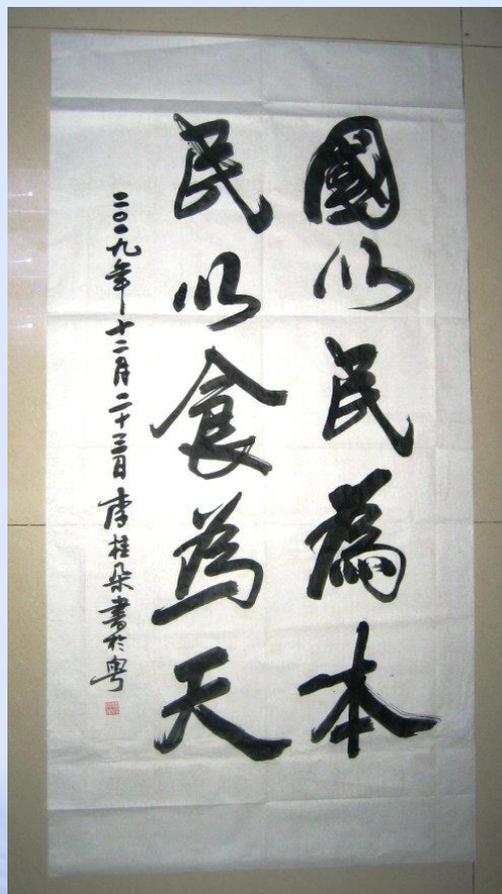


# CHINA-HELLAS" Agricultural Cooperation: Opportunities and potential





# Review of China's Agricultural S&T&I Development:

## 1. Major Progress in Scientific Research

1. National system for germplasm collection and conservation
2. Bioreactor of rice albuminous cell and its application
3. Explaining strigolactones' signaling pathways in the regulation of rice tillering
4. Draft genome sequence of *aegilops tauschii*
5. Sequencing oyster genome and whole-genome selective breeding
6. Draft genome sequence of moso bamboo
7. The potential of animal influenza virus in causing large-scale human influenza and its genetic mechanism
8. Identification of geminivirus species, research on their molecular mutation and pathogenesis
9. A planting pattern that boosts yield and cuts environmental costs

# Review of China's Agricultural S&T&I Development:

## 2. National Food Security

1. Technological innovations in bilinear hybrid rice and large-scale application
2. Technology for the breeding of late-stage functional super hybrid rice and its application
3. High-yield, density-tolerant and lodging-resistant maize variety “Zhongdan 909”
4. Wheat variety of “Zhengmai 366”
5. Breeding and promotion of common maize variety named “Jingke 968”
6. Selective breeding and application of new soybean variety “Zhonghuang 13”
7. Creation and application of maize germplasms “Yuzong 5” and “Huangjinqun”
8. “Zhang Zagu” hybrid *setaria italica*
9. “Zhongshu 18”
10. Technological support to the upgrade of the potato industry

# Review of China's Agricultural S&T&I Development:

## 3. Upgrading of Food Industry

1. Production of premium milk by nutrition regulation on dairy cattle, standardized feeding technology and application
2. Breeding and application of “Nongda 3” small layer chicken
3. Breeding and raising of new varieties of Beijing duck
4. Selective breeding and industrialization of excellent carp species
5. Flavor and quality control of dry-cured meat products
6. Suitability evaluation and selection of special varieties in peanut processing
7. Storage and transportation of waxberry and loquat

# Review of China's Agricultural S&T&I Development:

## 4. Modern Agricultural Industry

1. National remote sensing and monitoring of agricultural information
2. Quick sensing of plant-environment conditions and real-time monitoring of Internet of Things
3. 400hp CVT heavy-duty tractor
4. Peanut combine
5. New-type intelligent grain combine
6. Construction technology of ocean ranching ecosystem

