

The 10th Session of the Technical Committee of CSAM & Regional Workshop on Establishing a Regional Database of Agricultural Mechanization in Asia and the Pacific
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The Importance and Procedures on Establishing a Regional Database of Agricultural Mechanization

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The Importance and Procedure on Establishing a Regional DataBase of Agricultural Mechanization

- Preface
- CRCAMD Introduction
- Data sources and cases
- Significance on establishing a regional database
- Procedures on establishing a regional database



• Preface

- **Agricultural mechanization(AM) is the base of agricultural modernization and important symbol.**
- **AM is closely related to industrialization, urbanization and agricultural labor transfer.**
- **China is a large farming country, it's the primary task to ensure food safety for Chinese government.**
- **Now structural shortage of agricultural labor force is becoming more and more prominent. There were over 270 million agricultural labor force transferred to the city by 2013.**
- **Cultivated land and water resource constraints continue to intensify.**



• Preface

- **How to ensure China's food security?**
- **Who is farming?**
- **How to farming?**
- **It is the top priority to actively promote AM development.**
- **How to promote AM development?**
- **It is very necessary to research AM strategy, formulate AM development plan and supporting policy.**
- **Generally, the method should be adopted to combine **qualitative analysis with quantitative analysis** in above researches.**
- **So, we must to have statistics and make some typical investigations.**





• CRCAMD Introduction

➤ CRCAMD Function

- ✓ To realize the technical and economic analysis of technological application and systematic effect
- ✓ To study and solve major problems of AM development directions and policy issues
- ✓ To provide consulting services for the country's decision-making departments





• CRCAMD Introduction

➤ Research Fields

- ✓ Rural Development and AM
- ✓ Mechanization Production Patterns and Equipment System Integration for Main Crops
- ✓ Regional Planning for AM
- ✓ Agricultural Machinery Cooperatives
- ✓ Information Engineering of AM



程数据库平台

初级检索 字段: 范围 研究标题 命中 223 篇 首页

字段: 范围 期刊名称 命中 40439 篇 首页

字段: 范围 类别 命中 32 篇

字段: 范围 单位名称 命中 89 篇

字段: 范围 命中 315 篇 首页

字段: 范围 农机产品分类 命中 2332 篇

字段: 范围 按时间分类 命中 13121 篇 首页

检索 在线提交 Calis配置 日志分析

动态消息

我校参与承办2012年中国农业机械化论坛《科学发展 辉煌成就(农业卷)》--“农业机械化发展”专家讨论会在我校召开

“农业机械化综合水平”体系研究“课

研究成果高相海陵山区农业机械

农业机械论

举办

建设全国农业

合示范基地规

通过验收

中国农业机械化发展研究中心成立

ASABE 2013 Annual

International

项目背景

现代农业产业工程技术与模式研究

相关机构

- 中国农业大学中国农业机械化发展研究中心
- 中国农业工程学会情报信息专业委员会
- 农业部规划设计研究院
- 中国农业机械化信息网

2012 ASAE 9th International Conference on Agricultural Engineering (ICAE) 2012 已入库。

《农业工程文摘》2012年最新期刊论文

《Bioresource Technology (生物资源技术)》2011年第19-21期全文数据库。(2012-1-4)

《Computers and Electronics in Agriculture》2011年第77卷第2期-79

序号	Title
1	Performance of Tunnel Ventilation for Freestall Dairy Facility Cooling Fans
2	Soil Moisture Monitoring in the Black Vermillion Watershed and
3	Infiltration Characteristics of Forest Road Filter Windows
4	Temporal Changes in Soil Erodibility
5	Soil Erosion Processes: Laboratory Observations and Modeling
6	Composting Swine Manure: A Technical and Economic Analysis
7	Effect of Cooling Strategy and Night Temperature on Dairy Cow
8	The Effects of Nighttime versus Continuous-Cooling on Thermal
9	Monitoring Growth and Statistical Variation of Grow-Finish Sw
10	A HANDS-OFF METHOD TO ESTIMATE PIG WEIGHT BY LIGHT PROJECTION



