The seed industry will do whatever it takes to stop farmers saving seeds. The only way it can make big money from seeds is to force farmers to buy from seed companies every year. With rice, one of the world's most important crops, it is no wonder that there is a relentless push for a hybrid variety that is essentially sterile.[1] Suicide seeds, so to speak. Of course, the seed industry wants people to believe that there are other reasons behind the push for hybrid rice. They talk of higher yields and big profits for farmers. But if you look at the situation in the fields, none of that turns out to be true.

Killing fields

the global push for hybrid rice continues

GRAIN

In 2005, GRAIN released a report[2] documenting the dismal performance of hybrid rice in Asia. Despite the promises of higher yields, hybrid rice was largely a fiasco in the field. The only country that was said to be reaping success from it was China, the birthplace of the hybrid rice "miracle". Because what was happening in China seemed to be different, we decided to go there in 2006 to hear from the farmers on the ground.[3] Their stories confirmed our suspicions about the country's reported successes. A wide gap existed between the yield projections made by scientists in the laboratory and farmers' experiences in the field. Some farmers reported no increase at all in yields and, in areas where there were rises, they were modest and owed much to the liberal use of chemical fertilisers and pesticides and steady irrigation. The Chinese peasants we met told us that after three decades of hybrid rice development they were as poor as ever.

In some Asian countries where farmers are still growing hybrid rice, it is often only because of government programmes that heavily subsidise it or, as in the case of China and Burma, that leave farmers no other option. Even the World Bank, a long-time supporter of hybrid rice through its funding of the International Rice Research Institute (IRRI), has begun to see how such programmes "distort" rice farming. In a report published earlier this year, it slammed the Philippine government's subsidy on hybrid rice as a major waste of public resources.[4] Yet governments continue unperturbed with their ambitious projects to promote hybrid rice. In Asia and Africa, it is hailed as key to meeting the millennium development goal of food security. Packed within broad co-operation agreements that include oil exploration or agrofuel production, it is also seen as an important component of addressing the impending energy crisis. Developing countries are not the only ones rolling out the carpet for hybrid rice. Field trials are under way in Spain and Italy,[5] and in other European countries through Medrice, the UN Food and Agriculture Organisation's (FAO) Inter-Regional Co-operative Research Network on Rice in the Mediterranean Climate Areas.

TNCs and China's emerging seed empire

China is at the centre of this emergent transnational rice seed industry. Some of the corporate players moving in on rice seeds are well-known transnationals, such as the pesticide and seed giants Bayer, DuPont and Monsanto or the agribusiness titan Charoen Pokphand. The Chinese corporations, operating inside and outside China, may be less well known, but they are pursuing the same path as these larger seed corporations, perhaps even more aggressively. Hybrid rice is indeed their entry point on to the stage of the global seed industry, and they have the backing of the Chinese

1 grain.org/hybridrice/?id=57

2 grain.org/briefings/?id=190

3 *Seedling* January 2007 grain.org/seedling/?id=455

4 grain.org/research/?id=190

5 http://unyurl.com/2k48s3

government's growing international presence to help things along.

Just as Monsanto and the others look to mergers with Chinese seed companies to break into the Chinese seed market, Chinese seed corporations are tying up with local players, both from industry and government, to secure their place in countries outside China. Thus we see a number of smaller companies in places like Indonesia and Vietnam forming partnerships with Chinese companies to sell Chinese hybrids. So far, the most high-profile merger involving a Chinese seed company occurred in July 2007 when France's Vilmorin (the world's fourth-largest seed company) bought 46.5 per cent of Yuan Longping High-Tech Agriculture, one of China's largest seed corporations and its leading supplier of hybrid rice seeds.

Most Chinese companies are tightly linked to, and spun-off from, the breeding programmes of China's public agricultural research system, which often

Selection of corporations selling hybrid rice seeds*

Company	Home	International hybrid rice presence	Alliances, joint ventures, subsidiaries
Bayer	Germany	Brazil, Burma, China, India, Philippines, Indonesia, USA, Vietnam	Granja 4 Irmaos (Brazil), Burma's Ministry of Agriculture, Lu Dan (China), Nong Ke (China), Hybrid Rice international (india), ProAgro (India)
Charoen Pokphand	Thailand	China, Indonesia	Chia Tai (China), PT Bisi (Indonesia)
HyRice Seed Technology	Philippines	Philippines	(A joint venture between Cornworld and East-West Seed Co)
DuPont	USA	India, Indonesia	SPIC-PHI (India)
Origin Agritech	British Virgin Islands	China	Denong Zhengcheng (China), Origina Agritech (China)
Monsanto	USA	India, Indonesia, Kenya, Philippines	Mahyco (India), Devgen (Netherlands/India)
RB Biotech	Malaysia	Malaysia	Sunland (Singapore)
Rice Tec	USA	Brazil, USA, Uruguay	BASF
Shriram Bioseed Genetics (DSCL)	India	India, Philippines, Vietnam	Bioseed Research Philippines
Sichuan Guohao Seed Company	China	China, Indonesia	Artha Graha (Indonesia)
Sichuan Nongda	China	Burma, Ethiopia, Guinea, Vietnam	Burma's military government, Koba Farm (Guinea)
Sime Darby	Malaysia	Malaysia	CAAS (China)
SL Agritech	Philippines	Bangladesh, Philippines	Alliance with Yuan Longping High-tech
Syngenta	Switzerland	China, India, Indonesia, Japan, Philippines	Sanbei (China), Orynova (Japan)
United Phosphorous	India	India	Advanta
Vilmorin/Yuan Longping High-Tech Agriculture	China/France	Bangladesh, Indonesia, Malaysia, Pakistan, Philippines	Marco Polo Seeds (Indonesia, Thailand) Pt Bangun Pusaka (Indonesia), SL Agritech (Philippines), Guard Rice (Pakistan), Aftab Bahumukhi Farm/Islam Group (Bangladesh)

