



# Dealing with global food supply challenge

*Precision farming and environmental sustainability*

Nan-Dirk Mulder, 9 May 2017



# Content

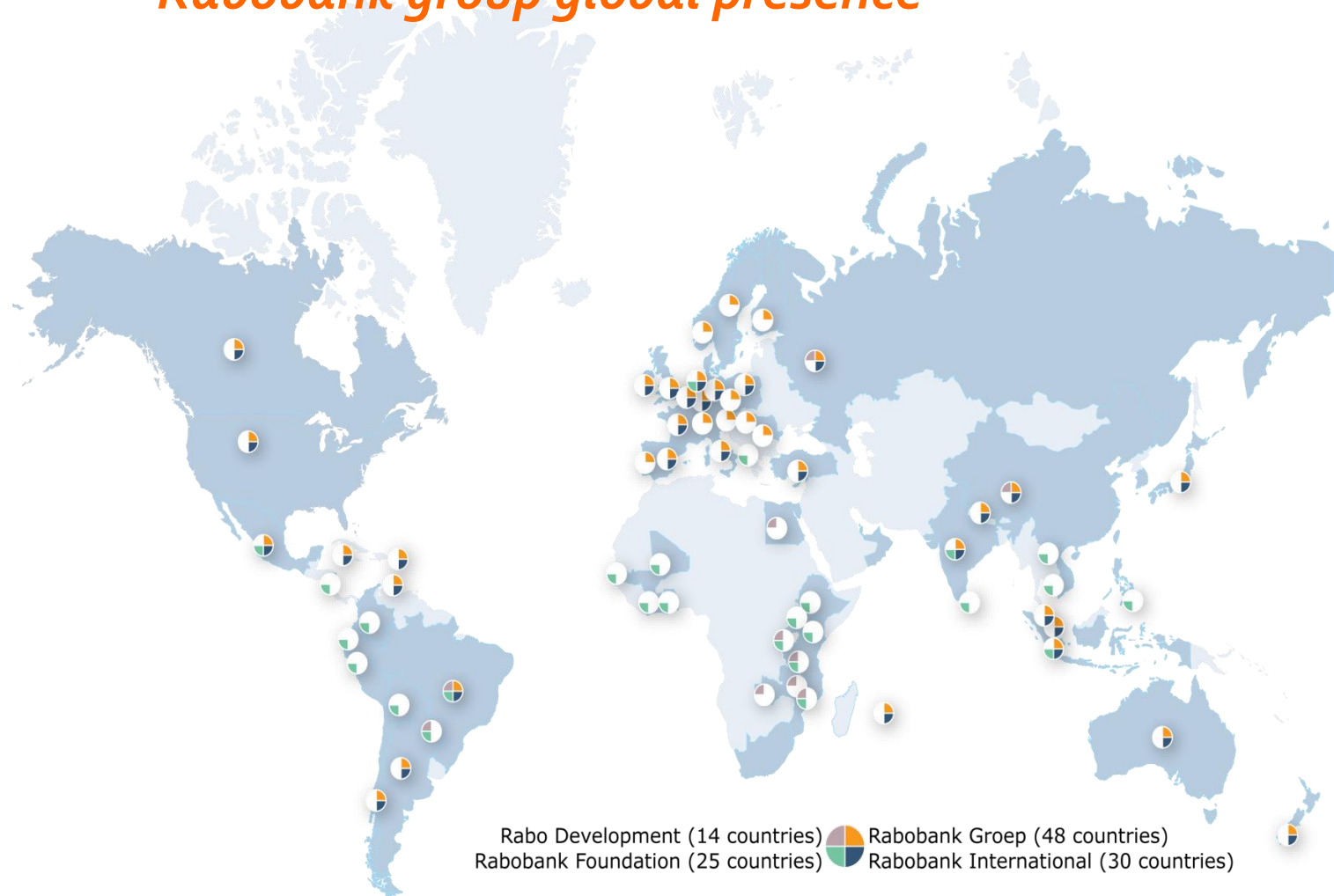


- 1. Animal protein supply until 2035***
- 2. Precision farming and environmental sustainability***
- 3. Conclusion***

