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Agricultural Mechanization: An Important Means for Small Farmers and Women to Transform Their Production and Lifestyle

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Agricultural Mechanization:
An Important Means for Small Farmers and Women to Transform Their Production and Lifestyle

- The importance of samll farmers and women in agricultural production
- The contribution of agricultural mechanization to samll farmers and women in China
- International cooperation in agricultural mechanization
- Future prospects

The importance of samll farmers and women in agricultural production

- On September 27, 2023, FAO held the First Global Conference on Sustainable Agricultural Mechanization (GAMC) in Rome.
- The theme of GAMC focused on efficiency, inclusiveness and resilience.
- QU Dongyu, Director-General of FAO said: "Mechanization is a strong driver for Food Systems Transformation, while ensuring environmental sustainability and leaving no one behind, especially women and smallholder farmers."
- At present, more than 2.6 billion people still cannot afford a healthy diet. It's hard to do not mind.
- There is an urgent need to drive the transformation towards more efficient, inclusive, resilient and sustainable agri-food systems.
- In February this year, the FAO held the African Conference on Sustainable Agricultural Mechanization in Tanzania, and will hold the Asia-Pacific Conference on Sustainable Agricultural Mechanization in the Philippines in November this year.







The importance of samll farmers and women in agricultural production

"Big country and small farmers" are the basic national conditions of China

- The number of small farmers in China accounts for more than 98% of the agricultural business bodies.
- Small farmers are 90% of agricultural workers. And the cultivated land they own is 70% of the total cultivated land.
- There are 230 million households in China, with an average of 0.52 hectares (7.8 mu) per household.
- The proportion of small farmers, which are under 2 hectares, is 95.8%.
- The number of agricultural production and operation personnel in China is 314 million, of which nearly 150 million are women, accounting for 48%.
- How to drive small farmers and women to develop agricultural production is a problem that must be considered in China's agricultural modernization.

The proportion of farmers who operate the scale of different cultivated land（%）

Scale of different cultivated land (acre/ha)	The proportion of farmers（%）
Under 10 mu (0.67 hectares) (small-scale and even more small-scale)	**85.3**
10-30 mu（0.67-2 hectares）	**10.5**
30-50 mu（2-3.33 hectares）	2.5
50-100 mu（3.33-6.67 hectares）	1.1
100-200 mu（6.67-13.33 hectares）	0.4
Over 200 mu（13.33 hectares）	**0.2**
合计	100

The contribution of agricultural mechanization to samll farmers and women in China

- By 2025, China comprehensive level of tilling, planting and harvesting mechanization had more than **76%**.
- The national stock of agricultural machinery exceeds **200 million units (sets)**.
- **Intelligent agricultural machinery and equipment, information and digital technology** have been applied in agriculture, greatly increasing agricultural productivity.
- **Plant protection drones** have been widely applied across the country.
- **Over 1,000 smart farms** have been put into operation.
- Farmers (including women) can study mechanized technologies through **Field Day activities**, **technical promotion training** and **mobile phone APP.**
- Farmers can easily obtain relevant knowledge by querying the "**Agricultural Machinery Know-It-All**" app on their mobile phones















The contribution of agricultural mechanization to samll farmers and women in China

National Agricultural Machinery Big Data System Platform











Nearly 4.28 million units
Intelligent Agricultural Machinery monitored by the System

More than 1500 billion pieces of data
Cumulative agricultural machinery operation data

Over 624 million hectares
Cumulative monitoring operation area

31 provinces
Promoted application

The contribution of agricultural mechanization to samll farmers and women in China

National Agricultural Machinery Big Data System Platform

The agricultural machinery big data system has been applied in 9 major fields and over 20 production service scenarios. These include:

① **policy support** (agricultural machinery coding system, agricultural machinery subsidy APP, agricultural machinery Internet of Things, socialized services, agricultural operation rewards and subsidies);

② **digital management** (agricultural machinery digital management, agricultural service digital management, production digitalization management);

③ **smart agriculture** (precision agricultural production, smart farm construction);

