Development Trend of Agricultural Mechanization in China

Xuemin Fan
Department of Farm Mechanization
Ministry of Agriculture and Rural Affairs
the People's Republic of China
Contents

1. Mechanization is the inevitable trend of agricultural development

2. Supporting mechanization is a must for the economic development

3. China has become a big market for agricultural machinery

4. Improve the mechanism to promote the integration of agricultural machinery and agronomy

5. Pay attention to planning, promote the integration of mechanization and information technology

6. Strengthen guidance, promote agricultural machinery service model and appropriate scale of agricultural operation
Contents

7. Conduct overall coordination, promote mechanization production and farmland construction

8. Fill up the shortcomings, promote mechanization in the whole chain of all main crops production

9. Lead innovation, promote the comprehensive development of agricultural production mechanization

10. Integrate resources, promote the construction of agricultural mechanization talent team

11. The Testing & Appraisal system for Agricultural Machinery in China
1. Mechanization is the inevitable trend of agricultural development

In China, we have a major judgment: Agricultural production has shifted from relying on human and animal power to mechanical power, and entered a new stage, dominated by mechanization.
1. Mechanization is the inevitable trend of agricultural development

Without agricultural mechanization; there will be no agricultural and rural modernization.
2. Supporting mechanization is a must for the economic development

The fundamental way out for agriculture lies in mechanization.

We should vigorously promote agricultural mechanization and intelligence, and give agricultural modernization with the wings of science and technology.
2. Supporting mechanization is a must for the economic development

Agricultural Machinery Procurement Subsidy (100 Million Yuan)

Law on Promotion of Agricultural Mechanization
3. China has become a big market for agricultural machinery

1) Total Power of Machinery (100 million Kilowatts)

- 2004: 5.0
- 2005: 5.3
- 2006: 5.6
- 2007: 5.9
- 2008: 6.2
- 2009: 6.7
- 2010: 7.2
- 2011: 7.6
- 2012: 8.1
- 2013: 8.2
- 2014: 8.7
- 2015: 9.0
- 2016: 9.7
3. China has become a big market for agricultural machinery

2) Comprehensive Mechanization Rate of Crops Cultivation

<table>
<thead>
<tr>
<th>Year</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>34.30%</td>
</tr>
<tr>
<td>2005</td>
<td>35.90%</td>
</tr>
<tr>
<td>2006</td>
<td>39.30%</td>
</tr>
<tr>
<td>2007</td>
<td>42.50%</td>
</tr>
<tr>
<td>2008</td>
<td>45.90%</td>
</tr>
<tr>
<td>2009</td>
<td>49.10%</td>
</tr>
<tr>
<td>2010</td>
<td>52.30%</td>
</tr>
<tr>
<td>2011</td>
<td>54.50%</td>
</tr>
<tr>
<td>2012</td>
<td>57.20%</td>
</tr>
<tr>
<td>2013</td>
<td>59.50%</td>
</tr>
<tr>
<td>2014</td>
<td>61.60%</td>
</tr>
<tr>
<td>2015</td>
<td>63.00%</td>
</tr>
<tr>
<td>2016</td>
<td>65.19%</td>
</tr>
<tr>
<td>2017</td>
<td>67.23%</td>
</tr>
</tbody>
</table>
3. China has become a big market for agricultural machinery

3) Agricultural machinery production is in the forefront of the world.
3. China has become a big market for agricultural machinery

<table>
<thead>
<tr>
<th>Year</th>
<th>Import (100 million USD)</th>
<th>Export (100 million USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>33.24</td>
<td>31.19</td>
</tr>
<tr>
<td>2009</td>
<td>118.58</td>
<td>131.67</td>
</tr>
<tr>
<td>2010</td>
<td>148.70</td>
<td>174.91</td>
</tr>
<tr>
<td>2011</td>
<td>175.35</td>
<td>229.77</td>
</tr>
<tr>
<td>2012</td>
<td>146.65</td>
<td>249.05</td>
</tr>
<tr>
<td>2013</td>
<td>145.44</td>
<td>265.55</td>
</tr>
<tr>
<td>2014</td>
<td>158.16</td>
<td>296.70</td>
</tr>
<tr>
<td>2015</td>
<td>130.53</td>
<td>284.01</td>
</tr>
<tr>
<td>2016</td>
<td>120.78</td>
<td>273.59</td>
</tr>
</tbody>
</table>
4. Improve the mechanism

