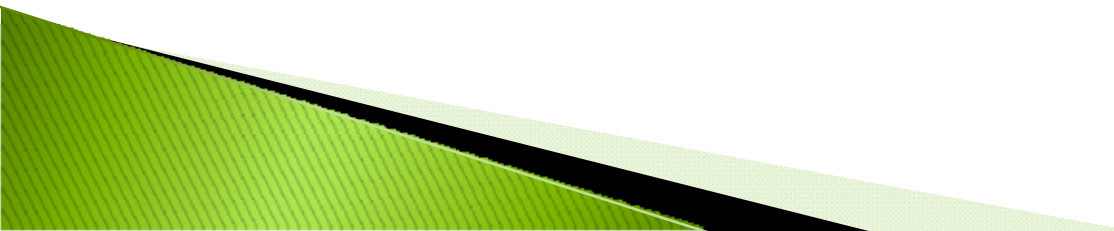


Agricultural Research for Development at CAAS

Dongxin FENG
Chinese Academy of Agricultural Sciences

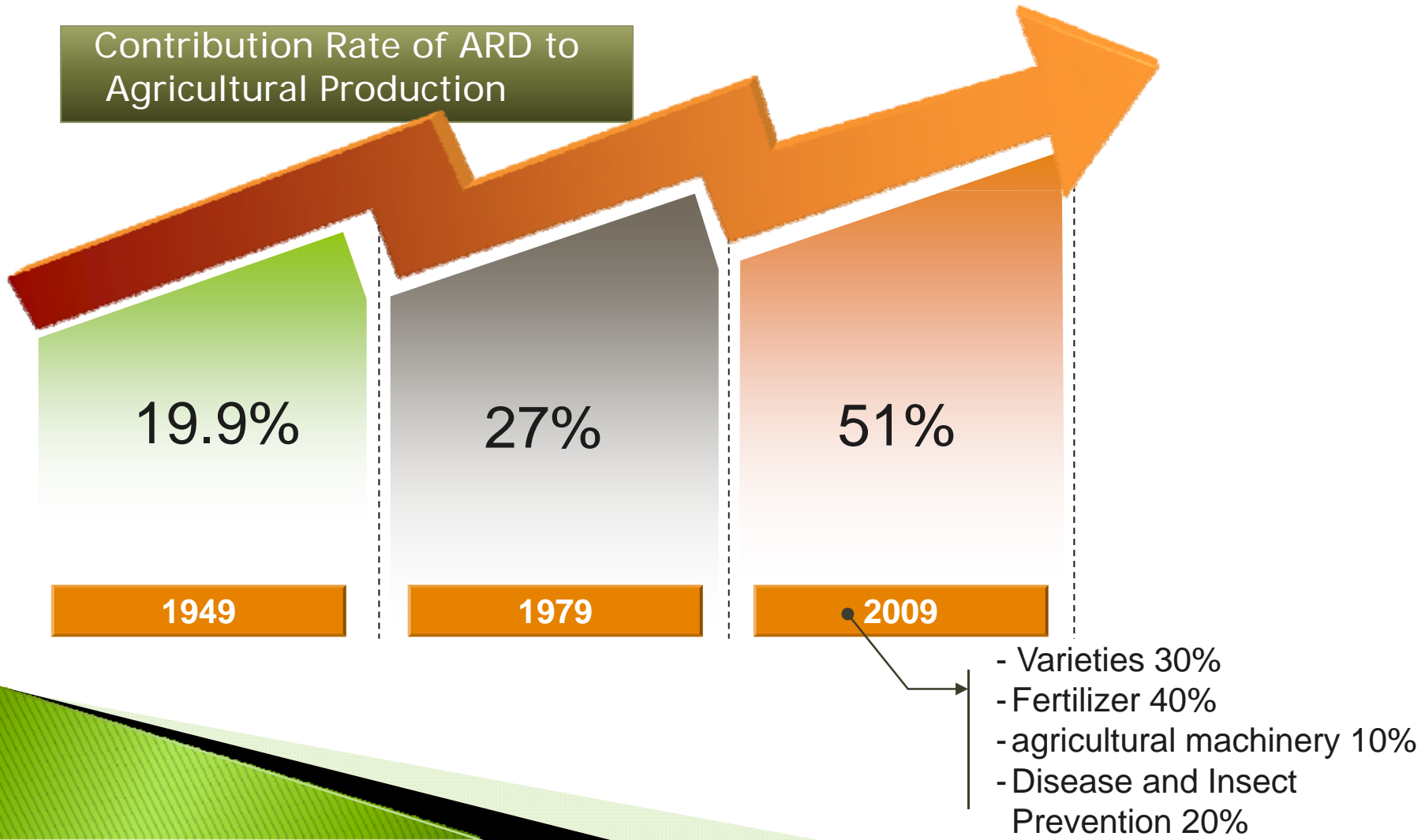
