Global AgInvesting℠

Key Fundamentals Driving Investor Interest in Global Agriculture

Philippe de Lapérouse
Managing Director
HighQuest Partners LLC

Les Perspectives 2014
Le 8 avril 2014
Boucherville, Québec

1. HighQuest Partners + Soyatech
2. Size of global ag market
3. Fundamental drivers
4. Expected range of returns
5. Summary

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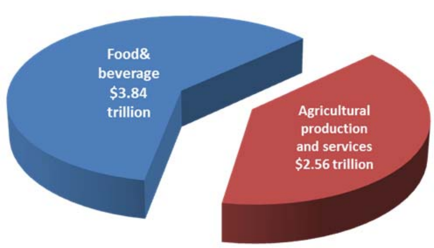
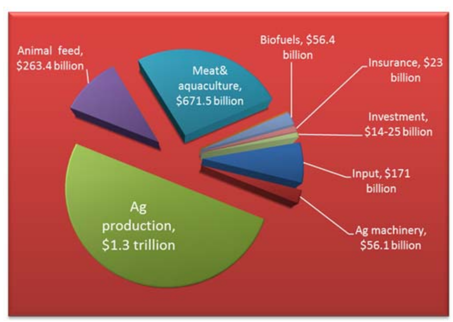
Global agriculture is broad and large(3rd largest after currency and energy markets) and experiencing steady growth(4 - 5%)

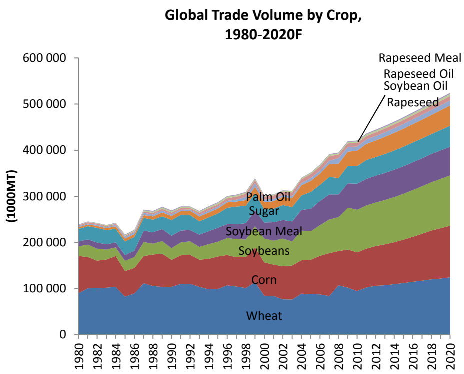


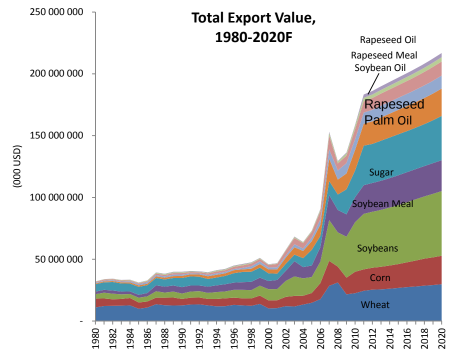


Total global agriculture market value is estimated at more than **$6.4 trillion** (including the food & beverage sector), representing over **8.5% of the world's economic activity in 2010**.

Global agricultural trade volume projected to increase 2.7% (CAGR) through 2020

Agricultural commodities trade is forecast to exceed 520 million metric tons in next ten years due to rising demand in China, India,Southeast Asia and Middle East.





Note: Illustrative
- 1980-1999 uses 2000 pricing
- 2011-2020 uses 2010 pricing

Source: USDA statistics and baseline projection, CME

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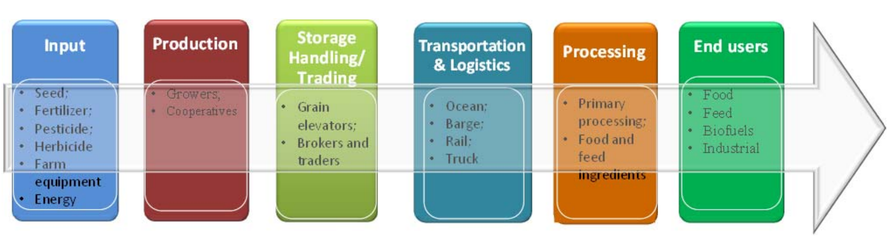
Agriculture value chain – "conceptually simple and yet challenging for efficient execution"



A complex market structure which requires appreciation for how margins are shared amongst players at different points along the supply chain.

Range of investment opportunities in the ag sector

Real Assets
- Farmland
- Infrastructure

Private Equity
- Upstream
  - inputs(seed, chemicals, fertilizer, technology services, capital goods)
- Downstream
  - storage and logistics
  - value added processing of ingredients
  - food/feed/industrial processing

Venture Capital
- Biotech
- Enabling technologies (precision ag)

Water theme investments

Liquid Assets
- Public equities
- Commodity index funds

Examples of broad range of activities in the global agricultural sector

	2010 market value (est.)	2015 market value (est.)	Estimated CAGR 2010-2015
Seed	$37 billion	$47 billion	3.5%
Ag chemicals & fertilizer	$134 billion	$196 billion	6.5%
Ag machinery	$56.1 billion	$80.5 billion	7.5%
Ag production	$ 1.3 trillion	$1.46 trillion	2.4%
Food& beverage	$3.84 trillion	$4.6 trillion	3.7%
Animal feed	$263 billion	$313 billion	3.5%
Meat & aquaculture	$672 billion	$815 billion	3.9%
Biofuels	$56.4 billion	$80 billion	7.2%
Ag investment	$20 billion	$40 billion	15%
Ag insurance	$23 billion	$66.6 billion	20%

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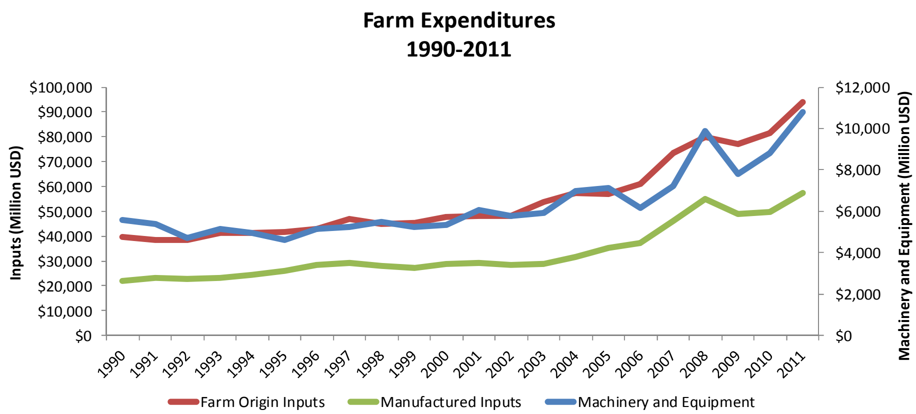
US farm expenditures have been trending upward since 1990



Farm Origin Inputs include seed, feed, and livestock and poultry purchased.

