Export Sorghum: The Smart Choice for Feed Grain Solutions

June. 9-11, 2015
Houston, Texas

U.S. GRAINS COUNCIL

Developing markets. >> Enabling trade. >> Improving lives.

China's Quest for Quality

Robert Hurley

Director of Programs in China

U.S. Grains Council

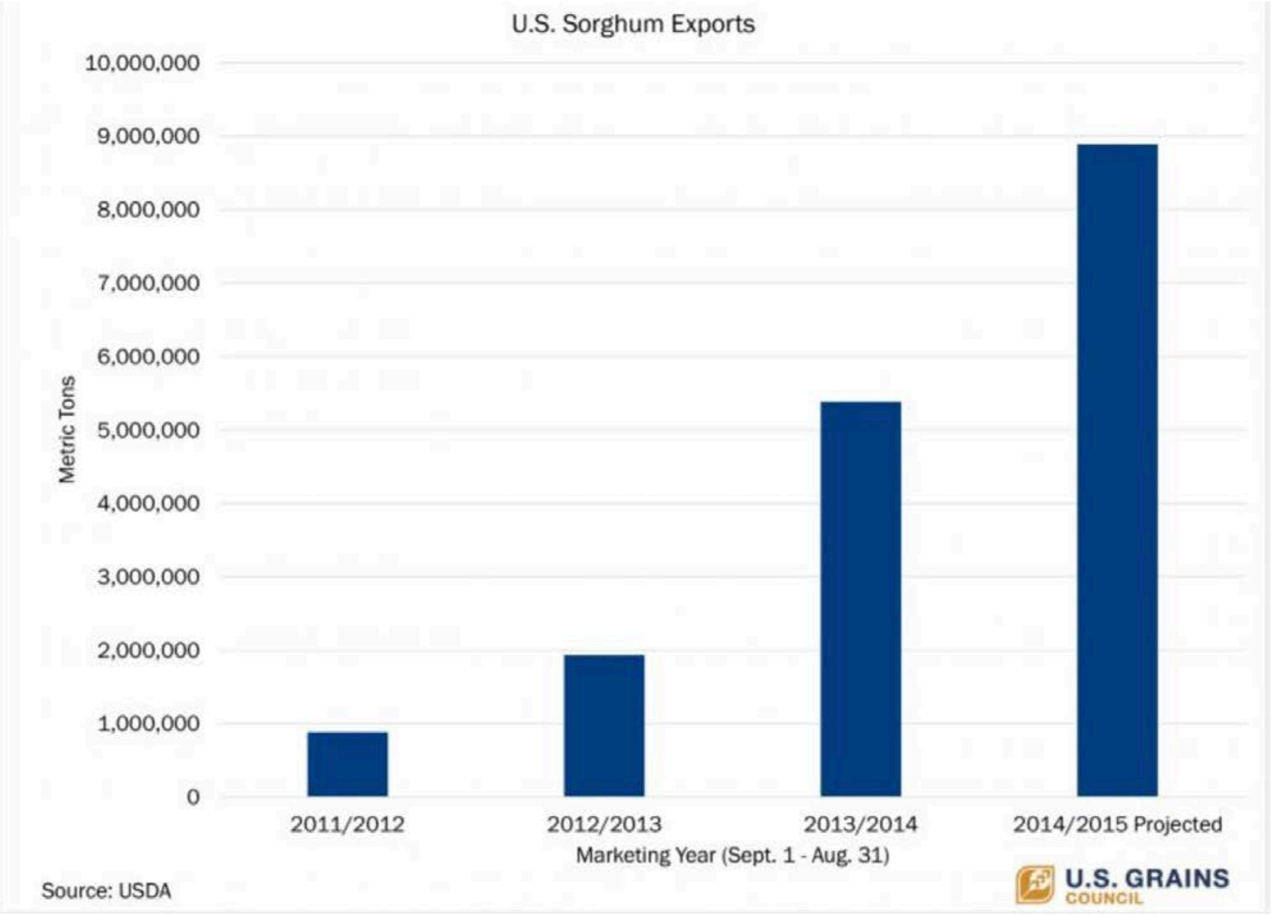
U.S. GRAINS COUNCIL

Deng's US tour 1979---Texas Visit

Presentation Objective

Houston, TX 2015

I'm not going to promise this every year…



U.S. GRAINS COUNCIL

My Objective

1. *Context*
2. *Clarification on Policy*
3. *Reasonable Expectations*
4. *Strengthened Confidence in the Chinese Customer*

Outline: China

Houston, TX 2015

1. **Brief Background:**
    1. **Urbanization**
    2. **Contemporary Ag Policy (2004-Present)**
    3. **Policy supports and acreage expansion—Land competition**
2. **China's Feed & Livestock Industry**
    1. **Current and future outlook**
3. **Sorghum's Chinese revival---Demand Drivers**
    - **Where does it work?**
4. **Recent surge in China's feed ingredient imports**
    - **Impacts on domestic market**
5. **Wrap Up; Q&A if time allows**

U.S. GRAINS COUNCIL

Charting the course:

- Juggling 1.35 billion people
- Demographic Challenge:
  1. Aging Population
  2. China’s Pivot: production to consumption: New Normal
- Urbanizing and Agricultural Industrialization
- Regional production specialization
  - Land Competition

Current Policy: Urbanization 2020

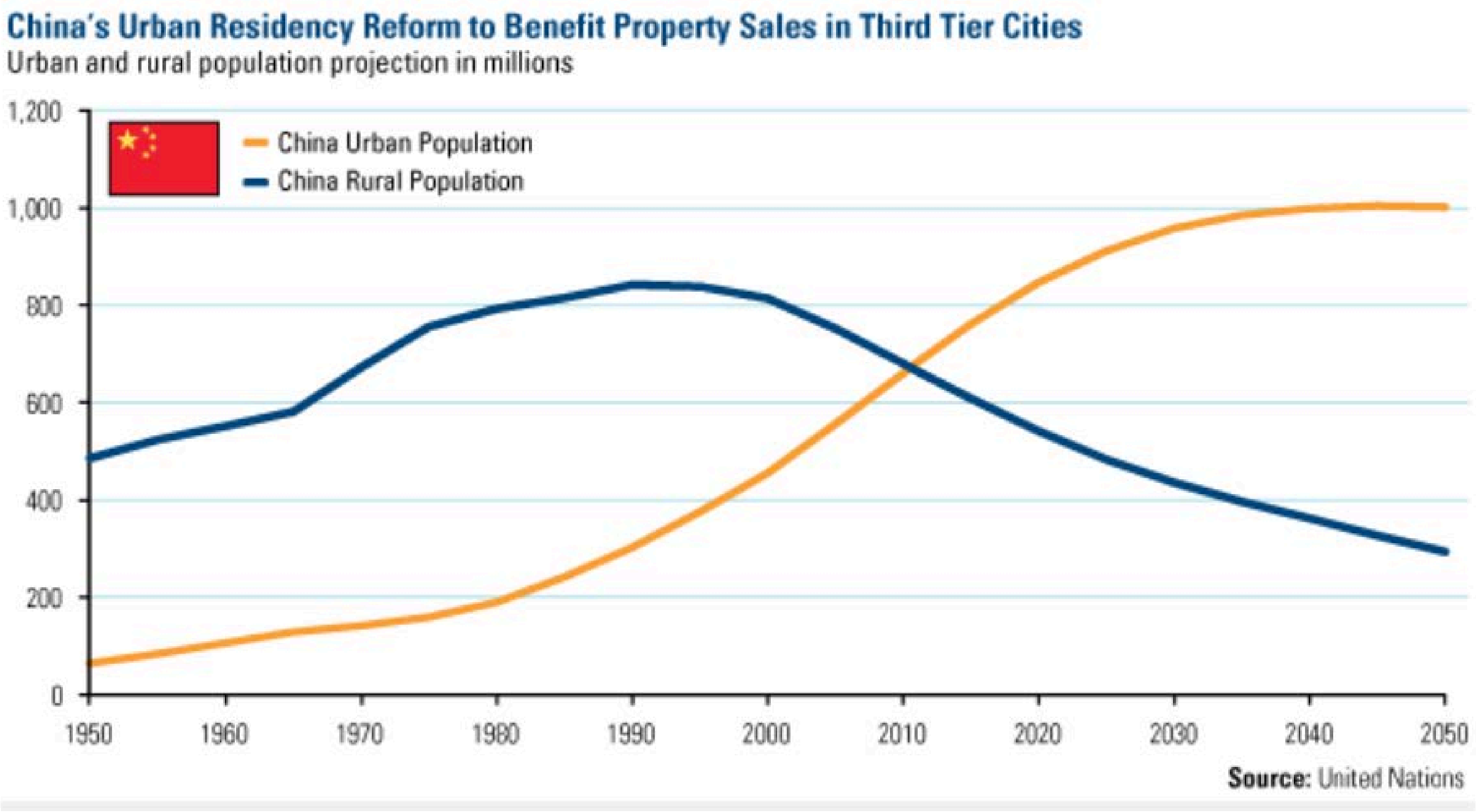
Central government targeting urbanization rate of 60% by 2020. Presently at 53%.