• CRCAMD Introduction

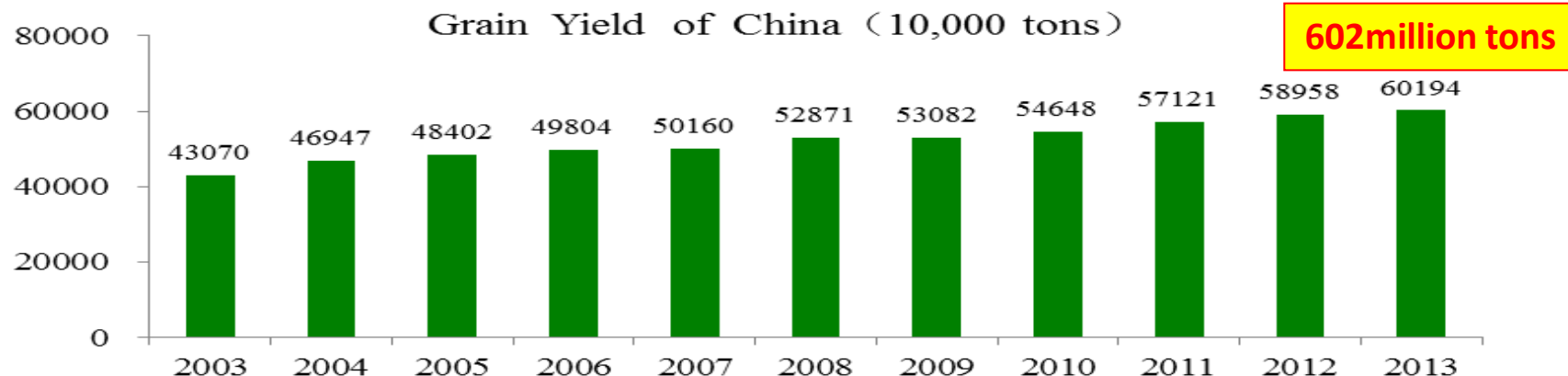
Research Contains

- Modes and ways of AM development
- Development strategy, Laws, Policies, Planning, mechanism and system of AM
- Main crops mechanization production
- AM development level evaluation methods and standards
- Relationships researches, such as
 - ✓ relationships on AM and industrialization, urbanization, informatization, labor migration, scale of operation, energy, ecology, sustainable development, etc