# Review of China's Agricultural S&T&I Development:

## 5. Agricultural Development Model

1. Feed enzyme technology system innovation and product innovation
2. Green gas demonstration project in Yanqing
3. Rapid pyrolysis of biomass to make bio-oil
4. Industrialization of making liquid fuel from straws and demonstration projects with annual capacity of 10,000 tons
5. Accurate sprinkling & irrigation technology and products
6. Accounting of the value of China's forest resources
7. Rapid restoration and reconstruction of mangrove forest
8. Theory and model of low-coverage wind-breaking and sand-fixation
9. Research and demonstration of water conservation forest system in Northeast, North and Northwest of China
10. Preservation & development plan of Tangdong Village, Jinjing Town, Jinjiang City, Fujian Province

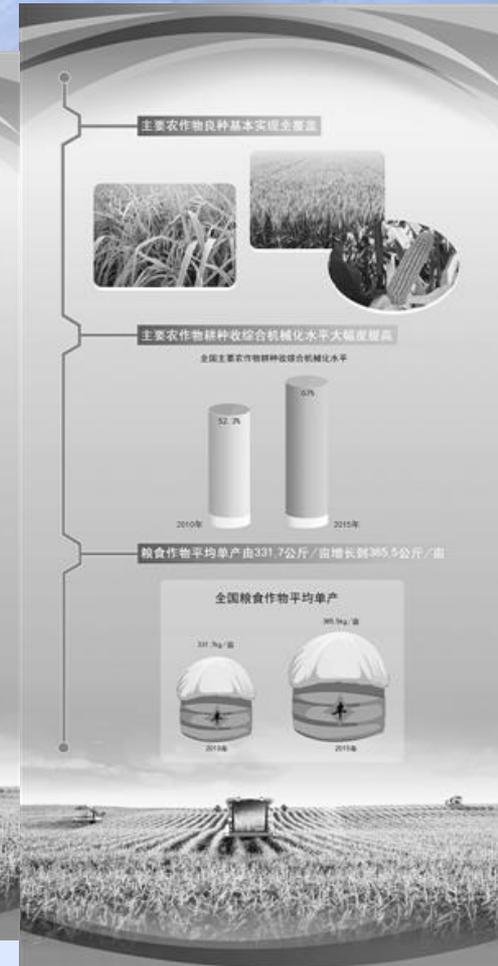
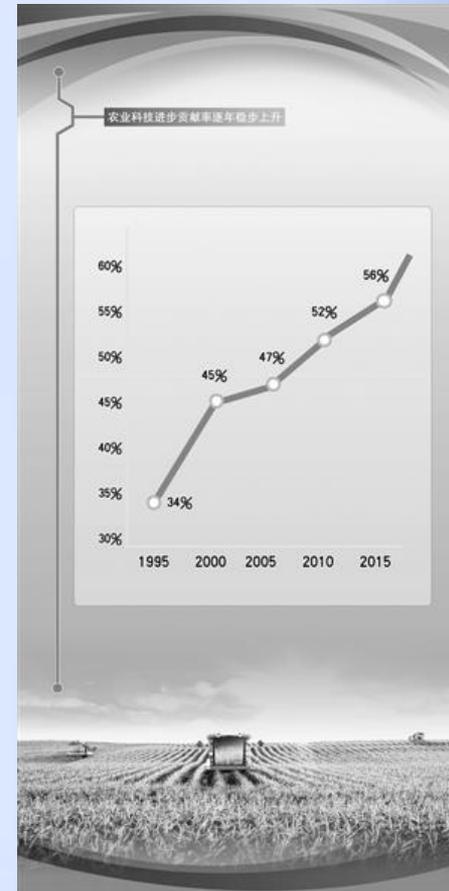
## Review of China's Agricultural S&T&I Development: 6. Grassroots S&T Services System

1. Make a stronger presence of TTF
2. National agricultural science parks boost development of modern agricultural industry
3. Research Institutes for new countryside development becomes vital force to provide agricultural technology services
4. Aiding the poor with technology drives development of poverty-stricken regions