- Well over ***100 million*** people assimilating into urban centers: Knock-on effects; rising incomes, dietary changes, environmental factors, ..
- Hukou Reform
- World Bank 2013 data:

OECD countries	80%	
EU	70%	
East Asia & pacific	51%	
USA	81.4%	(Urban surpassed rural 1923)
China	53%	(2012)

US China Contrast

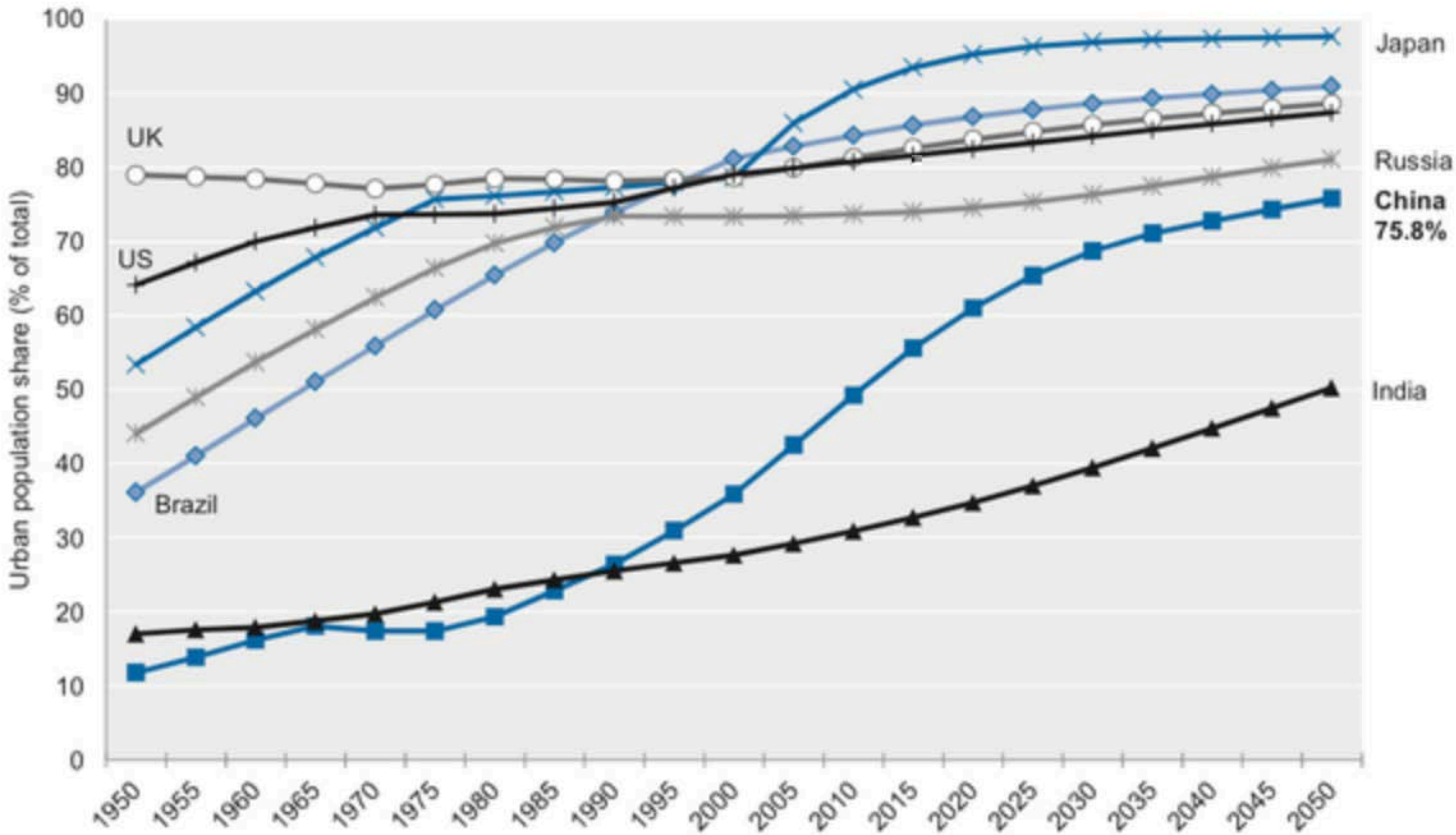
Houston, TX 2015



U.S. GRAINS COUNCIL

China's Urbanization vs Global

Houston, TX 2015



Urbanization trends in China and selected countries from 1950 to 2010. O.E.C.D. Urban Policy Reviews: China 2015, O.E.C.D. Publishing

U.S. GRAINS COUNCIL

China’s Resource Deficit

Critical Shortages:

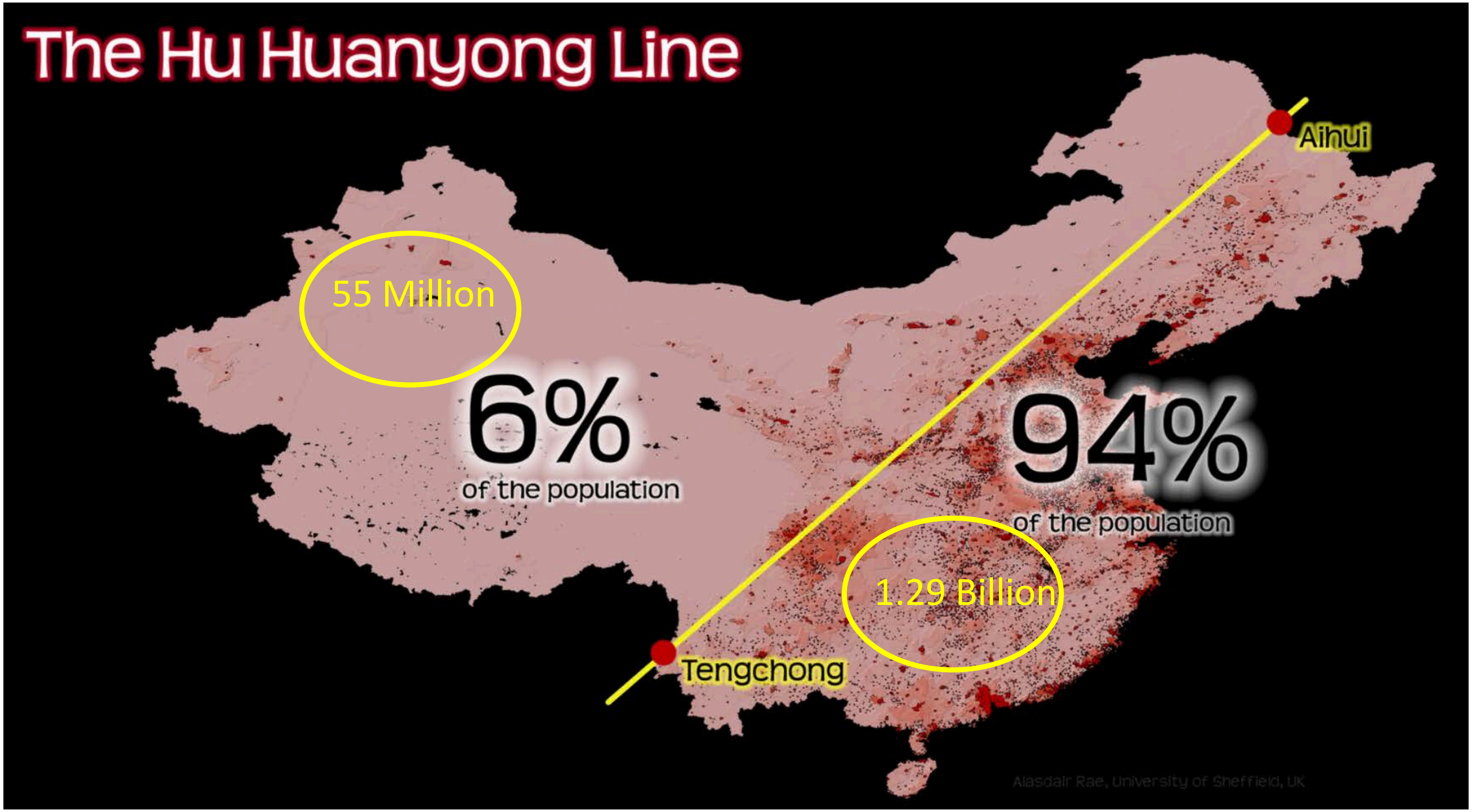
- *20% world population*
- *Less than 10% of the world’s arable land*
- *6-7% world’s water resources*

➢ *Successful implementation imperative for achieving stated growth goals and reform*