Manufactured Inputs include energy, fertilizers, and pesticides.

Source: USDA ERS

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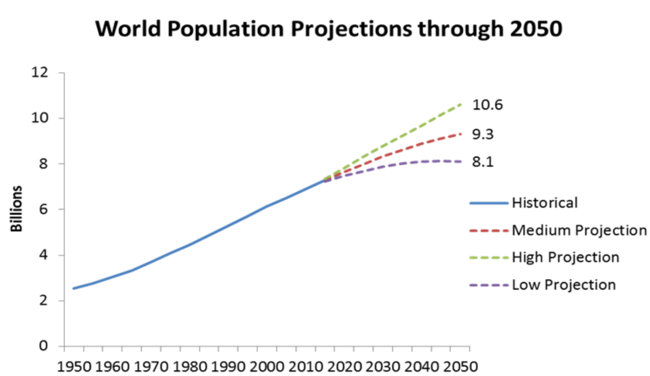
Key issues driving farmland values

- **Population growth and increase in GDP**
  - World population 9 billion in 2050
  - Increased demand in developing markets, particularly Asia, SE Asia and North Africa
  - Shift in diets from grain to animal protein (***Bennett's law***)
- **Increasing urbanization**
  - Pressure on available arable land for crop production
  - Increasing reliance on processed foods
- **Constraints on supply**
  - Access to water
  - Climate change
  - Linkage to energy markets(biofuel mandates)
  - Slowdown in yield increases
- **Human capital**
  - Generational transfer in both developed and developing markets
  - Lack of capacity building in developing markets

Demographic trend a major driver



Source: UN Population Division

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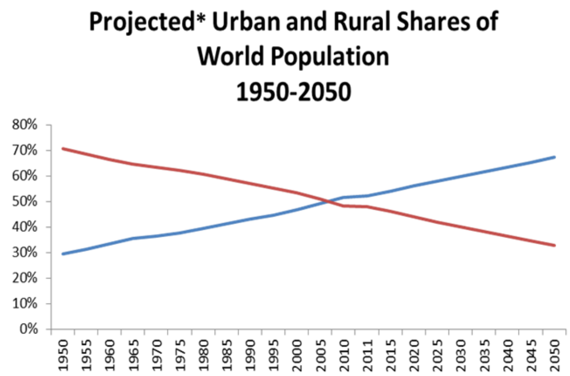
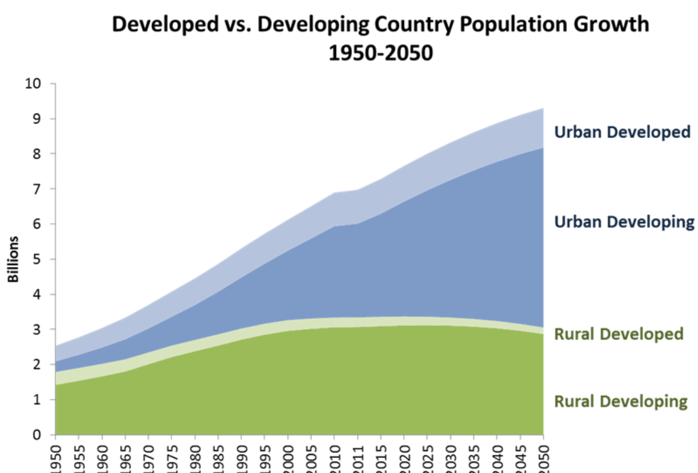
Urbanization trend increasing demand for food commodities



*Medium projection variant
Source: UN Population Division

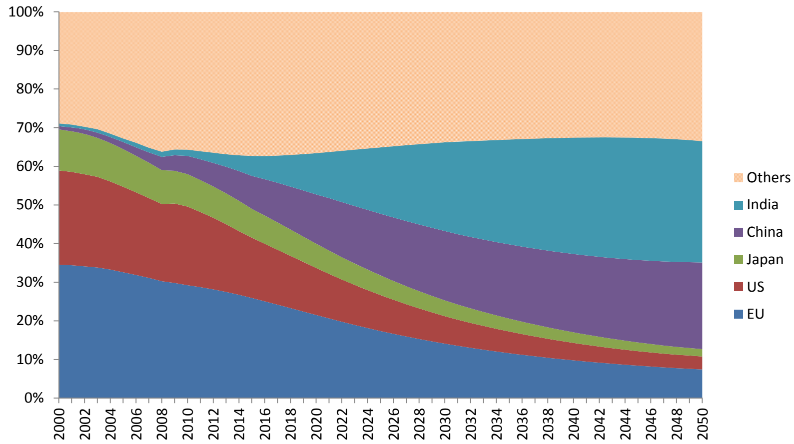
Dramactic shift in developing country populations from rural to urban has major implications for increased trade in commodities



*Medium projection variant
Source: UN Population Division

Middle class consumption in China and India continues to fuel growing demand for commodities

Global Middle Class Consumption 2000-2025



Source: OECD

Commodity boom driven by shift of poor into the middle class

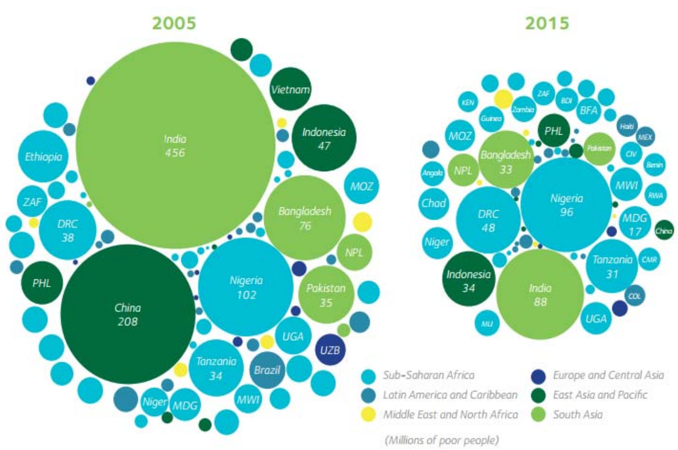
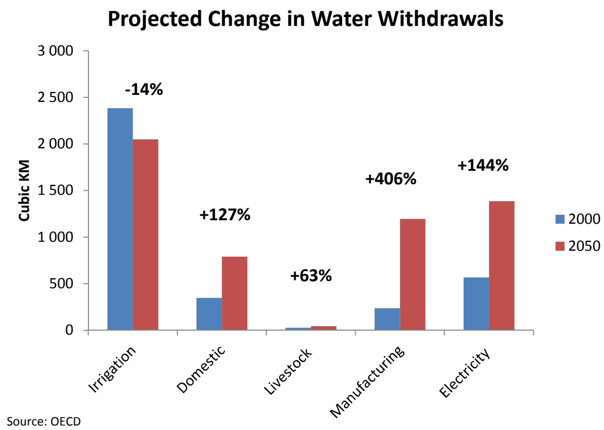


