

PADDY

A NEWSLETTER FROM THE SAVE OUR RICE CAMPAIGN

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Editorial

Flooding is not a new phenomenon in India. The western and eastern coasts of India used to experience floods at regular intervals - sometimes devastating, sometimes not. Flooding occurred mostly during the monsoon period, especially during the southwest monsoon along the western coast. Flooding was not restricted to the coastal regions alone, most of the low lying paddy lands (wetlands) used to get all the flood waters from the rivers.

As children we all used to enjoy this one week to one month long flooding of our paddy lands. Families used to get a lot of things like coconuts, timber, etc. from the flood waters. These were the times when children learnt swimming and rowing and most of our schools remained closed. It was like a festival of water and children used to learn a lot about climate, seasons, monsoon and hydrology.

For the paddy farmers the flooding was a boon. The silt which came along with flood waters got deposited in the paddy lands and this added to the fertility of the soil, so a good flood meant good yields. People accepted the natural processes and understood the benefits of these processes and knew how to lead a rich life by making use of these natural phenomena.

They innovated in order to live with nature and one of their best innovations is seed itself. Through selective breeding they developed numerous varieties of paddy which could withstand the floods. And it was so amazing to see these plants grow along with the flood waters. In Kerala we had many varieties like *Vailathur*, *Kuttadan*, *Orkazhama*, *Pokkali*, and *Cheruvirippu*, to name a few. *Vailathur* was of 10 months duration; farmers sowed the seeds in the month of April and then went back to the fields in February to harvest. The rice from the flooded fields is tastier and hence farmers used to keep these varieties for food and paddy from other fields was sold in the market. Similarly, in Tamilnadu and Karnataka numerous such varieties were under cultivation. A variety called *Kattuyanam* can withstand not only flood, but also drought!

Two things happened in between. The engineers and scientists of our country saw this differently and convinced the governments and the society that flooding is a threat to our life and food security. Hence to prevent flooding, most of our rivers were dammed (one of the stated benefits of the dams is flood control apart from irrigation and electricity generation) and in the last 30-40 years we thus stopped the natural flooding altogether. Secondly as part of Green Revolution high yielding varieties (HYVs), which are of short duration and high yielding, were introduced. The end result was that farmers stopped cultivating the traditional varieties which are flood tolerant, especially in regions where intensive agriculture development took place. The attempt of the technocrats and scientists has always been to convert the wetlands into dry lands ostensibly to increase food production and thus to ensure food security. They also brought in irrigation to dry regions and expanded paddy cultivation in such areas. While all these efforts were taken up, no initiative was taken by the government to conserve the unique varieties developed by farmers over generations. These special varieties are available in very small pockets in the coastal areas where for some reasons HYVs have not reached until now.

Now the next threat is already at our door step - global warming! Every body has started talking about it in various forums. This time it could be even more disastrous. More floods, more drought, more salinity, more pest attack, less food and more sick population to feed! The United Nations, developmental agencies and governments are calling scientists to provide solutions to this greatest man-made disaster and this is the beginning of another experiment on people. Every agriculture scientist, biotechnologist and institution is talking about stress tolerant varieties, especially of paddy.

Their strategy is to develop HYVs with flood resistant qualities. The International Rice Research Institute (IRRI) along with the Bill and Melinda Gates

Foundation together with national and state level agriculture institutions in the country have started the field trials. They are inserting genes from the local stress tolerant varieties into the popular varieties including IRRI varieties and trying to popularise it among the farming community. Unlike in the earlier years when IRRI used to provide germ plasm to national and state institutes without any property rights, this time IRRI is asking for a group patent. The patent will be for these participating institutions. Thus, paddy varieties developed, using the centuries old knowledge and continued experimentation by farmers, and research done in our public funded institutions, will have an IPR and farmers will not have any natural rights over it. Kerala has stalled such a project but experiments are going on in many other states since 2008.

