



# **Impact of Global Agriculture Trends on Aquaculture**

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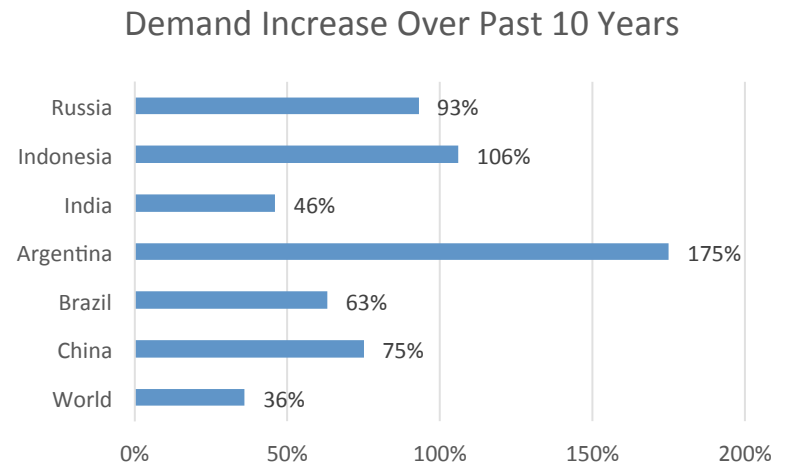
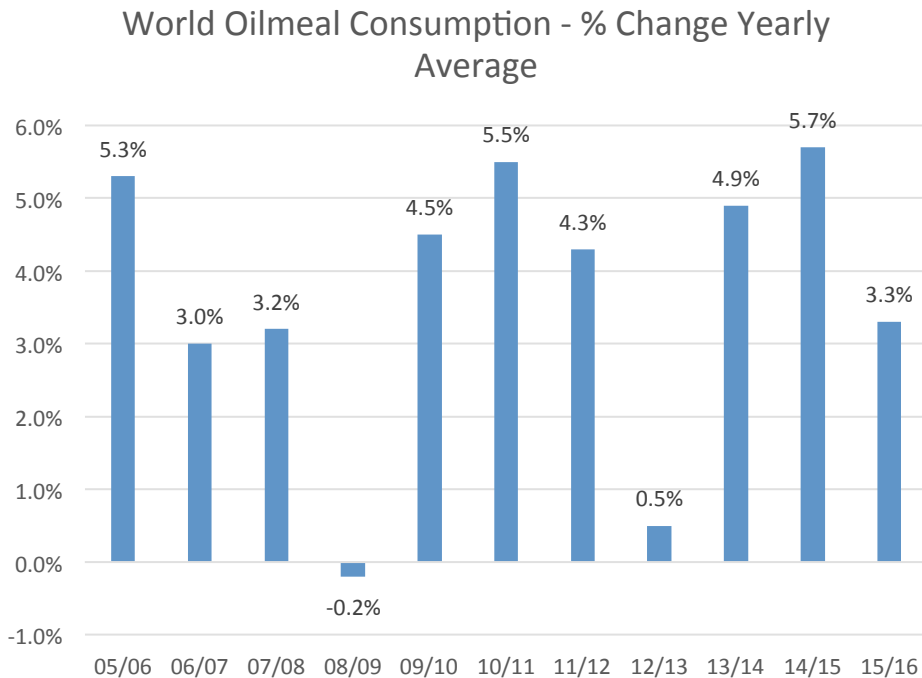
# Outline

