



# China-CABI Partnership Challenges and Opportunities

***Dr. Feng Dongxin***  
***Director General , Dept. of International Cooperation,***  
***Chinese Academy of Agricultural Science, PR China***

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# Outline

- *Major Achievement of China's Agriculture*
- *Status and Key Challenges of Agriculture in China*
- *Role of Agriculture S&T in China's Agriculture Development*
- *Productive Cooperation between CABI and China*
- *Opportunities for Future Collaboration*



# ***Major Achievement of China's Agriculture***

## ***Major Achievement***

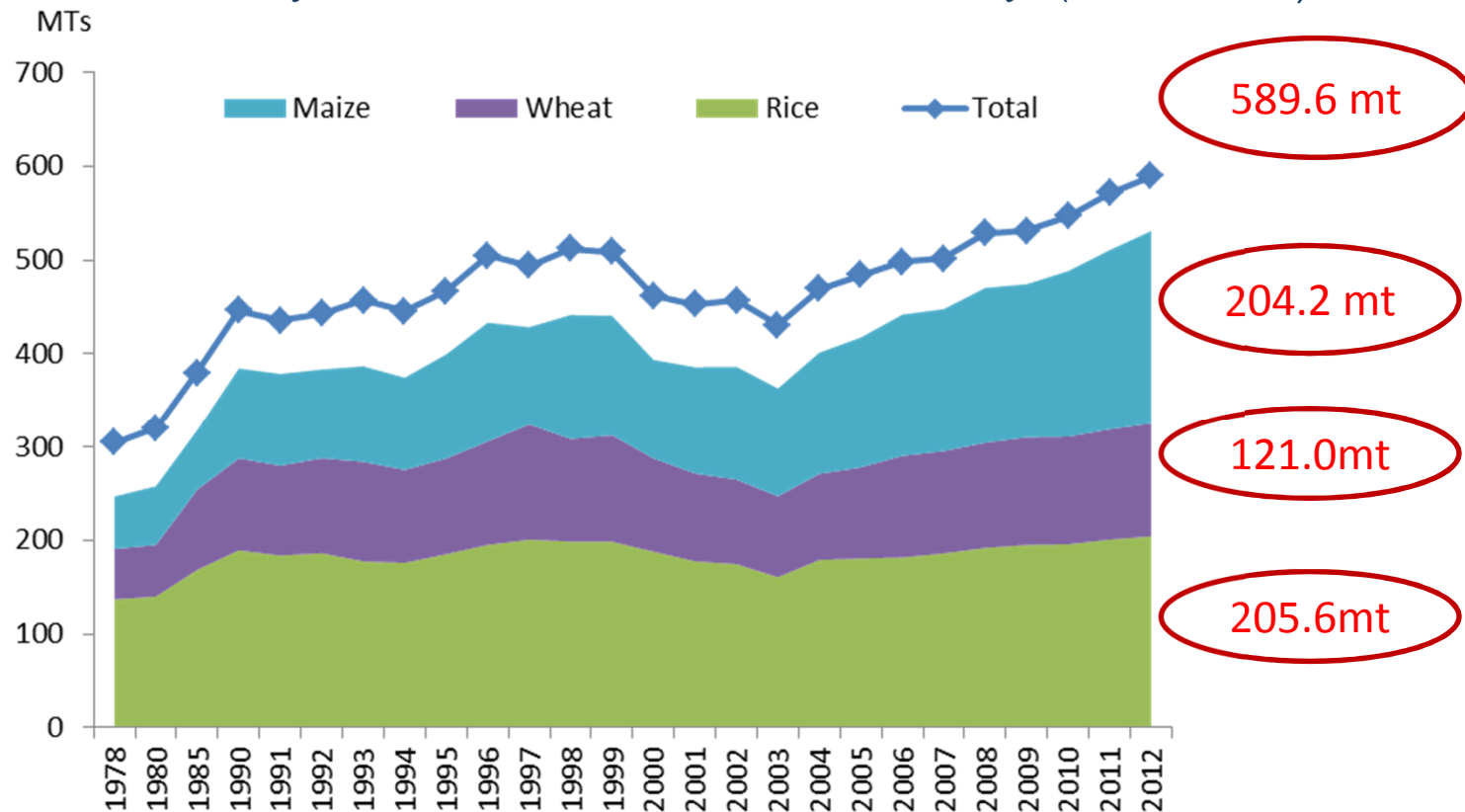
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- Food security enhanced
- Farmers' income increased and poverty reduced
- Agricultural trade expanded
- Agriculture industrialization accelerated

# Major Achievement of China's Agriculture

## Food Security Enhanced

- Rate of grain self-sufficiency 95% (2004-2012)
- 10 consecutive years of increase, at 3.6% annually (2004-2013).