Figure 5: The changing global poverty landscape

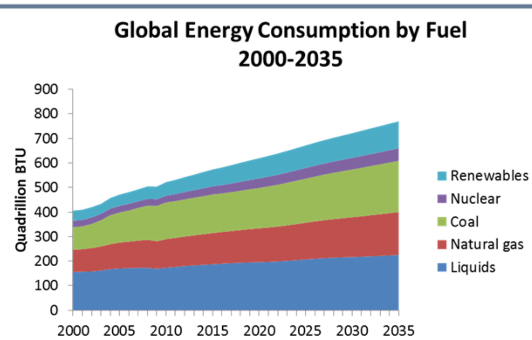
Note: Numbers refer to individuals living below the international poverty line of USD $1.25 a day, figures rounded to the nearest million. Source: Laurence Chandy and Geoffrey Gertz, *Poverty in Numbers: The Changing State of Global Poverty from 2005-2015* (Washington DC: The Brookings Institution, 2011), p. 8.

Agriculture will have to compete for access to water



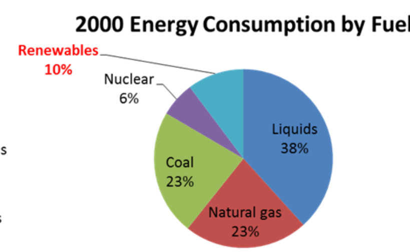
Source: OECD

Renewables are here to stay but at what levels?

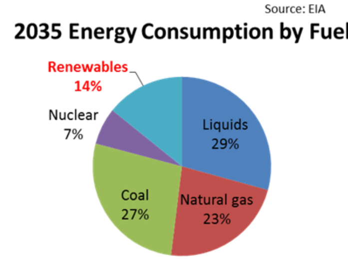


Source: EIA

Fuel Annual Growth Rates (2000-2035)	
Liquids	0.9%
Natural gas	1.3%
Coal	1.4%
Nuclear	1.6%
Renewables	**2.0%**
Overall	1.3%

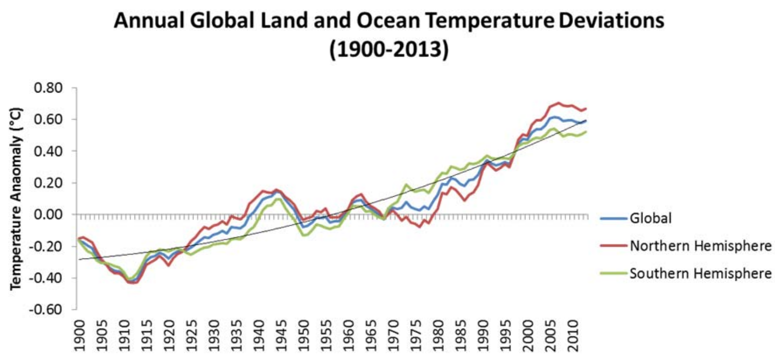


Source: EIA



Source: EIA

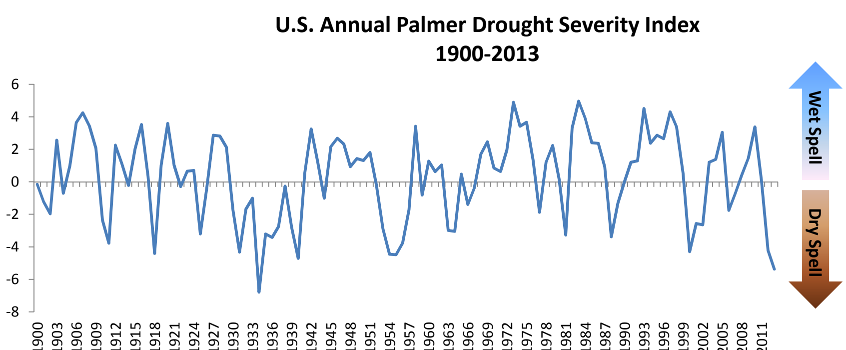
It would appear that climate change is real



HQP considers the 5-year trailing average of each year's deviation from average 20th century values.
A polynomial trendline has been fitted to the fluctuating data.