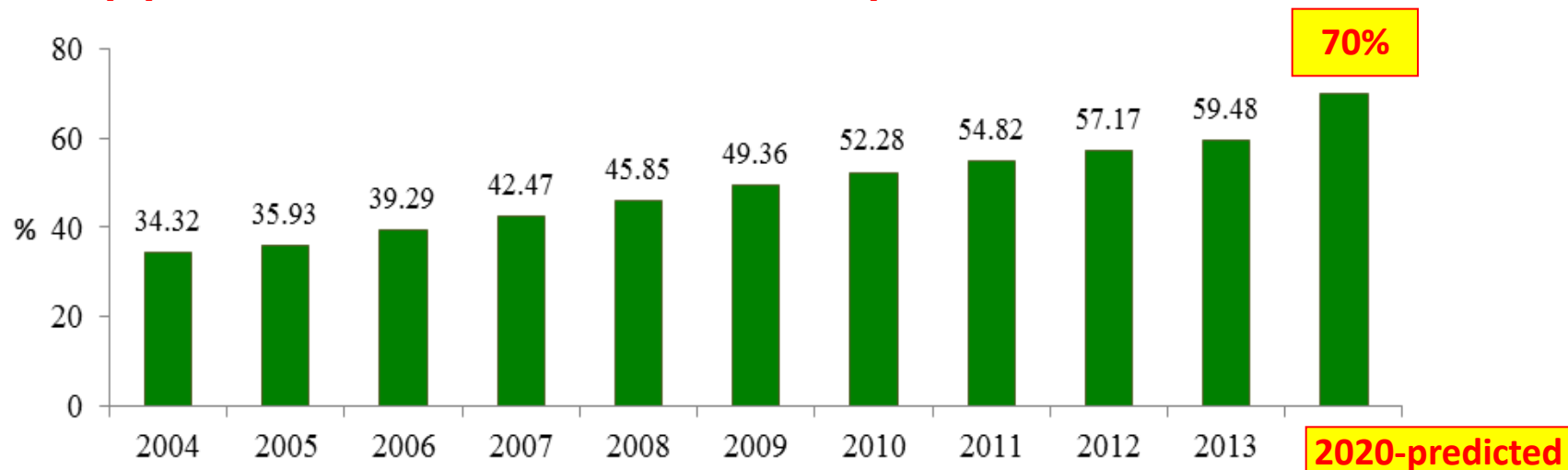


• The relationship between AM level and grain yield

Grain yield increased for ten consecutive years



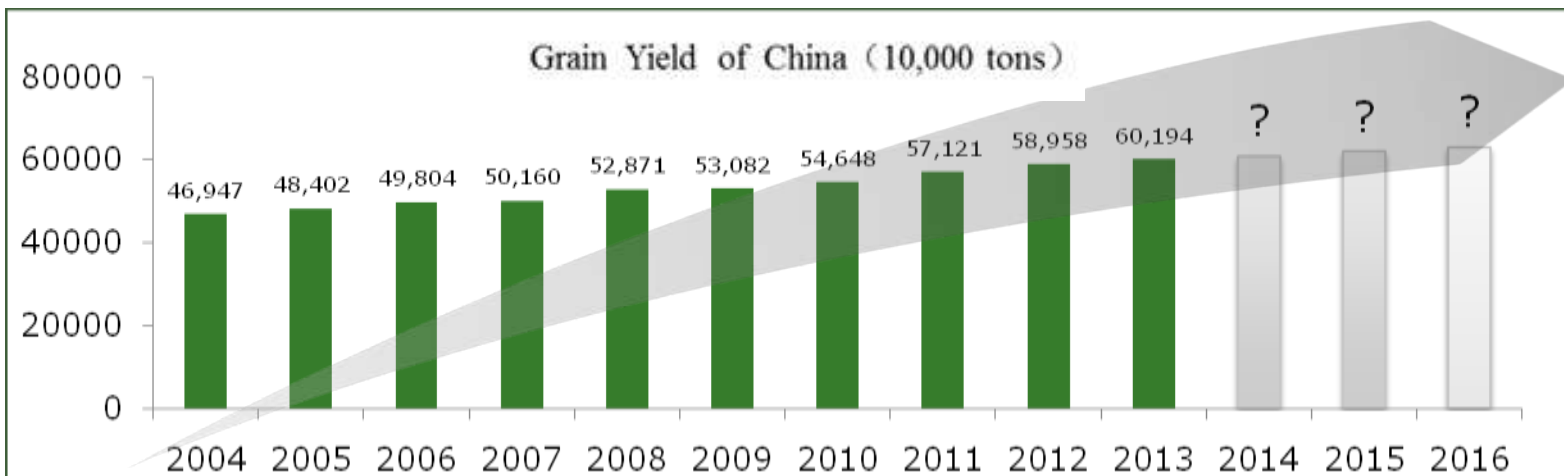
Crop production mechanization level improved



