



CSAM



# Situation and Application of Conservation Agriculture in China

*Presented by*

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*Regional Workshop on the Role of Mechanization in Strengthening Smallholders' Resilience through Conservation Agriculture in Asia and the Pacific  
18-20 April 2018, Phnom Penh, Cambodia*



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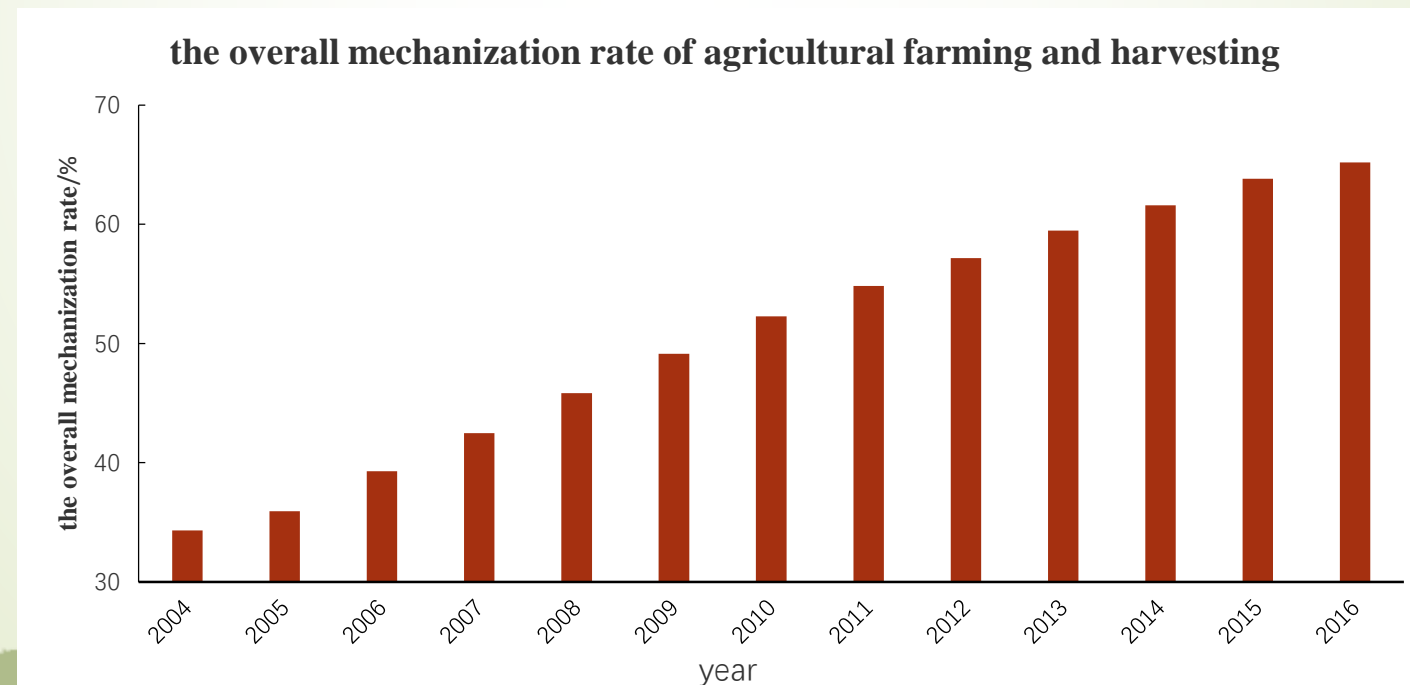
# Introduction

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- In recent years, the agricultural and rural economic developments in China have made remarkable achievements, grain has been in good harvest for years running
- The total grain output in 2015-2017 years is more than **600 billion kilograms per year**, and the agricultural development has gone to a new step
- **Agricultural mechanization** has played an important role in agricultural production and development in China

# Introduction

- ▶ According to statistics, in 2016, the total power of agricultural machinery in China reached 1 billion 140 million kilowatts, and the overall mechanization rate of agricultural farming and harvesting was **65.2%**



# Introduction

- Wheat production basically realized mechanization in the **whole process**, the mechanization rate of rice and corn production was over **80%**
- The total output value of agricultural machinery industry has exceeded **420 billion yuan**, ranking the largest in agricultural machinery manufacturing



# Introduction

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- While the agricultural and rural economy has made great achievements, **a series of problems** such as the reduction of cultivated land, the overexploitation of groundwater, the overuse of input products and the pollution of agricultural non-point sources, have become increasingly prominent, and the sustainable development of agriculture is facing great challenges
- **Conservation agriculture** is attracting more and more attentions as an important technology to promote agricultural sustainable development