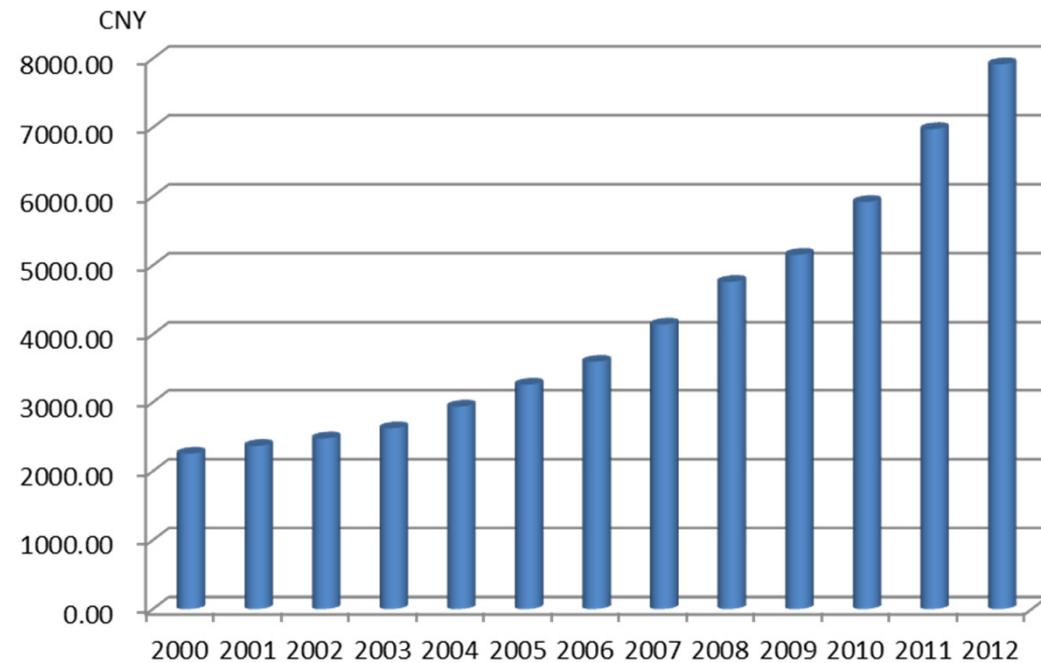
SOURCE: Chinese Yearbook of Agricultural Statistics, 2013

# ***Major Achievement of China's Agriculture***

## ***Farmers' Income increased***

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In 2012, farmers' annual nominal income reached 7,917 Yuan (1277 USD), /person, with 10.8% annual rate of increase during 2000-2012



# ***Major Achievement of China's Agriculture***

## ***Agricultural trade expanded***

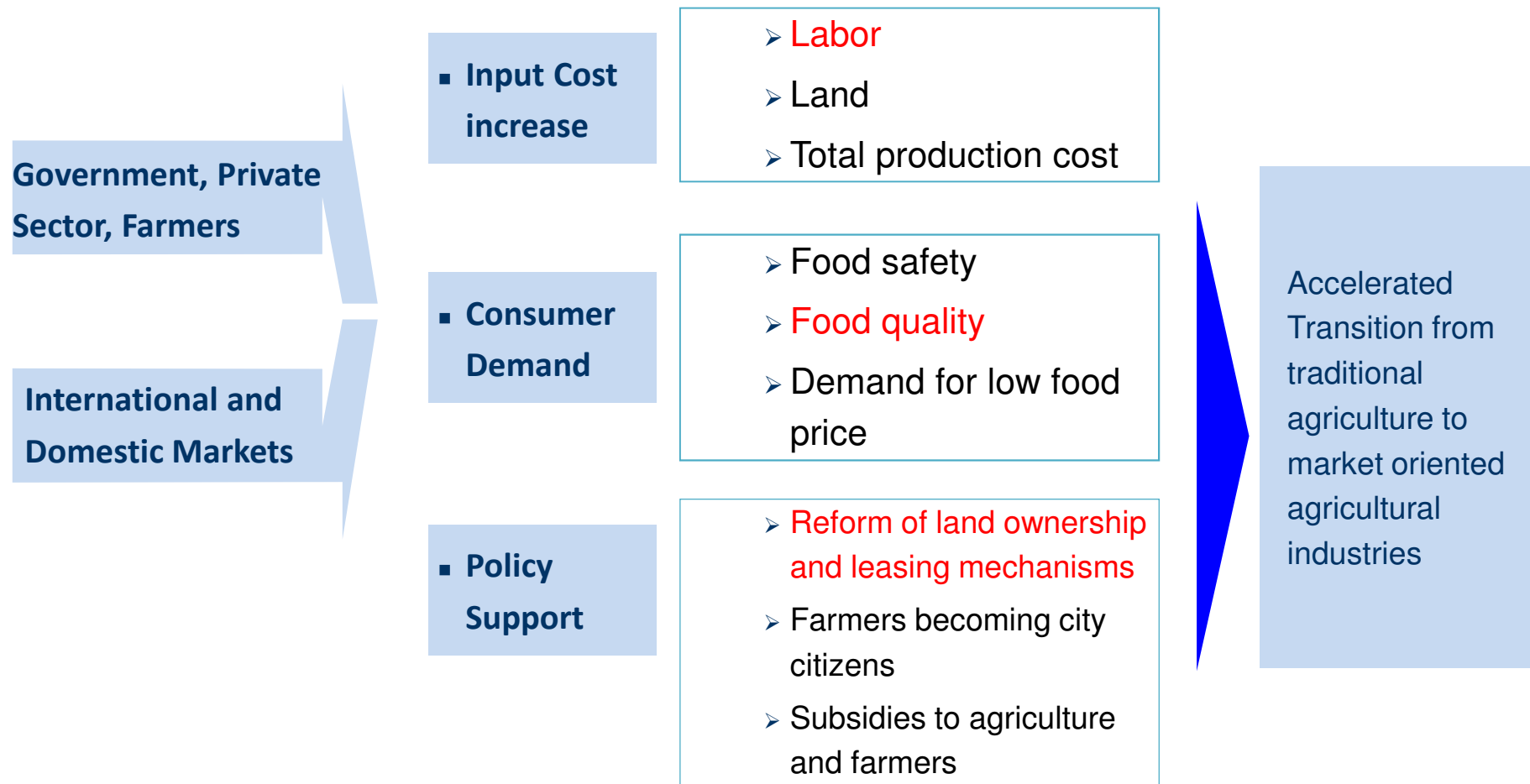
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**2011**

