Turning the Key: Chinese Machines are the MST's Bet to Feed Brazil (Part I)

By Maíra Mathias in collaboration with Raquel Torres. Source: O Joio e O Trigo.

The movement aims to scale up agroecology using cheap machinery designed for small rural properties. Tests are taking place in settlements in the Northeast.

To Hold Up the Sky

At 7:00 a.m. on a Tuesday in May 2025, a different noise filled one of the rice fields in the Diamante Negro Jutaí settlement. Penetrating and monotonous, it stood out from everything that had ever been heard there. Even so early, the novelty was already attracting an onlooker. Five men and a child watched attentively the origin of the sound. It came from China – or rather, from two small machines manufactured in that country. They had crossed half the globe to reach this place, the city of Igarapé do Meio, 220

kilometers from São Luís, in Maranhão. The mini harvesters were a phenomenon for a very simple reason: they did in a few days the work that previously took almost a month.

"You do a job of 24 days in just two or three. If it [the machine] doesn't break down, we can manage in just one day," cheerfully calculated Railson Sousa Lima, the owner of the plantation where the harvesters were moving back and forth.

The two machines from the company Shineray, a Chinese manufacturer that, in Brazil, has a motorcycle factory in the Suape Industrial Complex in Pernambuco, are not the same. The slightly larger one, model 4lz-1.0lc, has 15 horsepower and is approximately the size of a golf cart. The smaller one, with 10 horsepower, vaguely resembles those vehicles used by mall security guards. With an average price of 4 thousand dollars each, around R$ 20,000, the small harvesters are much cheaper than the closest option sold in Brazil, the Yanmar YH880, which costs R$ 550,000.

The two Shineray harvesters are small. Top: the smaller one, with 10 horsepower. Bottom: the larger one, with 15. Photos: Ingrid Barros / O Joio e O Trigo

The little machines not only harvest but also significantly advance the rice cleaning process. The grain grows in clusters. The harvesters suck in these clusters, separating each tiny grain and pouring the cereal into sacks. "The rice comes out 'threshed,' just needing to be dried," observed Railson.

That moment crowned the work of approximately one hundred days that had begun on January 13, with land preparation for planting. The Sousa Lima family's rice had been the first to be ready for harvest at the Diamante Negro Jutaí settlement. And the settlement, in turn, had been one of those chosen by the Landless Rural Workers' Movement (MST) to test the viability of an ambitious plan: to massify agroecology through the

mechanization of family farming. And, as a bonus, contribute to the reindustrialization of Brazil.

Railson was happy with the rice harvest. "Our rice is in high demand. Because it's organic rice. And of good quality," he said. Photos: Ingrid Barros / O Joio e O Trigo

A Stark Difference

Founded in January 1984, the MST emerged with the agenda of agrarian reform. But from the 2010s onwards, it added a word to its banner of struggle. It began to speak of *popular* agrarian reform. The occupations, which so symbolized the movement in the 1990s, continue to happen. But the movement took a step forward in building its image, positioning itself as a central actor in the production of agroecological food in Brazil.

But, if agrarian reform settlements produce food, it is not always on a scale sufficient to supply the rest of the population. Gaining traction, building muscle, became a central objective. "That is, to move beyond pilot experiences, beyond very localized experiences, and, in fact, nationalize agroecology in our settlements, in peasant agriculture in general," explains Luiz Zarref, who, besides being an MST member, is the Latin America coordinator for the International Association for Popular Cooperation—also known as Baobab.

Created in 2019 by movements like the MST itself, Baobab focuses on international cooperation in the areas of science and technology. To this end, it promotes exchanges between popular organizations and governmental institutions, research institutes, technology developers, funders, and entrepreneurs from the so-called 'Global South'. It has offices in Accra, the capital of Ghana, in São Paulo, and in Beijing, where Zarref currently lives.

The address is no coincidence. To gain scale, both the MST and other organizations that make up Baobab see mechanization as the answer they need. But machines for family farming need to be small and cheap. Combining these two conditions was not easy. Zarref says the movement searched in countries like Italy, Germany, Japan, and South Korea. The search had to be outside Brazil because suitable models for this purpose are not manufactured here.