- Oilseed trends
- Environmental trends
- Implications for aquaculture



# Oilseed Market Trends

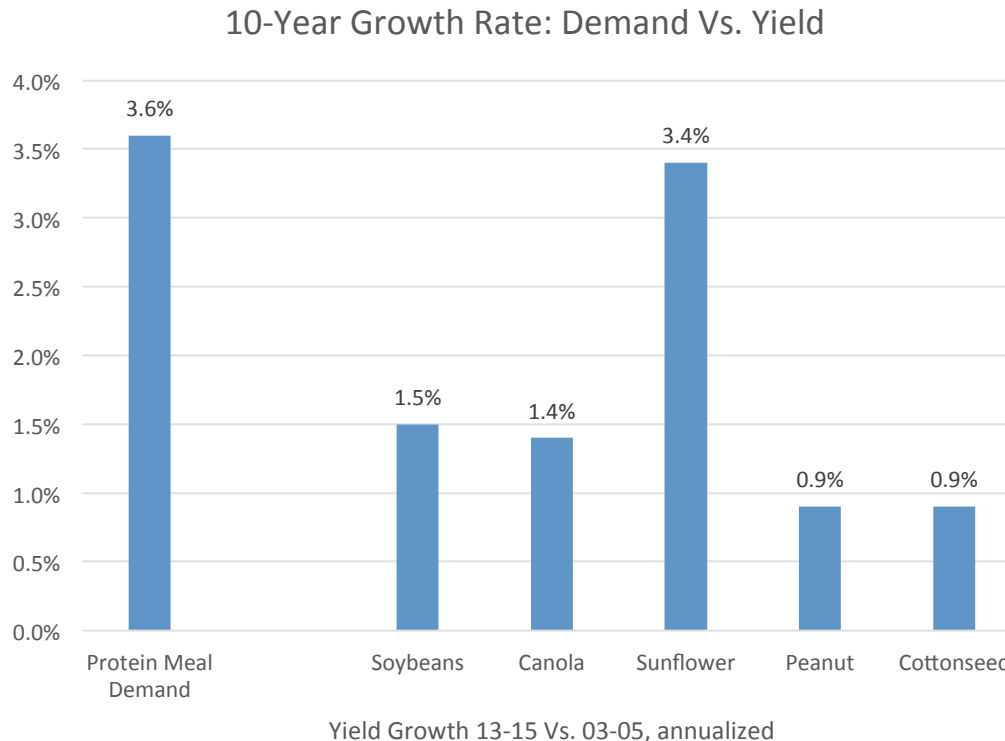
- Oilseed demand growing an average of 3.6% per year over the last 10 years



From The Global Oilseed Outlook by Bill Lapp – presented at the 2015 Oilseed & Grain Trade Summit

# Oilseed Market Trends

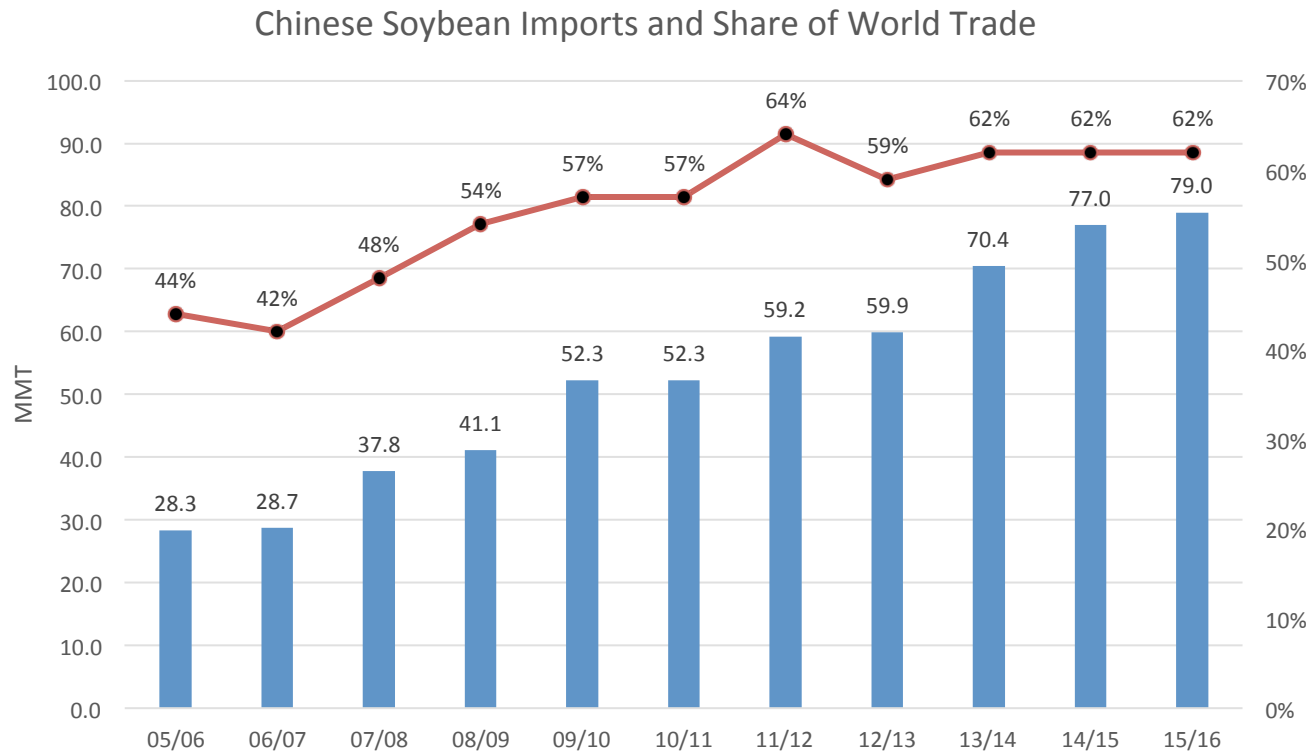
- Global demand is growing faster than yield improvements



