

Feeding the corporate coffers: why hybrid rice continues to fail Asia's small farmers

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For decades now, hybrid rice has been promoted across Asia as a silver bullet for hunger. Developed first by Chinese researchers, who were inspired by the success of hybrid maize in North America, it has been hailed as a "super rice" that can reverse the years of stagnating yields in the world's rice farms.

Hybrid rice has become China's flagship agricultural product. In recent years, Beijing has established numerous overseas hybrid rice programmes across the world, as part of its international cooperation.¹ It also runs an international hybrid rice training centre in Hunan that has already provided 30 training courses and trained over 2,000 government officials and agro-technicians from 50 countries since 1999.

The promotion has borne fruit. For instance, when a Libyan sovereign wealth fund announced investments in three new large-scale rice projects in Mali, Liberia and Mozambique, and the Libyan government decried the stranglehold of multinational traders over the food supply and talked of investing in Africa's rice self-sufficiency, the administrators of its African rice projects proudly announced that they would be using not local varieties, as one might have expected, but Chinese hybrid rice varieties.

But who is to benefit from hybrid rice? People often do not realise that China's international hybrid rice activities are almost always led by private Chinese seed companies, and mostly by one company – LPHT. This company was originally set up by Professor Yuan Longping, China's most important hybrid-rice plant breeder, together with the China National Hybrid Rice R&D Centre and the Hunan Academy of Agricultural Sciences. Over the years, with the support and blessing of Beijing,

this state-owned company has grown into a major multinational corporation, with 26 subsidiaries and a listing on the Shenzhen stock exchange. A large stake in the company is now owned by the world's fourth-largest seed company, Vilmorin/Limagrain of France.

Hybrid rice is big business for China, and it is seen as crucial to Beijing's new policy of developing its own multinational agribusiness corporations. Much of the hybrid rice seed sold in Asia is imported from Chinese companies or based on parental lines licensed from Chinese companies. The Indonesian government admits that over half of the seeds needed for its hybrid rice programme will be imported from China. Bangladesh and Pakistan import most of their hybrid rice seeds from China, as does Burma. Vietnam has invested heavily in developing a national hybrid rice seed industry, but it too imports most of its hybrid rice seeds from China. Even the local seed company in the Philippines, SL Agritech, which exports seeds to Bangladesh, Indonesia, Vietnam and Nigeria, also sources some of its seeds from China and licenses its parental lines from LPHT.

For China, however, the hybrid rice gambit is not just about seeds. The Chinese government is interested in expanding its overall control of rice production beyond its borders, both to secure national rice supplies and to feed its growing teams of Chinese labourers working for national companies on mining, oil and infrastructure projects around the world. While the government dropped a proposal from its Ministry of Agriculture to give official support to a policy of offshore land acquisition by Chinese companies, such investment is happening at an informal level, seemingly with Beijing's approval.²

Land grab and hybrid rice

China is not alone in outsourcing rice production. Corporate investment in rice production is rising dramatically, especially in Africa. Brazilian investors are setting up large-scale rice farms in Guyana and Ghana. Charoen Pokphand, Thailand's largest agribusiness conglomerate, was in Nigeria in early 2010 exploring opportunities for investment in rice production, while Thailand's leading rice exporter, Riceland International, was doing the same in Ghana. Singapore's Olam International is engaged in a massive contract rice-growing scheme in Nigeria. Another Singaporean company, VitaGrain, is leasing large areas of land in Mauritius and Mozambique for the production of hybrid rice.

These investors are trying to redraw the map of global rice production and to remake the model of rice farming. What is being planned is a complete shift to corporate rice farming, with companies operating either vertically integrated contract production or taking direct control over land and farming, with the collusion of governments. These investors clearly have no interest in the seeds that small farmers have carefully developed and nurtured to suit their local conditions and cultures. They want varieties tailored to their model of production – large-scale, mechanised, chemical input agriculture, for export.

Today the private sector is taking control of rice plant breeding and the rice seed market. In recent years, the big multinational seed corporations, such as Bayer and DuPont, have been investing billions of dollars to get into the rice seed market, with nearly all of this money flowing into hybrid rice. It is not the performance of hybrid rice that attracts seed companies, but the fact that farmers cannot save seeds from

* Alliance of Agrarian Reform Movement (AGRA – Indonesia), Biodiversity and Community Rights Action Thailand (BIOTHAI – Thailand), Bangladesh Krishok Federation (BKF – Bangladesh), Bismarck Ramu Group (BRG – Papua New Guinea), GRAIN (International), Peasant Movement Philippines (KMP – Philippines), Farmer-Scientist Partnership for Development (MASIPAG – Philippines), Pesticide Action Network-Asia Pacific (PANAP – Malaysia), Sustainable Agriculture and Environment Development Association (SAEDA – Laos), South-East Asia Regional Initiatives for Community Empowerment (SEARICE – Philippines), Policy Research for Development Alternatives (UBINIG – Bangladesh)



these varieties, thus guaranteeing the companies a captive market. In 2007, all of the top five global seed companies announced major moves in Asia's hybrid rice seed industry. And alongside these major multinational players, there are a number of Asian-based companies that are active in the hybrid rice seed market, such as CP, SL Agritech and Shendong Seeds.

Big hype, little success

The hype around hybrid rice is to be expected: there's a lot of money to be made from it. But how is the rice performing on the ground?