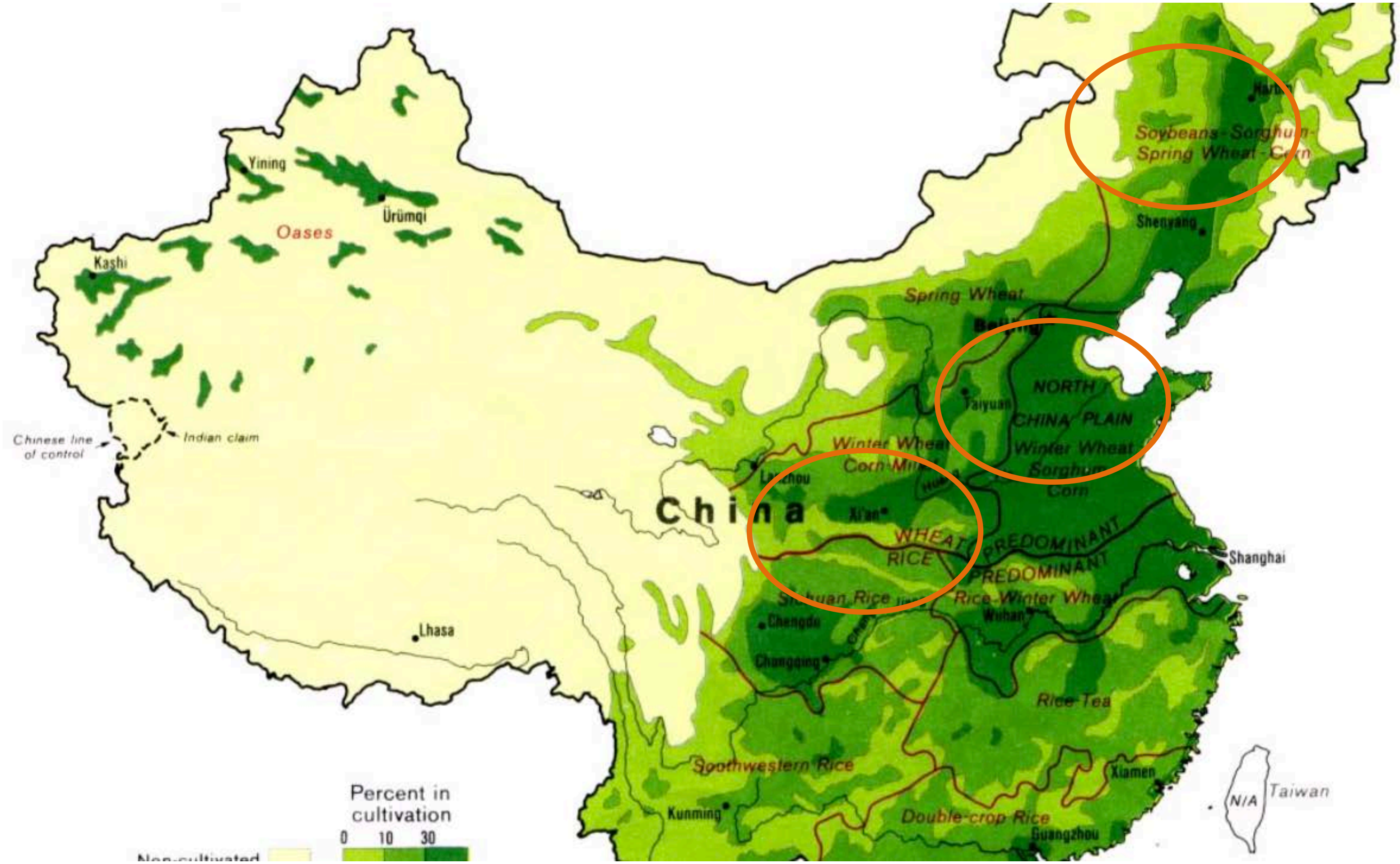
- *Pivot from production to consumption based*
- *Efficient allocation of arable land*
- *Environmental Concerns*

Population Distribution

Houston, TX 2015

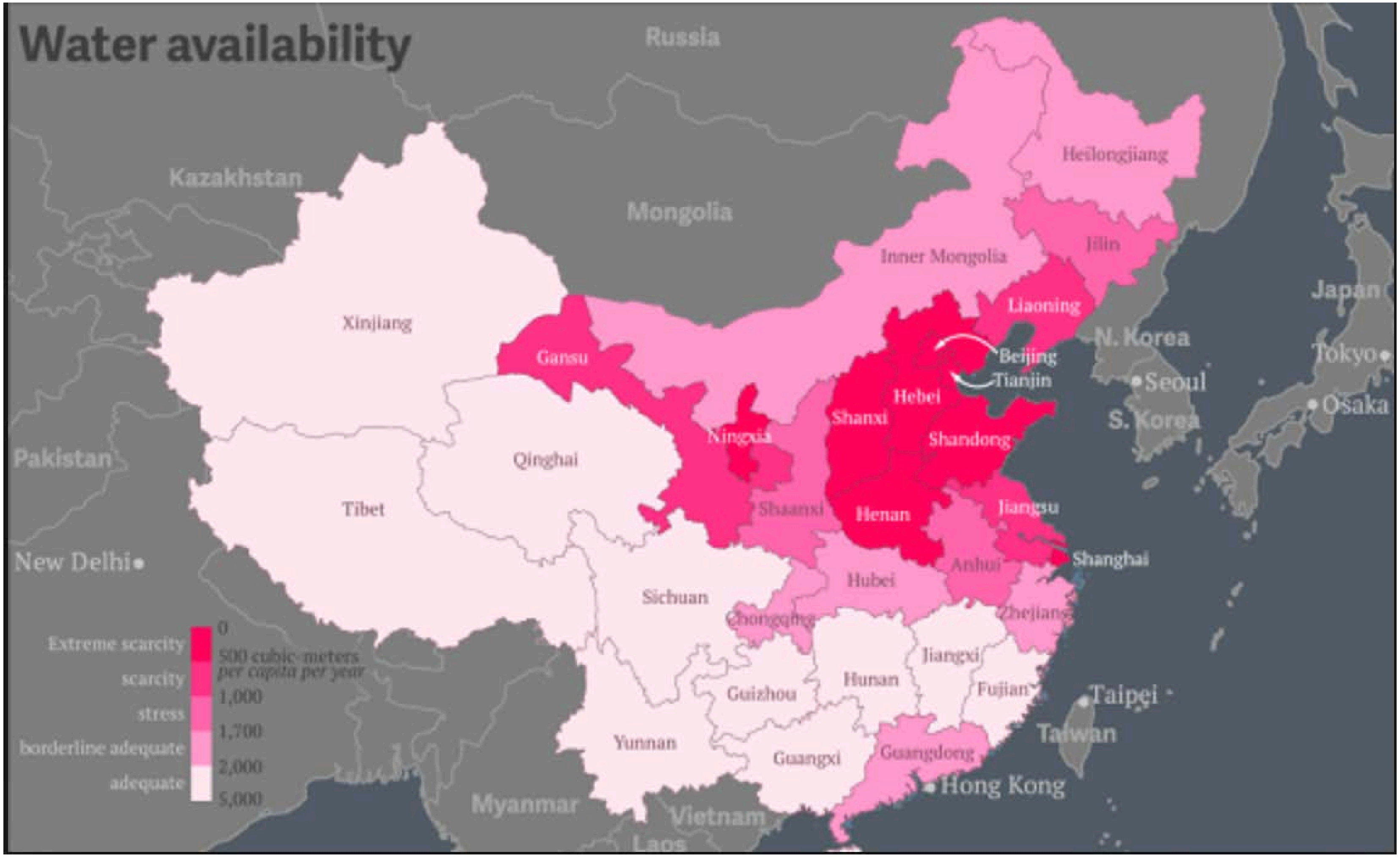


Cultivated Land Area



China's Water Resources

Houston, TX 2015



U.S. GRAINS COUNCIL

The Shakeout

Competing political and commercial interests will determine how China's agricultural industry charts its course:

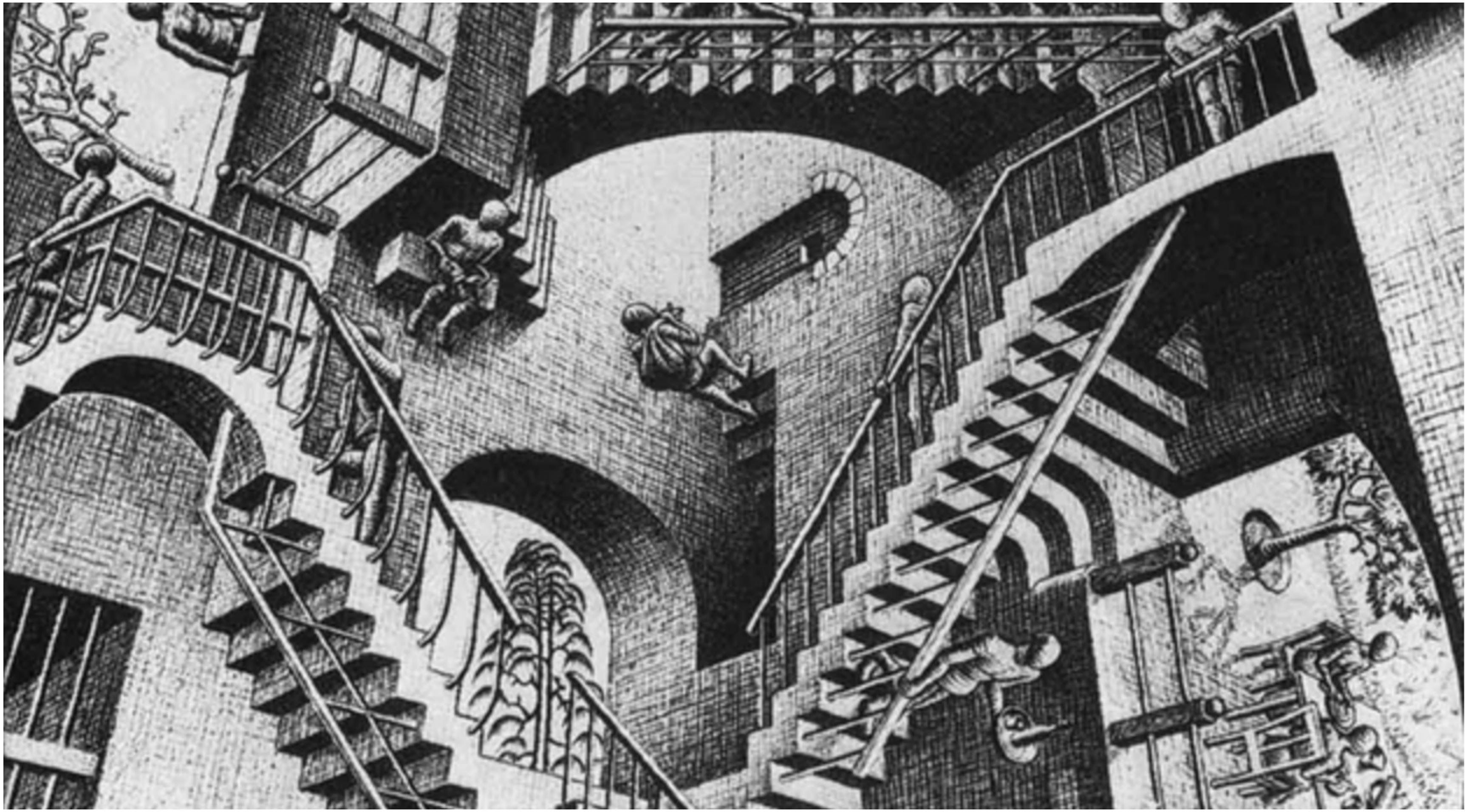
1. *Old VS new mentality; Market guidance*