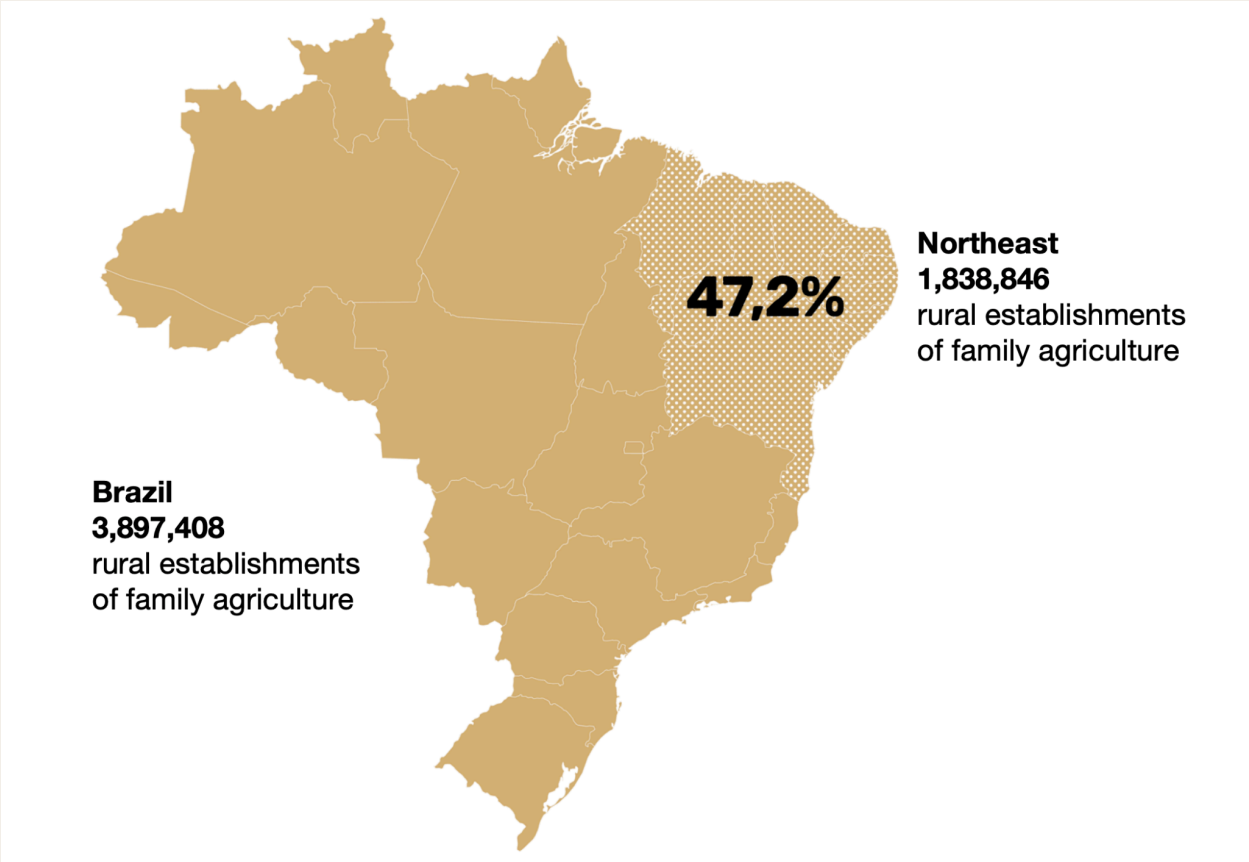
"In recent years, we discovered that, in reality, China would be the country with the technologies most suited to the Brazilian peasant reality," says Zarref. "In China, there are 240 million rural establishments, most of them up to half a hectare in size."

Size matters a lot: in such small areas, the size of half a soccer field, large machines make no sense. Chinese industry, heavily directed by the state, responded to this reality by creating suitable machinery. According to the Baobab coordinator, the country has more than 8,000 agricultural machinery factories. "It is effectively a country that carried out agrarian reform and industrialized its countryside, based on a government policy line."