- Agri-products trade value: USD **155.6** billion, increased by **27.6%** from 2010
  - Export **23.0%** ↑, Import **30.8%** ↑
- Trade deficit: USD **34.1** billion, increased **47.4%**
- Trade deficit mainly comes from soybean, oilseed, milk powder, cotton, meat, sugar
- Main export products: vegetables, fruits, fishery and aquatic products.

# *Major Achievement of China's Agriculture*

## *Agriculture industrialization accelerated*



# ***Status and Key Challenges of Agriculture in China***

## ***China's Agriculture at a Glance***

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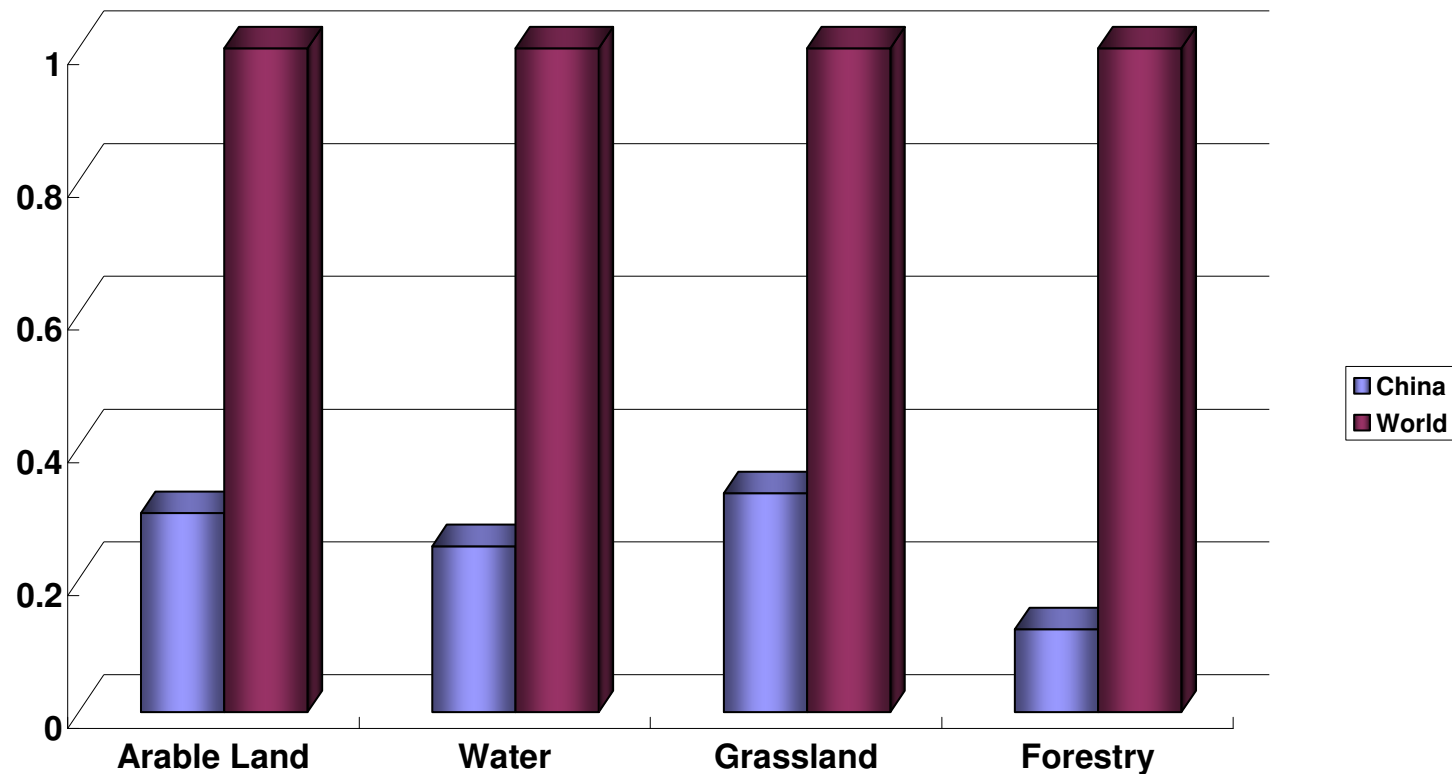
- 8% arable land, 6% water resources feeding 20% world population
- 1.35 billion population vs. 122 mill hectare arable land
- 59.4% mountains and plateaus, 9.9% hill, 18.8% basin and 12.0% plain
- Average arable land per capita: 1.36 mu (0.09 ha)
- Medium & low yielding land 71% of the total arable land
- Total GDP RMB 56.8 trillion Yuan and agricultural GDP accounts for about 9.7% in 2013.