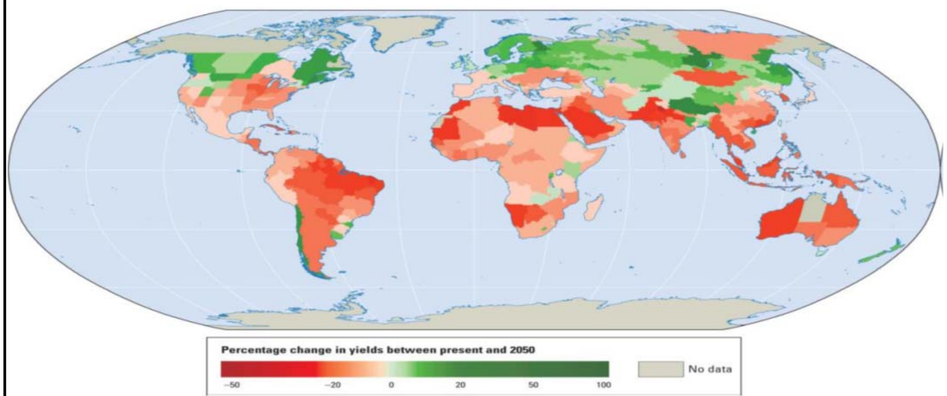
Source: NOAA

While frequency of severe droughts is not new, the stakes now are much higher



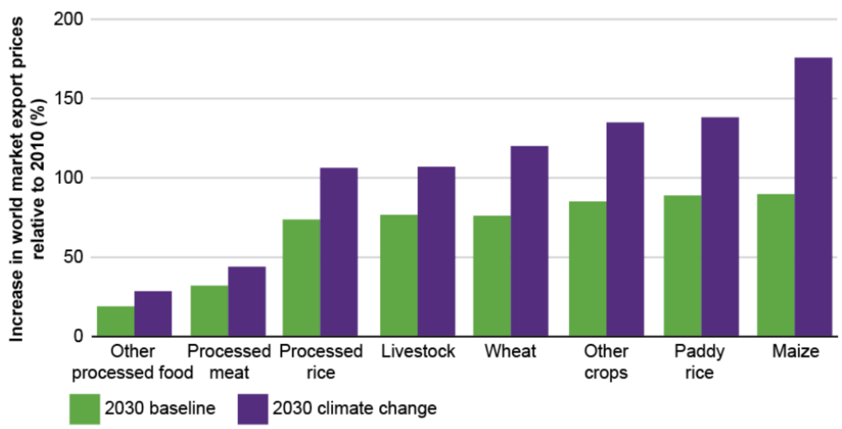
Source: NOAA

Potential agricultural yield decreases due to climate change by 2050



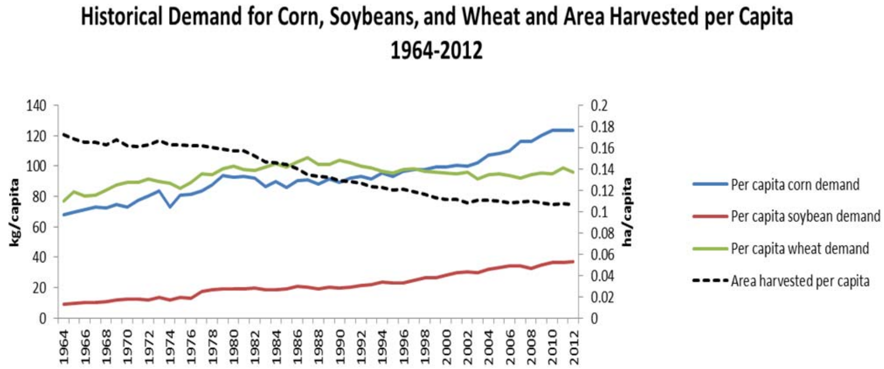
Source: C. Muller (2010) „Climate Change Impacts on Agricultural Yields", background note to the "World Development Report 2010."

Impact of climate change on food export prices in 2030



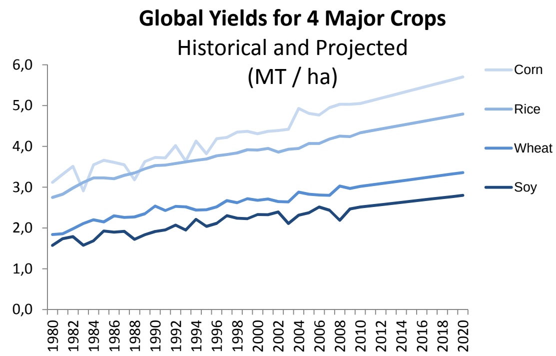
Source: D. Willenbockel – "Exploring Food Price Scenarios Towards 2030 with a Global Multi-Region Model," Oxfam research report (2011).

Rising demand as per capita acreage declines

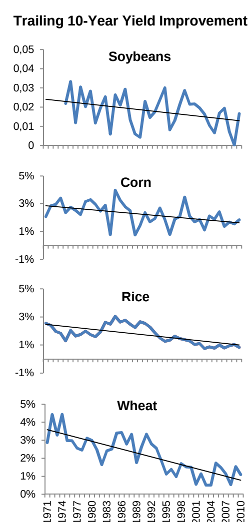


Source: USDA PSD, UN Populations Division

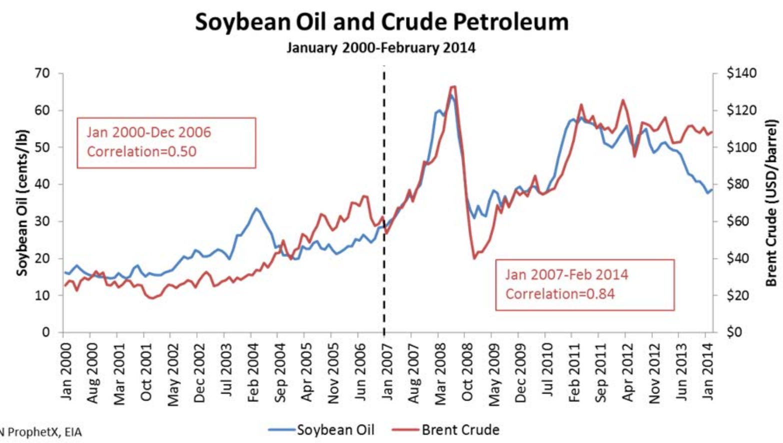
Declining yield gains in major crops – can trend be reversed?