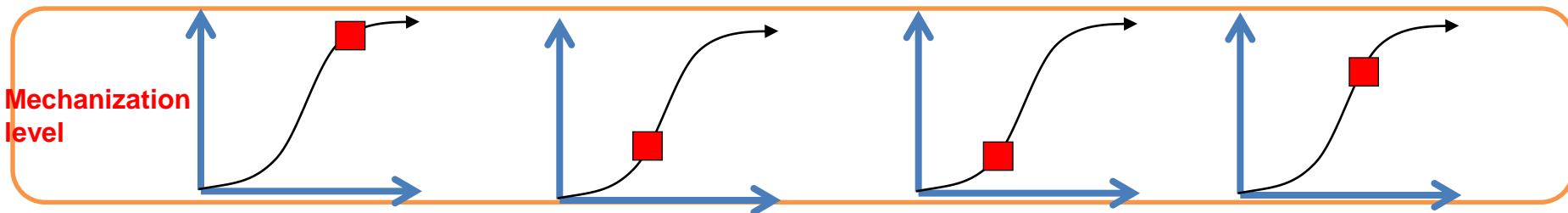


• The relationship between AM level and grain yield

✓ How to change AM technology to meet growing food demands



Some of the farmland production is still very weak

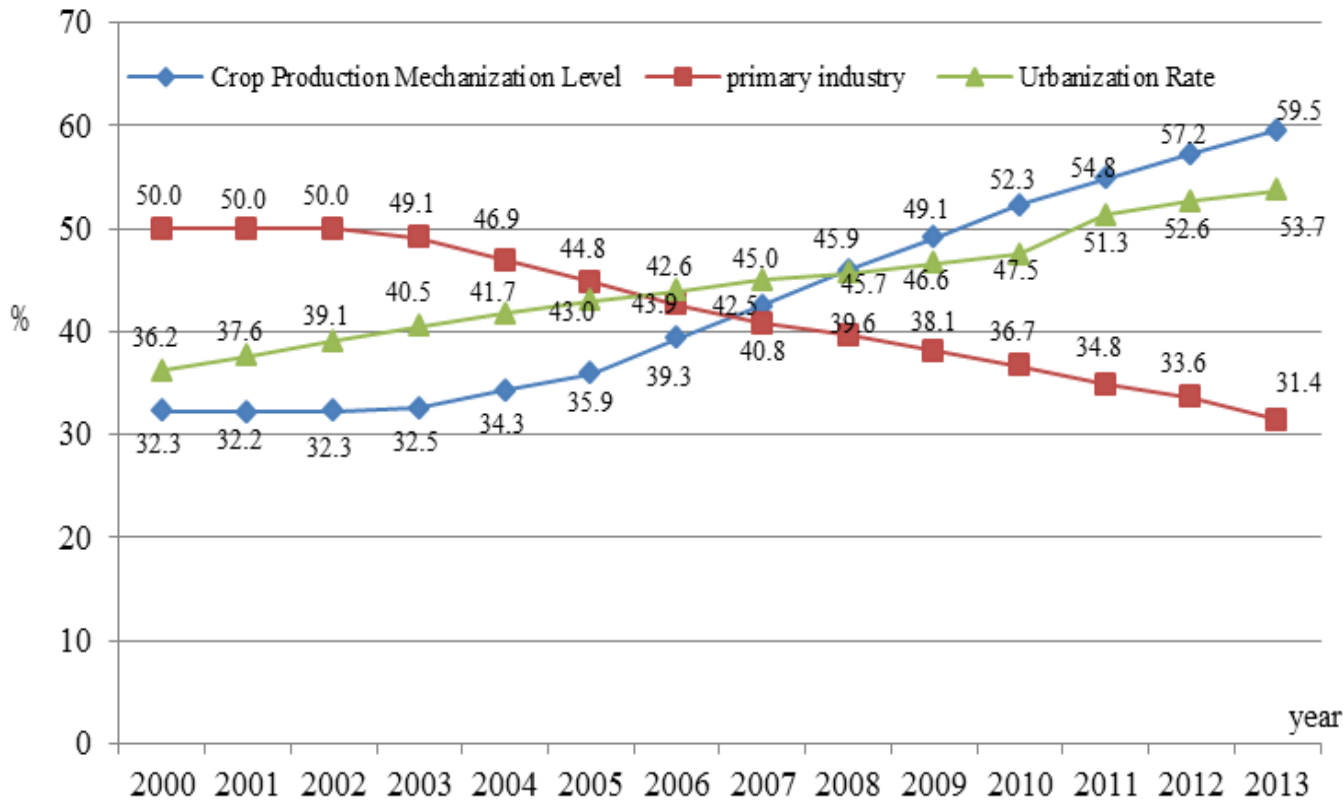


For example: rice



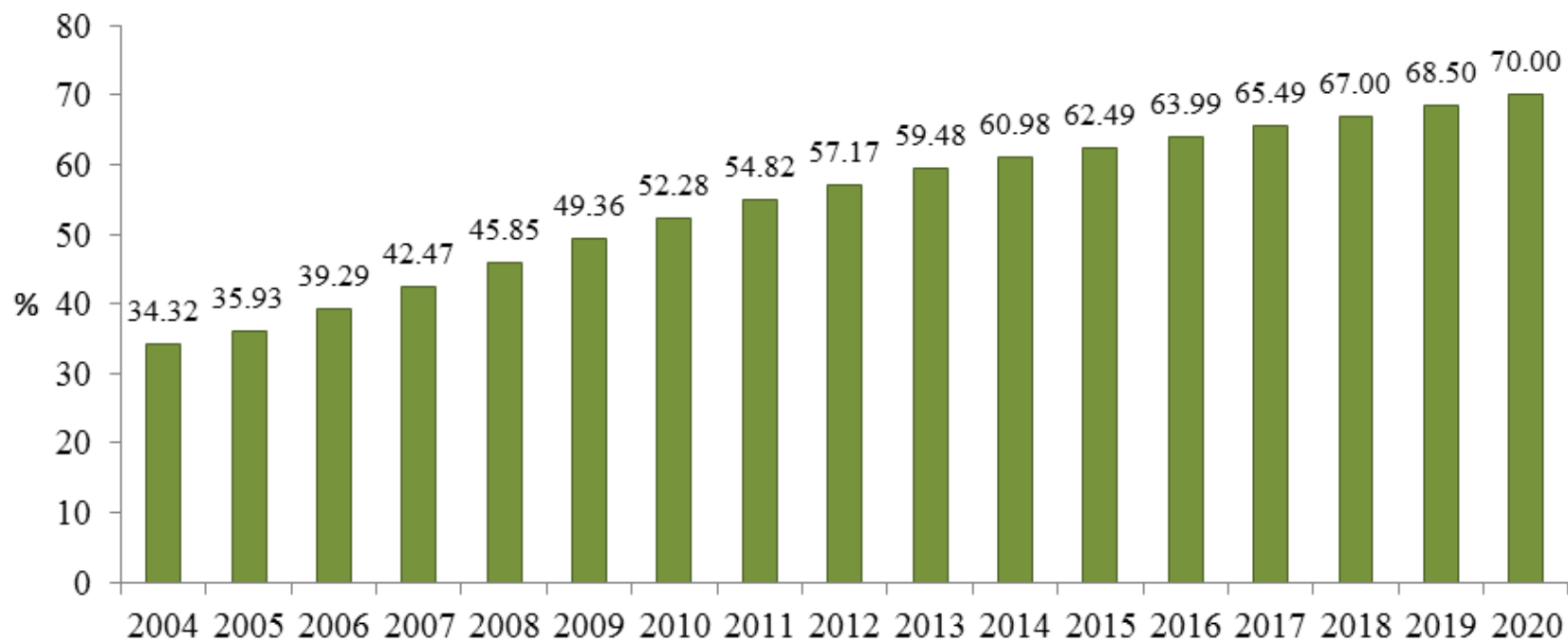
• The relationship on AM and urbanization, labor migration

- Crop production mechanization level improved
- the proportion of employment in primary industry
- urbanization rate increased





• The trend of crop production mechanization level





• CRCAMD Introduction

AM evaluation index systems and standards

- The Evaluation for the Level of Agricultural Mechanization Part 1: Crop Cultivation-----Agricultural Standards
- launched by MOA, China in June 2007

表 1 评价指标

一级指标		二级指标		
指标名称	代码	指标名称	代码	权重系数
耕种收综合机械化水平/ (%)	A	耕整地机械化程度/ (%)	A_1	0.4
		播栽机械化程度/ (%)	A_2	0.3
		收获机械化程度/ (%)	A_3	0.3
农业机械化综合保障能力/ (%)	B	农业劳均农机原值/ (元/人)	B_1	0.3
		单位播种面积农机动力/ (kW/ hm^2)	B_2	0.3
		受专业培训的农机人员比重/ (%)	B	0.4
农业机械化综合效益/ (%)	C	农业劳动生产率 / (元/人)	C_1	0.25
		农业劳均播种面积 / (hm^2 /人)	C_2	0.25
		农机原值利润率 / (%)	C_3	0.25
		农业劳动力占全社会从业人员比重 / (%)	C_4	0.25



• CRCAMD Introduction

AM evaluation index systems and standards

- The evaluation index system for **animal husbandry** mechanization
- The evaluation index system for **fishery industry** mechanization
- The evaluation index system for **agricultural products pretreating** mechanization
- The evaluation index system for **facility agriculture** mechanization
- The evaluation index system for **fruit, tea and mulberry** mechanization

launched by MOA, China in January 2013



• CRCAMD Introduction

AM developemnt plans and policies

- **To assess** *The Twelfth Five-year Plan for National Agricultural Mechanization Development of the People's Republic of China(2011-2015)*
- **To formulate** *The Thirteenth Five-year Plan for National Agricultural Mechanization Development of the People's Republic of China(2016-2020)*
- **To improve** *Agricultural Machinery Purchase Subsidy Policies*
- **To study and formulate** *Agricultural Machinery Operation Subsidy Policies*