The profit seeking corporations know how to use disasters to increase their profits. Our scientific community and governments somehow believe them more than they trust ordinary farmers of this country and their knowledge, which is tried and tested over centuries. This is the tragedy of our times or even of humanity. With all the information available in our hands we again seek for answers outside. The result is more disaster and more profit for a few! Every body loves a good flood!!



TREASURES OF FLOODED FIELDS

by G. Krishna Prasad & Anitha M. -
Sahaja Samrudha, Karnataka

This is an age of new technology where yield performance of food crops is the only characteristic that is being looked into. Here is a story where farmers are struggling to survive with their own varieties that are being conserved for more than four decades.

Farmers in the Varada river belt (Karnataka) have adapted to the fury of the river that flows in Sirsi Taluk. The rivulet, which takes its birth at Sagara, flows through Sirsi for about 11 kms before joining the Arabian Sea. The short journey of the water body wreaks havoc and destroys thousands of acres of paddy fields when continuous rains swell the waterways. This puts at risk at least 30,000 people in 25 villages depending on it. Flooding is a common

phenomenon here, every year. However, it does not mean that the farmers do not grow anything during the flood season. They possess a unique wealth that can grow even in flooded conditions, the varieties of rice that can withstand deep standing water for a long period. Now, when scientists are pondering over developing the submergence-tolerant varieties of paddy, the farmers around Sirsi, Sagara and Sorabha talukas are much ahead of them as they have been cultivating flood-resistant varieties that are suitable to this region. "Flooding is a common phenomenon here, every year, now the farmers have adapted to it. When agriculture is considered as a difficult thing here, the farmers have found a way out by cultivating some of these rare varieties", says Raghavendra Bhat, a resident of Banavasi.

REMARKABLE DIVERSITY

Call it nature's gift or the knowledge inherent in them that these farmers are silently cultivating unique flood-resistant paddy varieties. Over centuries farmers in this region have developed and preserved varieties with care that can survive when their lifeline, river Varada, invades their fields. These flood-resistant varieties of rice hold a significant place in the biodiversity of the area. The Varada basin is a host for deepwater rice varieties like *Neremuluga*, *Nereguli*, *Karibatha*, *Dannavaalya*, *Karijaddu*, *Somasala*, *Kembatha*, *Sannavalya*, *Jenugoodu*, *Nettibatha*, *Kariesadi*, *Dikuni*, *Mullari*, *Budda bhatta* and *Karekal Dadiga*. The most popular among these varieties is *Neregulibatha*, which has proved to be the best deepwater variety since years. It is liked for its vigour, taste and health value. This variety is organically grown using traditional methods and is highly nutritious and in great demand in Kerala and Goa.

Dr Ramesh Bhat, rice researcher, says, "These crops are rare as they remain submerged in the water for more than a month. During my study on paddy varieties I have collected over 22 unique varieties, they have amazing characteristics." Explaining the characteristics of the crops, he said that these are the only varieties that can stay submerged in water for weeks and probably months. "The grass blades rot and what remains is the stalk, which sprouts once the water level recedes," said Bhat.

All these varieties are still being grown in this area, because the much hyped hybrid varieties do not survive the climatic conditions prevalent in this area.

The hybrid paddy varieties being supplied by the government is of little use to the large number of farmers whose fields lie along side the Varada river. High yielding varieties have never been grown in these flooded fields. Devendrappa, a farmer of Yelkundli says that, "The government distributed seeds have failed to survive but the farmers cultivating these rare varieties are harvesting 7-9 quintals per acre. Surprising factor is that this year there were three floods and the duration was long, we thought that the crops would fail, but the miracle is that we had a record yield, these paddy varieties saved us".