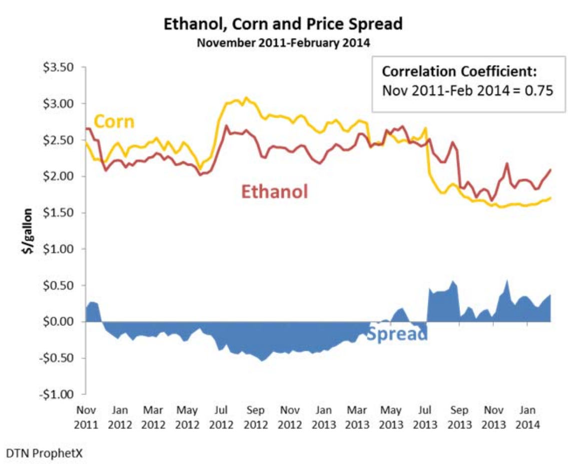
Source: USDA; HighQuest Analysis

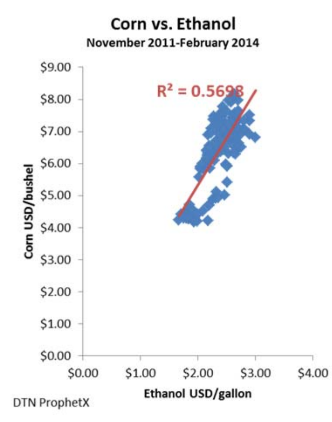


New pricing dynamic created by biofuels mandates

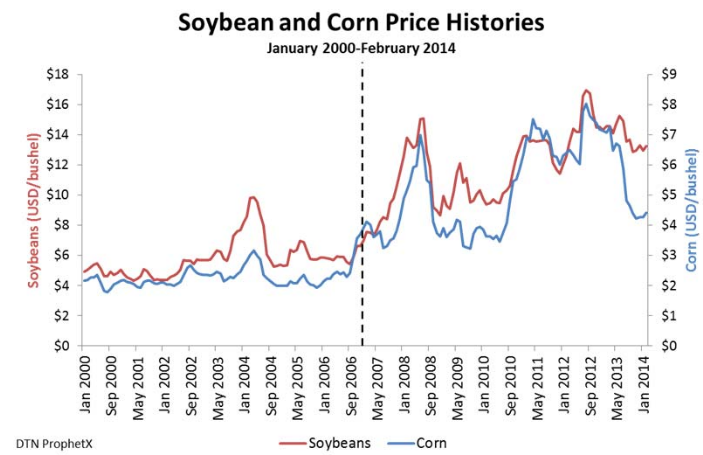


Pricing - corn

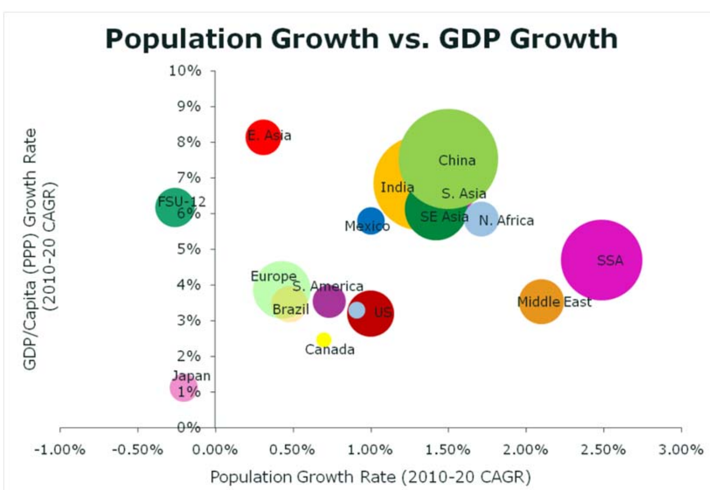




Prices – soybeans and corn

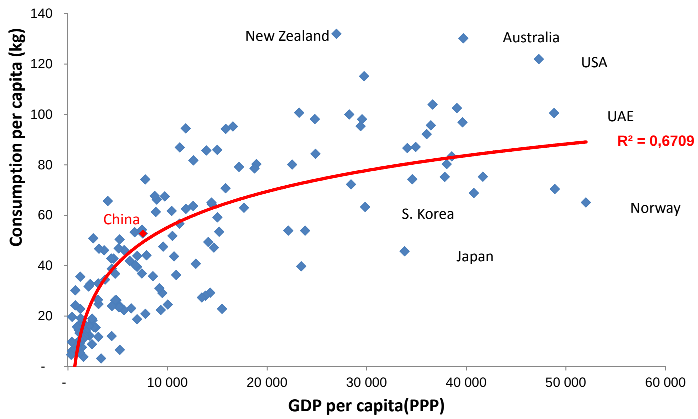


Demand for commodities driven by rapid GDP/capita growth in developing and emerging markets

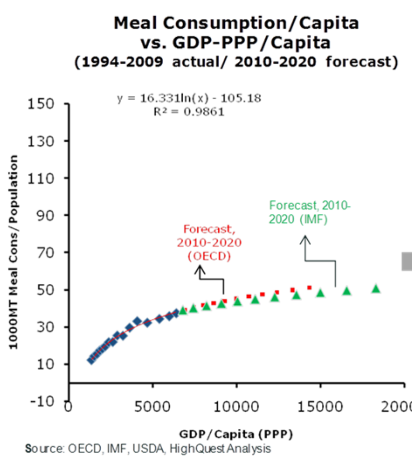


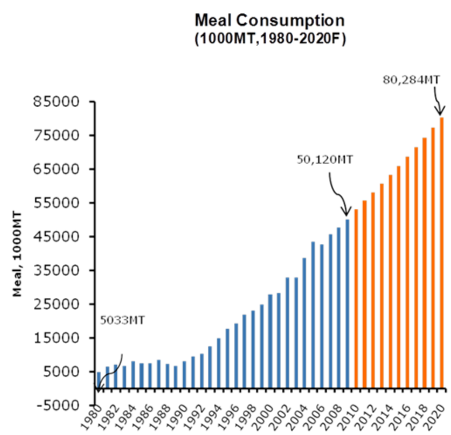
Animal protein consumption highly correlated with per capita GDP

Animal Protein Consumption(kg) Per Capita vs. GDP Per Capita(PPP basis) - 2010



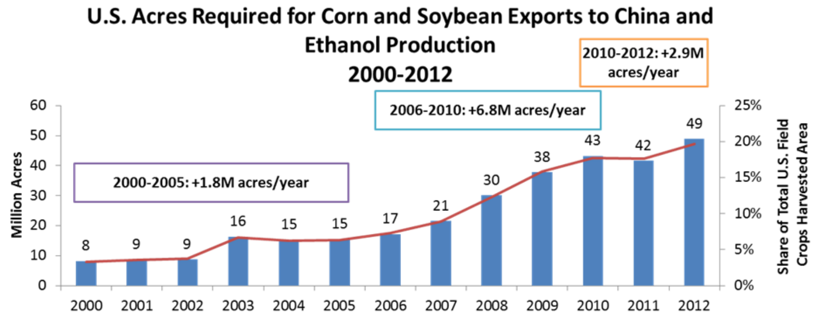
China – meal demand forecast to increase 60%





Over the past 15 years, meal consumption in China has had a 99% correlation with GDP per capita. Based on this correlation and OECD projections for future GDP growth in China, HighQuest projects that Chinese meal consumption will increase by 60% over the next decade (50 to 80 million MT).