# ***Status and Key Challenges of Agriculture in China***

## ***Limitations of Resources***

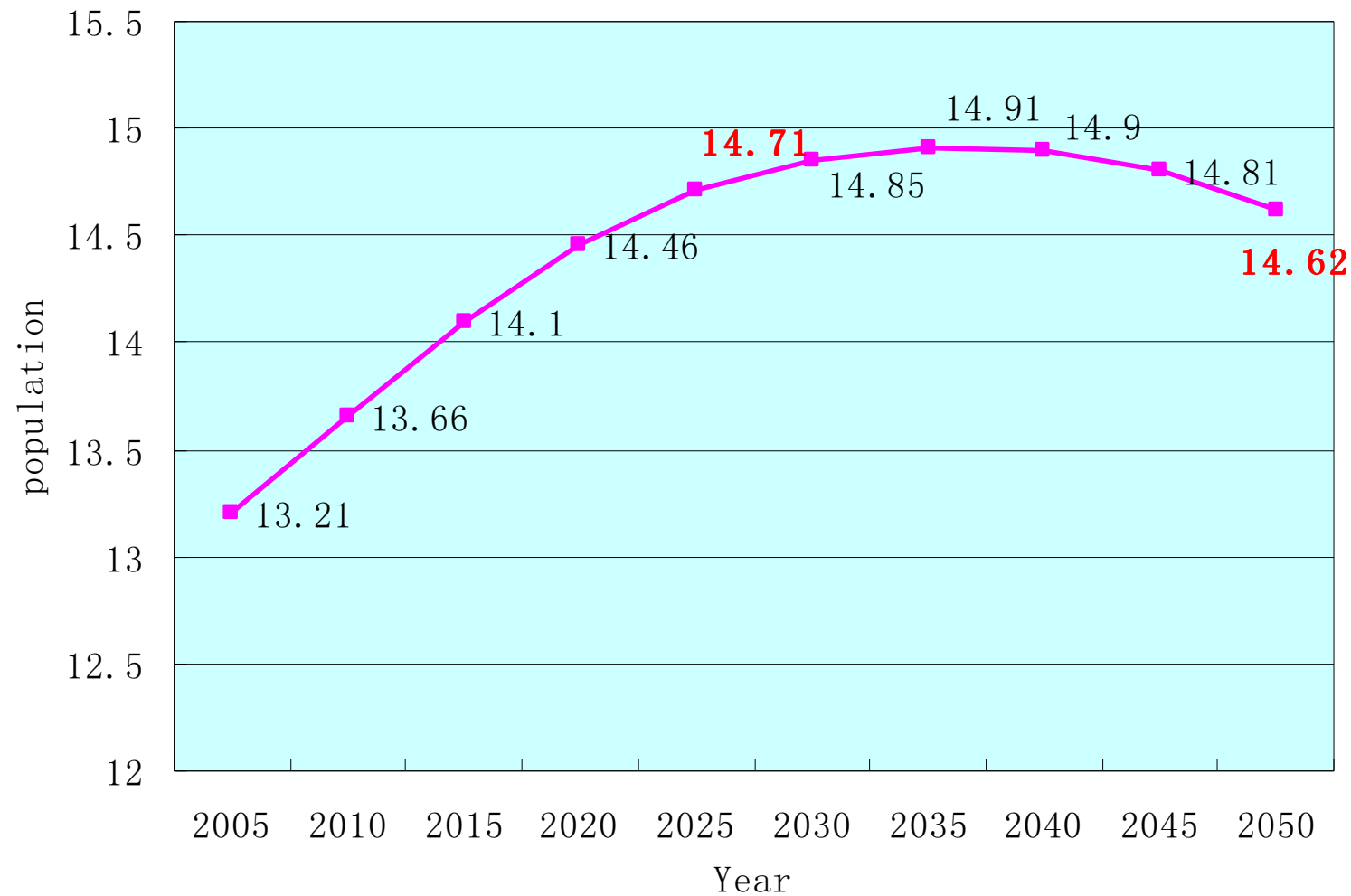
**Resources Per Capita (China vs World Average)**