# Situation of conservation agriculture

- Before 1990s, some technical research and machinery development such as no-tillage sowing, subsoiling and straw covering have been carried out in China, which are closely related to conservation tillage



# Situation of conservation agriculture

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- **Since 1992, a large number of researches on conservation tillage have been carried out in China**
- **Until 2002, conservation tillage had been universally recognized and begun to be gradually promoted**
- **After more than ten years of extension and application, remarkable results have been achieved**



# Situation of conservation agriculture

- The area of application was increasing
- in **2016**, the national area of conservation tillage exceeded **8.67 million hectares**, which was **85 times** the area of conservation tillage in 2002



# Situation of conservation agriculture

► The scope of application is expanding

**Crop species:** from wheat, maize to rice, rape, potato and so on

**Regions:** from northern dry farming area to southern paddy field area



# Situation of conservation agriculture

- The number and quality of machine have been continuously improved

## The number of conservation tillage machinery in 2016

type of machine	number ( set )
no-tillage seeder	967,400
subsoiler	267,700
straw chopper	855,900

Date from National Statistical Annual Report on Agricultural Mechanization of China in 2016

## **Experience 1: Government support, strengthening top-level design**

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### **► Planning**

- ▶ 《The plan for conservation tillage project construction (2009-2015)》 :**  
**600 conservation tillage engineering areas (20 million acres) were built**
- ▶ 《The plan for national agricultural sustainable development (2015-2030)》 :** **taking subsoiling, conservation tillage, straw returning to increase soil organic matter and improve soil fertility**



## **Experience 1: Government support, strengthening top-level design**

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### **► Planning**

- ▶ 《The plan for national agricultural modernization (2016-2020)》 : accelerating the extension and application of mechanized technology such as subsoiling, conservation tillage, straw mechanization and returning to the field**
- ▶ 《The plan for national land (2016-2030)》 : strengthening conservation tillage in the north dry fields**

## Experience 1: Government support, strengthening top-level design

### ► Project

Since 2002, the Ministry of agriculture has implemented the experimental demonstration of conservation tillage

After the continuous exploration and practice of more than 600 project counties, the extension and application of conservation tillage has been accelerated