# Rabobank: The world's leading global F&A bank



## *Rabobank group global presence*



# Animal protein is our sweet spot



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North America

South America

Europe

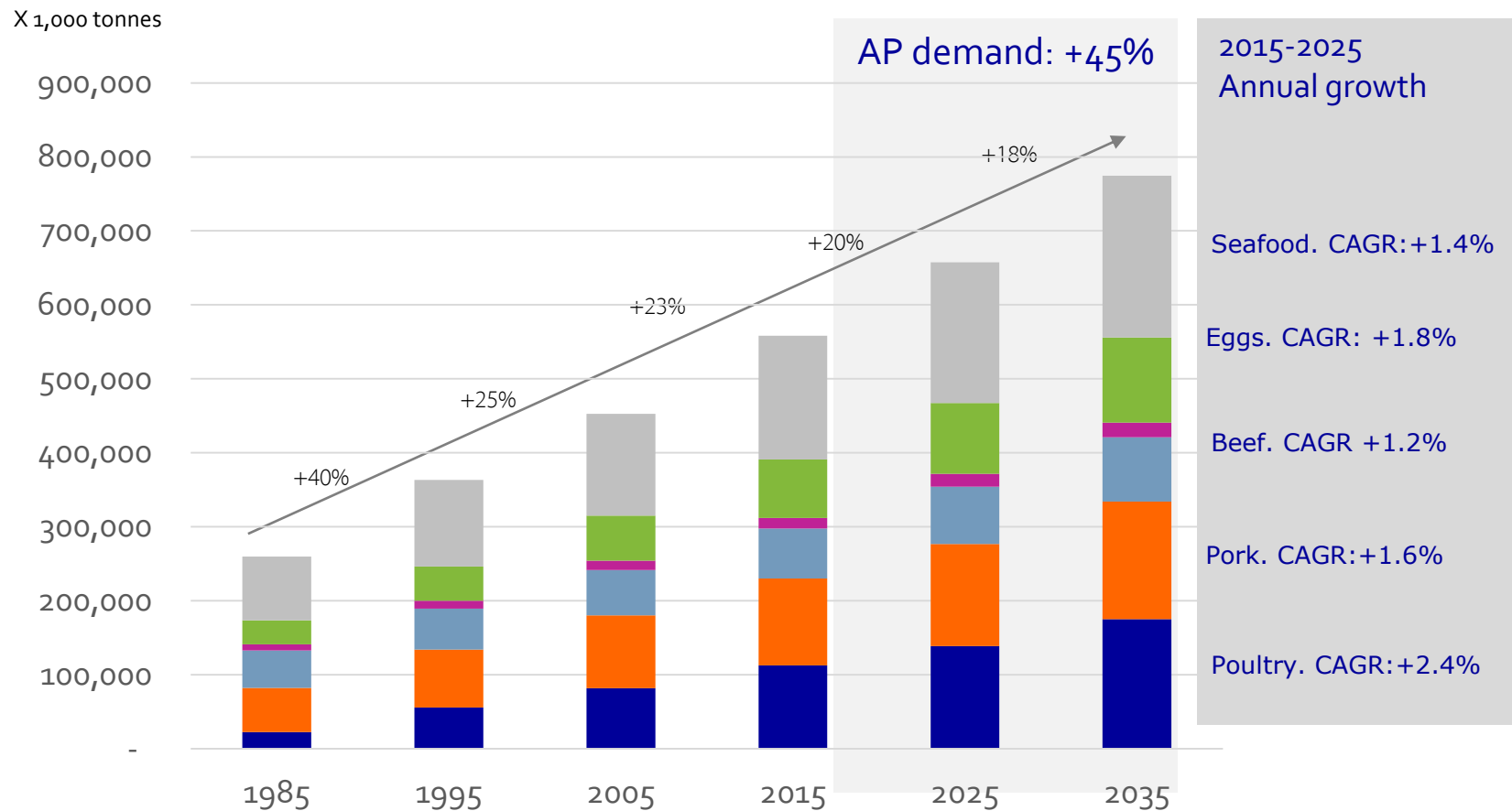
Asia & Oceania

14 out of top 20 meat companies are client of Rabobank  
 Exposure in Animal Protein: EUR 19 billion

# Animal protein market to grow by 45% in the next 2 decades



## Global animal protein market outlook 2015-2025



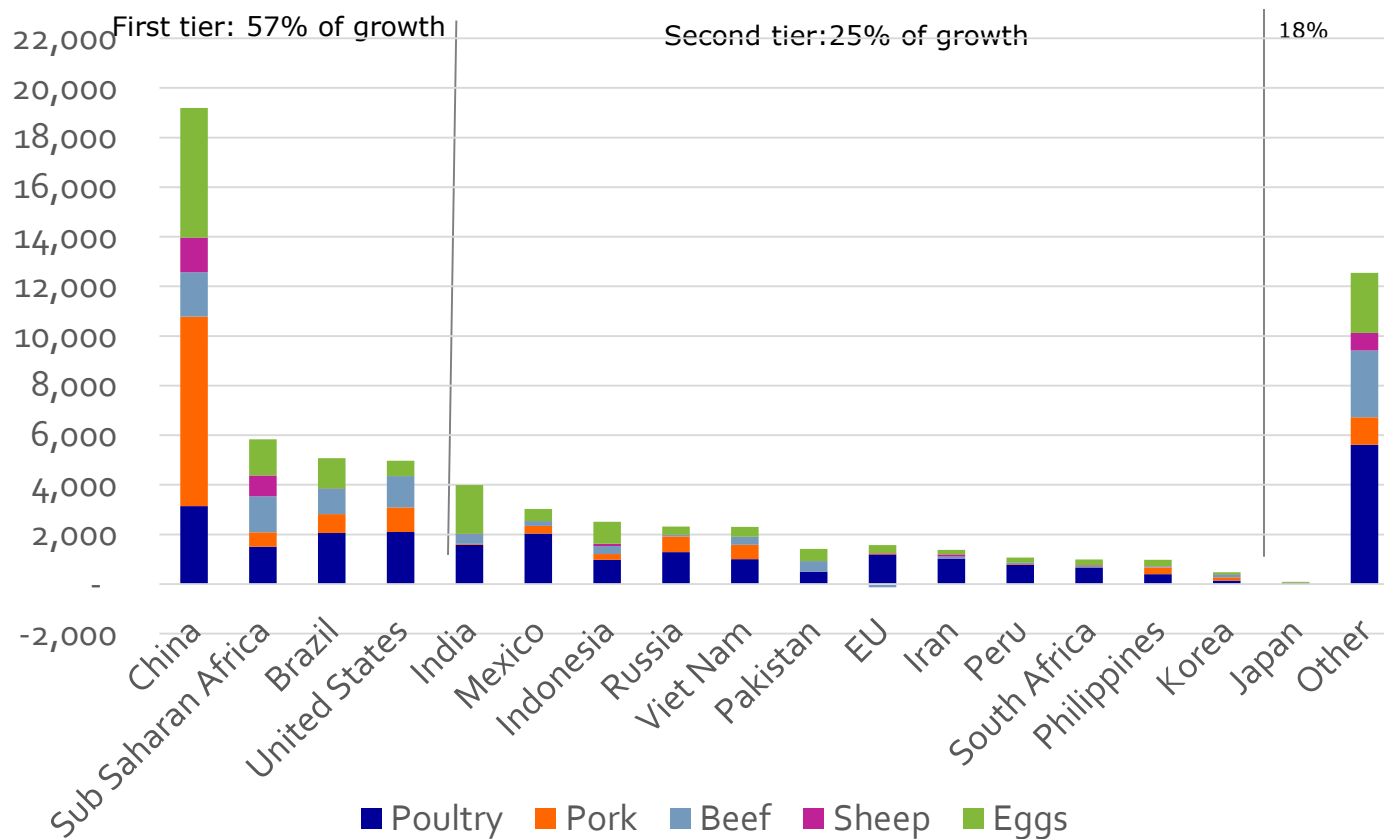
Source: Rabobank analysis based on FAO, USDA, OECD 2017