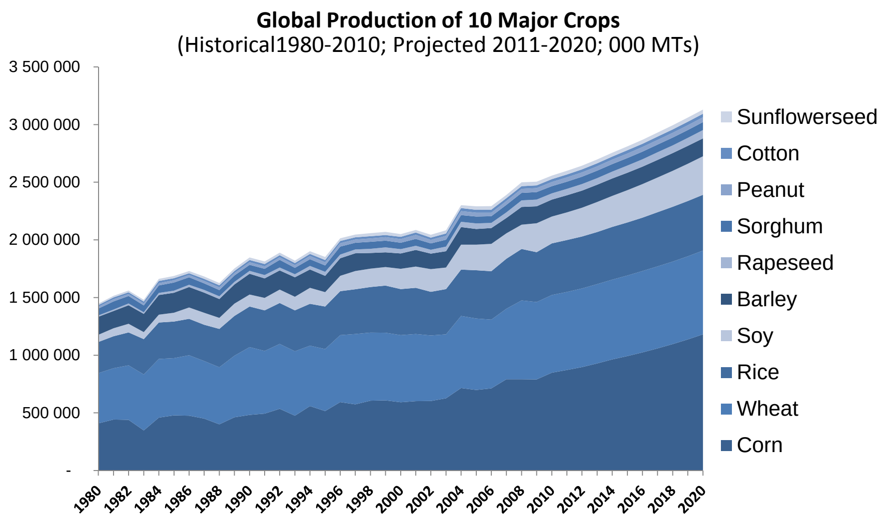
Impact of exports to China and ethanol production on US farmland use



*Assumes a conversion rate of 2.65 gallons of ethanol per bushel corn and 31% of corn recovered through the production of DDGs (DDGs-adjusted). To mitigate the impact of yield anomalies on acreage requirement, estimates are based on 3-year trailing average yields.

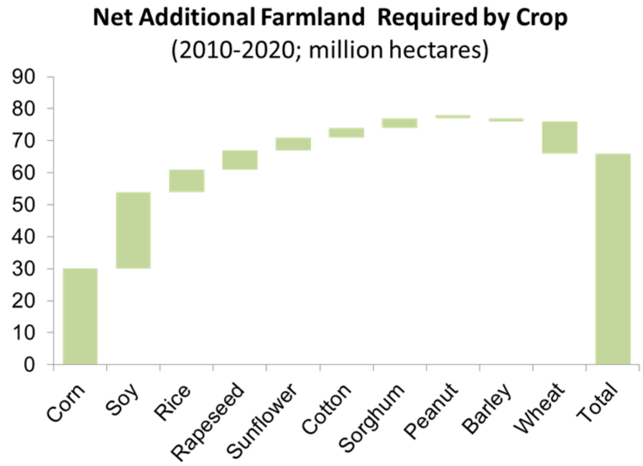
Sources: USDA NASS, USDA GATS, USDA ERS, American Petroleum Institute, HQP Analysis

Projected global demand by 2020



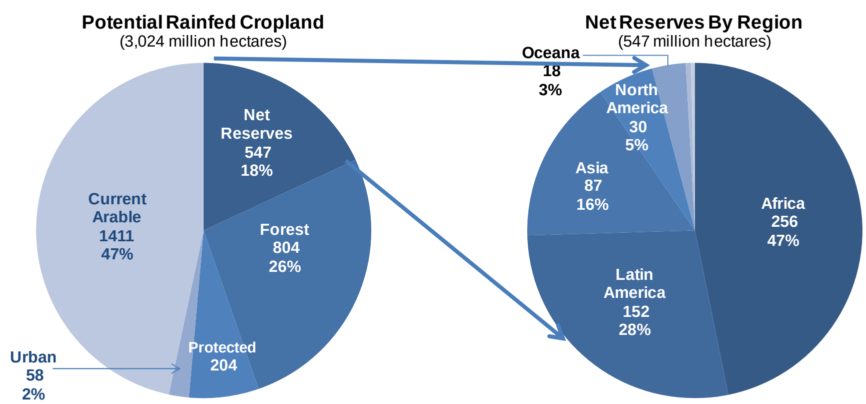
Source: USDA; HighQuest Analysis

Farmland required to supply projected demand



Conservatively, 65-85 million net incremental hectares will be required.

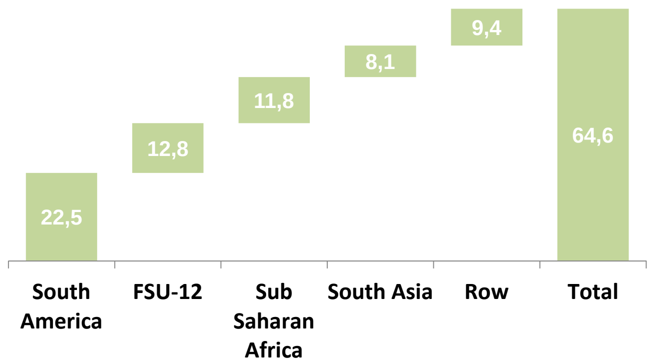
Availability and location of available global land reserves



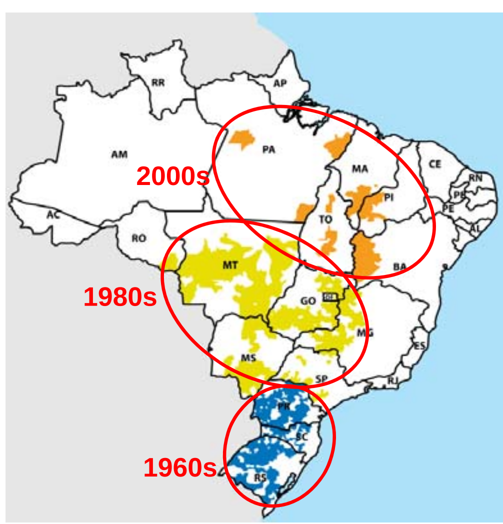
WHILE LAND IS AVAILABLE FOR PLANTING, MUCH OF IT IS NOT EASILY ACCESSIBLE

Brazil – a key player

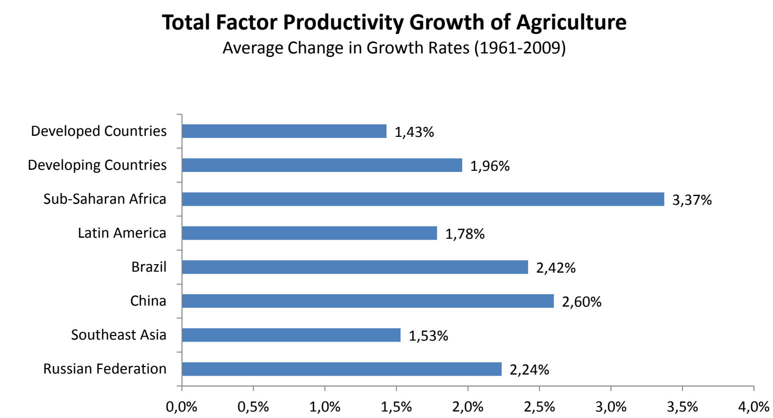
New Cropland By Region – Last Decade
(2000-2010 – Harvested Ha for 10 major crops)