March 15, 2012

CONTENT

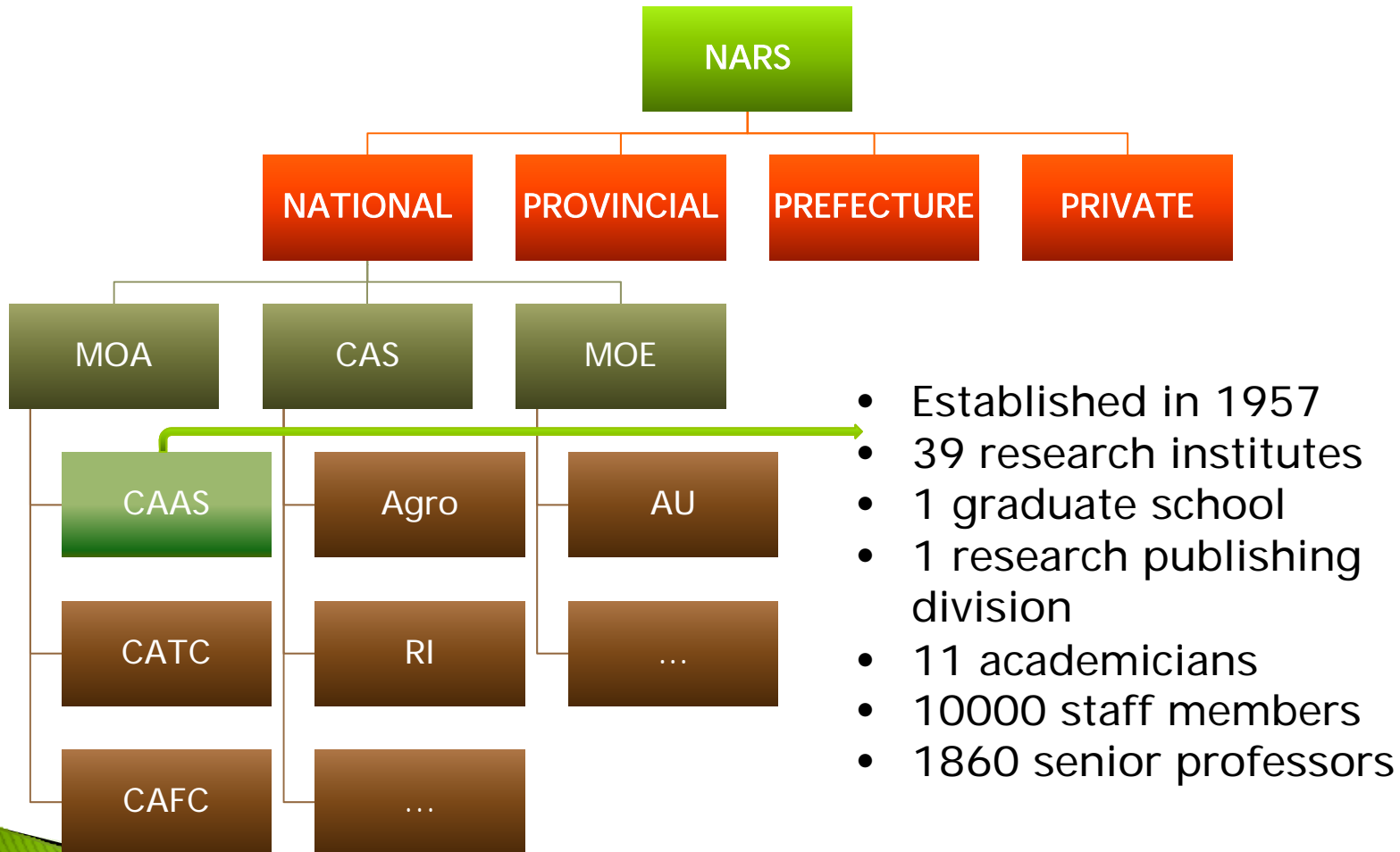
- ▶ General Information of CAAS
 - ▶ Research and Extension at CAAS
 - ▶ Challenge
 - ▶ Strategy
 - ▶ Research Priority
- 