- Arable Land: 122 million ha
- Forest: 225 million ha
- Total water: 2812400 million m<sup>3</sup>
- Grassland: 266 million ha

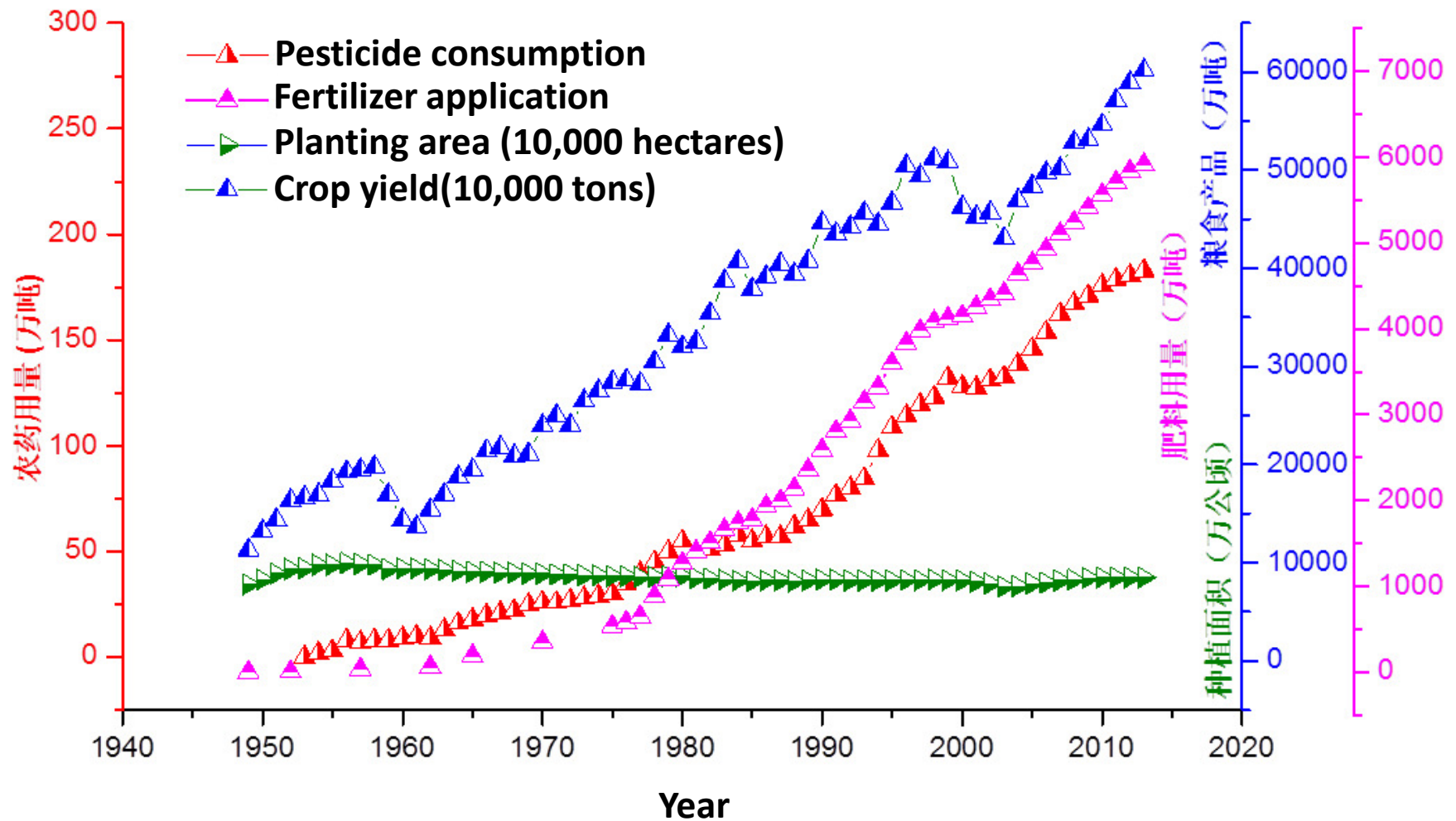
# ***Status and Key Challenges of Agriculture in China***

