

MODERNIZATION

OF FAMILY FARMING

By **Adriana Moraes**

**Partnership with China
has contributed to the
mechanization process in
small rural properties in
Rio Grande do Norte.**

Santa Rosa Community
Apodi/RN - Brazil
Photo: Énio Freire

One of the pillars of the Brazilian economy, family farming plays a crucial role in the country's food security. More than 70% of the food that reaches Brazilians' tables, including products such as coffee, beans, cassava, milk, poultry, and pork, comes from family farming, according to data from the the Agricultural Census conducted by the Brazilian Institute of Geography and Statistics (IBGE – Instituto Brasileiro de Geografia e Estatística). Small farms represent 77% of agricultural producers and are responsible for generating income for 70% of Brazilians in rural areas. The Northeast concentrates 50% of Brazil's family farming properties, but only 3% of them are mechanized.

To address this reality, the Brazil-China partnership for the mechanization of family farming is an innovative project between the two countries that aims to modernize and strengthen family agricultural production with technological support. The initiative is being implemented in Ceará, Rio Grande do Norte, Paraíba, and Maranhão.

In Rio Grande do Norte, the initiative is being implemented through a partnership among the State University of Rio Grande do Norte (UERN – Universidade do Estado do Rio Grande do Norte), China Agricultural University (CAU), the State Secretariat for Rural Development and Family Farming (SEDRAF

– Secretaria de Estado do Desenvolvimento Rural e da Agricultura Familiar), the Federal Institute of Rio Grande do Norte (IFRN – Instituto Federal do Rio Grande do Norte), and the Federal Rural University of the Semi-Arid (UFERSA – Universidade Federal Rural do Semi-Árido), with additional support from social movements such as the Landless Rural Workers' Movement (MST – Movimento dos Trabalhadores Rurais Sem Terra), the World March of Women (Marcha Mundial das Mulheres), the Apodi Rural Workers' Union (Sindicato dos Trabalhadores Rurais de Apodi), Cooperxique (Cooperativa da Xique-Xique), among others.

The equipment is used by small-scale farmers, initially benefiting 150 family farmers in the municipality. Through the partnership, small

“The work that used to take us two days, with the machines, we can now do in two hours

Hosana Maria
Farmer

Photo: Énio Freire



farmers receive machines such as harvesters, tractors, and planters.

According to Eribaldo Gomes, representative of the Institute of Technical Assistance and Rural Extension (Emater - RN), at this initial stage, the foreign machines are being tested on local crops.

He emphasizes that the use of machinery is a very positive boost for family farming production. “At the same time that only 3% of family farming properties in the Northeast are mechanized, we have increasingly less labor available to work in the fields. Thus, the mechanization project in agriculture significantly strengthens production in the sector” evaluates Eribaldo.

Since childhood, Maria Hosana has worked the land, a trade inherited from her parents. Today, on her property in the rural area of Apodi, she grows rice, beans, sugarcane, and sorghum for the animals. Much of the crop is for personal consumption, and the rest of the production is sold within the community. According to her, the use of machinery has greatly facilitated the work in the fields.

The farmer Agrimarildo Moreira, known as GuiGui, and his brother Adriano Moreira, from the Santa Rosa community in Apodi, are also satisfied with the use of the machinery. “With the machines, the work that used to take days can now be done in just a few hours”, they confirm Hosana's statement.

Like their fellow farmer, Adriano and GuiGui started working in the fields at an early age, helping their parents with the harvest and later making it their trade. Today, they see the use of machinery as an opportunity to ease fieldwork and optimize their production for both personal consumption and sales.

The issue of mechanizing family farming aims to increase productivity and improve working conditions for family farmers.



Adriano and GuiGui started work in the farms early
Photo: Énio Freire

Prof. Dr. Vinicius Claudino, coordinator of the technological residency in Apodi, states that the impacts of testing Chinese machines and adapting them to the Brazilian reality have shown excellent results.

“UERN, in partnership with IFRN and UFERSA, has been able to carry out activities that impact several Sustainable Development Goals (SDGs).

These are activities that improve agricultural production, make work more efficient, strengthen female empowerment, and reduce hunger”, he reveals.

On the occasion of the project launch at UERN, Professor Yang Minli, from China Agricultural



University Residence welcomes researchers from different countries
Photo: Énio Freire

University, highlighted the relevance of the partnership with educational institutions in the Northeast. “We wish to explore new forms of collaboration, especially in the technological field, allowing the exchange of ideas and students”, she stated.”