- More acreage will be needed to meet growing demand

# Oilseed Market Trends

- China continues to be the major global driver for demand



From The Global Oilseed Outlook by Bill Lapp – presented at the 2015 Oilseed & Grain Trade Summit

# Oilseed Market Trends

- Prices declining despite growing demand
  - Brazil and Argentina have been increasing production†
    - Argentina: 09/10 - 54.5 mmt; 15/16 - 57.0 mmt (projected)
    - Brazil: 09/10 - 69.0 mmt; 15/16 – 97.0 mmt (projected)
  - Weather conditions have been favorable since global drought conditions from a few years ago
  - Decline in crude oil prices
  - Financial slowdown in China might put downward pressure on prices‡
    - Aging population also of potential concern as older consumers spend less
  - Areas of greatest potential consumption increase are in areas where daily caloric intake is the lowest and population growth is the highest‡
    - India – Seen as the next spot for significant growth; young population
    - Africa – for many reasons, significant demand growth is unlikely for the next 4-5 years

†From The Global Oilseed Outlook by Bill Lapp – presented at the 2015 Oilseed & Grain Trade Summit

‡From Global Economy & Oilseeds Outlook for 2015-2020 by Erik Norland – presented at the 2015 Oilseed & Grain Trade Summit

# Oilseed Market Trends

- If declining prices continue cost of production will surpass inputs
  - Reality is this has already happened for some U.S. producers
  - Production in Brazil is more favorable due to weakening currency in comparison to dollar
  - Brazil is expected to plant even more crop this upcoming growing season

# Environmental Trends

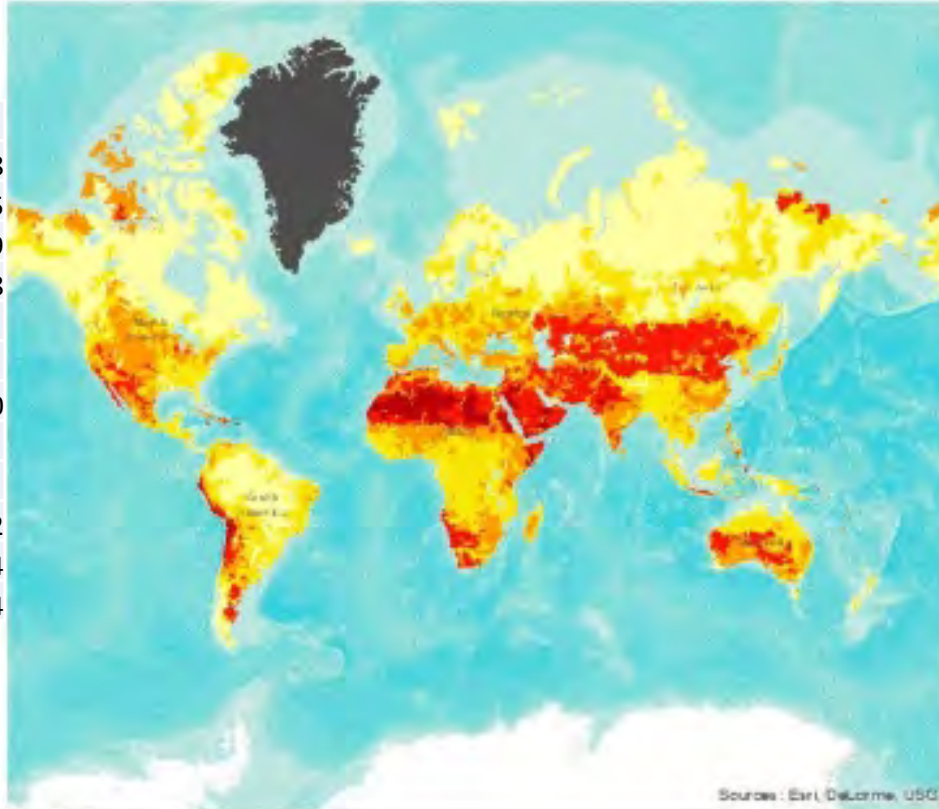
- Water will be the key resource
  - Europe, Australia and parts of the United States have the highest water costs, but not necessarily the highest scarcity



