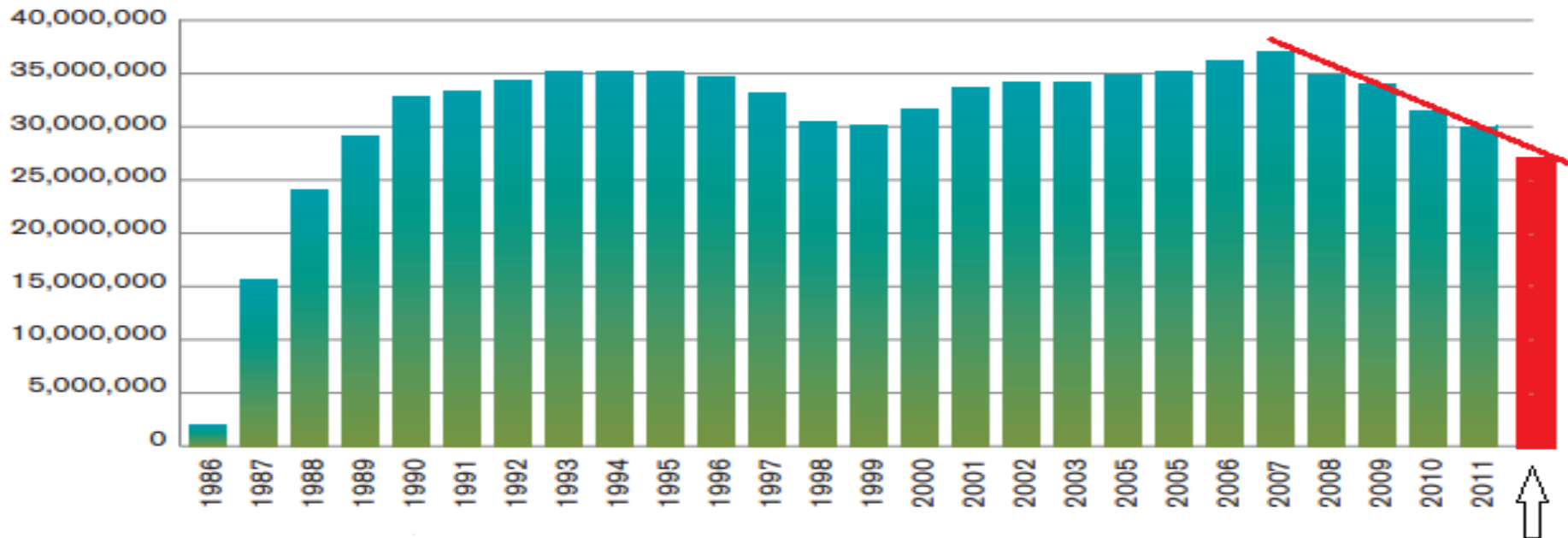
	Cotton	Soybeans	Corn	Milo
Yield	875	46	168	100
Price	\$0.67	\$10.20	\$3.80	\$4.10
Revenue	\$586	\$469	\$638	\$410
Variable Expenses	\$504	\$274	\$406	\$231
Returns Over Variable	\$82	\$195	\$232	\$179
Land Costs	\$144	\$115	\$156	\$101
Returns Over Variable and Land Costs	-\$62	\$80	\$76	\$77
Fixed Costs	\$85	\$63	\$60	\$60
Net Returns	-\$147	\$17	\$17	\$18
Breakeven	\$0.82	\$9.52	\$3.75	\$3.92



