

# MOVING AGRICULTURE FORWARD WITH INNOVATION

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# Innovations that moved agriculture forward in the past

- ▶ Tractor (1885-1932)
- ▶ Mineral nitrogen fertilizers (1905, Yara)
- ▶ Home refrigerators (1922, Sweden)
- ▶ Antibiotics (1928)
- ▶ Supermarkets (1930)
- ▶ Chemical pesticides (1939, DDT)
- ▶ Fast food (1940: McDonald's, 1912: Automat)
- ▶ Computers (1940s)
- ▶ Chemical herbicides (late 1940s)
- ▶ Cell phones (1973)
- ▶ Internet (1995)
- ▶ GMOs (1996)

# Potential for future change

- ▶ How much on previous list will have been replaced?
- ▶ 60% of today's products did not exist 10 years ago
- ▶ The change ahead is beyond imagination
- ▶ Everything is possible. Think big! Free your mind!

# The future?

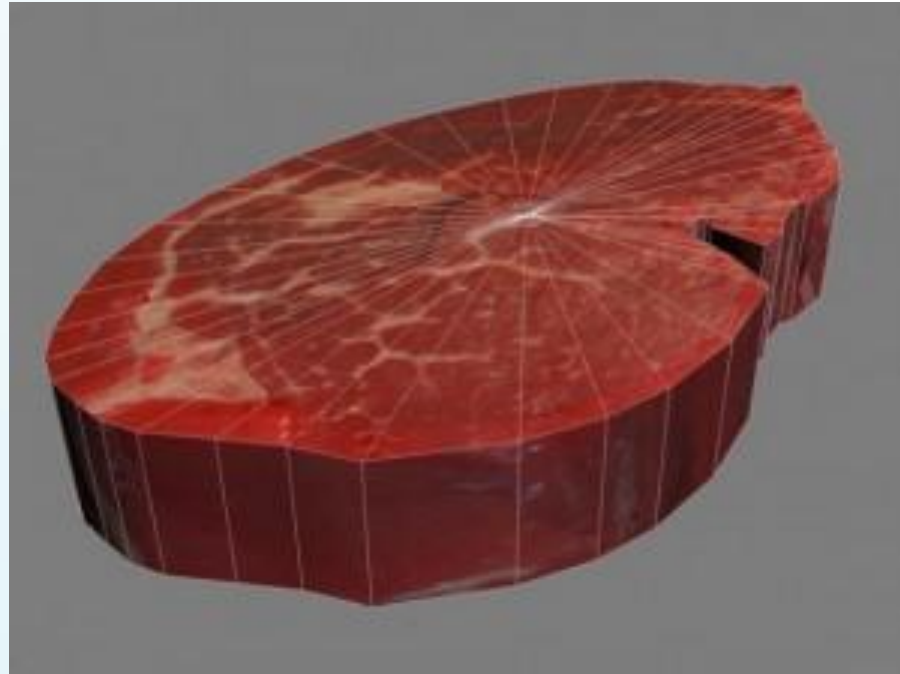


# The future?





# The future?



# The future?





# Why innovate?

- ▶ Solving (other people's) problems
- ▶ Meeting needs



Ask the customer!

# Drivers of innovation

- ▶ Less difficult physical labor
- ▶ Efficiency
- ▶ Better communication systems to access knowledge and information
- ▶ Mobility and speed
- ▶ Better quality of life
- ▶ Better health/longer life expectancy
- ▶ Survival
- ▶ Making/saving money

# Beware of misunderstandings

- ▶ Innovation is not just about technology
- ▶ Moving agriculture forward is not just about agriculture