# Review of China's Agricultural S&T&I Development:

## 7. Achievements over 12th Five Years (1)

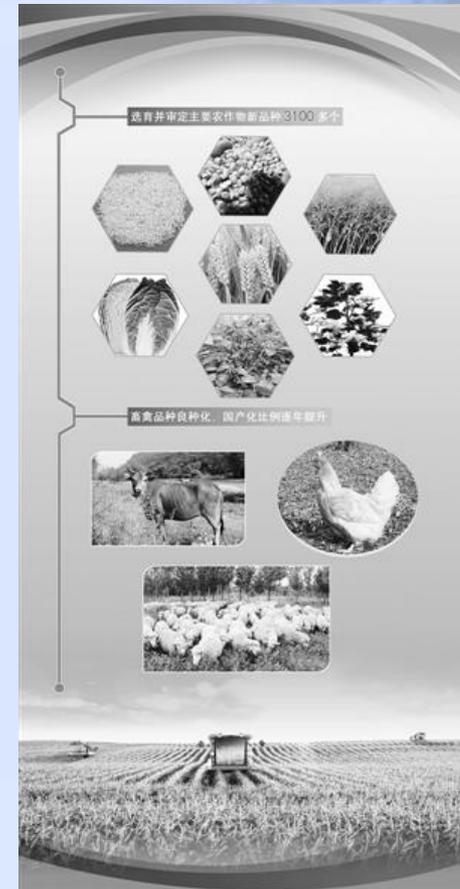
1. The contribution of scientific and technological progress in agriculture to economic growth has increased from 52% in 2010 to over 56% in 2015, and from 43% to 48% in the forestry sector. The average yield of food crops has grown from 331.7 kg/mu in 2010 to 365.5 kg/mu in 2015.
2. The share of high-quality cow species has increased to around 60%, and the contribution of fine seed varieties to the increase of agricultural production has exceeded 43%.



# Review of China's Agricultural S&T&I Development:

## 7. Achievements over 12th Five Years (2)

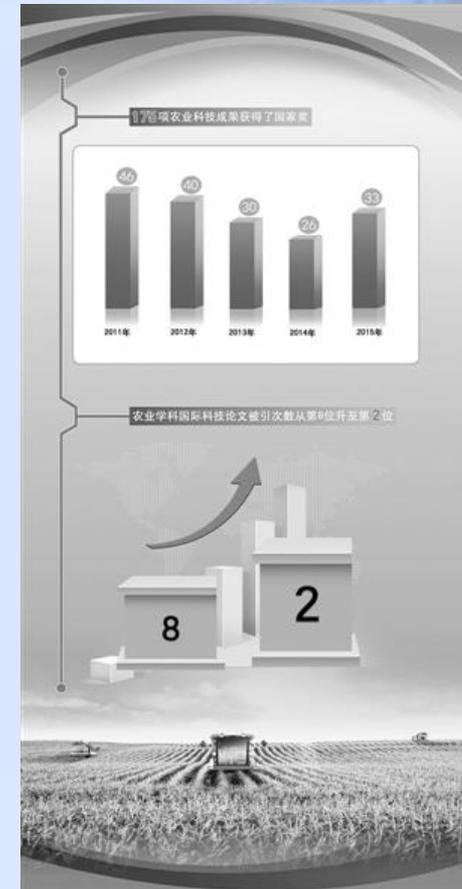
3. In the 13 main grain production provinces in the plains of northeast and north China and the middle-lower reaches of the Yangtze River, grain production has increased by over 56 million tons, adding over 100 billion RMB yuan of income over the last five years.
4. The demonstration project launched in 2013 for the Bohai Sea granary covered a total area of 17.569 million mu in Hebei, Shandong, Tianjin, Liaoning and other provinces, increasing total yield by 1.68 billion kg and adding revenue by 2.463 billion RMB yuan.