④ **production scheduling management** (emergency command and dispatch, Dudu agricultural service);

⑤ **production monitoring management** (wheat harvesting operation monitoring, rice transplanting operation monitoring, drying capacity distribution monitoring);

⑥ **production services** (financial services, insurance services, fuel usage services, after-sales services, sales services);

⑦ **intelligent manufacturing** (enterprise digital brain, agricultural machinery intelligent cockpit system);

⑧ **statistical analysis** (data analysis models);

⑨ **agricultural machinery intelligent agents**



The contribution of agricultural mechanization to samll farmers and women in China

National Agricultural Machinery Big Data System Platform

- The construction concept of this system has also been applied in the cooperation between China Agricultural University and Brazil, Thailand, to jointly build a smart farm management system platform.
- In particular, the China-Brazil Family Agriculture Smart Farm Management System constructed in Brazil was selected as one of the top ten typical cases at the 2026 World Artificial Intelligence Conference held in Shanghai, China.











The contribution of agricultural mechanization to samll farmers and women in China

The mechanization of post-harvest processing improves the quality and added value of agricultural products, and promotes the common development of small farmers and poor households







Agricultural mechanization technology also empowers women's strength in agriculture.

Ms. Lin Hongmei, a female farmer from Sichuan, not only uses agricultural machinery to increase production efficiency and achieve an annual income of **nearly 1 million RMB**, but also helps and encourages over **10 young people** to establish their own family farms. Each of these family farms achieves an annual income of more than **200,000 RMB**.







Intelligent agricultural technologies can not only narrow the development gap between rural and urban areas, but also help increase the economic decision-making power of rural women and promote gender equality in rural areas.

The emergence of intelligent agricultural machinery equipment creates more development opportunities for rural women, enabling them to achieve self-value in agriculture.

The contribution of agricultural mechanization to samll farmers and women in China

The application of intelligent technology

Agricultural machinery purchase subsidy policies

Agricultural mechanization technology promotion

Training and field day activities

has promoted

provide

Lightweight and simplification of agricultural machinery products

Paths for farmers to obtain advanced and applicable agricultural machinery

Easy for farmers to operate and use

Improve the adoption of sustainable agricultural mechanization technology







Our successful experiences in research, experimentation and promotion in China also wish to be shared with the countries in the Global South.

International cooperation in agricultural mechanization

中国农机企业与产品
Chinese agricultural machinery enterprises and products

农机化技术与服务
Agricultural Mechanization Technology and Services

走出去
Go global

传播中国农机化技术与经验
Promote Chinese agricultural mechanization technologies and experiences