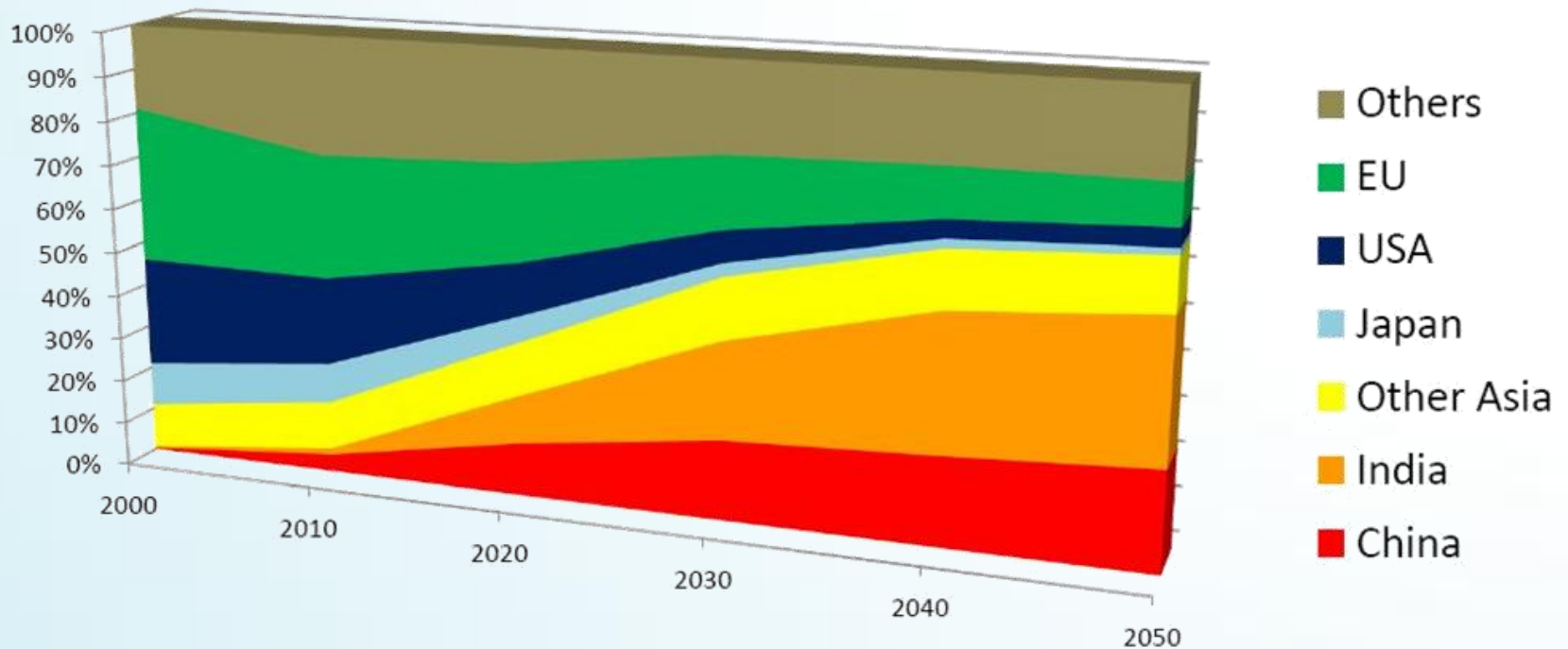
# The shift in consumption markets



# The Rise of the Asian Middle Class

Shares of Global Middle Class Consumption, 2000-2050

(Source: OECD)





# When the Chinese Want More Meat

- ▶ Today: 55 kg per capita per year
- ▶ Expectation: 80 kg per capita per year by 2030
- ▶ Consumption increase of 10 kg/yr/capita of:
  - Chicken = today's US chicken production
  - Pork = 5 times Iowa's pig production
  - Beef = 125% current US beef production

# What More Demand Means

- ▶ Challenge for crop farmers: meet animal feed (and corn ethanol) demand in sustainable manner
- ▶ Firm but volatile markets for agricultural commodities
- ▶ Meat and biofuels industries between rock and hard place
- ▶ Expect prices of food to increase, meat and fish in particular

# Animal Protein

- ▶ Winners will be:
  - Low feed conversion ratio
  - Low consumption of fresh water
  - Manure of good agricultural value
  - Low cost of production
  - Quick cash flow
  - Versatile food
  - Healthy food
- ▶ Poultry>Pork>Beef... aquaculture?
- ▶ Renewed interest for grass

# Future marketing strategies



# Growth markets

- ▶ Economic situation improves
- ▶ Similar to West after WWII
- ▶ Growing middle class with more disposable income → more demanding
- ▶ More meat
- ▶ More fruit and vegetables



# Mature markets

- ▶ Mainly developed countries
- ▶ Wealthy and/or aging
- ▶ Consumer is full, want quality before quantity
- ▶ Food safety
- ▶ Focus on health, environment, animal welfare
- ▶ Desire for “better” production systems and transparency

# Conquering new and different markets

- ▶ The trend is your friend
- ▶ Making choices
- ▶ Differentiation
- ▶ Developing niches
- ▶ By-products
- ▶ Always be market-driven

# Reconnecting consumers and agriculture

- ▶ Away from debate to true dialogue
- ▶ Transparency
- ▶ Bring the farm to consumers



Online age: live webcam

# Producing more with finite resources



# The End of Cheap

- ▶ High demand for energy and natural resources
- ▶ Change of economics will affect:
  - Agriculture
  - Logistics
  - Infrastructure
  - Location
- ▶ Result: different food systems than today
- ▶ Challenge: keep food affordable



# Changing economics

- ▶ Alternative energy
- ▶ Water saving
- ▶ Soil conservation
- ▶ Plant nutrients/fertilizers
- ▶ Chemicals reduction
- ▶ Feed efficiency
- ▶ Postharvest losses

# Changing economics



How does it affect your competition, too?

# Land and cities

- ▶ Shrinking area of arable land
- ▶ Going vertical
- ▶ Perishables to move closer to urban centers for energy and water reasons
- ▶ A new look at urban development and urban planning
- ▶ Coordinated planning approach land-urban
- ▶ Cities are at the end of the food chain

# Innovating for sustainability

- ▶ Closing the loops: circular thinking
- ▶ Eliminate waste
- ▶ Effectiveness of action: precision
- ▶ Monitoring systems



Money talks

# Farmers of tomorrow



# Farmers of tomorrow

- ▶ Aging farmers
- ▶ Dealing with limited labour pool
- ▶ Keeping farming affordable

# Attracting the next generation

- ▶ A difficult task
- ▶ Image problem
- ▶ Agriculture attractive as a livelihood
- ▶ The many careers in food and agriculture
- ▶ You can't love what you don't know
- ▶ Start with schools + networks

Taking leadership to move  
forward and shape the future  
of food and farming





# Creating the conditions for innovation

- ▶ Make it attractive
- ▶ Encourage initiative
- ▶ Allow failure
- ▶ Remove rigid environment

# The right mindset

- ▶ Curiosity
- ▶ Enthusiasm, passion
- ▶ Pragmatism & open-mindedness
- ▶ Persistence
- ▶ Resourcefulness
- ▶ Humility

# A Crucial Role: Helping Farmers Succeed

- ▶ Facilitate knowledge transfer
- ▶ Encourage collaboration
- ▶ Stimulate leadership
- ▶ Reward “good behaviour”
- ▶ What can I do for you?

# Innovation meets vision

- ▶ For BC
- ▶ For your sector
- ▶ For each individual farm
- ▶ For each business involved