2. *Global integration*

3. *'New Normal' and its impact*

Understanding Ag Policy

Houston, TX 2015



U.S. GRAINS COUNCIL

The Beijing Consensus

Houston, TX 2015

- “The bowls of the Chinese, in any situation, must rest soundly in our own hands. Our bowls should be filled MAINLY with Chinese grain.”– **Xi Jinping**

- **Niu dun, former Vice Minister of Agriculture**, recently came out strongly against more liberalized grain imports

- **Lou Jiwei, Minister of Finance**, called for substantial reform of existing agricultural policy in addition to reduction of subsidies, and more access to the global market

- **COFCO Chairman**, **Ning Gaoning**, open advocate for liberalized and transparent agricultural trade policy

- “In the past we have focused on expanding production and grain quality, now we need reforms for better buying, selling, storage, to contribute to national security”—**Li Keqiang** (State Administration of Grain Website)

12th Five Year Plan *(2011-2015)*

Houston, TX 2015

Five year plan: ‘Food Security’ (Snapshot)

Largely a continuation of 2005-2010 plan

1. Focus on continued self-sufficiency and security
   - ‘**Heavy emphasis on quality over production**
2. Comprehensive consolidation and modernization
   - Spatial Specialization
3. ‘Going Out’ Policy
   - Diversifying supply chain

U.S. GRAINS COUNCIL

Self-Sufficiency Manifesto

New "Grain Security Policy" removes corn from being held to the "95 percent self-sufficiency" standard of the last 20 years

Recent policies to keep prices high are generating increasingly large ending stocks by encouraging production but discouraging demand

Improving farm incomes is a primary reason for above policy, with self-sufficiency coming in second

Environmental issues as well as economic efficiency are the primary arguments against policies to encourage production

Policy Laundry List:

- Land Reform—'New Socialist Countryside'
- Domestic price insulation
- Improve farmer incomes
- A system consumers can trust
- Safeguard domestic production
- Financial infrastructure for agriculture

◆ ***Bottom line:***
consolidation, modernization on every level

Consolidation & Modernization

Leadership place priority on consolidation, views it as an imperative for rural reform, achieving sustainability, and reaping the benefits of a modern system:

1. *Feed mill industry*

2. *Farmland*

3. *Livestock*

1 Feed Mill Consolidation

2014 Global Feed MMT

1	China	189.13
2	USA	168.68
3	Brazil	66.99
4	Mexico	29.12
5	Spain	28.90
6	India	26.42
7	Russia	24.51
8	Japan	24.17
9	Germany	23.08
10	France	20.98

- Rapid consolidation since 2005
- **2005**: 15,818 mills
- **2010**: 10,845 mills, 30 producers 42% total
- **2014**: 31 producers 52% of total, or 98mmt.

(Alltech 2014)

1 Feed Mill Consolidation

1980s: Sector was scattered and dispersed

- Scores of small mills supplying scores of small farms

1990s: First wave of major consolidation

- Industry began shifting from concentrate to complete feed

2000s: Shrinking margins and shorter market cycles accelerated the pace

- Larger players with superior financial and technical resources begin to dominate—M&As pick up
- Heightened consumer sensitivity and response to reported scandals and disease outbreaks

2 Farmland Consolidation…
Approach and headwinds

Houston, TX 2015

Average Size of Chinese household landholdings:
0.6ha or 1.48ac. U.S. avg 441 (US Agday)

- Provinces subsidizing **large-scale farms**
    - Payments fall into hands of lessors not growers (Gale)

- Ever **increasing input costs** (esp land & labor), necessitate **increasing income** levels for farmer profitability

2 Farm Consolidation: Soil Issues

***Rampant and intense chemical fertilizer application on China's prime cropland over the years pose a serious challenge**:*

- *Spurned by subsidies--- supported chemical fertilizer industry throughout 2000s*
- *Stagnating yield growth*
- *Acute soil compaction*
- *Farmers not receptive to utilize manure*

Environmental Impact

Soil degradation *is a serious concern for policymakers and for future agricultural development. Land taken off production in recent years:*

3.3 million hectares---8.15 million acres

- *At least 40% of arable land was degraded (Xinhua 2014):*
  - *Ground water contamination*
  - *Acidification*
  - *Compaction*
  - *Erosion*
  - *Pollutants*
  - *Salinity*
  - *Land management & policies*

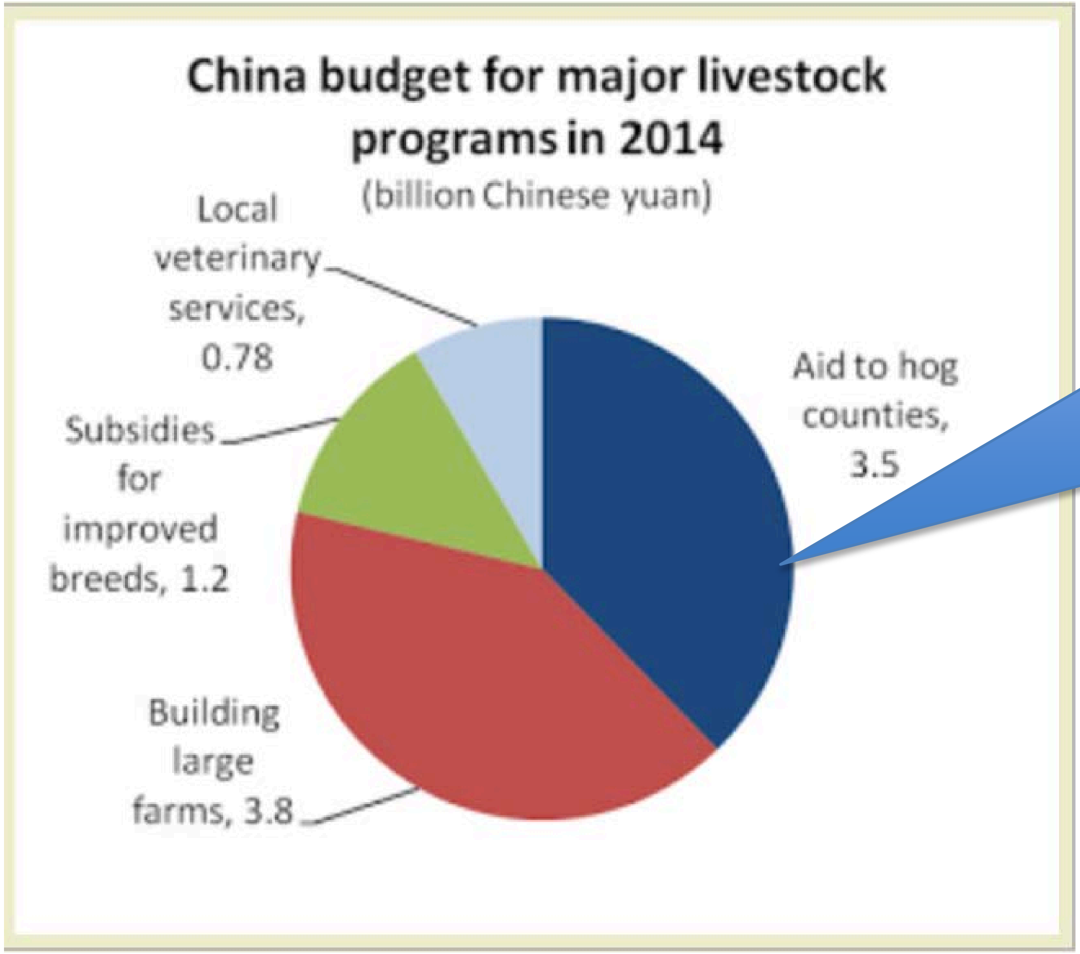
3 Livestock Consolidation

***Modernized livestock operations**: In step with food security policies from Beijing, and seen as imperative for reform*

- *Environmental and social pressure*
- *Raising quality standards*
- *Incentivize larger herd sizes & improved genetics*
- *Added engine of growth to a cooling Chinese engine*
- *Manure management constraints: 2020 objective*

3 Livestock Consolidation

Houston, TX 2015



Funding for top hog producing counties---questions integrity of locally reported stats $570 mill

- Counties are eligible for aid from Central Government based off of reported hog production and sales outside of country (Gale)

(Gale, Dim Sums Blogspot)

(Gale Dim Sums)

U.S. GRAINS COUNCIL

Manure Management Projects

U.S. Grains Council Beijing has been actively advocating for modernization of ***modern nutrient management practices*** *throughout the Chinese livestock industry.*

- *Collaboration with MOA-RCRE*
- *Renowned agricultural universities and industry associations*
- *Partner swine & dairy farms*
  - *Workshops on modern practices*
  - *Testing infrastructure assessments*

Going Global Policy 走出去

Houston, TX 2015

Despite the emphasis placed on domestic production and self-sufficiency; policy has evolved to entail more import-friendly measures:

- *Initiated in '99 it has since morphed into an ag policy*
- *A strategy designed to diversify global supplies portfolio*
- *Compliment domestic production with 'reasonable' grain imports*

U.S. GRAINS COUNCIL

Going Out…

Houston, TX 2015

Meant to reduce dependency on the US grain supply? Probably, but the pie will grow.