# 90% of global growth will be in emerging market, 60% in Asia



## Change in global demand for meat and eggs 2015-2025

X 1,000 tonnes



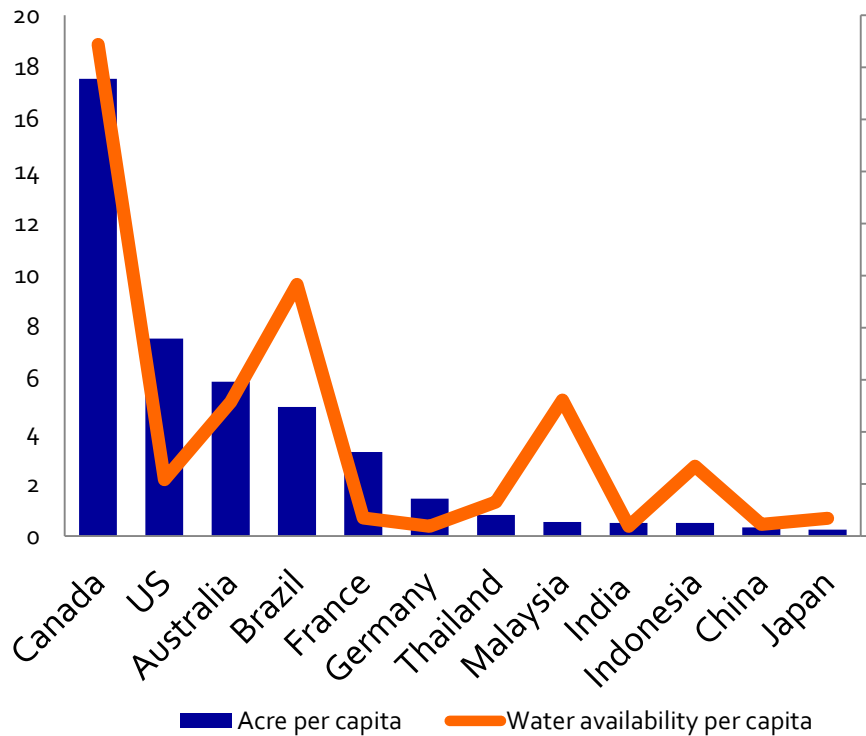
Source: Rabobank analysis based on FAO, USDA, OECD 2017



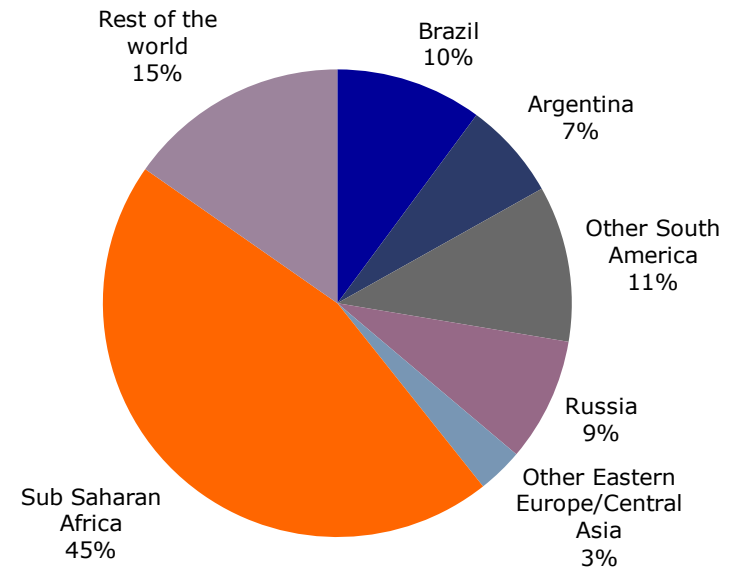
# Asia lacks adequate resources, Latin America and Africa have plenty