# Review of China's Agricultural S&T&I Development:

## 7. Achievements over 12th Five Years (3)

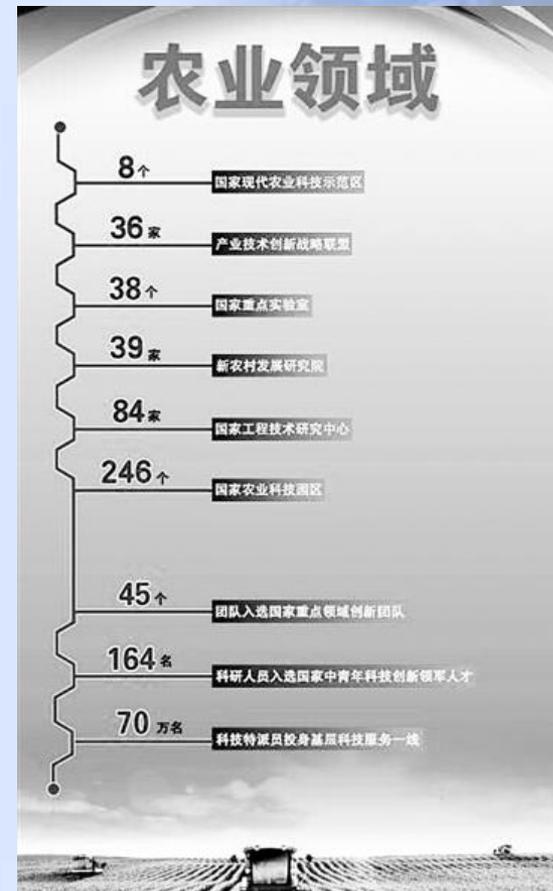
5. Up to date, 38 key national laboratories have been built to promote rice biology and crop genetic improvement among other fields. There are 36 strategic alliances of innovation in agricultural technologies and 83 national research centers of agricultural engineering.
6. During the 12th Five-year period, 175 S&T achievements in agriculture received national awards. China is ahead of most countries in all the major STI indicators. Agricultural high-tech industries are growing fast, and over 3,100 new varieties have been developed and cultivated on 1.5 billion mu of land.



# Review of China's Agricultural S&T&I Development:

## 7. Achievements over 12th Five Years (4)

7. China now has 729,000 extension service professionals who have formed 51,400 communities of shared interests with local farmers, created 15,900 businesses and set up 16,000 service stations, directly serving 12.5 million rural households and benefiting 60 million farmers.
8. China approved the building of 246 national agricultural parks where the drive of widespread innovation and entrepreneurship injected new impetus to agricultural and rural development. These parks incubated 6,376 enterprises with an annual output of 482.7 billion RMB yuan and paid tax of 9.55 billion RMB yuan.