## ***Population in Crease***



# *Status and Key Challenges of Agriculture in China*

## *Over Uses of Chemicals*



# ***Status and Key Challenges of Agriculture in China***

## ***Agricultural Labor Force Change***

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### **Rural Migrant Workers Are Mainly Young Adults**

- 250 million migrant workers from the country side
- 78.8% of migrant workers aged between 21 and 50

### **Negative Impact Of Rural Labor Migration**

- Who are the farmers? (Women, elder people)
- Unskilled farmers, difficulty in adopting new technologies and accessing market information

# ***Status and Key Challenges of Agriculture in China***

## ***Other Challenges***

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- Climate Change
- Environment Degradation
- Invasive Species
- Natural Disasters
- etc.

# ***Status and Key Challenges of Agriculture in China***

## ***Priority Areas***

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- Food Security
- Food Safety
- Sustainable Agriculture
- Rural Development
- New Technology Innovation

# ***Role of Agriculture S&T in China's Agriculture Development***

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- The Chinese government attaches great importance to agricultural development and food security, and has always adopted agriculture, rural affairs and farmers' issues as the priority of its work and food security of its 1.3 billion people as top priority.
  - Carry forward modern agricultural development.
  - Rely on the innovation of agricultural operating system to provide new driving forces.
  - Enhance policy, technology, facility, equipment, human resources and system support.
  - Establish the concept of ecological civilization, accelerate the transformation of agricultural development patterns, cherish and protect farmland, optimize agricultural development structure.
  - .....

# ***Role of Agriculture S&T in China's Agriculture Development***

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## ***Contribution rate of S&T to increased agricultural production***

1981-1985	1986-1990	1991-1995	1996-2000	2000-2005	2005-2010	2013
35%	28%	35%	42%	45%	50%	55.2%

- Over 6000 new varieties of major crops
- 4-5 times of nationwide replacement of crop varieties,
  - yield increased 10%-20% each time



# ***Role of Agriculture S&T in China's Agriculture Development***

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## ***Agricultural S&T extension system improved (2009)***

<b>Category</b>	<b>Organization Number</b>		<b>Number of Staff</b>	
	<b>10,000</b>	<b>%</b>	<b>10,000</b>	<b>%</b>
<b>Crop Production</b>	<b>4.7</b>	<b>35.4</b>	<b>36.7</b>	<b>49.4</b>
<b>Livestock</b>	<b>4.0</b>	<b>30.1</b>	<b>24.0</b>	<b>32.2</b>
<b>Fisheries</b>	<b>1.3</b>	<b>9.8</b>	<b>3.7</b>	<b>5.0</b>
<b>Mechanization</b>	<b>3.3</b>	<b>24.7</b>	<b>9.9</b>	<b>13.4</b>
<b>Total</b>	<b>13.3</b>	<b>100</b>	<b>74.3</b>	<b>100</b>

Note: Not including veterinary technology extension agencies

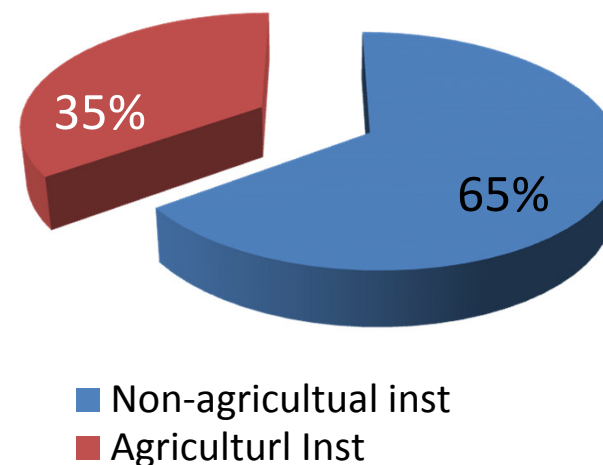
# ***Role of Agriculture S&T in China's Agriculture Development***

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**Agricultural research is a national priority**

Category	No.
Total No. R&D Organizations	3,696
Total No. Agricultural R&D Organization	1,293
Total No. R&D Staff	664,155
Agricultural R&D Staff	103,539