Contribute to Agricultural Development

Contribution Rate of ARD to
Agricultural Production



A Leading Agricultural Research Institution in China



Research areas and Capacity

8% Total
Agricultural
Scientists in
China

26% National
Awards in
Agricultural
S&T

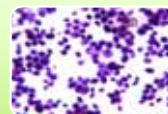
20 billion
benefit to
society
each year



Crop Sciences



Animal Sciences



Applied Microbiology



Agro-resources
Environment



Food Technology &
Engineering



Quality Standards &
Testing for Agro-produce



Agricultural Information



Agricultural Engineering



Agro Economics & Science
Development

Achievements

Since 1957, more than 5000 S&T Achievements

2535
Rewards

285 National
Rewards

During the 11th National 5 Years Plan

336
Rewards

2 Frist Prize,
23 Second
Prize in
National
level

152 rewards
in Provincial
Level

675 Patents

19929
research
Paper 916
books

High-Efficient Breeding Technology Platform



10 tons/ha



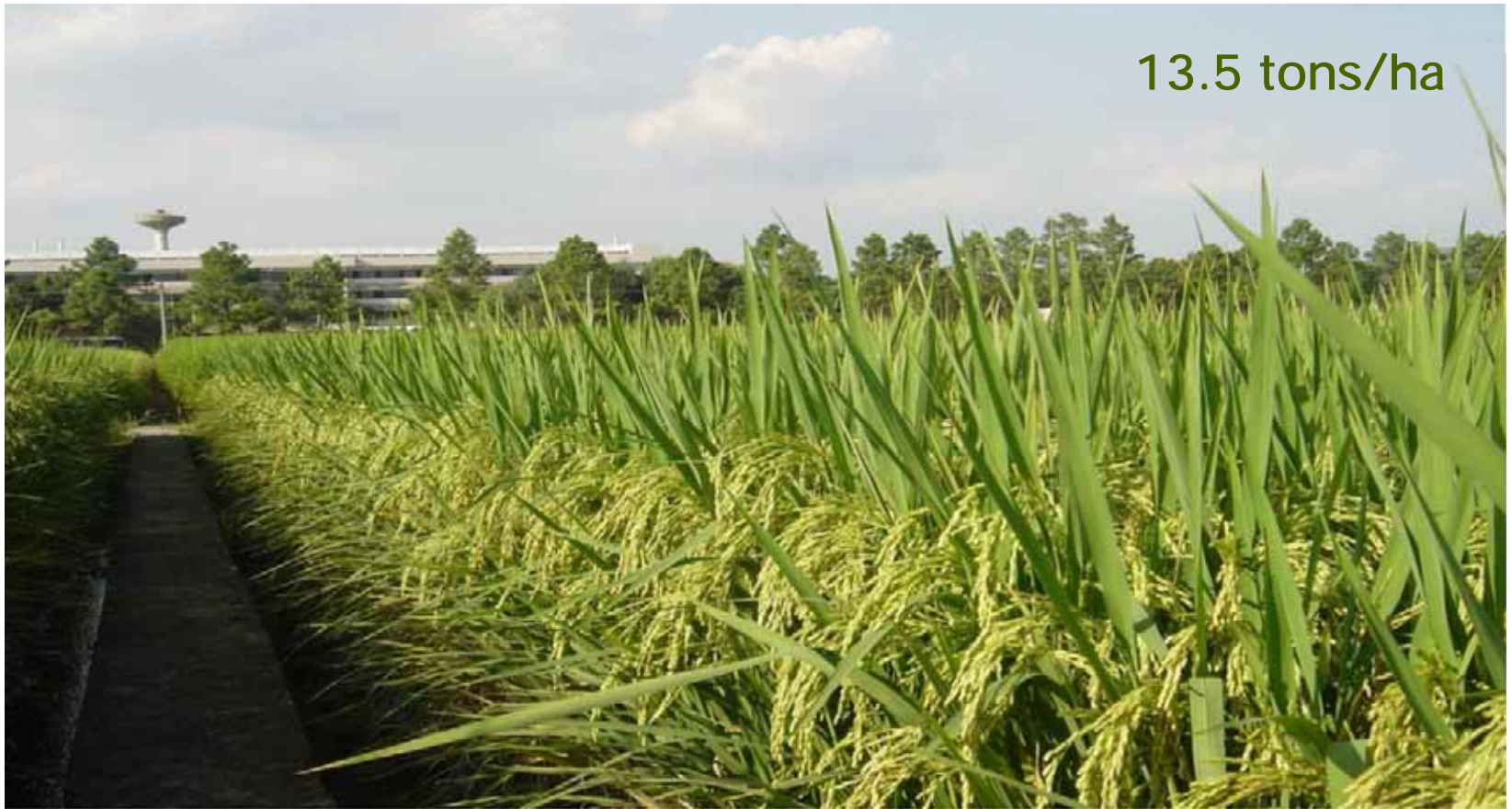
Dwarf Male-Sterile Wheat

Quality Evaluation System and Utilization of Molecular Methods for the Improvement of Chinese Wheat Quality



Supper Rice

13.5 tons/ha



Bt Cotton



- ▶ More than 40 varieties.