The Philippines is one of the earliest adopters of hybrid rice technology, having been IRRI's host country for the last 50 years. But as early as 2000 the majority of farmers were already unwilling to plant hybrid rice despite the subsidies, because they found it more difficult to cultivate and inferior.³ In 2003, data from the Department of Agriculture's provincial office in Isabela, in the north-west of the country, showed that for every hectare of hybrid rice that yielded above the national average for conventional inbred varieties, seven hectares of the same variety yielded miserably below it.⁴ Ironically, with hybrid rice purported to lift the Philippines' rice production level, the country has not only continued to be a net rice importer but has also become, since the hybrid rice programme started in the early 1990s, a rice seed importer (from India and China). This year, rice imports are expected to reach an all time record of 3 million tonnes, with 2.2 million tonnes already secured from foreign suppliers.⁵

In China where hybrid rice originated, farmers' experience with hybrid rice is very different from the glossy advertisements found in nearly every seed shop in the towns. In different parts of Yunnan and Sichuan, two leading rice-growing areas of China, hybrid rice has caused very little, almost negligible, change in the economic status of Chinese farmers. The increase in yield, achieved mostly by farmers with access to irrigation and resources to spare for the necessary

inputs, was nothing spectacular and far short of what had been promised.

Even when farmers increased their yields, they did not consistently exceed the national average of seven tonnes per hectare. For the yields vary greatly, depending on location and conditions, making the high-yield "guarantee" almost meaningless. Interestingly, the farmers who had long experience of growing hybrid rice said that, despite the claims made for them, the yields of the current hybrid varieties did not seem to be any higher than those of the first hybrids. So it seems that almost three decades of research – and the experience of planting 15 million hectares with different hybrid varieties – have achieved very little.


Vietnam is considered the next "success story" in hybrid rice adoption, after China. But even though the area under cultivation is expected to reach 7.5 million hectares this year, more and more farmers are becoming disillusioned and critical of hybrid rice because of its yield, cost and susceptibility to pests. Many of them continue to plant hybrids simply because they have no other option: they are reliant on what the seed dealer supplies.

The failures of hybrid rice come as no surprise to one of Indonesia's most highly respected rice scientists, Professor Dr Kasumbogo Untung, an entomologist at the Universitas Gadjah Mada in Yogyakarta. He and his colleagues have long been familiar with the problems of hybrid rice, especially its susceptibility to pests and diseases. In fact, he says that he often uses it to teach his students, because it is the only variety that gives them direct access to pests and diseases that, in Indonesia, are otherwise seen only in textbooks. Now he worries that the large-scale introduction of hybrid rice will lead to a resurgence of pests such as planthopper. Dr Kasumbogo says that it is "very regrettable" that the government is promoting hybrid rice, because it will undo the advances made with integrated pest management in the country, and will cause farmers to increase their use of pesticides and chemical fertilisers.⁶

"Hybrid rice is a luxurious variety that needs more care than a baby", says Dr Kasumbogo.

Stop hybrid rice, stop the industrial food system

The idea of using hybrid rice technology to feed humanity has certainly paid off for the companies behind it: they are getting a huge return from seeds and agrochemical sales. However, reason dictates that more than a decade of investment in this poorly performing rice should be enough. Hybrid rice must be stopped, by any means necessary. Starting from the conscious act of rejecting the use of rice hybrids, it should also be denounced in the context of resisting the global, industrial food system that is destroying farmers' livelihoods and the environment. The food crisis that resurrected hybrid rice from its approaching demise was a result of this very industrial food system that feeds on the plantation-type, corporate agriculture and marginalises small food producers. As the resurgence of planthoppers shows, hybrid rice monoculture is a perfect recipe for disaster. The push for hybrid rice will not solve food insecurity but worsen it.

The need to "de-globalise" the industrial food system is clear. It has to be reversed by strengthening local food cultures and by rebuilding local food production and distribution systems. It means a determined shift from mono- to multi-cropping, and an organised fight to take control of productive resources, starting with the seeds. It also requires that lands be kept in the hands of local communities, by implementing meaningful land redistribution that would give those communities complete access to the land itself and its resources. It is only with communities' full control of the land that farmers will be able to control the entire production system. Only thus can farmers truly have seed alternatives that can re-orient agriculture, restructure the market, and rediscover the wealth of cultural dietary norms based on biodiversity. 

1 Countries involved include: Brunei, Burma, Cambodia, Cameroon, East Timor, Guinea-Bissau, Indonesia, Laos, Liberia, Madagascar, Mali, Mozambique, Nigeria, Pakistan, Papua New Guinea, Philippines, Sierra Leone, Tanzania, Uganda, Uzbekistan, and Venezuela.

2 Jamil Anderlini, "China eyes overseas land in food push", *Financial Times*, 8 May 2008, <http://tinyurl.com/5yq7dk>

3 Cheryll B. Casiwan, Aldas Janaiah, Sergio R. Francisco, Mahabub Hossain, Josephine Narciso, Ellaine Cabrera, Flordeliza C. Hidalgo, "Hybrid Rice Cultivation in the Philippines: Early Farm-Level Experiences", *Economic and Political Weekly*, 21 June 2003.

4 *Fiasco in the field – an update on hybrid rice in Asia*, GRAIN Briefing, March 2005, <http://www.grain.org/briefings/?id=190>

5 Luzi Ann Javier, "Philippines May Lose 400,000 Tons Rice Output, Official Says", *BusinessWeek*, 18 January 2010, <http://tinyurl.com/yefs6qk>

6 GRAIN field visit and personal communication, July 2008.