The implementation area has been continuously expanded

**农业部**  
**保护性耕作技术创新与集成示范区**

**建设内容：**试验、示范、推广适合我市机械化保护性耕作作业模式和机具，实现保护环境、节本增效、农业可持续发展。

**建设地点：**胶州市洋河镇

**建设面积：**1万亩，其中核心示范区3000亩。

**项目承担单位：**胶州市农业机械管理局

## Experience 2: The sound system and the multi subject promotion

### ► Multiple technology extension system

National agricultural technology extension institutions

Agricultural scientific research units

University and college

Farmers' professional cooperatives

Agriculture related enterprises

Mass scientific and technological organizations

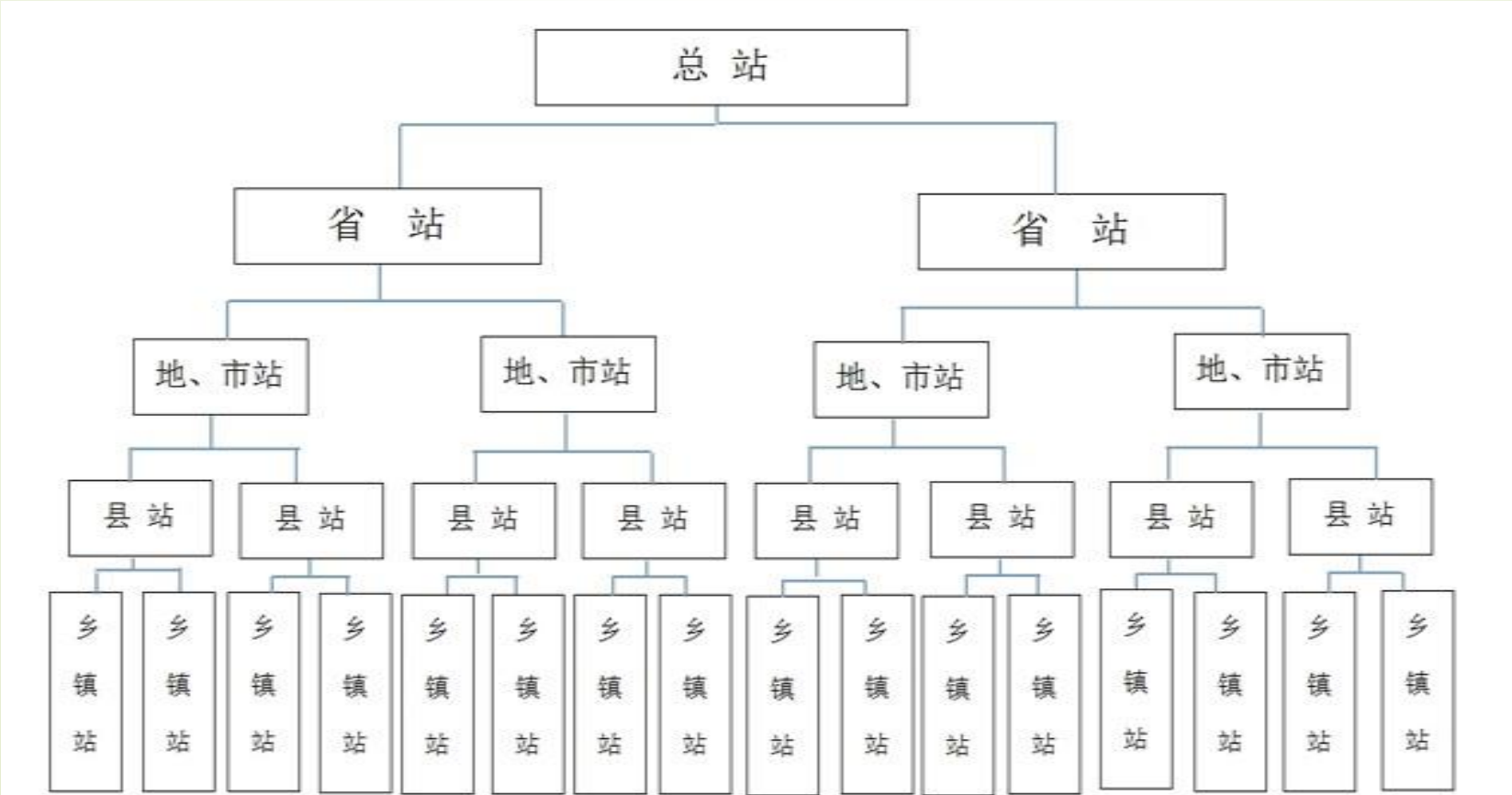
Farmers technical personnel



**Agricultural extension law**

# Experience 2: The sound system and the multi subject promotion

- National agricultural technology extension institutions — national, province, city, county and town





### **Experience 3: Innovation and the constantly improved performance of machine**

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- **Advanced and applicable agriculture machinery are important for the extension and application of conservation tillage.**
- **Through continuous development of suitable agriculture machinery for different regions, such as no-tillage seeders and straw choppers, we have upgraded our machinery and ensured the quality and effectiveness of conservation tillage.**

# no-tillage seeders



## Experience 4: experiments and demonstrations, the technological model is formed

Through the continuous experiment and demonstration, the models of conservation tillage are preliminarily explored and summarized in the typical areas, such as the Northeast Ridge Cropping Area and the Southern Water and Drought Rotation Area



# Experimental demonstration



## Experience 5 : Propaganda and guidance to cultivate the concept of conservation agriculture

- Propaganda and training is the basis of extensive application.
- There are various forms of propaganda and training activities: news reports , training courses, field presentations, exhibitions, seminars



网易首页 > 新闻中心 > 新闻 > 正文

### 大力推广机械化保护性耕作新技术 促进现代农业可持续发展

2017-08-17 01:30:22 来源: 郑州日报(郑州)

▲ 举报



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(原标题:大力推广机械化保护性耕作新技术 促进现代农业可持续发展)

机械化保护性耕作是相对于传统翻耕的一种新型耕作技术,其实质就是改善土壤结构,减少水蚀、风蚀和养分流失,保护土壤,减少土壤耕作层水分蒸发,有效提高宝贵水资源的利用率;减少劳动力投入,简化作业工序、减少机械进地次数,降低能源的消耗,提高劳动生产率,达到农业高效、低耗、可持续发展的目的。