- *Where are they 'going'?*
  - *Bulgaria*
  - *Romania*
  - *Ukraine*
  - *Russia*
  - *Argentina*
  - *Brazil*
  - *New Zealand*
  - *And…USA…. elevation and infrastructure investment*
- ***Remaining price competitive and logistically reliable will ensure our place as a future supplier***

U.S. GRAINS COUNCIL

Policy Background

***Since 2004**, Beijing has undertaken numerous efforts to protect staple crops under the 'grain security' program, primarily rice, cotton, wheat, and corn.*

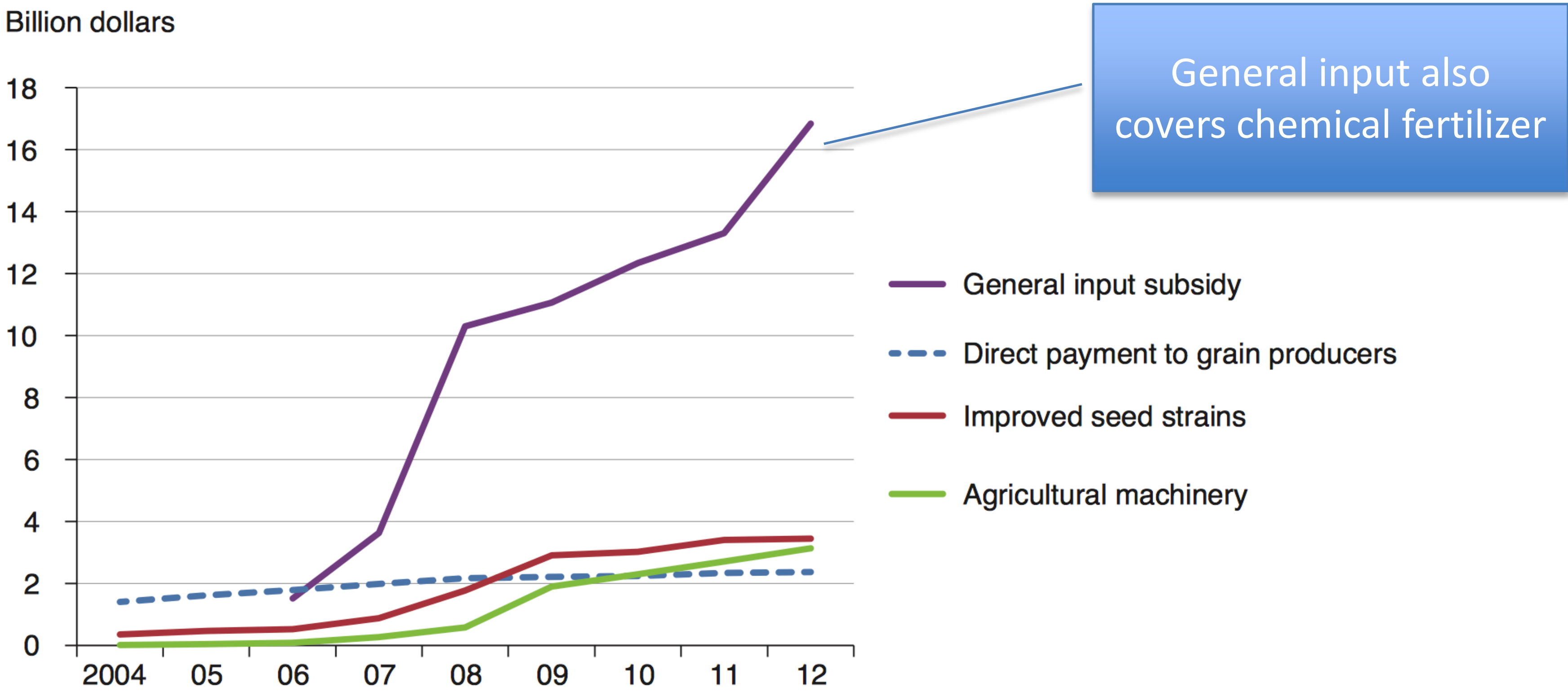
- *Ag tax cuts (initiated in '04 and completed '06)*
- *Farm subsidies (input, land, equipment, etc..)*
- *Price supports: rice & wheat '04-'06, corn '08*
- *State reserve programs*

❖ *The outcome?*

Subsidy Growth Since 2004

Figure 3

Expenditure on China's four major agricultural subsidies, 2004-12



Source: USDA, Economic Research Service analysis of reports from China Ministry of Finance.

USDA--- Chinese Corn Price Support

Houston, TX 2015

U.S. GRAINS COUNCIL

Footing the Bill

Houston, TX 2015

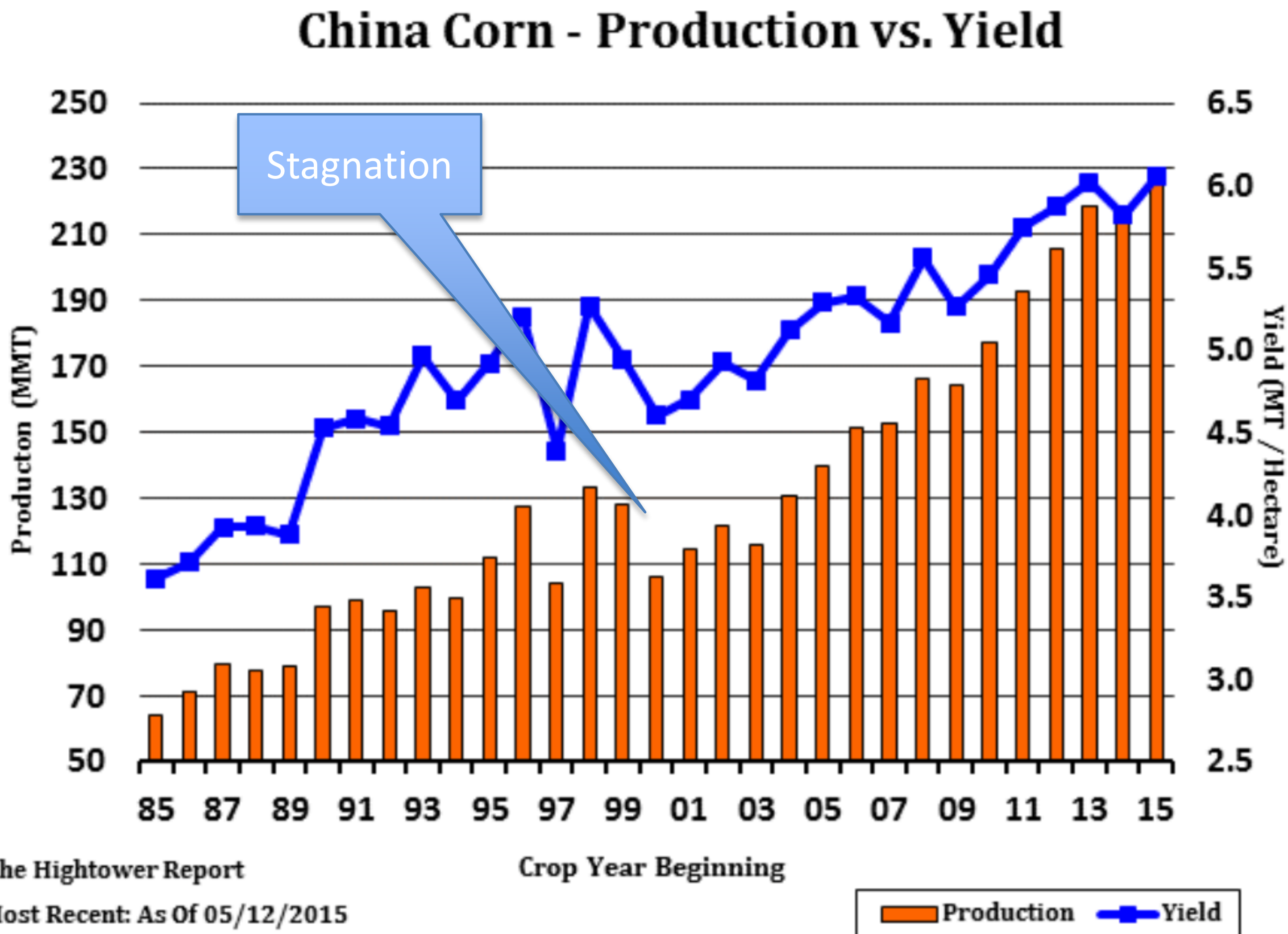
- China's Ministry of Finance: In 2012, the country budgeted **$75 billion** in total agricultural expenditures. (ERS-USDA Gale 13)
  - **$127/metric ton** of grain produced

- **$165 billion** spent on direct and indirect farmer subsidies in 2012 (Economist OECD)
  - Japan $65b, USA $30b

- Farmer exodus & rising labor costs present problem for subsidy reform, further stress MOF purse strings

Acreage and Yield Growth

Houston, TX 2015



U.S. GRAINS COUNCIL

Corn Production

Houston, TX 2015

Table 1: Corn Production and Production Growth in China: 1993-2013

Cummulative Annual Growth Rates (percent)						
	1993	2003	2013	1994-2004	2004-2014	1994-2014
Area (mha)	21.0	24.7	36.1	1.7%	3.9%	2.8%
Yield (mt/ha)	4.73	4.95	5.90	0.5%	1.8%	1.1%
Production (mmt)	99.1	122.4	213.2	2.1%	5.7%	3.9%
Area growth share of production growth	---	---	---	81.0%	68.4%	71.8%