# Environmental Trends



Wednesday, October 14, 2015



North America	
Chicago	\$0.88
Los Angeles	\$1.85
Dallas	\$0.79
Monterrey	\$0.88

South America	
Rio de Janeiro	\$1.10

Europe	
Amsterdam	\$3.42
Barcelona	\$3.04
Istanbul	\$2.04

Asia	
Beijing	\$0.59
Shanghai	\$0.31
Chengdu	\$0.33
Mumbai	\$0.28
Seoul	\$0.58
Phnom Penh	\$0.16

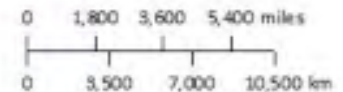
Africa	
Addis Ababa	\$0.15
Johannesburg	\$0.54

Australia	
Sydney	\$2.76

**Overall Water Risk**  
Legend:



Sources: Earl, DeLorme, USGS, NPS. Source: Earl, USGS, NOAA



# Environmental Trends

- Water will be the key resource
  - Netherlands has the highest cost of water, but not the highest scarcity
  - Agriculture utilizes 70% of all global freshwater usage
    - Other 30% needed for drinking water, cooking and industrial uses
  - Population and middle class growth will increase demand
    - Physical demand
    - Lifestyle demand through increased meat consumption – beef requires 15-30 times the amount of water to produce than most fruits and vegetables
  - Polluted water becoming of increased concern

# Environmental Trends

- El Niño and La Niña effects are likely to have major impact on global agriculture production in the coming years
  - El Niño tends to lead to good soil moisture content and good growing temperatures throughout much of the best global production areas
  - La Niña tends to have the opposite effect and lead to potential drought conditions and higher temperatures
  - El Niño in 09/10 was followed by La Niña in 11 to 13 that had a major impact on global commodity prices – history might repeat itself!
    - Early warning sign was severe drought in Former Soviet Union in 2010
    - Current conditions are very similar to that those conditions – two strong years of El Niño closed with drought conditions in Former Soviet Union

# Environmental Trends

- Frequency of these severe weather events is increasing and will likely increase for at least the next decade
  - Land and ocean temperatures are both rising
  - Severe weather La Niña effects of 1988, 1998, 2010 and 2012 all led to supply volatility
- The prolonged El Niño has helped contribute to the higher supply and lower prices of agriculture commodities
- Signs of La Niña indicate that change is probably coming
  - Good for prices to the farmers, bad for aquafeed prices!

# Implications for Aquaculture

- Lower oilmeal prices should lead to lower aquafeed prices for the next 1-2 years, but volatility is likely to be the theme for at least the next decade
- Lower aquafeed prices should keep margins higher
- China will remain a major driver of feed demand
- Aquaculture needs water conservation solutions: two great needs for technological innovation:
  - Conservation of freshwater
  - Development of marine aquaculture beyond salmon and shrimp
- Other industries are starting to evaluate water risk – aquaculture as a whole is not that mature

# Implications for Aquaculture

- El Niño and La Niña will continue to have a major impact on commodity supply, and thus aquafeed prices
  - Situation in Peru does not help, as prices are once again nearing \$2,000/mt for Super Prime Peruvian fishmeal\*
- Food safety continues to be of concern – seafood is being targeted because of fraud
  - More cases of fraud reported with seafood than any other food item according to the National Center for Food Safety Protection and Defense

End