## Global land and water availability per capita



## Available new agricultural land



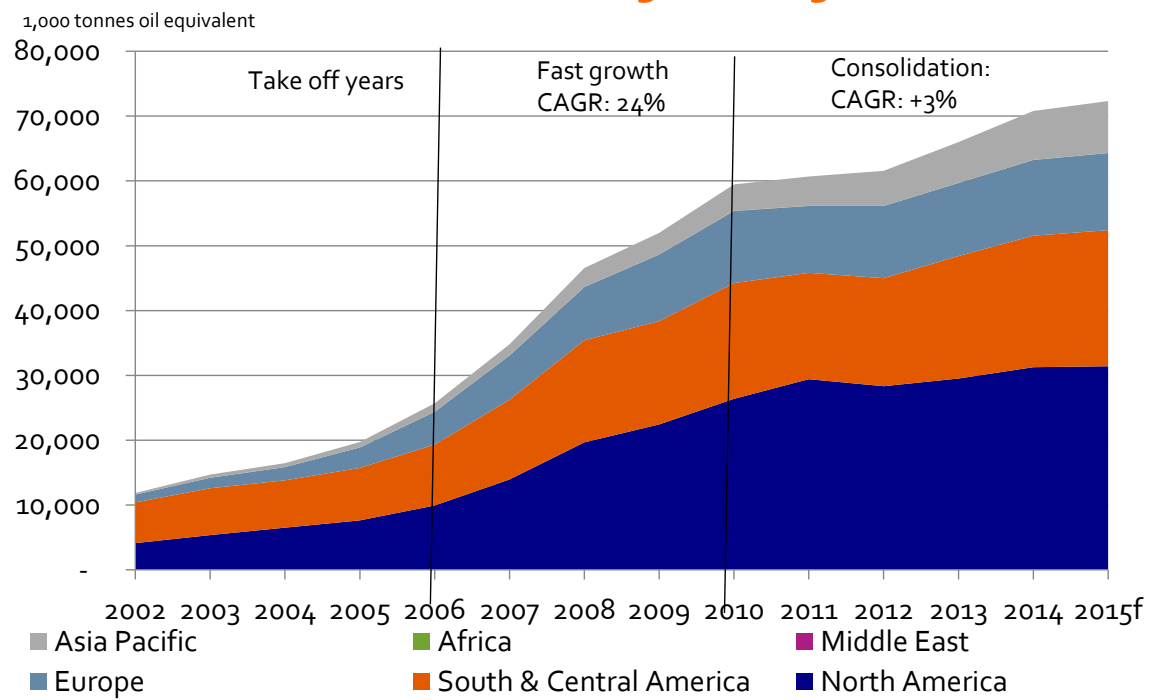
Source: Rabobank, FAO 2017

# What has changed?

## Slowdown in biofuel demand



### Global demand for biofuels



Source: Rabobank analysis based on FAO and BP, 2016

### Impact on agriculture

#### Ethanol:

- 12% of global corn supply
- 16% of sugar cane supply

#### Biodiesel:

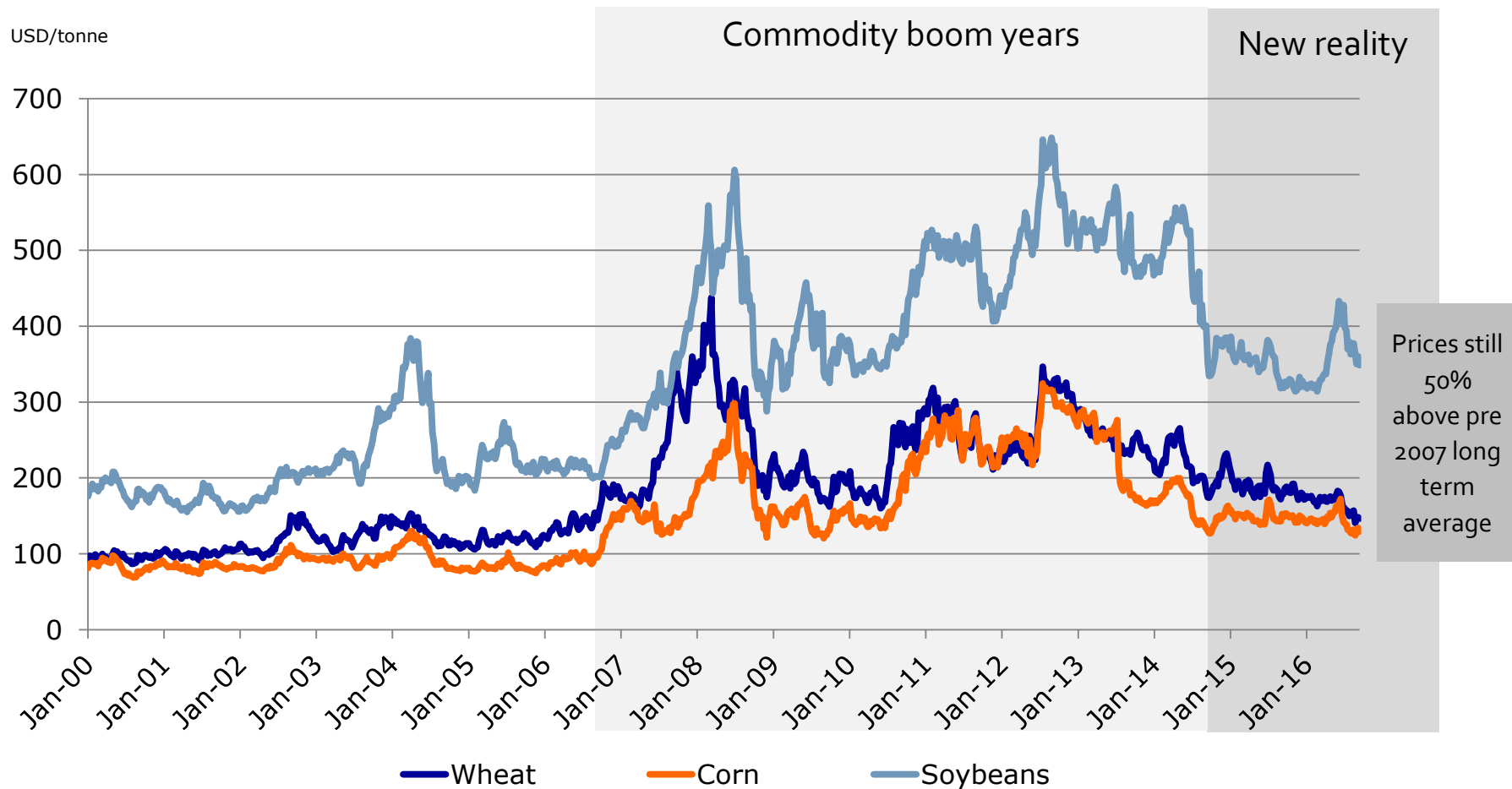
- 17% of global soy oil supply
- 10% of global palm oil supply
- 25% of global rapeseed oil supply
- 1% of global sunflower oil supply