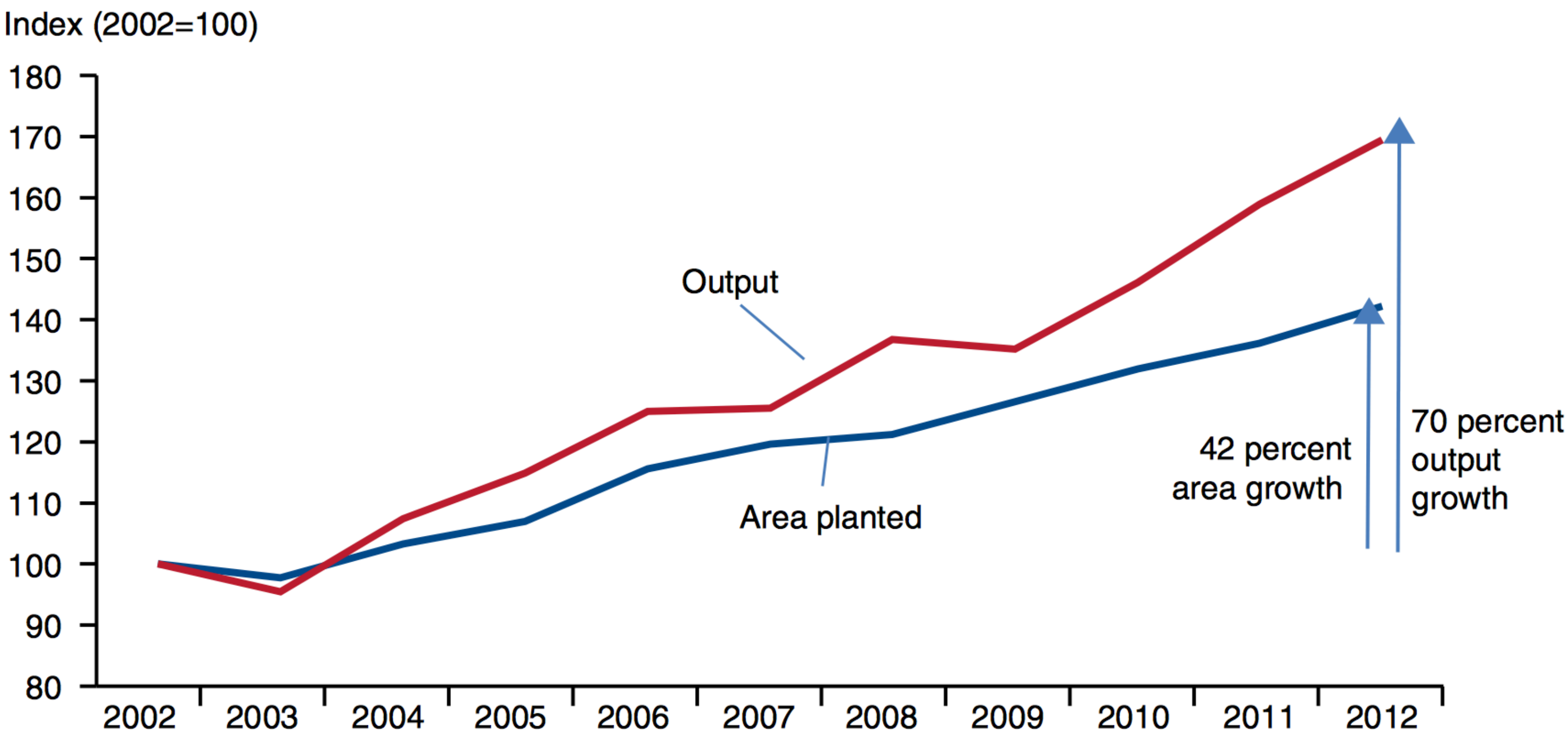
Note: Data from the Agricultural Finance Databook for agricultural banks, and from annual reports for the Farm Credit System. Coverage ratio is loan loss reserves divided by nonaccrual loans.

- A substantial portion (71.8%) of production increase has come from added acreage
- Adding fringe acres is a result of support price policies
- Future growth must come from more productive yields
- Fringe acres will likely revert back to grasslands or switched to more suitable crops as prescribed by recent policy

Growth from Acres not from Yield

Houston, TX 2015

Figure 1
Indexes of China's corn output and area planted, 2002-12

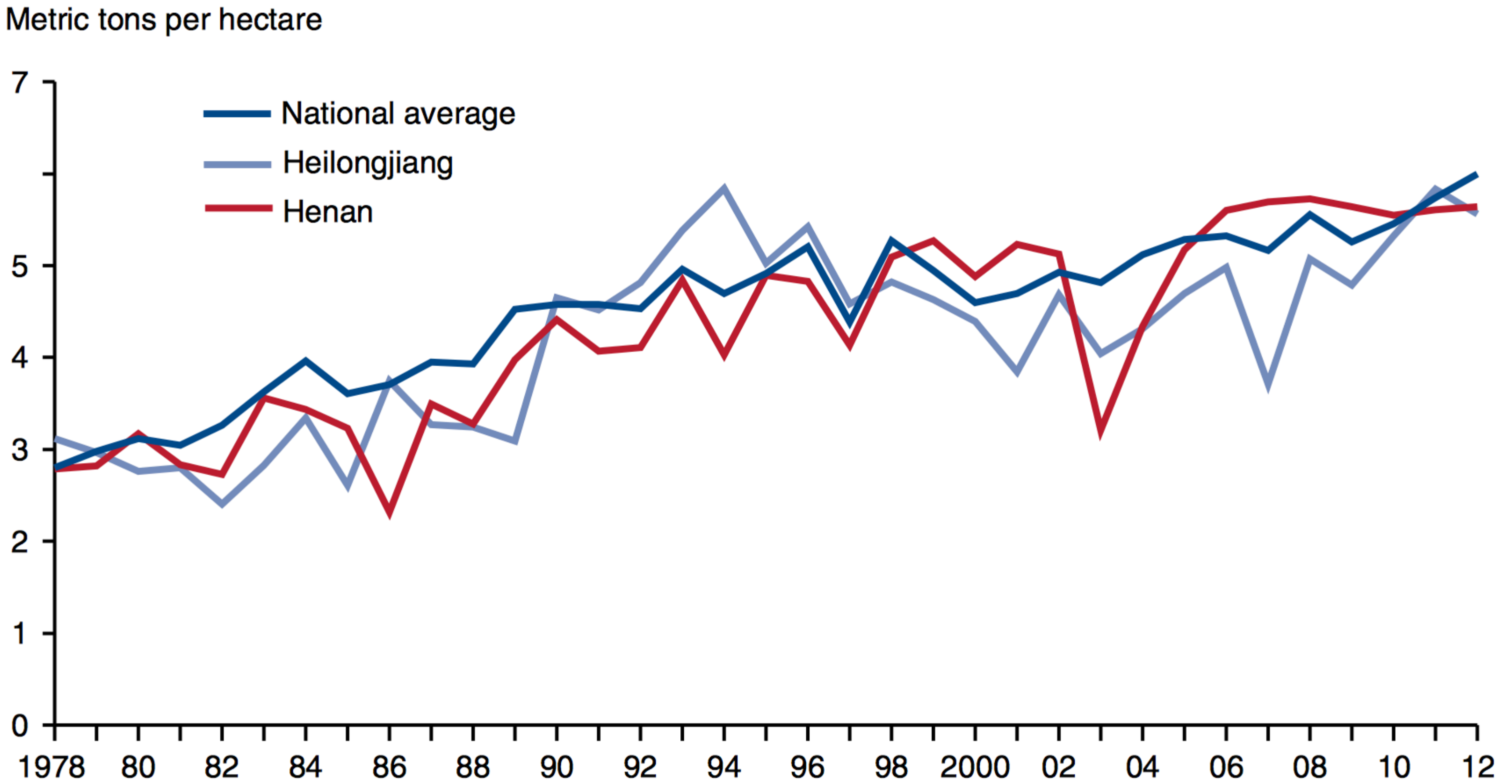


Source: USDA, Economic Research Service analysis of data from Global Trade Information Services, Inc.

Slow Yield Growth Since Late 90s

Figure 5

China corn yields: national average, Henan and Heilongjiang Provinces, 1978-2012



Source: USDA, Economic Research Service analysis of data compiled from China National Bureau of Statistics yearbooks.