- ▶ More than 90% total cotton filed plant Bt Cotton in China by 2010.
- ▶ More than 6.5 billion Yuan benefits has been got by planting Bt cotton variety ZhongMian 41.

Canola



5-6 tons/ha

- ▶ Low erucic acid and glucosinolate content.
- ▶ 16 new varieties released.
- ▶ Extension Area accumulated to 5 million ha.
- ▶ Benefits up to 2.7 billion Yuan.

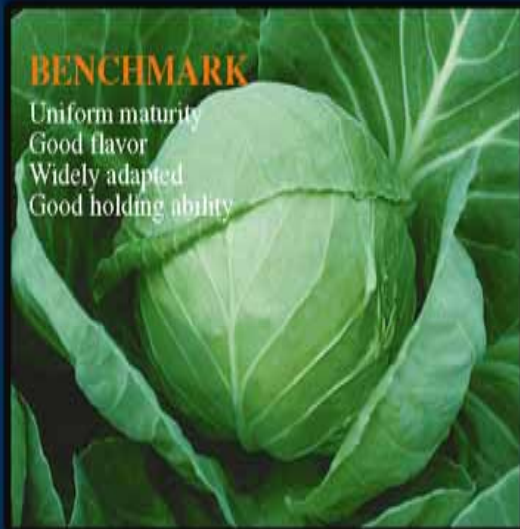
Corn Variety “Zhongdan 808”



“Zhonghuang35” Soybean



The 1st Applicable Dominant Male Sterile Line in Cabbage in the World



BENCHMARK

Uniform maturity
Good flavor
Widely adapted
Good holding ability

Upright plant. Green leaves with slight wax, compact and round head, 1.0-1.5 kg per head weight, superior looking in fields, tender and crisp leaves with good flavour. Early maturity, about 50 days from transplanting to harvest. Tolerant to stress, resistant to premature-bolting and bursting.



OMNIPOTENCE

Widely adapted

High yield, widely adapted, good flavour. Early maturity, about 50 days from transplanting to harvest. Dark green outer leaves with moderate wax, compact and nearly round head, weighs about 0.8 kg on average. Resistant to premature-bolting and tip burn.