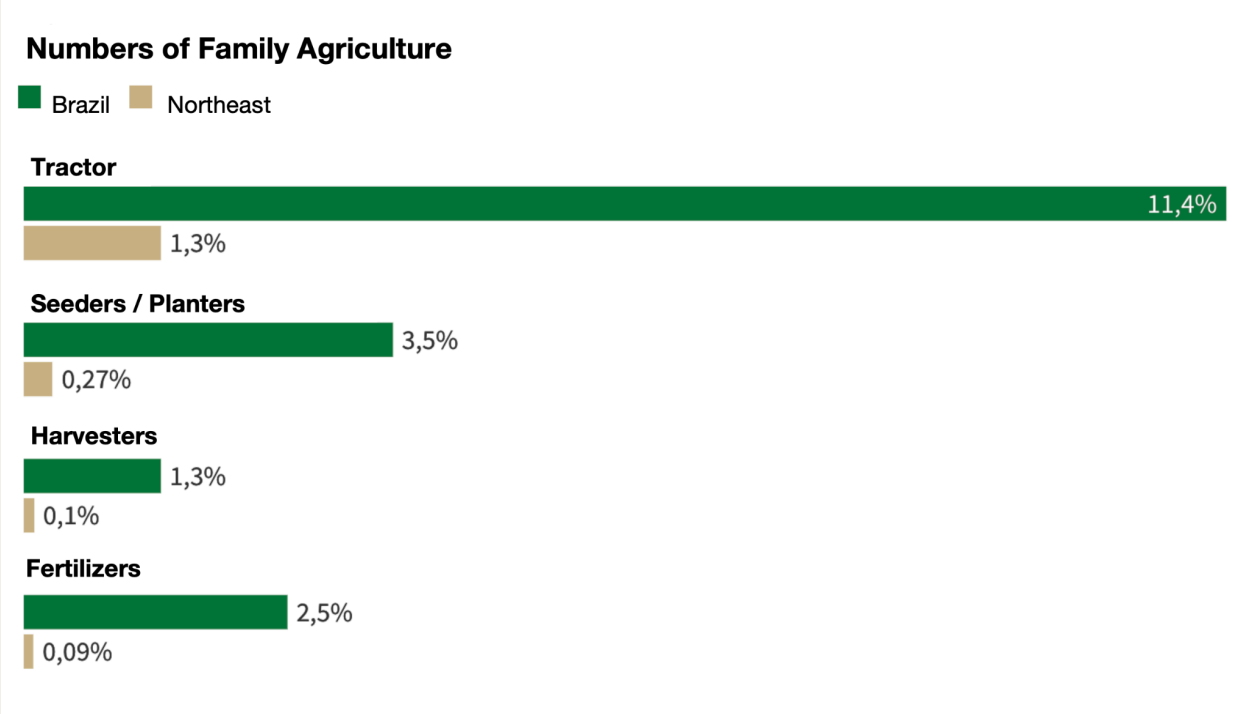
Meanwhile, in Brazil, in the same year that Baobab was created, the governors of the Northeast decided to counter the disastrous performance of the Jair Bolsonaro government during the COVID-19 pandemic by creating the Northeast Consortium. Later, the entity, which brings together all the states in the region, would look at other areas beyond health, such as family farming.

Knowing of the Northeast Consortium's interest in the topic, Baobab connected it with Chinese researchers and manufacturers of agricultural machinery. "It was a huge impact," recalls Zarref. The distance between China and Brazil, especially between China and the Brazilian Northeast, proved to be stark.

According to the latest Agricultural Census from IBGE (Brazilian Institute of Geography and Statistics), as of 2017, there are 3.8 million family farming establishments in the country. Half of them are located in the Northeast.



The census does not provide an average for mechanization in this category of property, but it provides data for some types of machines. If the measure is the most common one, the tractor mechanization reaches 12% of family farming establishments. In the Northeast, however, the rate is 1.3%. "In China, [the average mechanization] reaches 72%. In some production chains, it reaches 83%," compares Zarref.



Source: 2017 Agricultural Census / IBGE

The desire to change the game bore fruit. In September 2022, a memorandum of understanding was signed between Baobab, the Northeast Consortium, the Belt and Road Institute of the China Agricultural University, and that country's Association of Agricultural Machinery Manufacturers.

After a survey of which production chains could be leveraged with machinery manufactured in China (vegetables, corn, beans, and rice), 31 machines landed in Brazil in February 2024 with a specific destination and objective: they would be tested in MST settlements in the states of Ceará, Rio Grande do Norte, Paraíba, and Maranhão.

Massive Participation

On May 4, 2025, a beautiful sunny Sunday, Maria de Jesus woke up early, gave her children breakfast, and set off for the headquarters of the Cooperativa Mista das Áreas de Reforma Agrária do Vale do Itapecuru (Coopevi). Once there, the hours would pass quickly, like a race against time. The reason was that the National Agrarian Reform Fair, an MST event held in São Paulo that serves as a showcase for food production in settlements across the country—would take place in a few days. Dijé, as Maria de Jesus is known, joined the task force to prepare the products that would go to the São Paulo capital. Tapioca, flour, syrup, jam, lemon, pumpkin... But, mainly, rice.

Maria de Jesus, Dijé, was the only woman in the Northeast settlements to operate a Chinese machine. Photo: Ingrid Barros/ O Joio e O Trigo

The first harvest with Chinese machines had been that very rice and happened a year earlier, right there in the Cristina Alves settlement, located in Itapecuru-Mirim, a municipality 119 kilometers from São Luís. Dijé was the only woman in the Northeast settlements to operate a Chinese machine, the larger of the two Shineray harvesters.