Provincial Yield Trends

Houston, TX 2015

Table 1

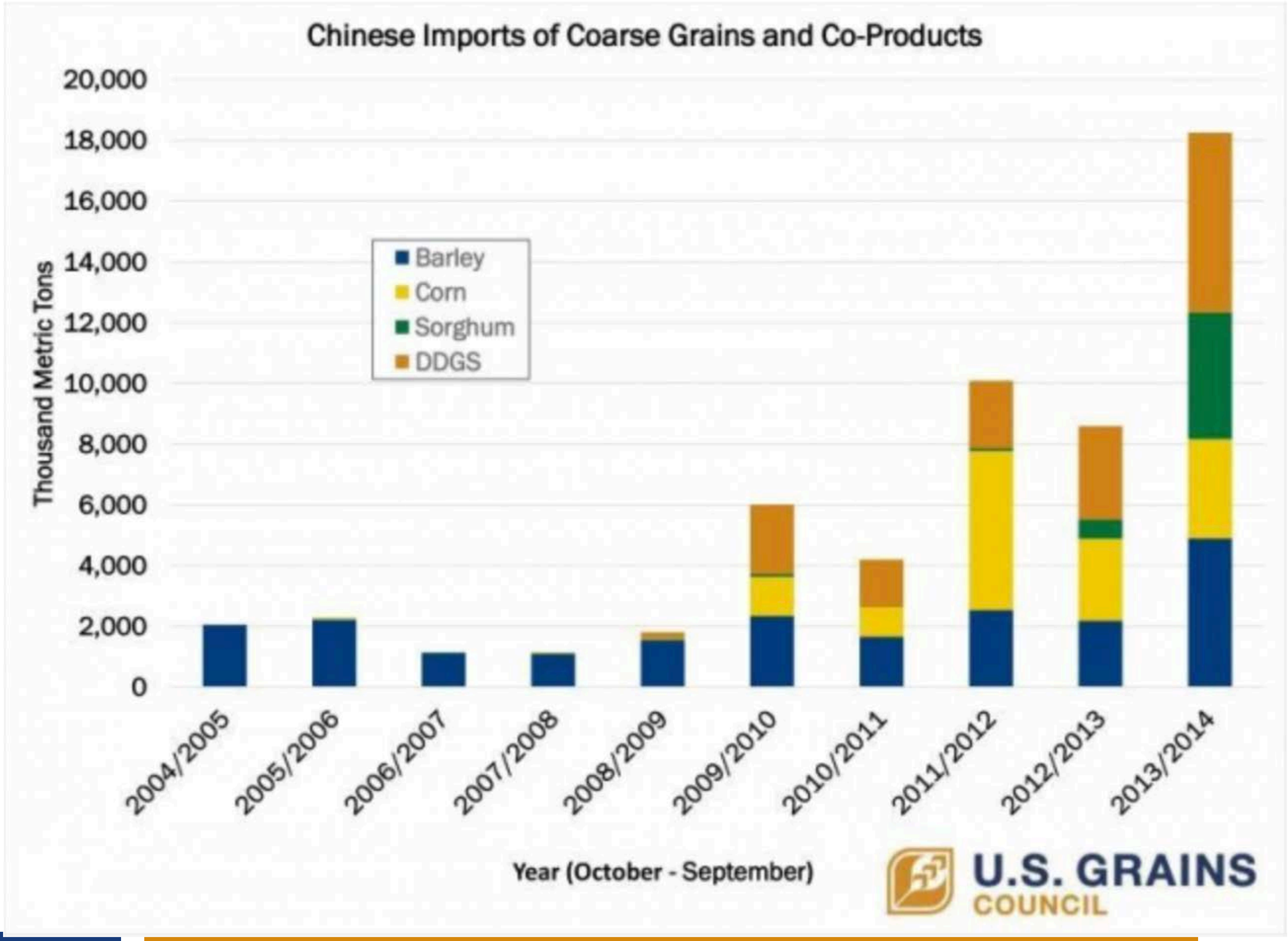
Growth in China corn output, 2003-12, by province

Province	Corn yield, 2012	Growth in corn output	Share of growth
	Metric tons per hectare	*Metric tons*	*Percent*
Heilongjiang	5.6	20.6	22.9
Henan	5.6	9.8	10.9
Inner Mongolia	6.3	9.0	10.0
Jilin	7.9	9.6	10.7
Shandong	6.6	5.8	6.5
Hebei	5.4	5.8	6.4
Liaoning	6.5	5.2	5.8
These provinces	6.2	65.8	73.2
Other provinces	5.3	24.0	26.8

Source: USDA, Economic Research Service calculations using data from China National Bureau of Statistics.

Reconciling Record Production & Imports

Houston, TX 2015

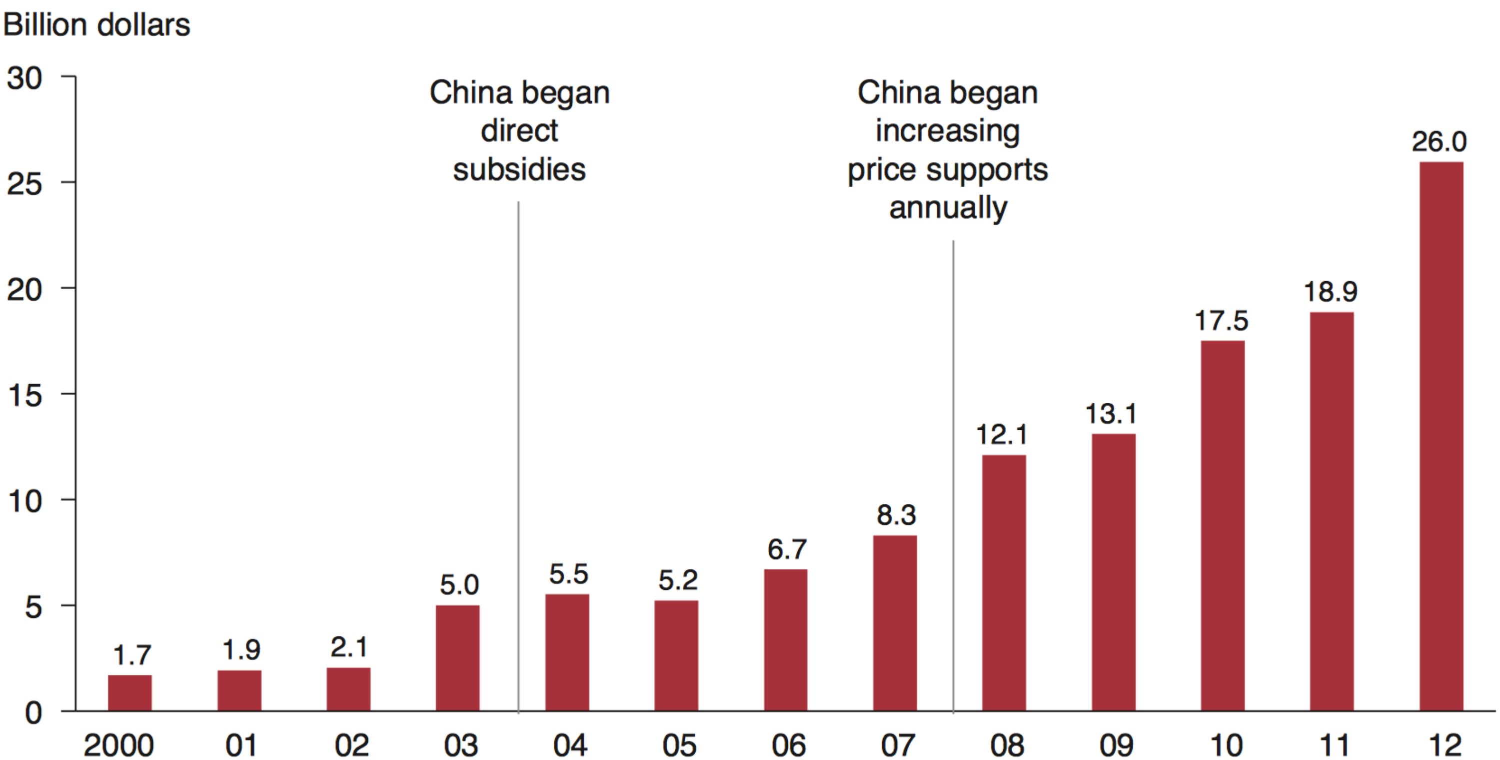


U.S. GRAINS COUNCIL

U.S. Ag Exports to China

Houston, TX 2015

Figure 14
U.S. agricultural exports to China, 2000-12



Source: USDA, Economic Research Service analysis of data from USDA, Foreign Agricultural Service, Global Agricultural Trade System.

U.S. GRAINS COUNCIL

Building Stocks and Production

Houston, TX 2015

U.S. GRAINS COUNCIL

Record Imports Despite Record Growth

***Despite Y/Y growth for corn production since 2003 & a host of policies meant to deter imports, Chinese end users aggressively hit the global market, there are a few takeaways**:*

1. *Corn growth approaching a ceiling/plateauing, China's ability to store and handle current supplies is trailing, impacting quality of the new production*

1. *Chinese meat consumption over reported, latent feed grain demand*

2. *What does all this mean for sorghum?*

After nearly doubling planted corn area since 2003, yields have failed to keep pace.

Headwinds for sustained growth:

- Fringe acreage
- Plant density and occurrences of ‘tip back’
- Land competition

Dissecting China's Hog Market

1. 40.2 million head sow heard (2014)

2. 389.3 million on farm inventory (MOA-March 2015)---4 year low

3. 735.1 million market hogs 2014 (MOA/Genesus)

4. Statistical discrepancies:

MOA as of Dec 14 show a 7.8% Y/Y decline CY14

NBS data shows a 1.7% Y/Y decline over same period

(swine inventories)

Reported numbers don't add up

- NBS pork production data; **2013=54.9mmt, 2014= 56.4mmt; 43kg per person**

- Using China's latest available consumption numbers (2012 household survey)
  - Urban= 21.2kg/person Rural= 17.8kg/person
  - **Combined total of 24mmt of pork consumption**

- Adjusting for outside household consumption these numbers can be adjusted to the following: **urban=35kg Rural=20**
  - **A rough estimate of about 27kg/p, equating to 37mmt of annual pork consumption**, leaving a surplus of 17mmt of pork
  - (*Lohmar, Choices*)

◆ ***It is probable official production estimates are highly over reported***

Potential for New Demand: Over 150mmt

Houston, TX 2015

		Per Capita Cons (kg/yr)	Total Demand (mmt)	Convert to Feed	Total Feed Demand (mmt)	Percent Corn	Total Corn Demand (mmt)
Pork	Current	27	36.5	5.4	196.8	45%	88.6
	Potential	40	54.0	4.8	259.2	65%	168.5
Poultry Meat	Current	12	16.2	3.0	48.6	50%	24.3
	Potential	30	40.5	2.8	113.4	60%	68.0
Poultry Eggs	Current	15	20.3	2.5	50.6	50%	25.3
	Potential	17	23.0	2.2	50.5	60%	30.3
Dairy	Current	17	23.0	2.0	45.9	25%	11.5
	Potential	40	54.0	1.8	97.2	28%	27.2
Beef	Current	3.6	4.9	10.7	51.8	20%	10.4
	Potential	6	8.1	9.3	75.6	30%	22.7

Total Current Corn Feed Demand => **160.0** (Lohmar)

Total Potential Corn Feed Demand => **316.7**

U.S. GRAINS COUNCIL

Will China Produce it or Import it?