# Pressured global supply and demand: volatility in prices

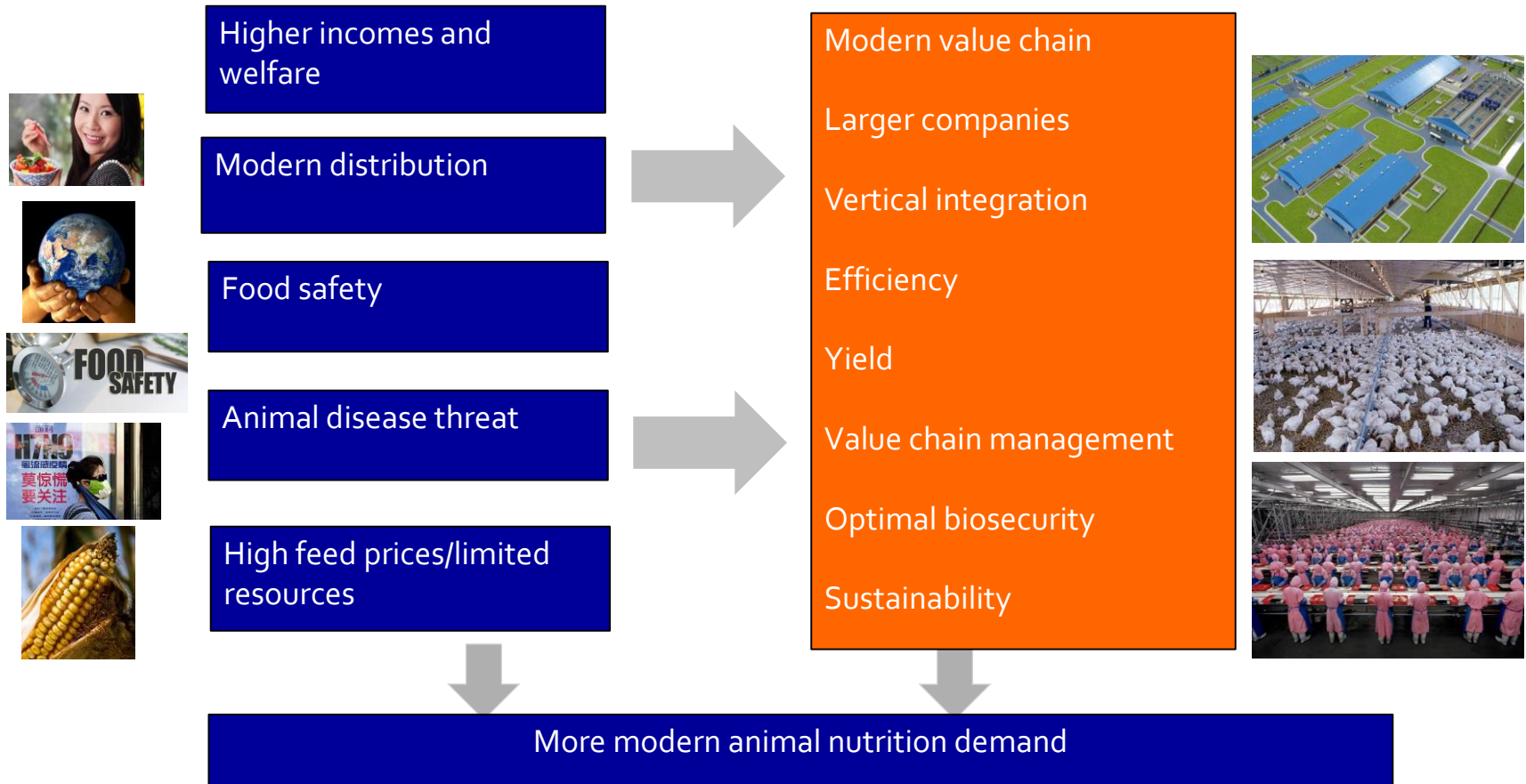


## Grains and oilseed price monitor 2000-2016



Source: Rabobank analysis based on Bloomberg 2017

# Need for a fast modernizing of the animal protein industry

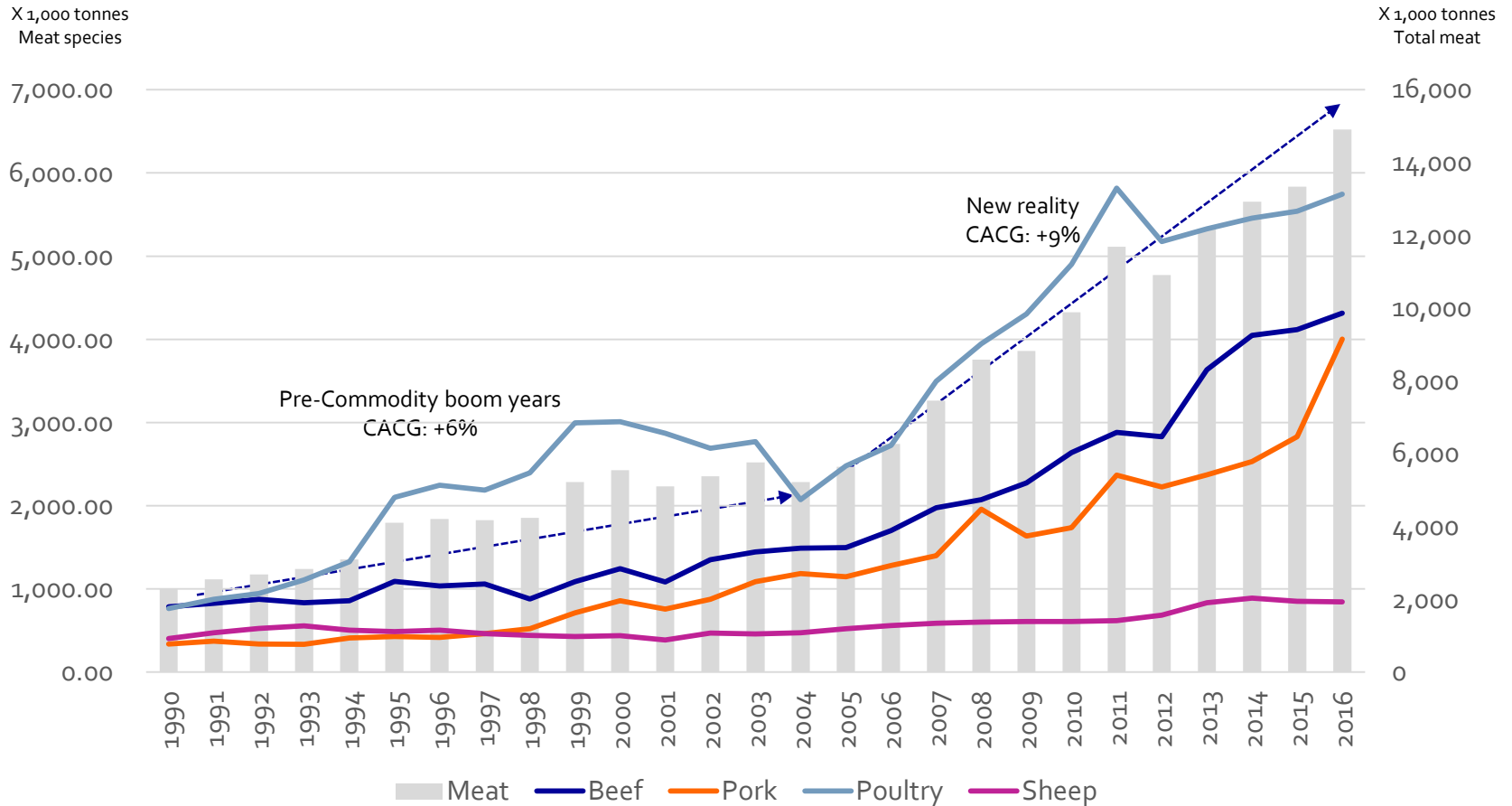


# More global trade in meat



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## Asian meat imports by tonnes and share in global markets