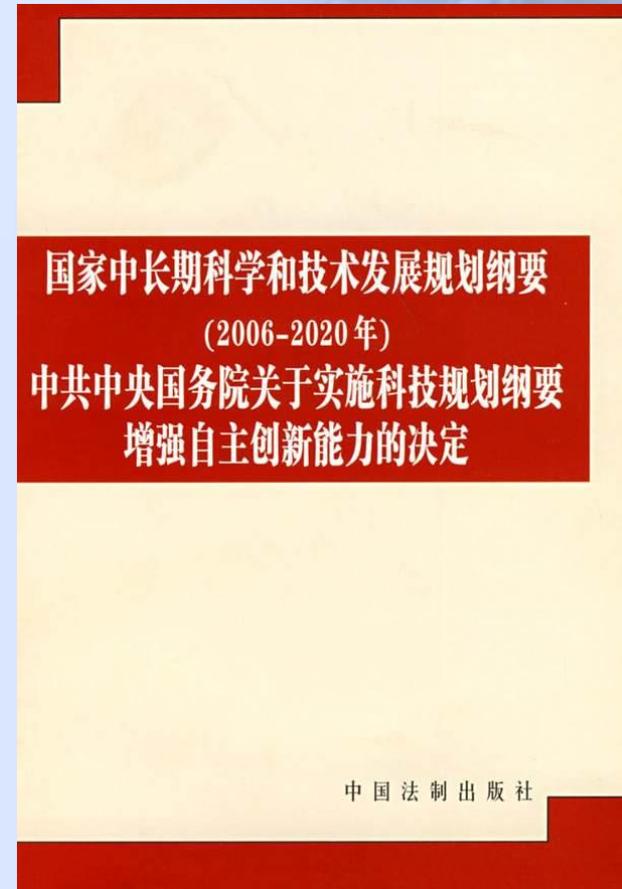


## Overarching Documents

1. Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)
2. Plan for Implementing the National Strategy of Innovation-driven Development
3. National Science, Technology and Innovation Program for the 13th Five-year (2016-2020)
4. Special Plan for Scientific, Technological and Innovation Cooperation for “Belt and Road” Initiative

# Overarching Documents (1)

## 1. Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)



## Overarching Documents (2)

# 2. Plan for Implementing the National Strategy of Innovation- driven Development



## Overarching Documents (3)

### 3. National Science, Technology and Innovation Program for the 13th Five-year (2016-2020)



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国务院关于印发  
“十三五”国家科技创新规划的通知  
国发〔2016〕43号

各省、自治区、直辖市人民政府，国务院各部委、各直属机构：  
现将《“十三五”国家科技创新规划》印发给你们，请认真贯彻执行。

国务院  
2016年7月28日

(此件公开发布)

## Overarching Documents (4)

### 4. Special Plan for Scientific, Technological and Innovation Cooperation for “Belt and Road” Initiative

# Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)

- II. Guiding Principles, Development Goals, and General Deployment
- - 2. Development Goals
- -- 2) making the nation a world leader in overall agricultural S&T capability, raising the comprehensive capacity of China's agricultural production, and ensuring the nation's food safety.

# Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)

- III. Main Areas and Priority Topics
- - 4. Agriculture
- -- Priority topics:
  - --- Germplasm development, preservation, and innovation in and targeted cultivation of new varieties
  - --- Healthy farming practices in domestic animals, poultry, and aquatic products, and associated epidemic disease prevention and control
  - --- Deep processing and advanced storage and shipping of farm produce

# Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)

- --- Integrated development and utilization of agro-forest biomass
- --- Agro-forest ecological safety and modern forestry
- --- Development and production of environment-friendly fertilizers, herbicides, and pesticides, and eco-agriculture
- --- Multifunctional farm equipment and facilities
- --- Precision farming and associated informatization
- --- Modern dairy industry

# Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)

- III. Main Areas and Priority Topics
- - 2. Water and Mineral Resources
- -- Priority topics:
  - --- Comprehensive water conservation
  - --- Comprehensive zoning of resources

# Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)

- VI. Basic Research
- - 3. Basic Research in Response to Major National Strategic Needs
- -- Crop genetic improvement and scientific issues in sustainable agricultural development

# Guidelines on National Medium- and Long-term Program for Science and Technology Development (2006-2020)

- VIII. Major Policies and Measures
- - 8. Expanding International and Regional S&T Cooperation and Exchanges
- -- Encouraging research institutes and universities to establish joint laboratories or R&D centers with overseas research institutes; support the implementation of international cooperation projects under bilateral or multilateral S&T cooperation frameworks;

# Plan for Implementing the National Strategy of Innovation-driven Development

- IV. Tasks
- - 3. Modern agricultural technologies that are eco-friendly, green, efficient and safe will be developed to ensure food security and safety.

# Plan for Implementing the National Strategy of Innovation-driven Development

- V. Safeguards
- - 3. Comprehensively promote opening up and innovation
- -- with the framework of the Belt and Road Initiative and the Asia-Pacific Connectivity Blueprint, we will help build scientific and technological innovation centers for, and with, countries along the routes of the Belt and Road Initiative.
- -- further open national science and technology programs to the outside world.