提供中国农机化方案
Provide a Chinese agricultural mechanization solution

贡献中国农机化智慧
Contribute to China's agricultural mechanization knowledge and wisdom

服务发展中国家
Service development of developing countries

为全球食物安全做贡献
Contribute to global food security



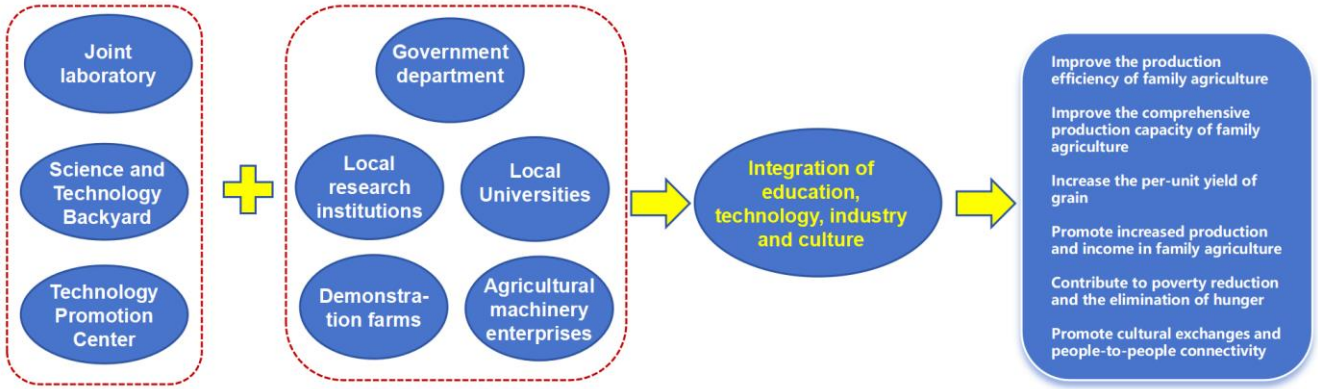




International cooperation in agricultural mechanization



New Model of International Cooperation



- **The development of agriculture and agricultural mechanization is a systematic project**, which cannot be solved by a single technology or machinery. It involves natural conditions, economic levels, technological innovation, human resources, business models, organizational degree, social perception, and government support policies, etc.
- For cooperation with developing countries, our focus is on the development of **family agriculture (small-scale farmers)**.
- Create a new model of international cooperation **integrated education, technology, industry and culture**.
- Build a multi-party innovation platform **based on joint laboratories, science and technology backyards, technology promotion centers**, with participation from local governments, research institutions, universities, demonstration farms, agricultural machinery enterprises and international organizations, to promote agricultural development in developing countries.

International cooperation in agricultural mechanization

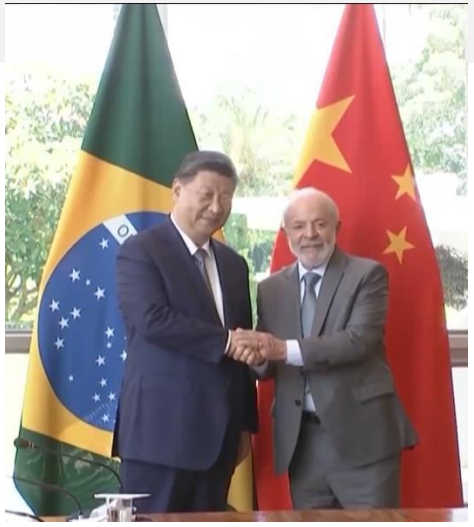
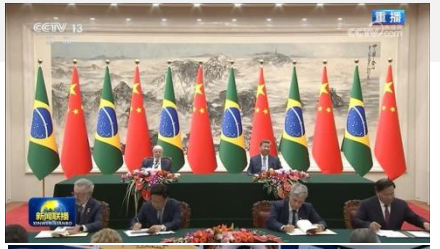
UN agency	Latin American	Lancang Mekong	African	International organization
FAO, WFP, CSAM, ITU, WBUNOSSC, etc	Brazil, Argentina	Thailand, Laos, Myanmar, Vietnam, Cambodia	Kenya, Tanzania, Ghana, Lesotho	ASABE, CIGR, Bologna Club, ICA

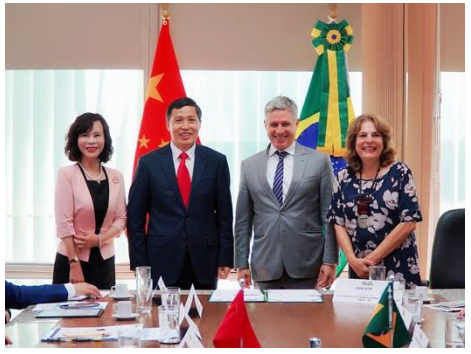
Building an international cooperation system and promoting new models

Talent cultivation	Technological cooperation	Industry Alliance	Technology promotion	Cultural dissemination
Technology Academy+Joint Training	Joint research and development	Product export+local factory construction	Demonstration Farm+Farmer Training	Chinese Spring Festival Gala+Traditional Culture