35% of all public R&D organizations are in agriculture



Source: 《Annual Statistics of China's Science & Technology, 2011》

# ***Productive Cooperation between CABI and China***

## ***Important Milestones of China-CABI collaboration***

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1980	<i>Courtship between China and CABI was started, and long-term abstracting arrangements set up</i>
1995	<i>China joined CABI as a Member Country</i>
2002	<i>CABI China Project Office was opened at CAAS' invitation</i>
2007	<i>CABI-China Joint Summit on Strategic Partnership, signing of the MoU between MoA and CABI, and CABI Regional Consultation</i>
2008	<i>Establishment of MoA-CABI Joint Laboratory for Biosafety</i>
2009	<i>CABI China Project Office has updated to CABI Beijing Representative office</i>
2013	<i>CABI Beijing Representative office has updated to CABI East Asia</i>
2015	<i>20 years anniversary celebrate for China – CABI collaboration (upcoming event)</i>

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# ***Productive Cooperation between CABI and China***

## ***Important Milestones of China-CABI collaboration***



**MOU Signed between MOA and CABI, 1<sup>st</sup>  
December, 2007, Beijing**



**Opening Ceremony of MOA-CABI Joint  
Laboratory for Biosafety,  
22nd September, 2008, Beijing**

# ***Productive Cooperation between CABI and China***

## ***Platform: MoA-CABI Joint Laboratory for Biosafety***

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established in 2008 & located at IPP/CAAS,

the **first** Joint Lab and the **only one** established by CABI and its member countries

### **Functions:**

- A platform for research collaboration & technology transfer
- A centre for training and scientific exchanges
- An open platform for joint collaboration with third parties
- Consultancy services

# ***Productive Cooperation between CABI and China***

## ***Platform: MoA-CABI Joint Laboratory for Biosafety***

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### **Main collaboration filed:**

- Integrated pest management technologies;
- Prevention and biocontrol of invasive alien species;
- Biological pesticide research and development;
- Reducing pesticide residues;
- Environmental safety research of GMOs.



# ***Productive Cooperation between CABI and China***

## ***Joint Projects***

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### **IPM projects funded by EuropeAid**

- Agricultural innovation for small farmers in the Greater Mekong Sub-region to improve food security, in the context of impact and adaptation to climate change and in favor of economic development (2011-2016, EUR 1,980,000 )
- Intra-regional transfer of biologically-based plant protection technology to improve livelihoods of small holder maize farmers in the Greater Mekong Sub-region (2012-2015, EUR 2,820,000 )
- DPRK agricultural soil pest IPM project (2011-2014, EUR 1,040,000)



# ***Productive Cooperation between CABI and China***

## ***Joint Projects***

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### **EU FP7**

- Enabling the exploration of insects as a sustainable source of protein for animal feed and human nutrition (2013-2016, EUR 3,830,000)
- Strategies to develop effective, innovative and practical approaches to protect major European fruit crops from pests and pathogens (2014-2018, EUR 6,000,000)





# ***Productive Cooperation between CABI and China***

## ***Joint Projects***

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### **Applied research projects funded by China and other governments**

- Potential for IPM of *Apolygus lucorum* in China using parasitoids, (2009-now, USD 88,500)



- research for developing an accurate application model of locust bio-pesticide on a large scale, (2015,GBP 60,000)

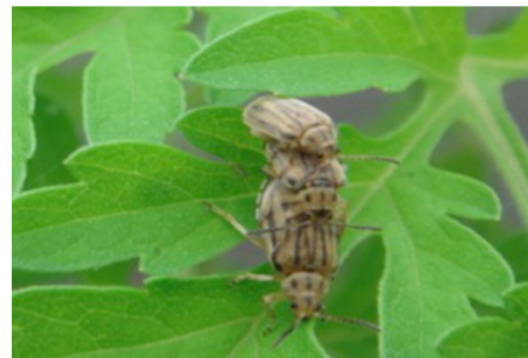
# ***Productive Cooperation between CABI and China***

## ***Joint Projects***

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### **Applied research projects funded by China and other governments**

- Biological control brown marmorated stink bug (BMSB), *Halyomorpha halys* (Stål) (Hemiptera: Pentatomidae) (2012- now, 35,000 USD by MoA, 102,000 CAD by AAFC)
- Research on the biological control of noxious weeds (2009 - now, 94,500 USD by MoA, 80,000 USD by USDA and 33,000 GBP by CABI Development Fund)



# ***Productive Cooperation between CABI and China***

## ***PLANTWISE-benefit the farmers***

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Started in China, 2012

- GBP 400,000 funded from 2012 to 2015
- Until now, 35 plant clinics established (24 in Beijing , 4 in Guangxi ,6 in Sichuang ,1 in Henan)
- 79 plant doctors trained (48 in Beijing ,11 in Xing'an,18 in Sichuang, 2 in Henan)
- More than 7,700 clinic prescription sheets issued

# ***Productive Cooperation between CABI and China***

## ***PLANTWISE-benefit the farmers***

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### Progress in 2015

- organized a clinic data validation and analysis workshop to improve partners' capacity on clinic data management and utilization
- conducted plant doctors Module 1 and Module 2 TOT in Beijing
- organized a plant health rally in Beijing area
- established plant clinics diagnosis support network within China
- explored development of ICT adopted e-clinics operation and management system

# ***Productive Cooperation between CABI and China***

## ***Information resources from CABI***

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- **CAB Abstracts**

MOA provides financial support annually to 11 provincial agricultural academies to purchase CAB Abstracts as well as training courses.