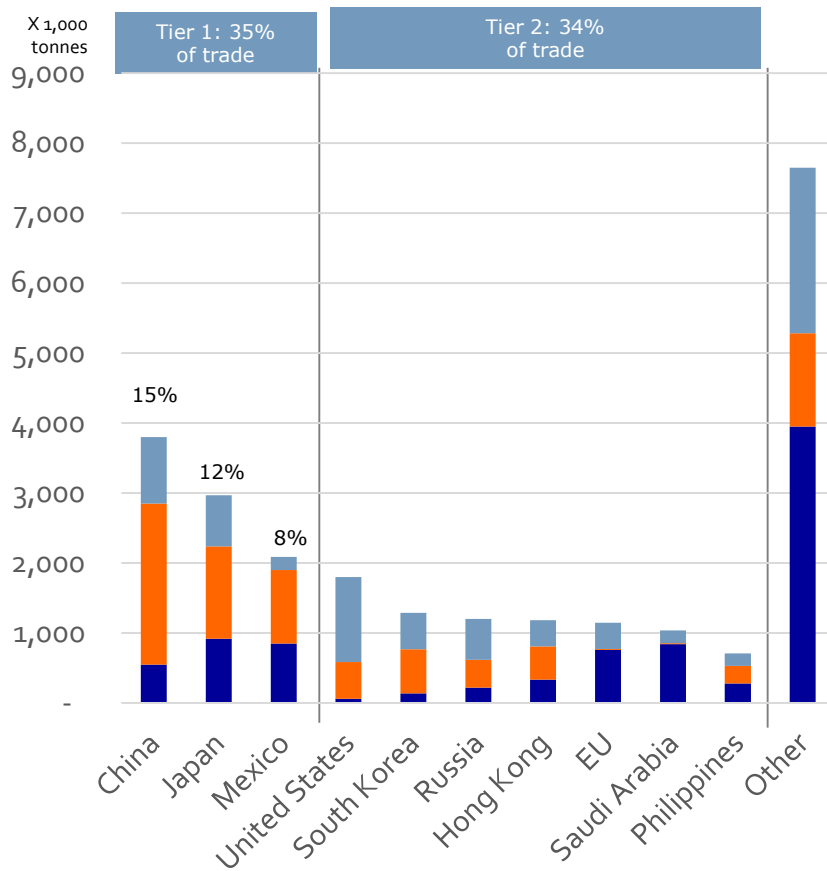


Source: Rabobank analysis based on USDA, FAO, Bloomberg, 2017

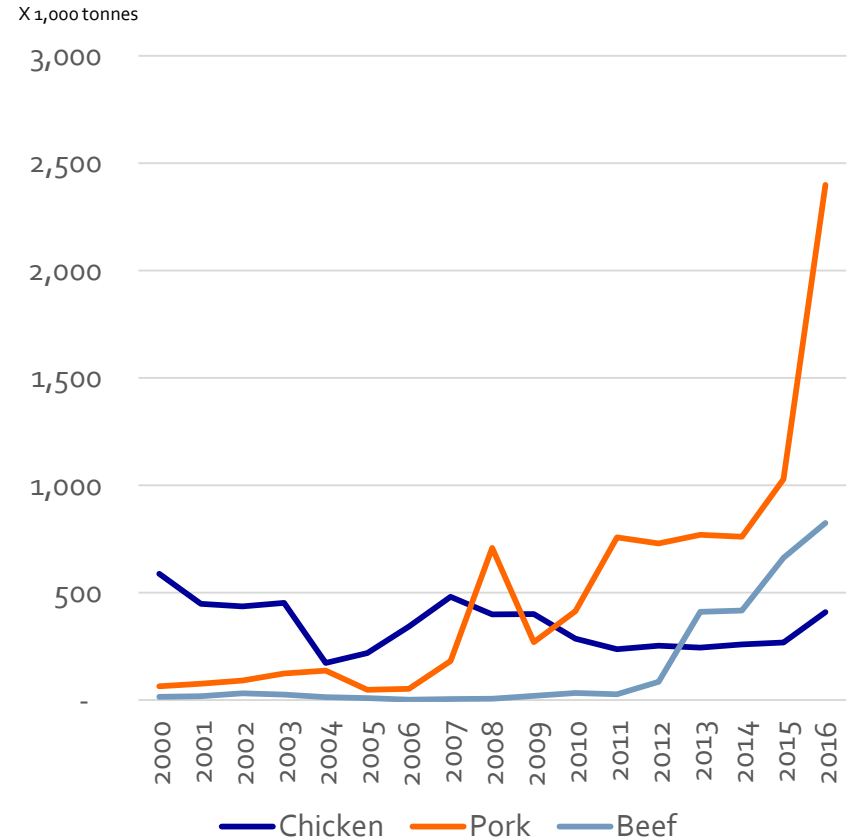
# Imports: 10 countries represent 60% with sharp rising Chinese pork imports