International cooperation in agricultural mechanization

- Promote the signing of ***MOU on Establishment of Joint Laboratory on Mechanization and Artificial Intelligence of Family Agriculture*** between the Ministry of Science and Technology of China and the Ministry of Science, Technology and Innovation of Brazil.
- Promote the signing of ***MOU (2024-2029) on Cooperation in Modern Family Farming and Agricultural Mechanization*** between the Ministry of Agriculture and Rural Affairs of China and the Ministry of Agrarian Development and Family Farming of Brazil.
- Signed **MoUs for Cooperation** with the Brazilian government, universities, research institutions, farmers' organizations, etc.
- Established **2 Science and Technology Backyards.**













International cooperation in agricultural mechanization

- **Established 2 demonstration farms**
  - ✓ Brazilian **Vice President Alckmin** delivered a video speech
  - ✓ **More than 1,000 people**
  - ✓**Carried out technology promotion and farmer training, and jointly conducted field investigations, agricultural machinery tests and maintenance, and other related work.**.





















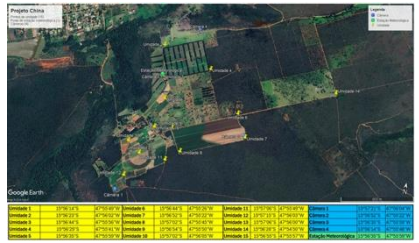


International cooperation in agricultural mechanization

- Totally **62 small and medium-sized agricultural machines** suitable for Brazilian family agricultural production and over **60 pieces of big data system equipment** were selected from 17 agricultural machinery enterprises in China, integrating mechanization, intelligence and digitalization
- Established the **China-Brazil Family Agricultural Production Big Data System**
- The application of China agricultural machinery in family farming in Brazil has **achieved remarkable results**.
  - ✓ This has promoted a 5 to 7 times increase production efficiency, doubled family income, saved about 50% of corn seed usage and an increase of more than 40% in output in local family agriculture.
- Promote the establishment of the "Brazilian Rice Program" by the Brazilian government and National Supply Company to purchase Chinese agricultural machinery.
  - ✓ This program is planned to be implemented in 17 states, 36 regions and 148 cities, covering 23,000 households and 19,500 hectares of land. The program investment is 10 million reais
- This cooperative achievement has been included in **the Global Development Project Pool** of China International Development Cooperation Agency.























International cooperation in agricultural mechanization

- The local small-scale farmers and women in Brazil have adopted Chinese small agricultural machinery, resulting in a significant increase in production efficiency.
- Previously, when operation under the traditional production method, it would take until 8:00 pm to finish. Being so exhausted, they said their back ached and didn't feel like cooking at home anymore.
- Now the same field can be finished by the machine in just one hour. They not only can go home to cook, but also have time to do other things, and can also play and go shopping with their sisters.
- Mechanization greatly changed their production and lifestyle. The sense of happiness suddenly increased.









International cooperation in agricultural mechanization

- Due to the excellent results achieved by the CAU team in their technical promotion and assistance work in Brazil, **Globo, the largest media group in Brazil**, sent a team to China in September this year **for a 20-day on-site interview and video production**.
- The purpose was to personally experience the development and practices of Chinese small farmers and to conduct publicity and promotion throughout Brazil and the entire Latin American region.
- During this period, I conducted **a four-day interview** at the **Hongmei Farm**, obtaining a comprehensive understanding and reporting of the practices and successful experiences of the Hongmei Farm.















International cooperation in agricultural mechanization

- Established **Lancang-Mekong Countries Joint Innovation Center** for Agriculture and Agricultural Mechanization Technology (China-Thailand)
- Established **China-Thailand Science and Technology Backyard** on Intelligent Agricultural Machinery and Smart Agriculture
- Established China-Thailand Rice/Sugarcane Production Mechanization **Demonstration Bases**
- Established **China-Thailand Smart Farm Management System**
- Developed a multilingual " **Lancang-Mekong Countries Exhibition and Cooperation Platform for Advanced and Applicable Agricultural Mechanization Technology and Equipment** " (https://www.lm-am.com/)