- **CABI Information Products**

A special area is opened and provided to display all the books and information products of CABI at the new building of the National Agricultural Library of CAAS.

- **Translate the abstract in English for CABI**

Before 2003, 1300 pieces abstract translated per year; 2003-2012, 1500 pieces abstract translated per year; 2013-now, 1100 pieces abstract and 200 pieces conference paper abstract translated per year.

# ***Productive Cooperation between CABI and China***

## ***Capacity Building***

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- over 40 Chinese experts visited international institutions through the Joint Lab, and more than 173 international experts paid visits to the Joint Lab.
- 42 graduates have been educated, include 1 post-doctoral, 1 PhD, 5 postgraduate students, 33 under-graduate students and 3 international students.
- 11 papers have been published on SCI Journals and one national invention patent was awarded.
- 2009-2014, 13 South-South Co-operation and Technology Training courses were sponsored by Joint lab with more than 300 researchers involved.

# ***Productive Cooperation between CABI and China***

## ***Conferences/Workshops Co-hosted***

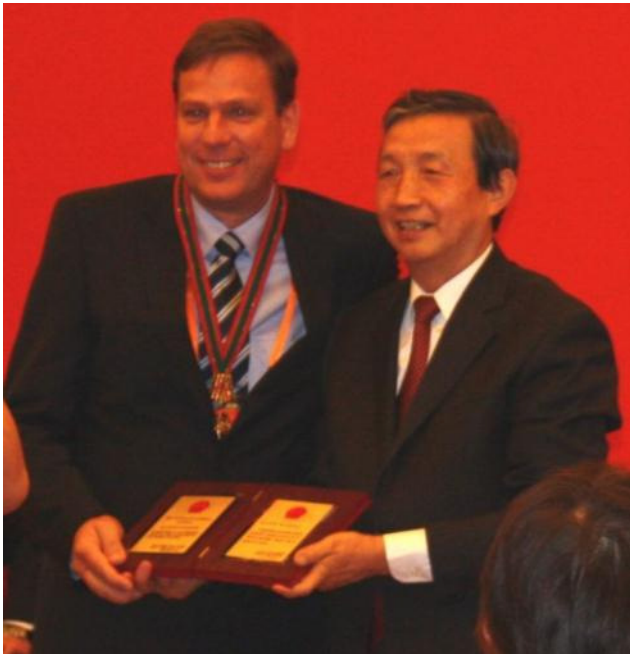
- 1999, the 1st International Workshop on White Agriculture
- 2004, CABI's Review Conference aligning with the 2nd International Workshop on White Agriculture
- 2007, CABI-China Joint Summit on Strategic Partnership
- 2009, Congress on Biological Invasions



# ***Productive Cooperation between CABI and China***

## ***CABI Scientist Awarded Highest Chinese Honour for Foreign Experts***

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Ulrich Kuhlmann, Regional Director of CABI's Swiss Centre and Co-Director of Joint Lab, highlighted the importance of partnerships after being honoured with the Chinese government's Friendship Award in Beijing on 28 September 2012.



# ***Productive Cooperation between CABI and China***

***Donation increased year by year***

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***Total amount : USD 1,400,000***

Year	USD
2008	50,000
2009	50,000
2010	100,000
2011	100,000
2012	200,000
2013	250,000
2014	300,000
2015	350,000

# ***Opportunities for Future Collaboration***

## ***Opportunities for Working Together***

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- China's large agricultural research extension & information systems providing complementarity and synergies
- China's increased contributions to CABI
- China's contributions to FAO South-South Co-operation Funds II (\$50m)
- China's "the Belt and Road Initiative"
- ASEAN +1 trust fund, APEC , WB and other regional programmes



# ***Opportunities for Future Collaboration***

## ***Suggestions for future collaboration***

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- Strengthening the cooperation on MoA-CABI Joint Laboratory for Bio-safety
- Jointly seeking the third party cooperation, applying the international program, approaching external funding resources, such as Horizon 2020, APEC, WB, DFID
- South-South Cooperation, technology transfer and training for Asian and ASEAN countries
- China's "the Belt and Road Initiative"
- Co-organizing the international conferences
- Expert Service from CABI to China for Capacity Building

# Thank you

