



**生物技术中心**  
B i o t e c h C e n t e r

# Enhance The Competitiveness Of Chinese Seed Industry By Technology Innovations

**International Food and Agribusiness Management  
Association World Forum & Symposium  
Shanghai**

Dr. Yuping Lu  
General Manager of BDN Biotech Center  
Beijing Da Bei Nong (BDN) Technology Group Co.

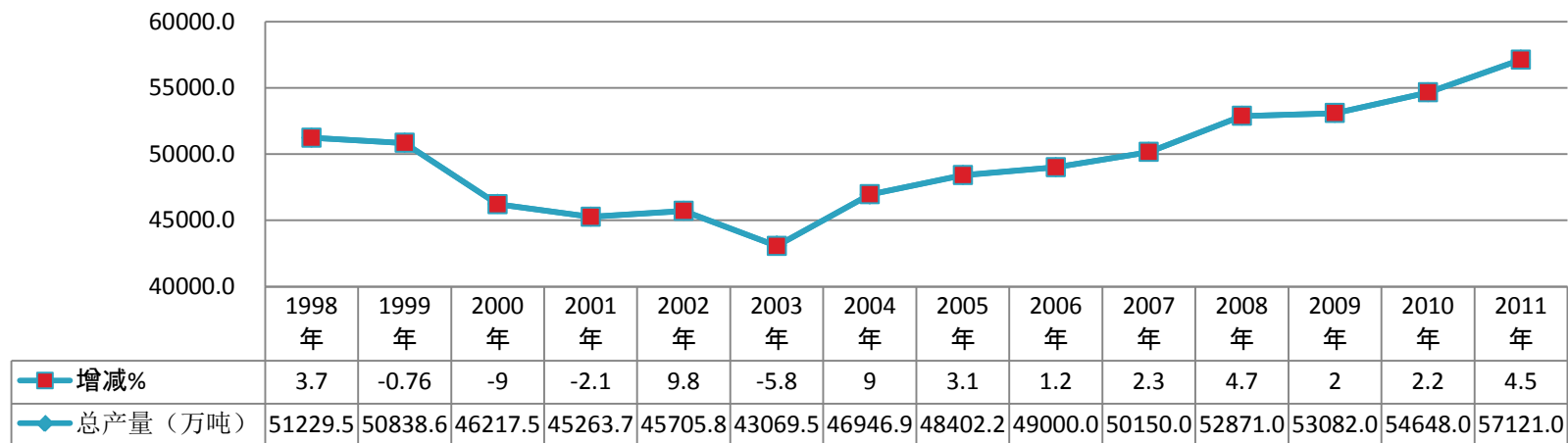
June 11-14, 2012

# Responsible to Feed 20% Global Population



Crop production increased continuously 8-year in a row

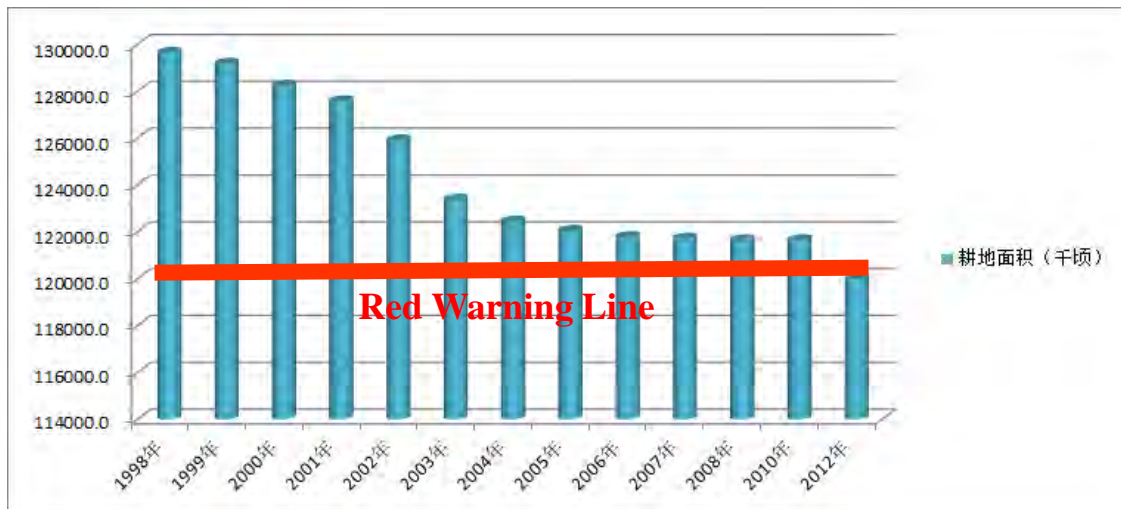
- Better new varieties- corn and rice
- Improved irrigation system
- Better pesticides
- Government subsidizes (140 billion RMB) for farmers
- Corn acreage increase at the cost of soybean