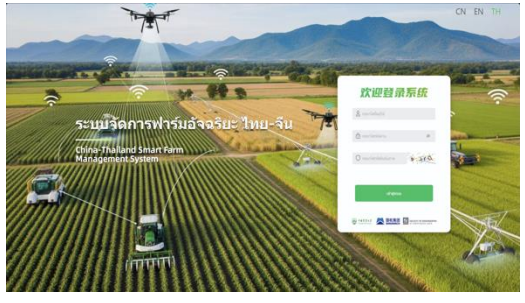
















International cooperation in agricultural mechanization

Laos










Myanmar








International cooperation in agricultural mechanization

Signed MOU with ACT for agricultural mechanization cooperation in Africa






ACT Pilot SAMSC Site Inspection (Kibaigwa, Tanzania)



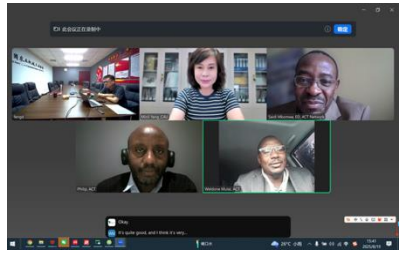


Joint private-sector technology showcase





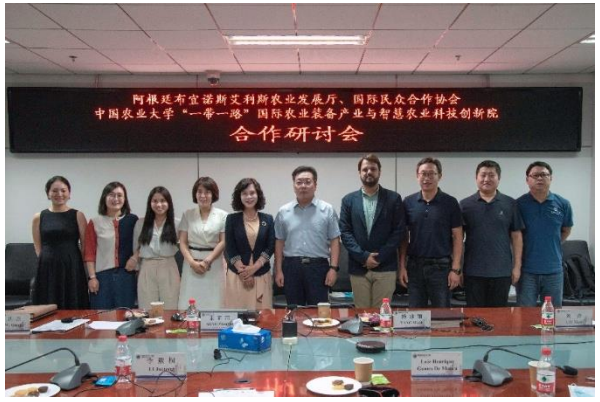
1st Africa Conference on Sustainable Agricultural Mechanization & iSAMAP-Africa Panel






International cooperation in agricultural mechanization

Signed a MOU on Cooperation with the Ministry of Agricultural Development of Buenos Aires Province, Argentina























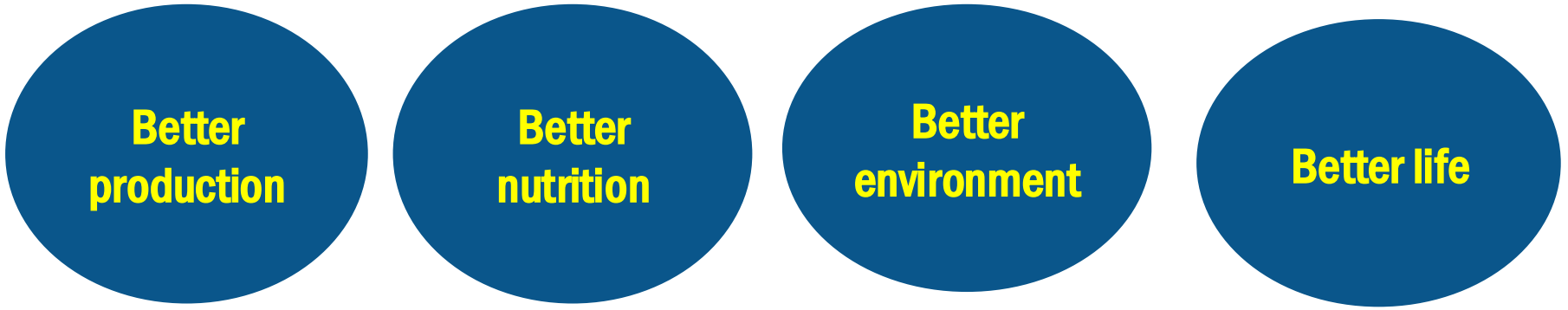








Future prospects



Hope the cooperation project can be promoted and applied on a larger scale in the future, so as to bring

more benefits to the development of smallholder farmers and women in Countries of the Global South

THANK YOU

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