# Training courses

## 农业部 农业机械化技术开发推广总站文件

农机推(技)发〔2015〕17号

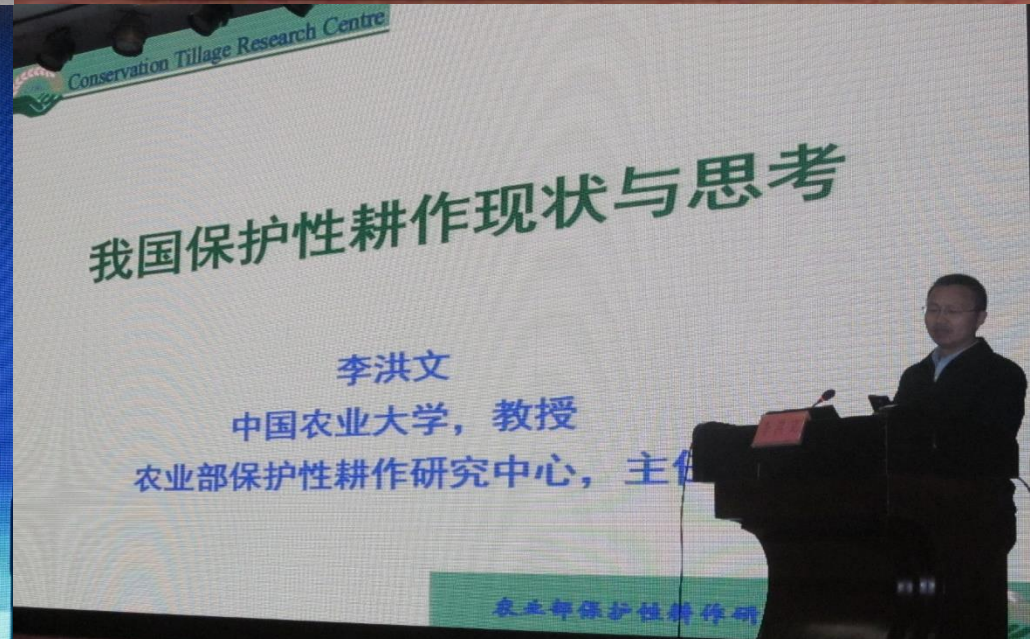
关于举办2015年全国春耕生产农机化技术  
暨保护性耕作技术培训班的通知



## 保护性耕作技术创新与集成 示范项目实施管理

农业部农机推广总站  
徐振兴 研究员

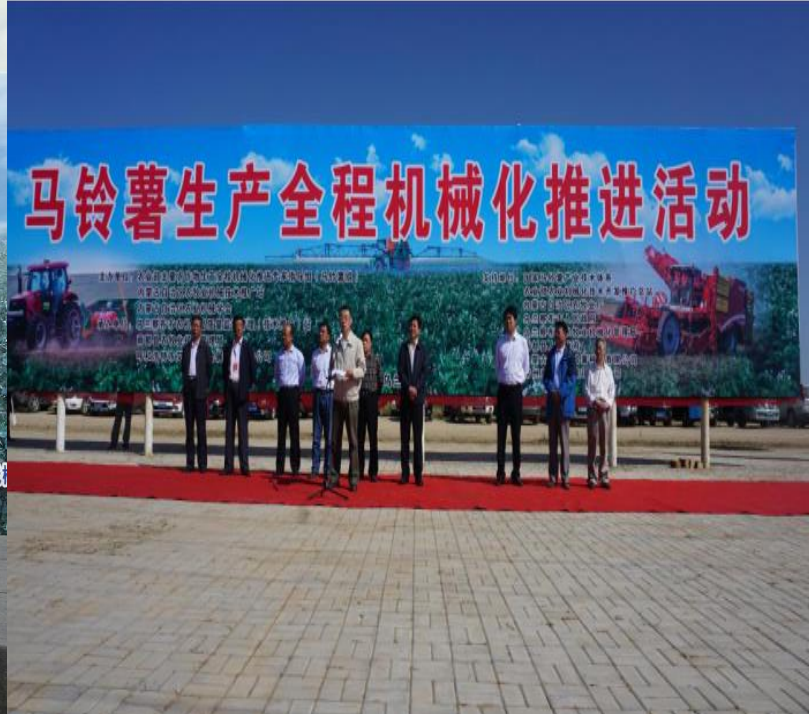
2015年4月13日



# Field presentations



# Promoting activities







# seminars



# Problems and suggestions

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► **Problem:** The insect pests and weeds tend to be aggravated in some areas

In that the soil is not turned over for a long time, and the crop straw is required to cover the surface of the earth during the conservation tillage, places for overwintering insect eggs emerged

► **Suggestion:** Integration of machinery and technology, monitoring and prevention of pests and weeds, and further optimization of technical systems

# Problems and suggestions

- **Problem:** The quality of the machinery needs to be strengthened
- **Suggestion:** Tackling key problems together, further improving the quality of machinery and reducing the costs of production.



# Problems and suggestions

- **Problem:** Insufficient understanding by farmers
- **Suggestion:** Strengthening propaganda, increasing the recognition and acceptance of conservation agriculture





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# The Fundamental Way Out for Agriculture Lies in Mechanization

*Thank you*

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