# Challenge in China Agriculture



- ◆ Approximate 10% of reduction in arable land due to urbanization in past decade
- ◆ Productivity decreasing: lack of farm labor
- ◆ Income difference cross regions
- ◆ Environmental impacts



# Challenge for Food Security



- ◆ **Not possible to achieve self-sufficient for food under the current limited arable land and water resource**
  - China imported 55 million ton soybean, 8 million ton plant oil and 3 million ton cotton, which together is equivalent to 60 million ha of the arable land
  - Only 50% self supply for edible oil & 60% for cotton
  
- ◆ **By 2030, population to be 1.45 billion, which demands 1.4 billion ton of food, or more double of the current productivity**

# Government Promotes and Nurtures Modern Seed Industry



- As one of national strategic and fundamental core sectors
- Highly promoting agricultural sustainable growth to ensure national food security
- Mainly relying on independent innovation, fully utilization of crop germplasm
- Enhancing policy & financial support, thus further empowering technology innovation and strengthening enterprise competition capability
- By 2020, to develop numerous market demanded breakthrough new crop varieties

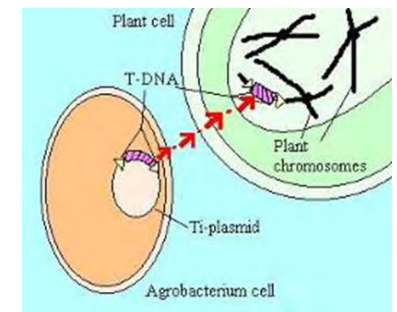
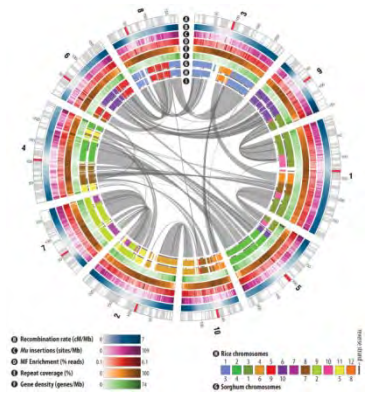
I strongly advocate making great efforts to pursue transgenic engineering. The recent food shortages around the world have further strengthened my belief in developing such technologies.

-- 《科学》期刊对温总理的专访, 2008 *Science* journal interview with Premier Wen

# Biotech is essential for Sustainable Agriculture



- ◆ First green revolution (fertilizer, chemicals, irrigation and hybrid) had doubled yield for the past 50 years
- ◆ To further double crop yield potential, a breakthrough technology is essential
- ◆ Biotechnology is a key
  - Genome decoding
  - Molecular Marker Technology: drought and agronomic traits
    - quick evaluation for germplasm
    - mapping and enrichment of better endogenous genes
    - speeding up new variety breeding
  - Double haploid technology: fast fixing heterosis
  - Transgenic technology: utilization of exogenous genes
    - Input trait: insect control & herbicide
    - Output trait: health nutrient  $\omega$ 3/ DHA







# How DBN Helps Chinese Agriculture & Farmers

- One of few domestic companies dedicated to provide solution to agricultural productivity
- Over 200 million RMB investment annually in agricultural technology innovation
- Over 5 million farmers receiving technical training annually to use modern technologies or new products
- Awarded a dozen scientists for science and technology achievement in agricultural researches every other year



# 5 Years' Planning for Biotech Innovation



- Mission: Be a leading Agri. Biotech company in innovation and product development in China
  
- Focus (R&D Investment: 2 billion RMB)
  - Collection & evaluation of corn and rice germplasm
  - New breeding system
  - Seed production and processing
  - Biotechnology
    - Molecular marker platform
    - Biotech product development: Corn, Soybean, Rice, and Cotton





# Corn Product Development by 2020



Insect controls



Herbicide tolerance



Detasseling free



Drought tolerance



Enhanced Yield

Better nutrition



$\omega$ 3/ DHA



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Cooperate & Win