# National Science, Technology and Innovation Program for the 13th Five-year (2016-2020)

- II. Building national first mover advantage
- - 5. Building modern industrial technology systems with international competitiveness
- -- 1) Developing efficient, safe, ecological and modern agricultural technologies
- --- Biological breeding research and development
- --- Grain yield and efficiency
- --- High quality and high yield of main economic crops and improvement of industrial quality and efficiency
- --- Marine agriculture (blue granary) and technological innovation of freshwater fisheries
- --- Safe and efficient breeding of livestock and poultry and healthy development of grass husbandry

# National Science, Technology and Innovation Program for the 13th Five-year (2016-2020)

- --- Cultivation and high efficient utilization of forestry resources
- --- Prevention and remediation of agricultural non - point source and heavy metal pollution
- --- Sustainable utilization of agriculture and forestry resources and environment
- --- Saline land and other low-yielding land improvement for grain yield and efficiency
- --- Agricultural biological manufacturing
- --- Agricultural machinery equipment and facilities
- --- Efficient use of biomass in agriculture and forestry
- --- Smart agriculture
- --- Intelligent and efficient facility agriculture

# National Science, Technology and Innovation Program for the 13th Five-year (2016-2020)

- IV. Expanding innovation and development space
- - 13. Creating "Belt and Road" coordinated innovation community
- -- 4) Strengthening cooperation with the countries along the "Belt and Road"
- --- Strengthening the substantive cooperation in agricultural and other S&T fields of major public welfare
- --- Strengthening cooperation in the development and industrial demonstration in water-saving agriculture and other fields
- - 14. Integrating into the global innovation network
- -- 1) Improving the open cooperation mechanism for scientific and technological innovation
- --- Deepening intergovernmental scientific and technological cooperation
- -- 2) Promoting the two-way open and flow of innovation resources
- --- Major international S&T&I cooperation: focusing on promoting major international cooperation in agricultural and rural areas .....

# Special Plan for Scientific, Technological and Innovation Cooperation for “Belt and Road” Initiative

- IV. Focus areas
- - 1. Agriculture
- -- extensively carry out the joint collection and sharing of crop germplasm resources, and jointly carry out germplasm innovation, selection and promotion of new varieties of staple crops such as rice, corn, wheat, cotton, rapeseed and characteristic crops like rubber, banana, cassava, wood, livestock and aquatic products
- -- joint research, popularization and application of monitoring, early warning and green control technologies for agricultural pests; monitoring and early warning technologies for agricultural meteorological disasters; early warning, prevention and control technologies for major transboundary animal diseases; and cooperation in construction of agricultural information monitoring and sharing systems, major agricultural products risk monitoring and evaluation technology system

# Special Plan for Scientific, Technological and Innovation Cooperation for “Belt and Road” Initiative

- -- actively carry out the joint development and demonstration of high efficiency water saving and energy saving agriculture, marine agriculture, facility horticulture, comprehensive utilization of organic wastes and agricultural machinery and equipment, and promote environment-friendly and climate smart agriculture development mode
- -- strengthen the cooperation and popularization of green rural development technologies such as resource utilization, environmental management and ecological restoration
- -- strengthen the cooperation, popularization and application of high-efficient agricultural products deep processing technology, and accelerate the construction of halal food research and development and rapid detection technology system