Policy emphasizes domestic livestock production, but without improvement in <u>corn price policy</u>, <u>environmental policies</u>, and probably <u>food safety policies and practices</u>, it will be difficult for livestock producers to become competitive with imports.

Growth in corn production over last 2 decades has been predominantly due to expanding sown area which cannot go on forever, and potential yield growth is not so high and will likely be slow

Sorghum's Place

U.S. sorghum has gained widespread acceptance throughout the livestock industry since late 2013, and we have been relentless promoters from the start

- *Seminars held in 2013--- brought in specialist to speak on sorghum's true value*
- *Workshops and conferences throughout 2014*
- *Sorghum roadshow in January 2015*
- *Swine & sorghum buyer's team May-June 2015*

Getting a Foothold

It's true, corn policy and implied trade risk was a major factor in opening up the Chinese market for sorghum

- GMO policies/approvals played a role
- Price disparity encouraged trials
- Trials led to familiarization
- Our responsibility to combat misconceptions
  - Tannin, toxins, color, etc..
- *Latest feedback has been overwhelmingly good*

COFCO April 2015 Survey

Guangdong:

Feedback from 2014 survey and 2015 survey strikingly different

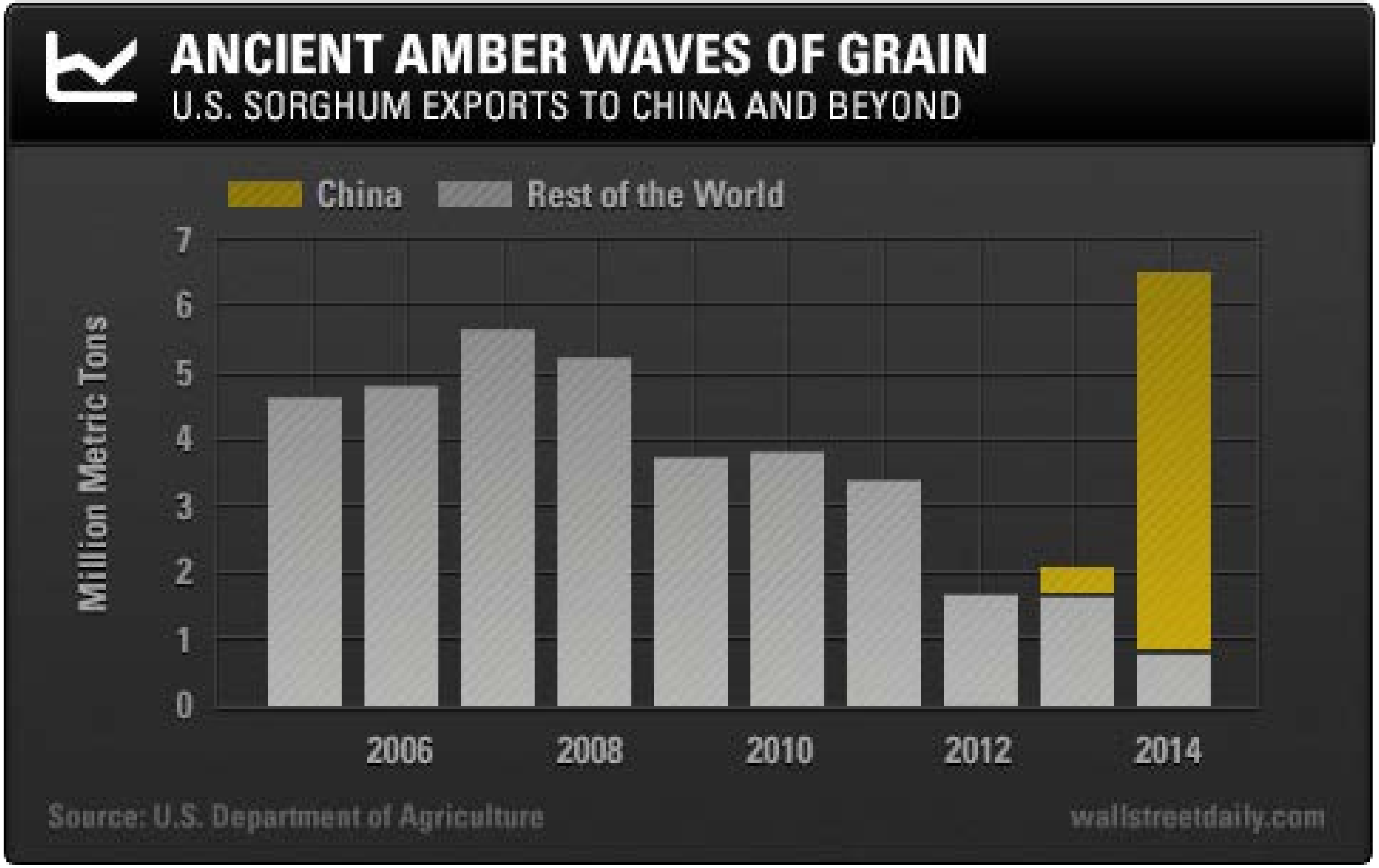
- Swine inclusions vary around 30-50%, up from 10-20% in 2013/14

- Duck feed inclusions have completely replaced corn

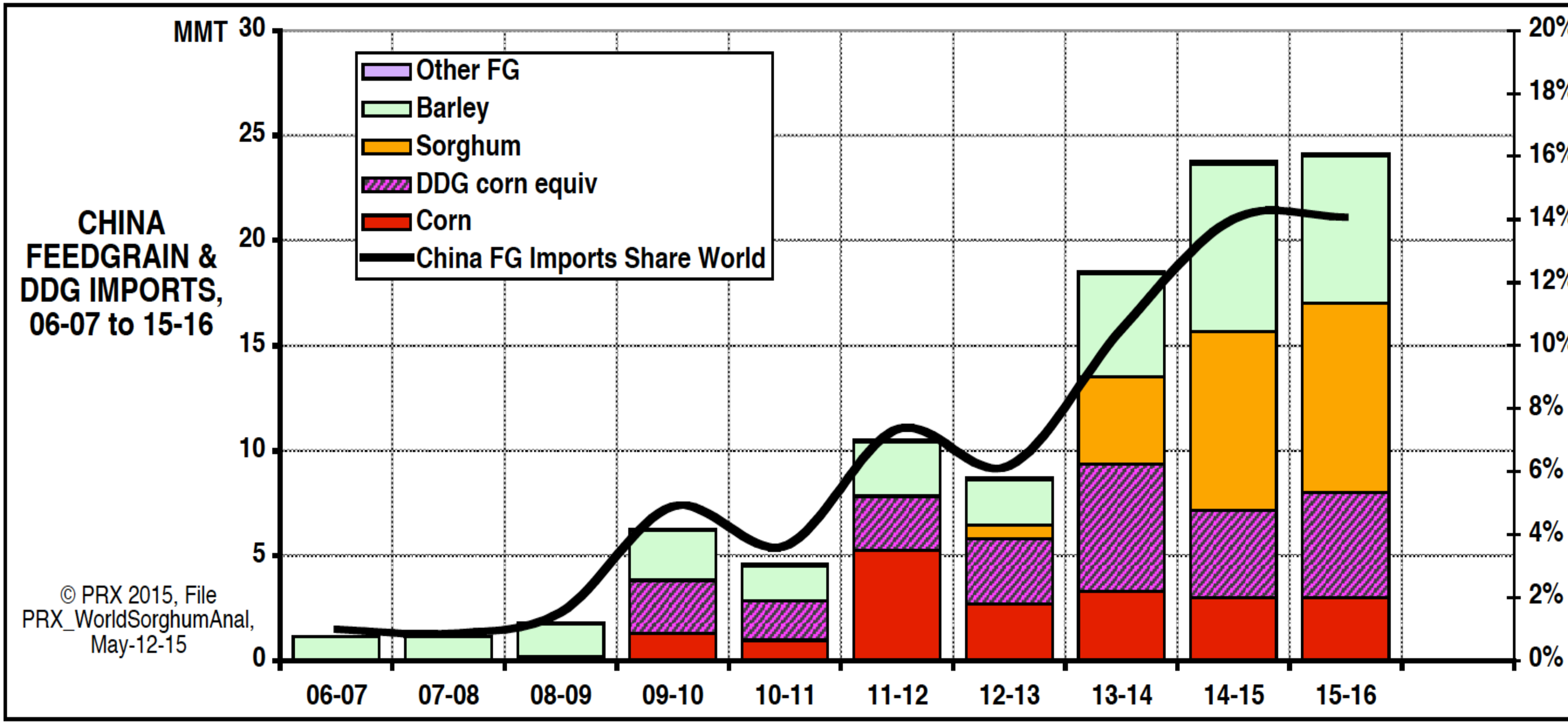
- Less toxins than domestic corn, less diarrhea issues

Sorghum's Place

Houston, TX 2015



Not Just Sorghum



ProExporter

U.S. GRAINS COUNCIL

Nothing Stays the Same

Policy as it stands, will change. There is no timeline or any reliable way of predicting the change, or forecasting how it will change, but it will come.

We have seized the opportunity to expand into the Chinese market, and ensure they know how to fully value our product.

If the Chinese economy successfully transitions to a consumer driven model, it will help further propel meat demand and ultimately feed grain demand.

Nothing Stays the Same…

Feed mills and producers, under pressure from the government and largely society, have shifted their focus to quality control--- feed ingredients

What will help secure the Chinese market going forward?

- Price
- Quality
- Availability