OMNIPRES

Widely adapted

Dark green leaves with moderate wax, compact and flat head, 2.5-3.0 kg per head weight. Resistant to premature-bolting, about 80-90 days from transplanting to harvest, high yield potential, widely adapted.

Vaccines for animal disease



avian influenza vaccine



foot and mouth disease vaccine



图 1 正常分蘖的
水稻植株

图 2 野生型（即正常植株；右侧）
和 *moc1* 突变体（左侧）的形态比较



Great breakthrough in rice functional genetic study
results published in *nature* and *science*

REPORTS

Suppression of Cotton Bollworm in Multiple Crops in China in Areas with Bt Toxin-Containing Cotton

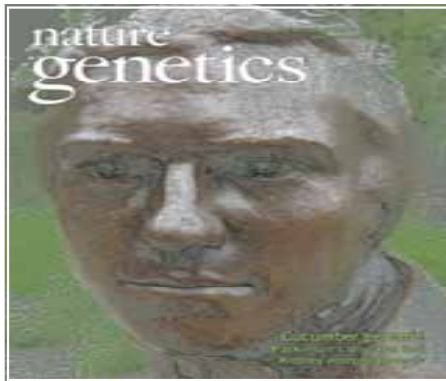
Kong-Ming Wu,^{1†} Yan-Hui Lu,¹ Hong-Qiang Feng,¹ Yu-Ying Jiang,² Jian-Zhou Zhao^{1*}

19 September 2008 | 510
Science

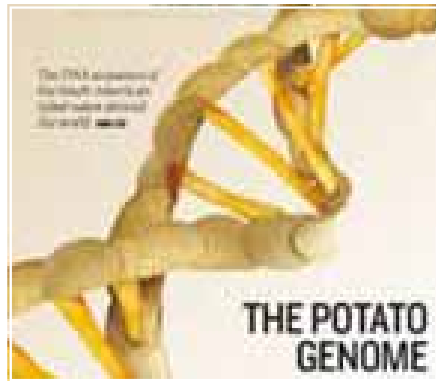


Cover story of *science*

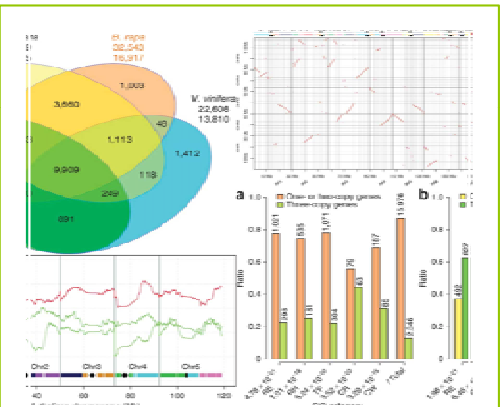
Genome Sequencing



Cucumber



Potato



Brassica Rapa

Extension

- ▶ Demonstration pilot
 - ▶ Training and technical service
 - ▶ Exhibits and public awareness
 - ▶ Inspection and Testing on Agro-product Quality
 - ▶ Disaster relieve
 - ▶ Specific supports to Xinjiang and Tibet
 - ▶ Public-Private Partnership (PPP)
- 

Activities in 2010 as an example

32425	Scientists to countryside
3344	Exhibits, training course, on-site demonstration, consultation
585000	Farmer and technician were trained
1.3 M	Books, fact sheet, technology training materials were disseminated
222	New varieties were released
167	New technologies were demonstrated
12.7M Ha.	Acreage of new varieties and Technologies
1476	S&T cooperation agreements were signed
1350	Demonstration pilots were Established