Historical shift of price equilibrium in Brazil



Opportunities for increasing productivity also located in emerging markets



Source: OECD, FAO

5 key risk factors

1. Seed Technology
- Step-change improvement in yields
- Launch of drought resistance varieties

2. Slower Growth
- China
- SE Asia
- North Africa/Middle East

3. Algae or Microorganisms
- On the horizon
- biofuels; protein meal; fat

4. Infrastructure/Food Wastage
- Double-edged sword
- Inverts the supply curve

5. Government and Trade Policy
- Food security
- Export bans / trade embargoes
- GMO acceptance
- Renewable Fuels

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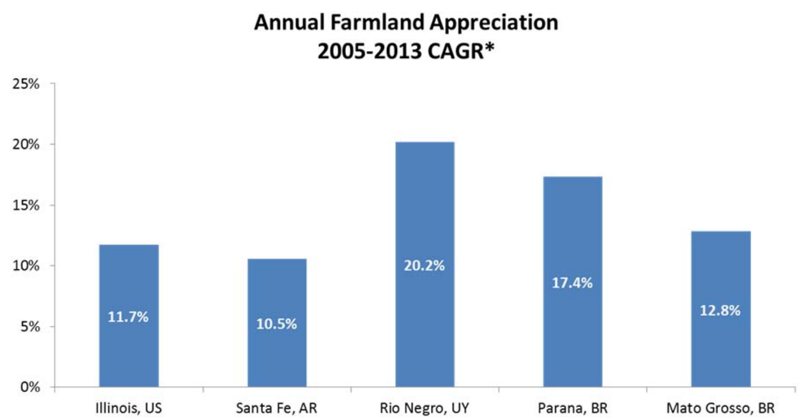
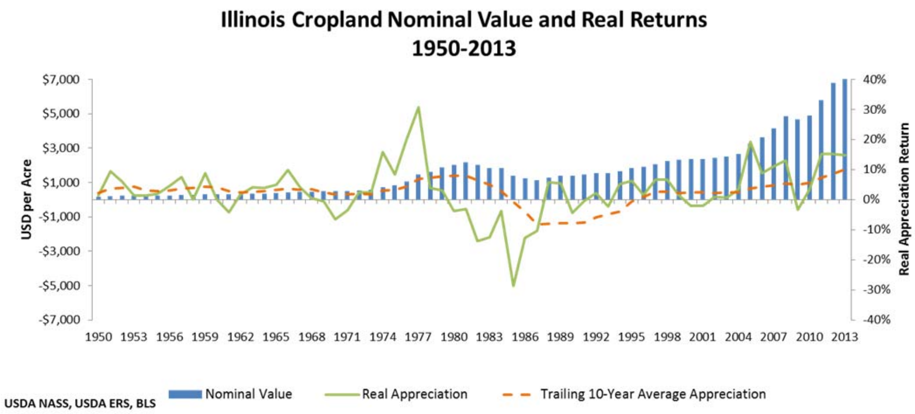
US farmland returns vs. other major origins



USDA NASS, GOAGRO

*This comparison is based on results from the different harvest periods in North and South America.

Historical returns – 100-year Illinois farmland appreciation



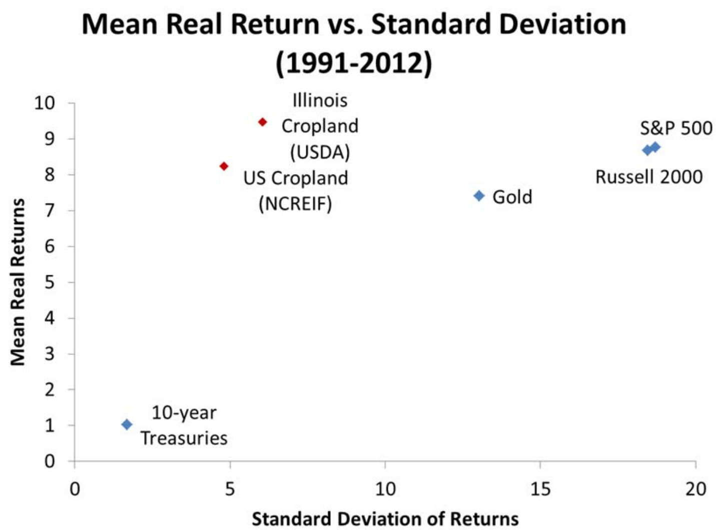
Thesis for farmland investment

1. **Fundamentals**
   a) Supply < Demand
      ➡ Increase in supply slower than increase in demand
   b) Demand Rationing
      ➡ High & volatile prices
      ➡ Price signal for capacity expansion
      ➡ New demand creation – biofuels and industrial uses
   c) Higher Land Values...
      ...and potentially attractive economics throughout the sector resulting from application of technology and efficient agronomic practices which will generate higher cash rents per unit of land which will be capitalized into the value of the land.