## Guiding Documents

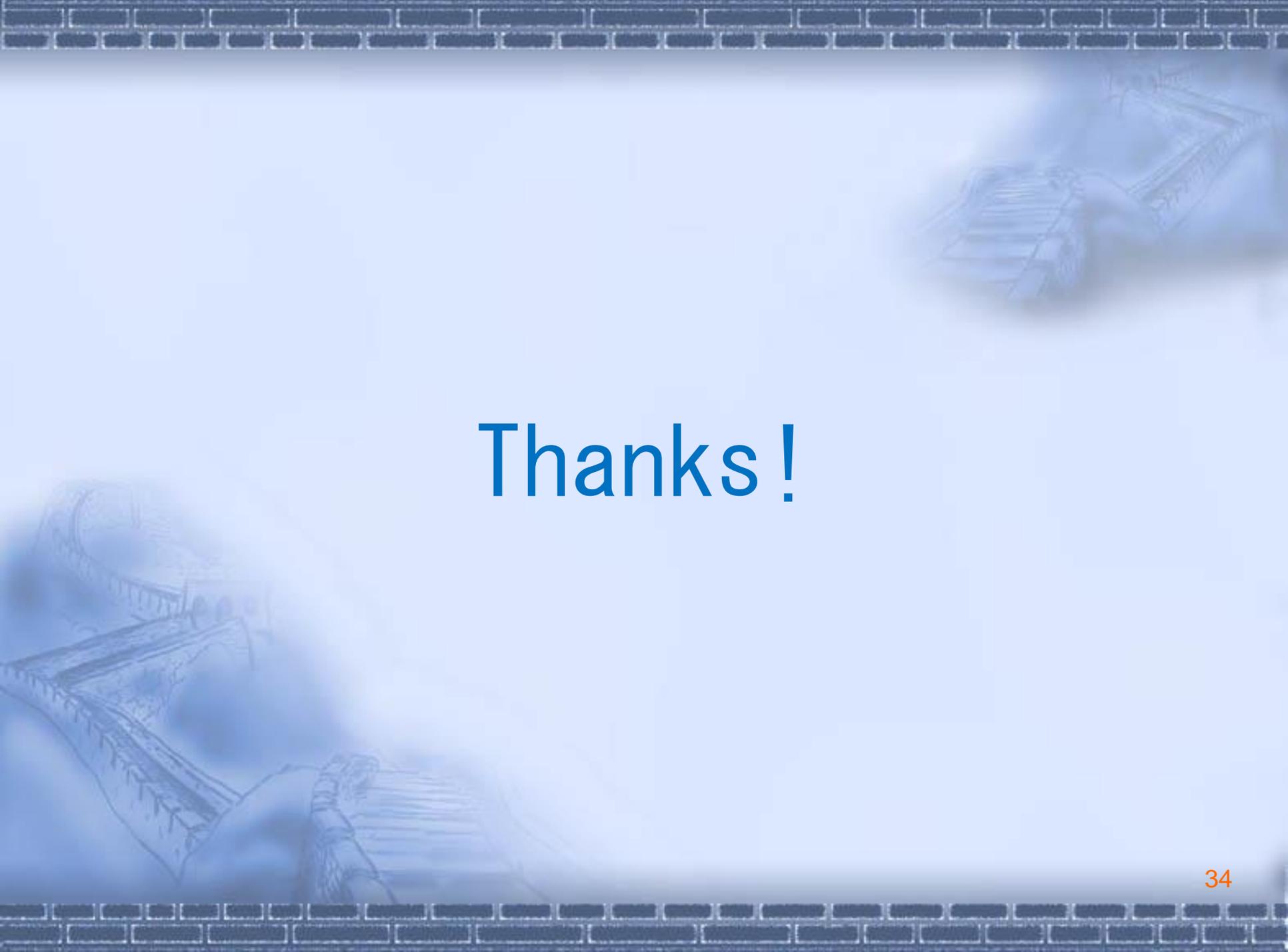
- Intergovernmental S&T Cooperation Protocol between China and Hellas
- November 15, 1979
- Beijing
- MoU on S&T&I Cooperation between MOST and Ministry of Education, Research and Religious Affairs/GSRT
- July 4, 2016, Beijing
- Agrifood sector with emphasis on modern agricultural processes, biotechnology, green food, etc.



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Thanks!