# CRP Acres – Favorable Trends

## Total Acres Enrolled in CRP 1986 - 2012

CRP acres have fallen 26%, or 9.7 million acres in 5 years Since Ethanol Mandate



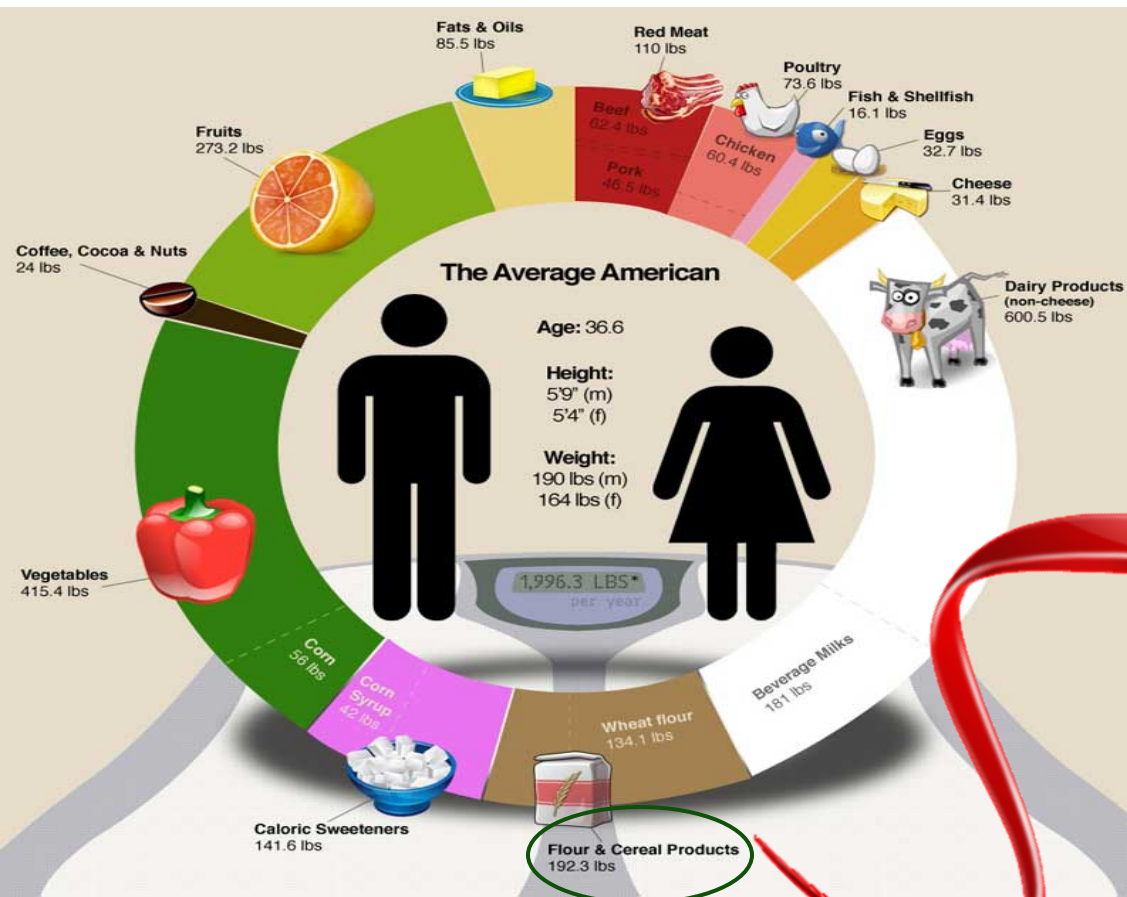
Note that 2007 was the year of passage of the "Energy Independence and Security Act of 2007" which set the renewable fuel standard mandating the use of corn ethanol to a level which now uses more than 40 percent of the corn crop produced in the U.S.

Source: USDA Data.

Modified chart from CFARE.org By Big Picture Agriculture.

