Situation and Application of Conservation Agriculture in China

Presented by

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Content

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Introduction

- 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

- 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

- 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

<table>
<thead>
<tr>
<th>type of machine</th>
<th>number (set)</th>
</tr>
</thead>
<tbody>
<tr>
<td>no-tillage seeder</td>
<td>967,400</td>
</tr>
<tr>
<td>subsoiler</td>
<td>267,700</td>
</tr>
<tr>
<td>straw chopper</td>
<td>855,900</td>
</tr>
</tbody>
</table>

Date from National Statistical Annual Report on Agricultural Mechanization of China in 2016
Experience 1: Government support, strengthening top-level design

- 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

► 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.
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
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

- 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.
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.
Training courses
Field presentations
Exhibitions
seminars
Problems and suggestions

**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
The Fundamental Way Out for Agriculture Lies in Mechanization

Thank you

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