"I took it to see if I could [steer it]. And when I managed, I did several laps there, cutting rice. And it was a very good moment, you know? We felt very happy about it," she recalled.

For Dijé, as for Railson, the shock came from the time saved in harvesting, and also in cleaning, since the grain comes out without the husk. "It's already at the point where we can put it in the sun and take it to the huller. And I used to spend a whole day cutting six sacks, with husks, with everything. [With the machine] in four minutes, five, we have a fifty-kilo sack full. A good difference, and a very big one. And so I got excited, because I always participated in the rice field, but I had never harvested my own."

"It is more interesting for popular agrarian reform, for agroecology, that people's participation is also massive. Not just production on a scale, but participation also on a

larger scale." - Elias Araújo, coordinator of the MST production sector in the Amazon region.

Attracting more people to rice planting is Coopevi's goal. The cooperative is about to take a leap, with the installation of a processing plant funded by the Secretariat of Supply, Cooperativism and Food Sovereignty of the Ministry of Agrarian Development in conjunction with the Banco do Brasil Foundation. The structure will have the capacity to process 8,000 kilos of rice per day. For the plant to function well, the planted area each harvest needs to jump from the current 20 hectares to 500. But the idea is not to expand production only within the settlement.

"That would be monoculture. It strays from what we want to discuss in terms of agroecology," explained Elias Araújo, a long-time MST member in Maranhão who has lived in the settlement since its creation in 2007 and now coordinates the movement's production sector for the entire Amazon region.

According to him, the plan is to gradually expand the planted area within Cristina Alves, from 20 hectares per harvest until it reaches 150. And to mobilize people from outside to plant the remaining 350 hectares. "It is more interesting for popular agrarian reform, for agroecology, that people's participation is also massive. Not just production on a scale, but participation also on a larger scale."

Elias Araújo has been at Cristina Alves since the settlement's creation in 2007. But his activism in the MST began long before that, in the 80s. Photo: Ingrid Barros / O Joio e O Trigo

This is where the Chinese machines meet the plans the cooperative has been drawing up for a long time. They serve as an attraction. "To harvest one hectare of rice today, you spend about 20 days, at a minimum. With this little machine from China, you can harvest that in one day. It's a revolution," observed Elias. "We want to work in the surroundings of the settlement, involving other families. There are several settlements here, several quilombola communities..."

In Maranhão's DNA

Rice is central to Maranhense culture. The state has, by far, the highest per capita consumption in Brazil. It's 49 kilos of rice per inhabitant per year, according to IBGE. For comparison, in Bahia and São Paulo, the number drops to 15 kilos.

This crop has had some twists and turns and even prohibition. At the beginning of the colonization of the Americas, Maranhão was a territory disputed by Spaniards, French, and Portuguese. The latter took there the rice consumed in the Azores archipelago—a red-colored variety, which was hugely successful. Until the Crown prohibited its production in 1772.

At the time, Portugal was experiencing a supply crisis. But the metropolis only cared about white rice. As a result, the people of Maranhão were forbidden to plant the red rice they liked so much. And Brazilians, who knows, may have lost the chance to have more variety on their plate.

Today, red rice has even made a comeback—but as a niche product for middle and upper classes seeking a healthy lifestyle. Currently, 70% of the rice consumed in the country is polished white rice.

In the Cristina Alves settlement, red rice is produced with an eye on a market niche, according to Elias Araújo. Photo: Ingrid Barros / O Joio e O Trigo