In a statement published on the University of Brasília (UnB) portal, China’s Minister of Education, Huai Jinpeng, reinforced the alignment between the two nations.



We are here working to implement these agreements and thinking about the future of the shared global community

Huai Jinpeng
Minister of Education of China



Representatives of the Technological Residency partner institutions
Photo: Agecom Archive

The mechanization of family farming in Rio Grande do Norte, especially in Apodi, has received a significant boost through the Technological Residency in Family Farming Mechanization, a Brazil–China partnership. Inaugurated in November 2024, UERN coordinates the residency in partnership with IFRN, UFERSA, and SEDRAF.

The Technological Residency currently operating in Rio Grande do Norte is the first of its kind in the Americas. The unit operates at the headquarters of the Regional Directorates of Education and Culture (DIREC) in Apodi, which provided space for a room for the researchers.



TECHNOLOGICAL RESIDENCY

According to Prof. Dr. Vinicius Claudino, the activities of the Residency are characterized by supporting the academic work of foreign researchers in Rio Grande do Norte and building bridges for Brazilian researchers to conduct their research in partnership with China Agricultural University.

“So far, we have already received eight foreign students: one Pakistani, one Ethiopian, and six Chinese. They are master’s, doctoral, and post-doctoral researchers”.

UERN also provides support to the rural communities where the research is conducted, through the Directorate of International and Interinstitutional Relations (DIRI) and foreign language students who serve as translators and interpreters.

For Vinicius Claudino, the partnership with China has been highly enriching. “UERN has the opportunity to work with researchers from different backgrounds and cultures and also to coordinate joint research and projects”, he states. He emphasizes that, through the partnership, there are opportunities for scholarships for students and professors who wish to pursue their studies at China Agricultural University through specific calls for Brazilians.

Prof. Dr. Francisco Chagas de Lima Júnior emphasizes that the family farming mechanization project is of utmost importance for research at UERN. “We are interacting with one of the largest universities in China, which has great technological development potential in the area of mechanization. The contacts we have with the professors there are of utmost importance. It is an open door for us to send our students and professors and also to develop research jointly with Chinese researchers”, he evaluates.

Prof. Yang Minli,
China Agricultural University
Photo: Agecom Archive

INTERNATIONALIZATION

In addition to the project with China, UERN maintains agreements with dozens of international institutions. In recent years, 29 new international agreements have been signed with universities in Latin America, Africa, Europe, and Asia, focusing on scientific, academic, and cultural collaboration.

Agreements and actions with other countries are developed through the Directorate of International and Interinstitutional Relations (DIRI) of the State University of Rio Grande do Norte (UERN), which has played a strategic role in expanding the institution's academic horizons.

Between 2022 and 2025, UERN's internationalization was driven by actions focused on language proficiency, virtual mobility, the organization of events, and the signing of new cooperation agreements, promoting meaningful connections with foreign institutions and expanding opportunities for both the academic and external community. The administration of the TOEFL ITP proficiency exam, for example, offered free of charge to UERN's academic community, has remained an essential tool for access to exchange programs and postgraduate studies abroad. Between 2022 and 2025,

200 tests were administered.

The Latin American Virtual Academic Exchange Program (PILA Virtual) has established itself as a gateway for UERN students to experience academic life at higher education institutions in Spanish-speaking countries, strengthening the university's international presence in the regional context.

"Since 2022, 78 UERN students have taken courses at foreign partner universities through the program," reports the head of DIRI, Pedro Adrião.

The organization of events and internationalization also played a central role in engaging the academic community and the general public. Seventeen editions of UERN Global Connection were held, two of them in person, in addition to two thematic seminars and the 1st Higher Education Internationalization Fair at UERN, a pioneering event that brought together partner institutions, diplomatic representatives, students, and administrators.

"DIRI reaffirms its commitment to connecting UERN to the global stage, providing technical support for agreements, mobility calls, language programs, and scientific cooperation initiatives, strengthening internationalization as an institutional policy", emphasizes Pedro Adrião.

29 new international agreements, 200 TOEFL ITP tests, 78 students took courses at foreign partner universities, 17 editions of UERN Global Connection.



Pedro Adrião, Director
for International and
Interinstitutional
Relations
Photo: Énio Freire