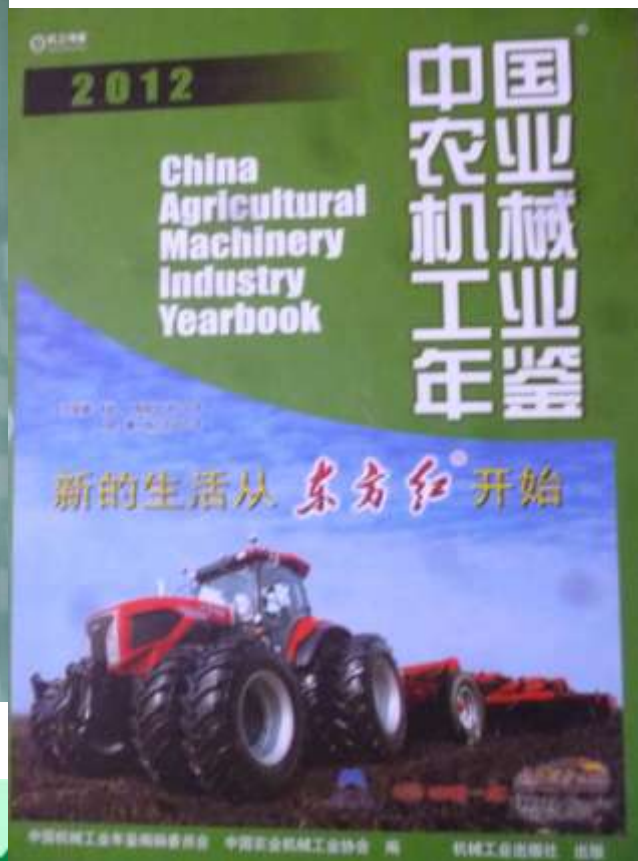
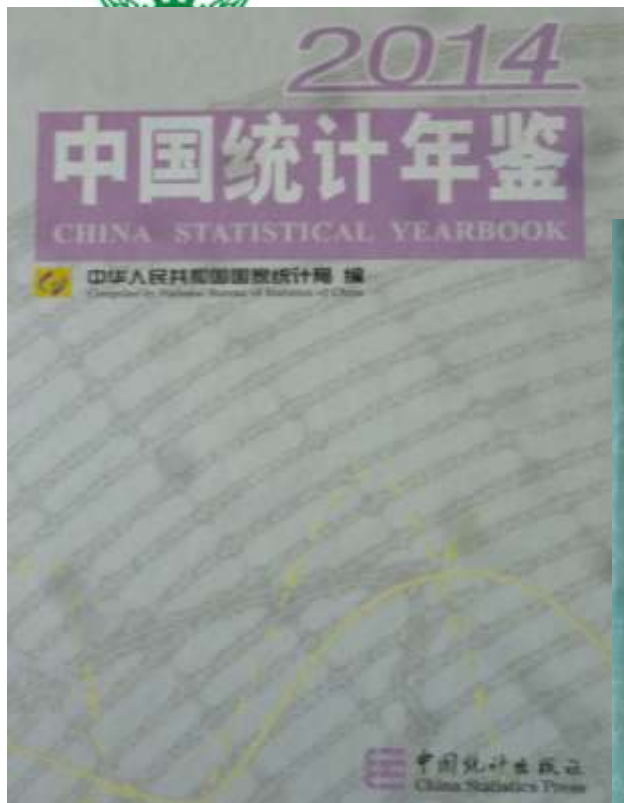
All of the above work are based on the data analysis.

The data comes from statistical data and survey data.





• Data sources and cases





• Data sources and cases

**China Agricultural Mechanization Statistical Yearbook
launched by Department of AM Management, MOA, China**



**China Agricultural Mechanization Yearbook
launched by Nanning AM Institute, MOA, China**





• Data sources and cases

**China Agricultural Mechanization Statistical Yearbook
launched by Department of AM Management, MOA, China**

- **The annual statistical analysis on the national AM development.**
- **The annual national AM development indicators**
- **The annual regional AM development indicators (31 provinces)**





• Data sources and cases

We have the main statistics of China's AM since 1949

Table1 1949 -2013 total power of agricultural machinery, the possession of tractors and combine harvester