* This table, which will be irregularly updated, will be a constant feature on our blog – http://www.grain.org/hybridrice/

NEW at GRAIN website: hybrid rice blog

http://www.grain.org/hybridrice/?blog

The importance of looking into hybrid rice cannot be overestimated, because of its potential to create a private seed market, mainly the consolidation of corporate control over rice (research, seeds, technology, etc.). Few are working on this issue, despite the fact that farmers are targeted by government programmes on hybrid rice all the time.

For this reason, GRAIN has set up the hybrid rice blog to track this global push, and to share our monitoring in an immediate way. We report on any new developments that we see happening in the corporate landscape, and important developments in countries with hybrid rice. We also aim to emphasise the link between GM and hybrid rice. The blog has an interactive forum where readers are free to post comments, questions and suggestions.

seals deals for its companies through international development agreements. The Chinese Academy of Agricultural Sciences (CAAS), for example, has formed partnerships with governments in Malaysia and Indonesia to set up seed research centres in these countries to serve as the bases for hybrid rice joint ventures between Chinese and local seed companies. Sichuan Nongda, the private arm of Sichuan Agricultural University's Rice Research Institute, has an on-going collaboration with the Burmese government. In Madagascar, China will build a hybrid rice development centre – involving US$1.28 million of government funds – as part of its effort to promote agricultural production.[6] This is one of the ten agricultural technology projects that China has promised to build in African countries, including Sierra Leone, Mozambique, Ghana, Egypt and Nigeria. In Liberia, an "intensive training programme on hybrid rice cultivation techniques", under the China–Liberia Agriculture Technical Cooperation – which President Ellen Johnson-Sirleaf recently heaped praise on – has reportedly inspired the planned construction of an agriculture college next year.[7]

IRRI takes a back seat

Something that stands out in this new push for hybrid rice is that IRRI – the primary institution involved in developing hybrid rice for the tropics – has pretty much disappeared from the scene. In its 2007–2015 strategic plan, "Bringing Hope, Improving Lives",[8] hybrid rice is hardly mentioned. Is IRRI backing away so as not to compete directly with the Chinese, who are moving aggressively to clinch deals to set up hybrid rice research centres everywhere? The TNCs and Chinese companies appear to have taken over this front, and so perhaps there is no further need for IRRI's breeding programmes.

This shows where IRRI really fits within the rampant privatisation of agricultural research: the whole point of IRRI's hybrid rice work was to stimulate a private seed industry. No doubt it has the same template for the rest of its work, such as its GM rice research.

Early this year IRRI struck a new research agreement in Indonesia, including support for developing "improved rice varieties with high yield potential, grain quality, and resistance to pests".[9] It sounded like a resurrection of its GM bacterial blight rice experiment in the Philippines, which was stopped by public protests. Also, ambitious GM research is reportedly under way at IRRI to develop "C4 rice", which supposedly would boost the crop's photosynthetic efficiency (thereby producing more grains), like C4 plants such as maize. And it continues to work on "Golden Rice" – the patented, genetically modified rice variety with increased beta-carotene content, controlled by Syngenta.

The threat continues ...

The ghost of the Green Revolution's high yielding varieties (HYVs) might have long faded from collective memory, but the fear of famine remains for many as unsettling as a poltergeist. On IRRI's website, there is a little counter constantly calculating the ratio between global population (always increasing) and hectarage of arable land (always decreasing). It must frighten many people. Yet at any given point, one can do a simple mathematical computation and find that there would be more than enough land on which to grow rice, if important resources like land and seeds were equitably distributed. For itself, IRRI sits on a 300-hectare campus, houses 100,000 rice cultivars, and comes up with one or two hybrid rice lines once in a while that make no impact on farmers. When will this craziness stop?

The same can be said of hybrid rice itself. The main argument for developing hybrid rice has

6 http://tinyurl.com/2uf9gp

7 http://tinyurl.com/25qv7q

8 http://www.irri.org/

9 http://tinyurl.com/2b8qr