Promote the integration of agricultural machinery and agronomy

- cotton in Xinjiang
- corn in Northeast China
- rape in southern China
- The rice seedlings
5. Pay attention to planning

Promote the integration of mechanization and information technology

Intelligent agricultural machinery operation
6. Strengthen guidance on service

Promote agricultural machinery service model and appropriate scale of agricultural operation

The number of cooperatives in China reached 72,000 in 2018.
6. Strengthen guidance on service

Promote agricultural machinery service model and appropriate scale of agricultural operation

The figure shows steady increase in the production and demand for large tractors and combine harvesters.
7. Conduct overall coordination

Promote mechanization production and farmland construction

"suitable mechanization" construction of farmland
8. Fill up the shortcomings

Promote mechanization in the whole chain of all main crops production

9 crops:
rice, maize, wheat, potato, cotton, rapeseed, peanut, soybean and sugar
8. Promote mechanization in the whole chain of all main crops production

6 steps: tillage, planting, plant protection, harvesting, drying and straw treatment.
9. Lead innovation

To promote the comprehensive development of agricultural production mechanization

1) Strengthen the demonstration of mechanization technology for fruits, vegetables and tea production.
9. Lead innovation

To promote the comprehensive development of agricultural production mechanization

2) Promote the cost-saving and higher efficiency mechanization. Aiming at the difficulty in mechanization of fiber crops.
9. Lead innovation

To promote the comprehensive development of agricultural production mechanization

3) Promote the upgrading of livestock equipment. In recent years, the use of livestock and poultry and aquaculture machinery grows rapidly, and it is in urgent need of intelligent equipment.
9. Lead innovation

To promote the comprehensive development of agricultural production mechanization

4) Promote the post-processing mechanization of agricultural products and increase their added value.
9. Lead innovation

To promote the comprehensive development of agricultural production mechanization

5) Promote the mechanization technology for green agriculture.
9. Lead innovation

To promote the comprehensive development of agricultural production mechanization

6) Promote agricultural mechanization technology in the poverty region.
10. Integrate resources

To promote the construction of agricultural mechanization talent team
The Testing & Appraisal system for Agricultural Machinery in China

Started from the early 1950s, Agricultural machinery testing and appraisal in China refers to the technical appraisal on the applicability, safety and reliability of the agricultural machinery.

The purpose of Testing & Appraisal is to provide the basic information on the selection and extension of the agricultural machinery.

Manufactures or distributors of agricultural machinery can submit their products for appraisal on voluntary basis.
According to the Law on Promotion of Agricultural Mechanization issued in 2004, the Central government supports efforts to promote the wide use of advanced and applicable agricultural machines.

The agricultural machines for popularization should meet the need of local agricultural development and the machines should have to be proved to be advanced and applicable through testing and appraisal in the area.
In order to standardize the rules and procedures, the Measures of Agricultural Machinery Testing and Appraisal was issued by MARA in 2005. According to the newly revised measures for testing and appraisal of agricultural machinery in 2018, the testing and appraisal of agricultural machinery includes extension (popularization) appraisal and special appraisal.

At present, there is a nationwide agricultural machinery testing network comprising of 35 testing stations upon provincial level, including China Agricultural Machinery Testing Center (CAMTC), MARA, which is at the top national level.
Testing and appraisal has been providing powerful technical support and guarantees the standardized development of agricultural mechanization.

In particular, since the implementation of national machinery purchase subsidy policy, agricultural machinery testing and appraisal results has served as one of the necessary preconditions and has greatly improved the overall quality of subsidized products and provided significant technical support for effective implementation of the policy.
To date, there are 2 kinds of agricultural machinery must be conducted compulsory certification which are wheeled tractor powered by single cylinder diesel engine or multi-cylinder diesel engine of no more than 25 horsepower as well as 11 kinds of plant protection machinery.
Thank you!