Year	total power of agricultural machinery (10,000 kW)	Number of Tractor (10,000 units)	Number of Combine harvester (10,000 units)
1949	8.1	0.01	0.00
1955	52.9	0.48	0.09
1960	591.2	4.55	0.59
1965	1098.8	7.66	0.67
1970	2165.3	20.38	0.80
1975	7478.6	94.31	1.26
1980	14745.7	261.89	2.70
1985	20912.5	467.64	3.46
1990	28707.7	779.45	3.87
1995	36118.1	931.82	7.34
2000	52573.6	1361.82	26.26
2005	68549.4	1679.37	47.70
2010	92780.5	2177.96	99.21
2013	103906.8	2279.00	142.10

Source: China Agricultural Mechanization Statistical Yearbook



• Data sources and cases

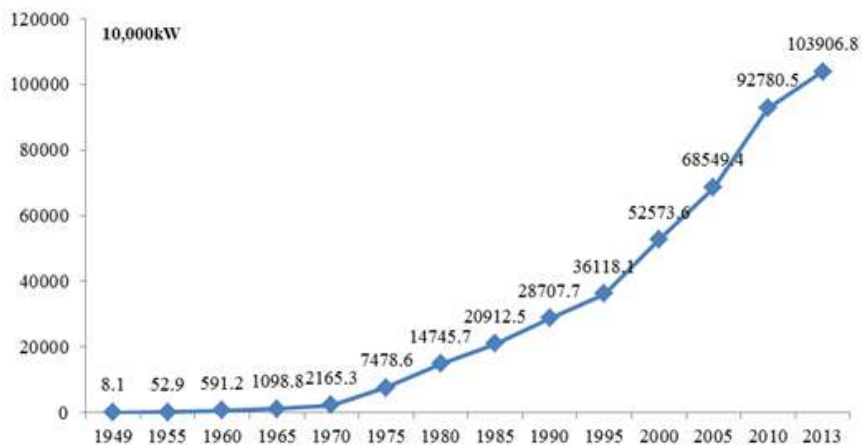


Fig.1 Trend of total power of agricultural machinery from 1949 to 2013

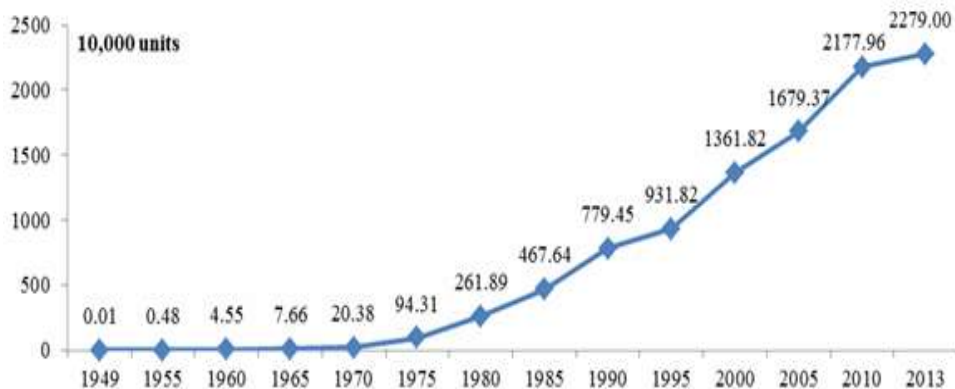


Fig 2 Trend of the number of tractor from 1949 to 2013

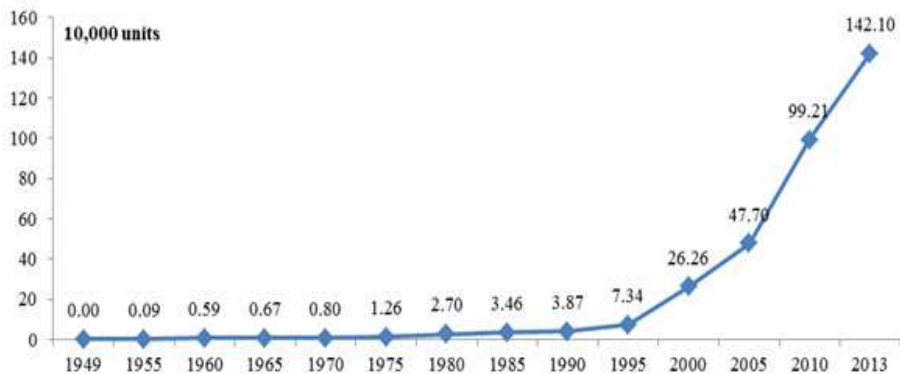


Fig 3 Trend of the number of combine harvester from 1949 to 2013

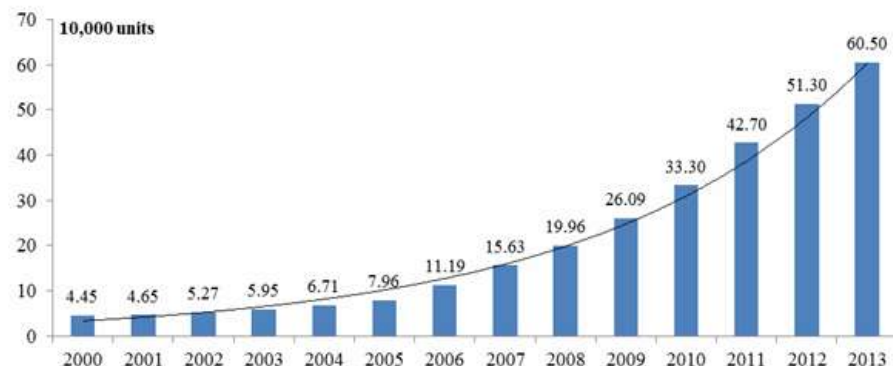


Fig.4 Trend of the number of rice transplant from 2000 to 2013



• Data sources and cases

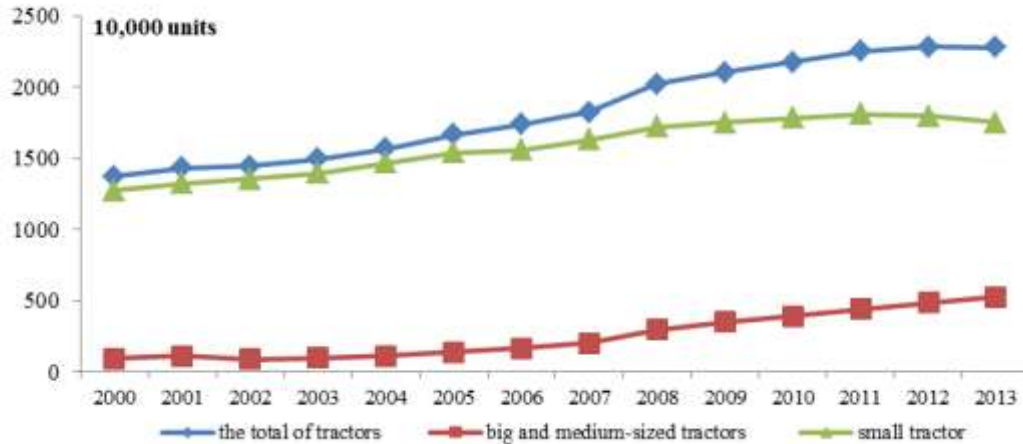


Fig 5 Trend of numbers of the total tractor, large-medium sized tractor and small sized tractor from 2000 to 2013

- The total number of tractor tends to saturation.
- The number of small tractor began to decline steadily.
- The number of large-medium sized tractor continues to rise.





• Significance on establishing a regional database

- It's **very important and necessary** to establish a regional database for promote regional AM harmonious development.
- **It'll contribute to**
 - ✓ establish a platform for regional AM exchange and cooperation
 - ✓ formulate regional AM development strategy, plan and policy
 - ✓ adjust the regional industrial structure
 - ✓ promote agricultural machinery trade and technology cooperation





• Procedures on establishing a regional database

- First, **to reach a consensus** among member countries
- Second, to study and put forward **a regional database platform framework** by the expert group organized by CSAM, the framework should include:

- ✓ target
- ✓ functions
- ✓ scope
- ✓ indicator types(foucs on AM)
- ✓ key indicators(main and basic)
- ✓ indicators standardization





- Procedures on establishing a regional database

- Third, to discuss fully and improve the framework
- Forth, to get the recognition and support of member countries' governments
- Last, to establish the regional database of AM (module design, programming, data collection, etc)





Cooperation, Friendship, Development



Thank You

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