## Top 10 global meat importers



## China's impressive growth in imports



# Content

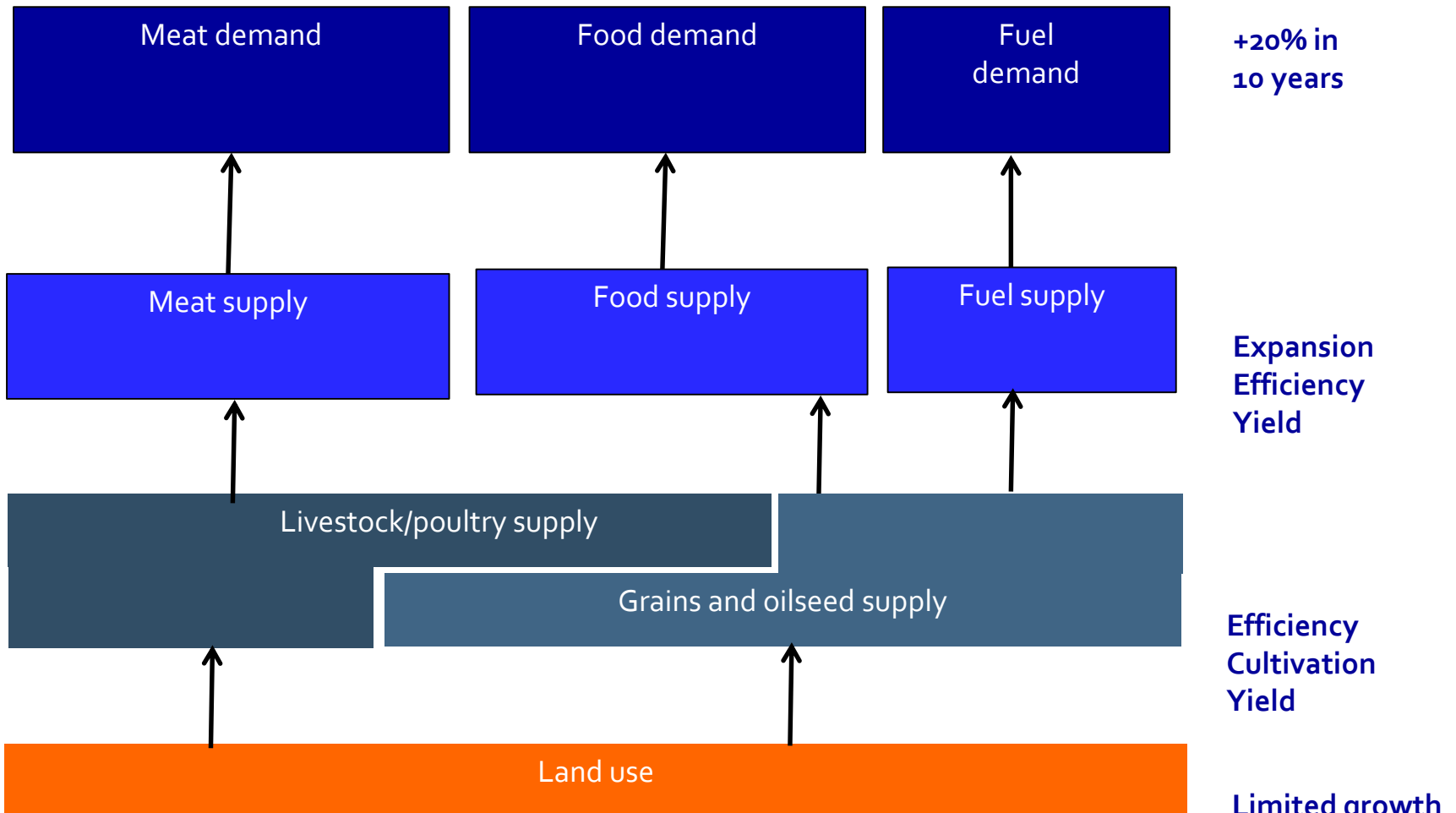


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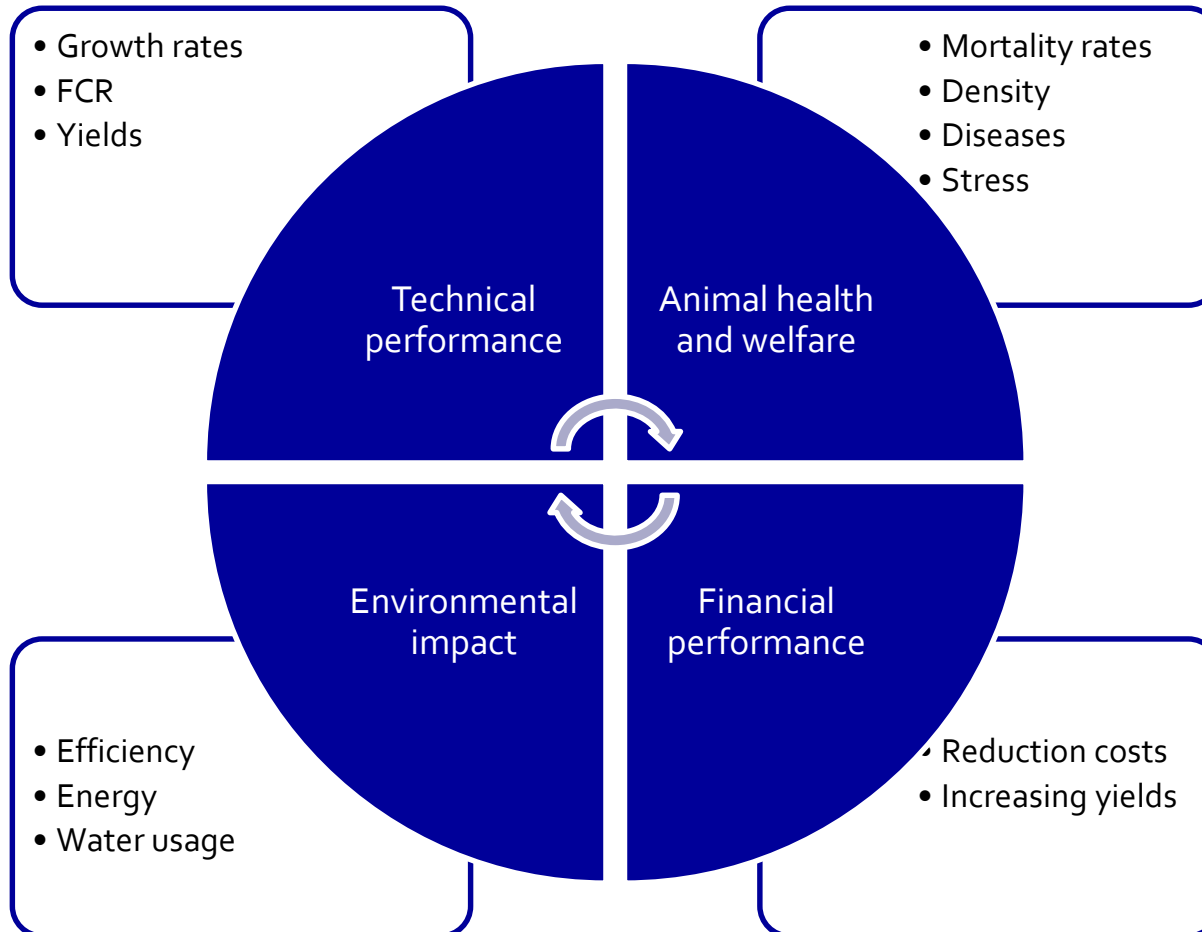
# Global food supply challenge