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# Food Market Potential



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

➤ **1.2 Billion Bushels**

➤ **10% = 100 MBu**

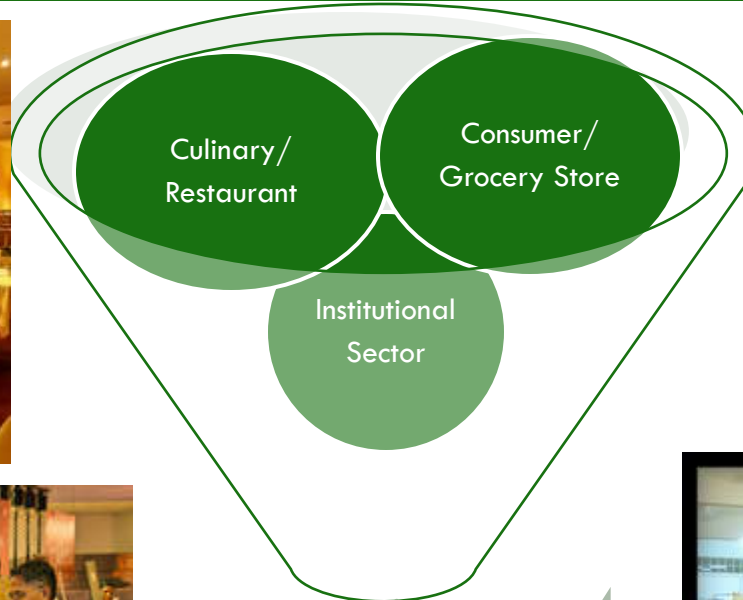
➤ **1% = 10 MBu**

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<http://www.inspirationgreen.com/food-consumption-in-america.html>



# Food Sector Focus



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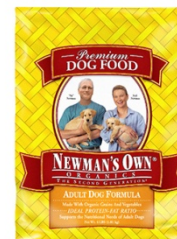
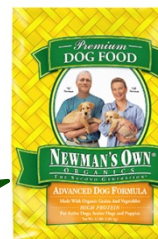
Each Sector Requires A Unique Approach

# Companion Animal Positioning

Brand Name	Formulas
IAMS	Iams® Veterinary Formula™ Weight Loss/Mobility Plus Restricted-Calorie™ dry dog food formula, Iams® Veterinary Formula™ Glucose and Weight Control Plus Optimum Weight Control dry dog and cat food formulas, Iams® ProActive Health™ Adult Indoor™ Weight & Hairball Care dry cat food formula
Mr. Bucks Pet Food	Rescue Blend Special Recipe, Rescue Blend Everyday Recipe, Chicken & Brown Rice
Eukanuba	Most dog and cat dry foods
Pet Wants	Chicken Meal & Brown Rice dry dog food, Salmon Meal & Brown Rice dry dog food, Lamb Meal & Brown Rice dry dog food, Buffalo Meal & Duck Meal dry dog food, Lean Dog Formula, Maintenance Formula, Puppy Formula, Lean Cat Formula, Adult Cat Formula, Kitten Formula
Hills Pet Nutrition	Hill's® Healthy Advantage® & Hill's® Science Diet® dry dog formula
Newman's Own Organics	Adult and Advanced dry dog and cat formulas



What's In A Name?



- 1) Collaborate with current users (Iams, Science Diet) in new formulations
- 2) Increase ingredient usage
- 3) Product Development (Treats) - KSU?
- 4) Non-Food Applications (i.e. Dermal)
- 5) Educate/Counter "Grain-Free" Movement

# Expanding Sorghum Export Markets

**Catfish Feeding Trial in Vietnam** - that incorporates sorghum as a primary feed ingredient. The trial would look at the potential value, implications and opportunities that sorghum would establish in catfish feeding. Additionally, it would look at the ability of sorghum to help the inclusion rate of DDGS without affects on fish color or quality.

**Duck Feeding Trial in China** – that incorporates sorghum as a primary feed ingredient. The trial would look at the potential value, implications and opportunities that sorghum would establish in duck feeding. Additionally, it would look at the establishing duck feeding resources that could be utilized to enhance demand for sorghum in the duck industry worldwide.

**Ethanol Plant Education/Promotion in Mexico** – provide educational and promotional support to the efforts underway in Mexico to build an ethanol plant in Tamaulipas. As sorghum is the approved grain feedstock in Mexico, education and promotion of the ethanol business in Mexico could serve beneficial to U.S. sorghum farmers. Additionally, this would encompass the development of a strategy to incorporate U.S. sorghum into this marketplace.

**Specific Educational/Promotional Program for Mexico** – provide continued educational and promotional support for use of sorghum in all marketplaces within Mexico. This should include livestock, pet foods, foods and additional marketplaces as viewed.