Demonstration pilots

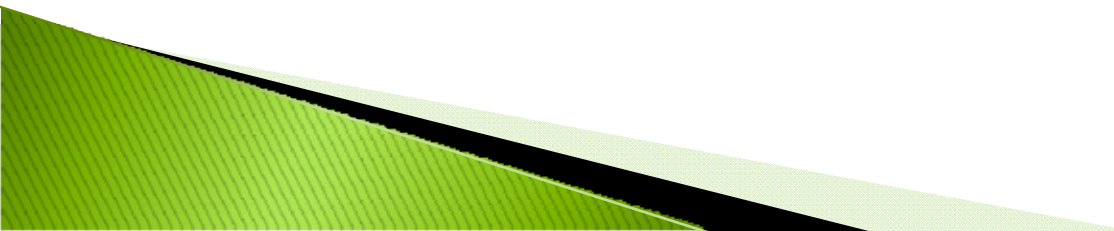
- ▶ Rice (2010)
 - 31 Demonstration pilots in different scale, more than 20 new varieties.
 - Demonstration on new technology of rice transplanting, 20000 Ha.
- ▶ Wheat (2010)
 - conducted in 121 counties, 36 new varieties
 - Demonstration on technology of conservation tillage and other water saving technologies, 2000 Ha.
- ▶ Maize
- ▶ Soybean
- ▶ Potato

Demonstration pilots



Training and technical services

- ▶ participated in “program of sending agricultural technology into farmers’ household”
 - Training/consultation/
 - Information platform for crop production
 - Soil testing and fertilization recommendation
 - Animal disease control
 - Biogas engineering
 -



Inspection and Testing on Agro-product Quality

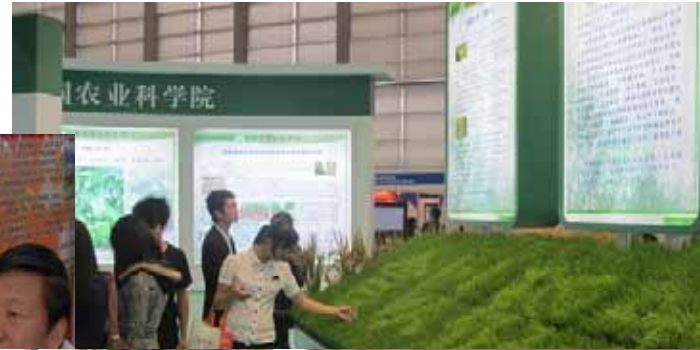


Disaster relieve



- ▶ Flood
- ▶ Drought
- ▶ Earthquake
- ▶ Freezing injury

Exhibits



Scientific Support to Xinjiang and Tibet

To improve the research capacity of those regions through joint project application and implementation.

Enhance technology transfer and extension to solve the bottlenecks in agricultural production with focus on fruit, cotton, potato and vegetable.

Public-Private Partnership

- ▶ CAAS-Beijing Leili Company
- ▶ ZhongNongHuaYu Co. Ltd
 - Alliance between CAAS and 8 national seed companies

CHALLENGES



Population increase



Resources shortage



Climate change



Cross-border plague and diseases



Food security



Ecological agriculture and sustainable development



rural livelihood

STRATEGIES

Demanding

- By 2030, Chinese population will reach 1.6 billion with food grain demands of 640 million tons ;
- Assume 95% self reliance, 100 million tons food grains need to be increased to meet the demands.

"3S" Strategy

- Security
- Safety
- Sustainability

Supporting Policy and Initiatives

- Developing national and regional agricultural innovation systems;
- Improve mechanism and enhance institutional innovation;
- New platform development and capacity building;
- Accelerating transfer of scientific achievements;
- Consolidating internal and international cooperation.

Research Priorities

Security

- Germplasm resources gene discovery and developing of new animal and plant varieties
 - discover functional genes
 - develop new breeding platform
 - improve plant and animal varieties
- Prevention and control of serious diseases and pests
 - Reduce lost of agricultural production
 - Control invasive species

Research Priorities

Safety

- High efficient production and food safety
 - animal and crop production with high-yield, high quality, high efficiency
 - whole-process quality control
 - tracing and safety testing technology
 - GMO safety assessment

Research Priorities

Sustainability

- Control and rehabilitation of agro-environmental pollution
- Warning and control of non-biological agricultural disasters
- Agro-biodiversity conservation

Thank you!