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# What can be improved by precision farming?

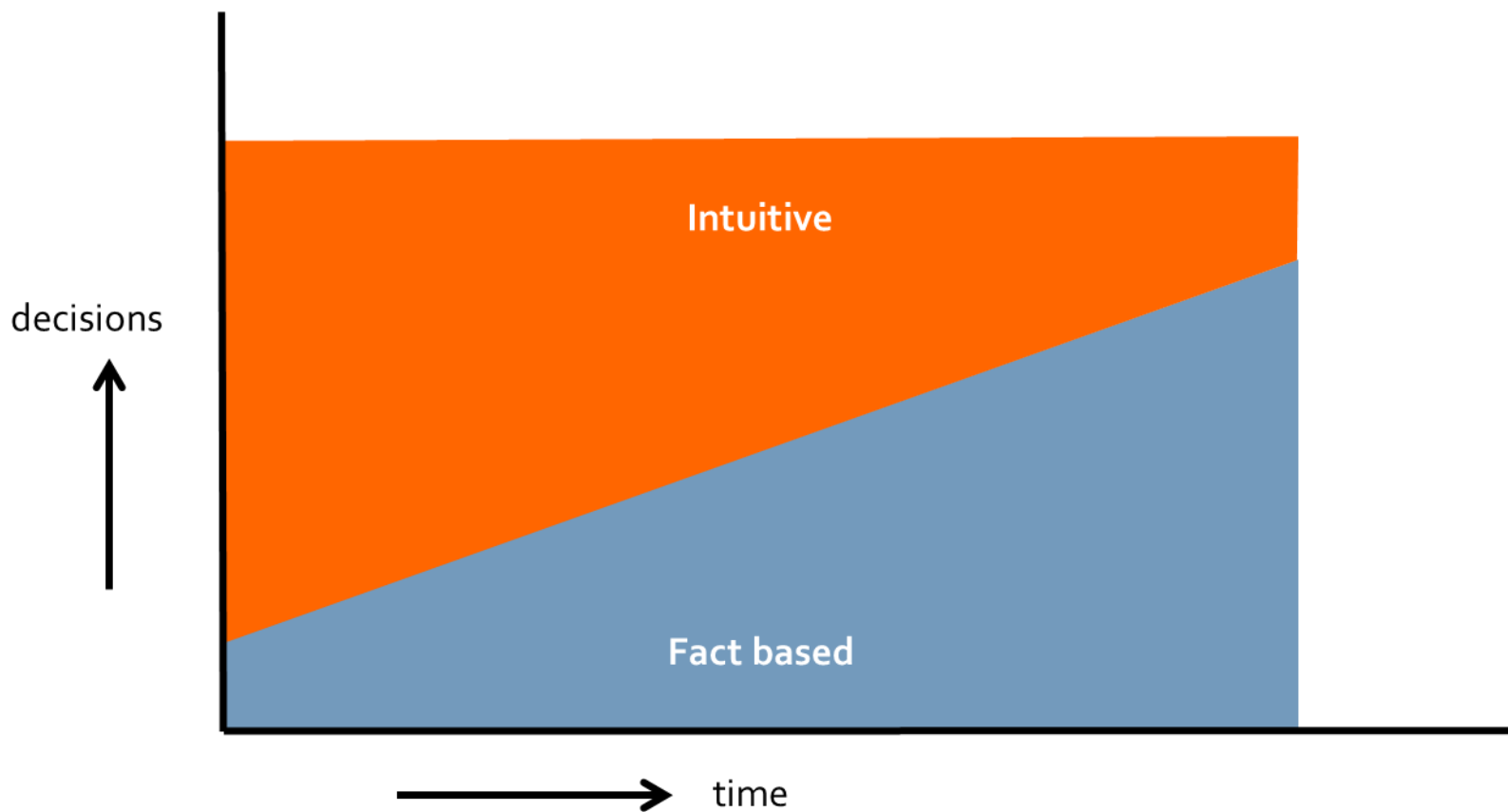




# A shift from intuitive to fact based decisions



*Decision making in agriculture now and in future*



# Changing applications in livestock and poultry farming



Developing new mechanics and bringing them to perfection

- The mechanised farm

Precision mechanics with IT

- Automation, robots, auto steer with GPS

Making machines smart

- Variable rate application, expert systems, artificial intelligence

Providing integrated farm solutions

- Simultaneous optimisation of inputs, fine-tuning of inputs

Chain optimisation

- Fine-tuning the farm to the value chain and vice versa



# Meeting future sustainability needs requires multidisciplinary approaches



# Conclusions



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Rising global meat demand especially in Asia, limited resources and rising social concerns is pushing industries to further innovate in agricultural models

Precision farming and big data application have the potential to set further big steps in industry efficiency and to meet rising social expectations

New applications will be enrolled in the next years with more integrated solutions between different input industries and new specialized applications



Thanks for your attention

*Questions?*

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