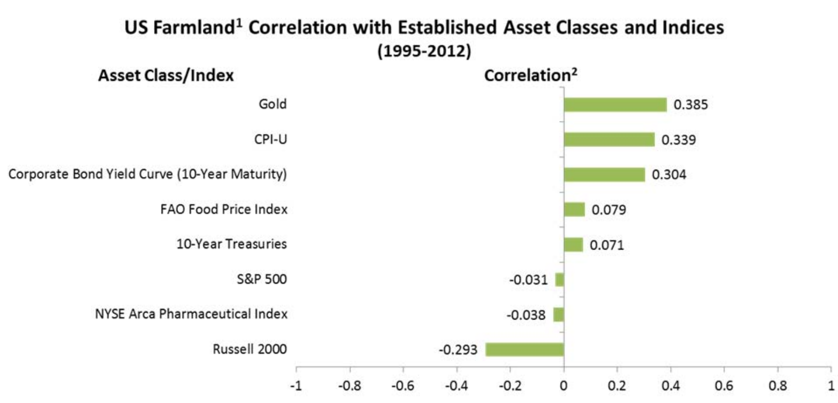
2. **Inflation & currency protection**

3. **Uncorrelated returns**

Returns on U.S. farmland compared to other assets



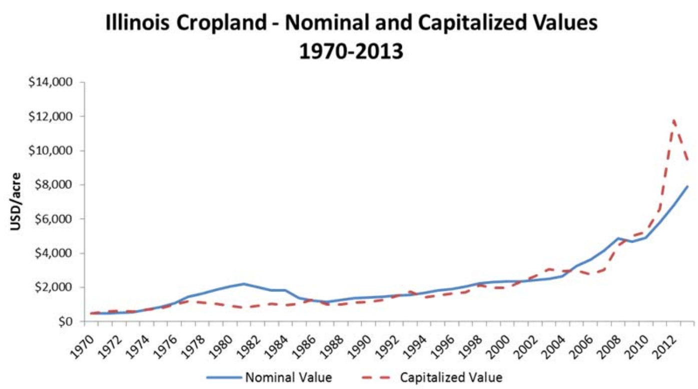
Historical correlation vs. inflation and other asset classes



[1]NCREIF Farmland Index is a quarterly time series composite return measure of investment performance of a large pool of agricultural properties acquired in the private market for investment purposes only.

[2]R measures the correlation between the price movements of two asset classes.

Farmland values low relative to capitalized value



USDA NASS, US Federal Reserve

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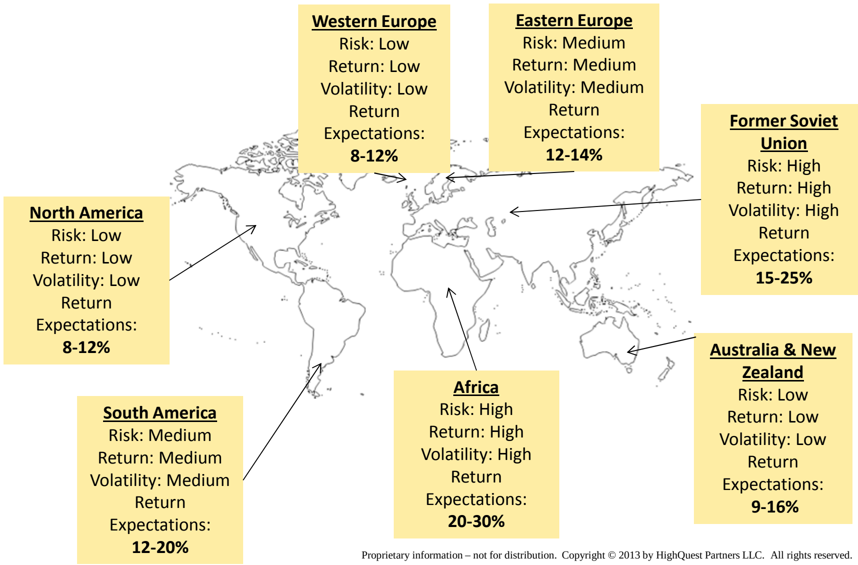
Expectations of returns for farmland investment by region



Major issues by region

Region	Land Control	Scale	Fragmentation	Ownership Structure	Business Model
US & Canada	free title	medium	medium	fund, corporate or direct	cash leases or direct operating
Australia & New Zealand	free title	large	low	fund or corporate	integrated - crops/grazing
Western Europe	free title	small	high	direct	direct operating
South America	free title	large	low	fund or direct	direct operating
Eastern Europe	free title	medium	medium	fund or direct	direct operating
FSU	evolving to free title	large	low	fund	direct operating
Africa	long-term land concessions	large	low	corporate	direct operating

Returns and secular trends

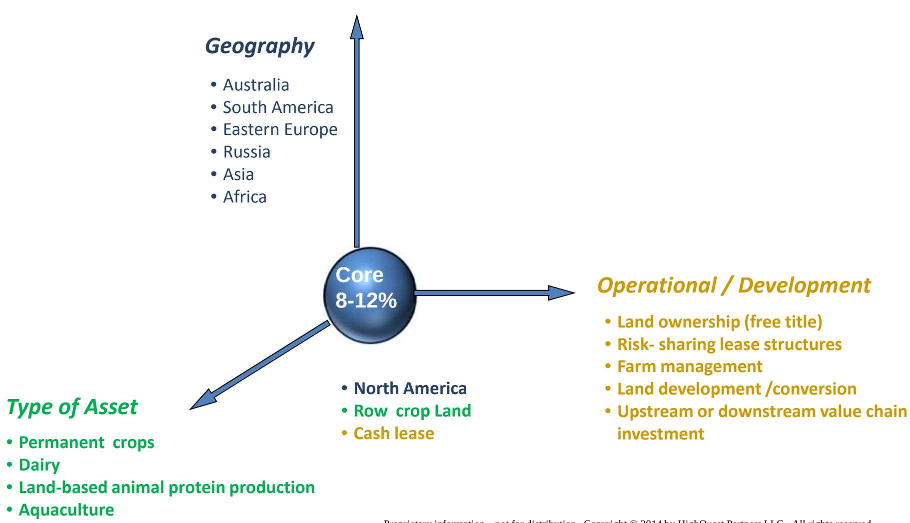
1. **Historical 8% -12% real returns (US) likely scenario for the next decade**
   - ➢ Farmland prices in US currently experiencing stabilization
   - ➢ Higher in less mature markets(12 – 30% - private equity returns)

2. **Supply response which historically had lagged demand has been picking up**

3. **New pricing paradigm for crops → higher(compared to historical mean + more volatile) though prices have retrenched from recent highs**
   - ➢ Long run: price signal will be required to add capacity

4. **Farmland is ultimately the limiting factor → economic rents are capitalized into the value of farmland**

Example of sub-allocation framework for an ag portfolio



Informed decision making for global agricultural investing

Philippe de Lapérouse

Managing Director
HighQuest Partners, LLC
314-994-3282

pdelaperouse@highquestpartners.com
www.highquestpartners.com

HighQuest PARTNERS

1005 North Warson Road, Suite 226 – St. Louis, Missouri 63124 – USA
(314) 994-3282 | www.highquestpartners.com