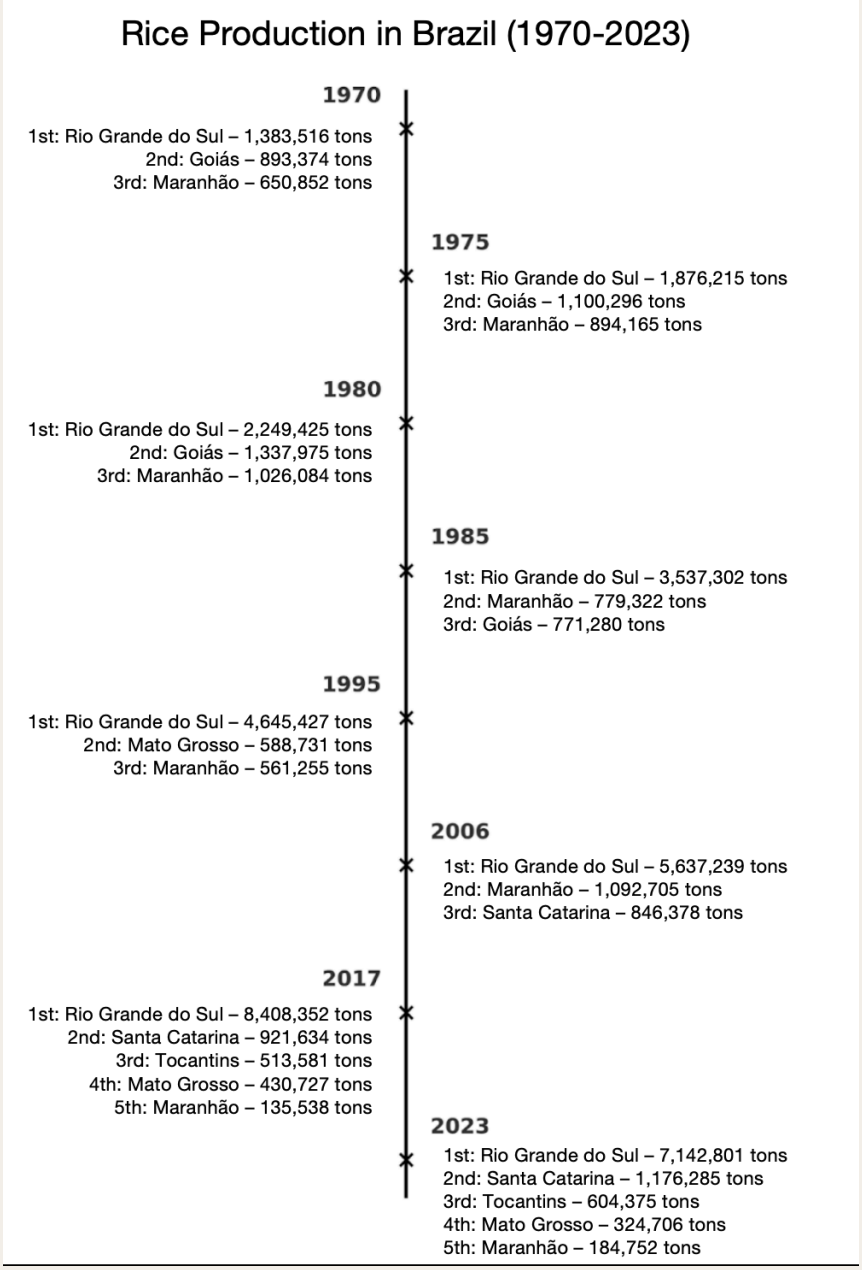
Rice also has to do with the history of the occupation of the Maranhense territory—and with its injustices. It is a crop for opening new land. What you plant after clearing the forest. "Remove the wood and make the first plot. And the first plot is rice," observed Elias.

"And, in the wake of this itinerant farming, you had the cattle ranchers. And, in the wake of all this, came what we called here the legalization of the areas. The more educated people, merchants, people from outside, were documenting the areas. And the peasants were being expelled." Being pushed further and further into the Amazon.

Maranhão was once the second-largest rice producer in Brazil. The last time the state reached that position was in 2006, according to the Agricultural Census.

Today, Rio Grande do Sul concentrates 70% of Brazilian production, with 7 million tons in 2023. It is followed by Santa Catarina, Tocantins, and Mato Grosso do Sul. Maranhão is in fifth place.

Maranhão in Rice Production in Brazil



(Source: From 1970 to 2017, Agricultural Census. For the year 2023, Municipal Agricultural Survey/IBGE.)

In the assessment of Elias, who is an agronomist, Maranhão lost ground because it did not modernize. "The crop moved to regions that had a response, where the productive forces advanced." Even within the state, he says, rice production comes more from agribusiness than from settlements or traditional territories. "In the south of Maranhão, where the machines are, where it is possible to plant and harvest."

The MST itself takes great pride in the rice produced in Rio Grande do Sul. According to the Riograndense Institute of Rice (Irga), the movement is the largest producer of organic rice in Brazil. And, by the size of production, probably the largest in Latin America. According to the MST, in the last harvest (24/25), 2,850 hectares of agroecological rice were sown in the settlements of Rio Grande do Sul by 290 families—an average of 9.8 hectares for each one. The idea is to reproduce this scenario in Maranhão.

"That peasant who used to farm rice and harvest manually still exists, but exists for a consumption need. When that family improves financially and can buy rice from outside, they will no longer stay in rice farming," says Elias, for whom the way to keep people in the Maranhense countryside necessarily involves the mechanization of rice farming.

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