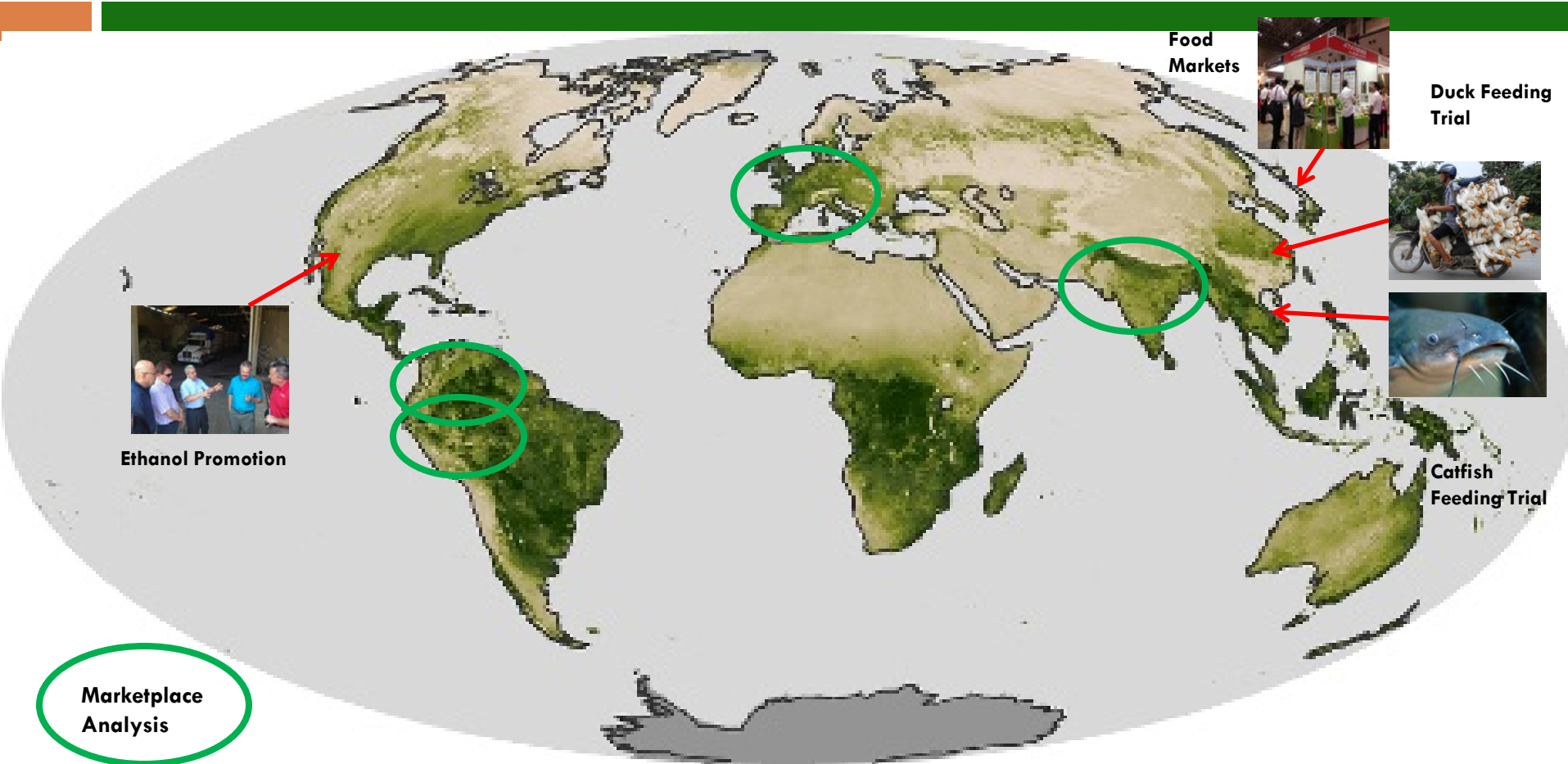
**Marketplace Analysis in India, Peru, Colombia and the EU** – provide an assessment of each marketplace outlining the limitations and opportunities that are present for sorghum. Additionally, each should be analyzed to determine corrective actions or methodologies needed to develop each into a sorghum marketplace.

**Continued Food Marketplace development in Japan** – provide educational and promotional support to efforts underway in Japan's food sector that incorporates sorghum as a food ingredient. Additionally, recipe development that can be utilized in the U.S. or other marketplaces.





# Export Market Potential



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9 Billion People By 2050?