EXTINCTION OF INDIGENOUS VARIETIES

Sadly, most of the germplasm that existed in this area has been lost and the collections of the unique flood-resistant rice varieties are fast declining. Yet, the government and agriculture departments have failed to design programmes to support the indigenous rice varieties growing in this belt. Government agencies continue to promote modern high yielding varieties with subsidies; not only are these varieties unsuitable for the region, they also destroy the native biodiversity. Hardly any research and development has been done in the field of deepwater varieties of rice. The research scientists cannot claim to even possess a single deepwater rice variety that is suitable for the region. "The deepwater varieties that are available in the regions were extracted from nature and nurtured over generations in flooded conditions only through the efforts of the farmers. These flood resistant varieties have a significant place in the biodiversity of the area. Research has not been conducted on these varieties in Karnataka and despite the demand for local varieties the government continues to supply hybrid varieties that do not survive, further adding to the woes of the farmers here", says Shantha Kumar of Sahaja Samrudha. He further adds that the agriculture department does not possess any native seeds that are useful to the farmers in this region.

According to Shantha Kumar, *Nereguli* is a significant variety because this is the only variety found in the country which can remain submerged in the water for a long time. There are other varieties found in Bangladesh and Andhra Pradesh which can tolerate floods and grow tall, but will collapse once the water recedes, but this variety remains within and grows fast once the water recedes. Floods and river have become part of the lives of the farmers in the basin.

Motivated by a concern for conservation of these nearly extinct varieties, Sahaja Samrudha has developed breeding practices for farmers for purification and multiplication of the varieties. Documenting the existing practices and the culture associated with these practices has also been undertaken. This approach of working hand-in-hand with farmers has enhanced the development of varieties suitable for cultivation in stagnant water. On-farm participatory trials to characterize and evaluate the rice varieties have been carried out in Yelkundli, Sagara taluk and Mogalli in Sirsi taluk.

THREAT TO DEEP-WATER RICE

Why is the womb, which nurtured thousands of varieties of rice that could withstand water-logging and flooding, now at the mercy of artificially modified varieties? Age-old wisdom, time tested practices and traditional seeds have been given up over the years. In the name of progress, new types of seeds, the HYVs, have been introduced that have better productivity; cultivation practices have changed with the introduction of these, whilst these have not solved the problems of crop losses and famine. Now a new threat to rice looms large with IRRI developing a deep-water variety by introducing a gene called SUB1 through marker assisted selection (MAS) into some of the varieties already in use. IRRI has made no secret of the fact that it plans to make sure that Swarna-SUB1 reaches every corner of India. The very fact that field trials were allowed in Uttar Pradesh, Orissa and West Bengal shows that it has the full support of the government.

Karnataka has its own heritage of 'deep-water rice' varieties that have stood the test of time and survived for centuries. The fury of the monsoons and the regular flooding of the fields that lie on the banks of the swollen rivers have not been able to destroy these varieties; but man's negligence, lack of concern and interference can and have endangered these rare and hardy varieties.

In the face of the mounting pressure from the corporates, how long will these farmers of the Varada belt be able to hold on to their heritage?



THE KURUVAI EXPERIMENT IN 2008

Balaji Sankar is an organic paddy farmer who farms in Melanallur village, Mayavaram in Tamil Nadu.

We wanted to see how our land responds to hybrid seeds and *kuruvai*, so we did a trial of some hybrid (brought in by my caretaker Selvaraj - I don't know what variety it is) and planted 1.67 acres. All we did was to raise the seedbed and plant 20 day old saplings with an expenditure of around Rs 3000 / acre. The cost of weeding was Rs 180 / acre. We did 'abuse' the motor & ground water by flood irrigation - but our water consumption was almost 1/3 of the neighbouring chemical farms.

And then we just did nothing! Watered the seedlings and then harvested in around 110 days. For the first time in the history of Nitya Farm we paid harvesting wages in paddy itself (as we couldn't afford it earlier). The gross yield in these 1.67 acres was 41 bags of 60 kg each, which works out to 2460 kgs of paddy or 1475 kg/acre with zero inputs. Of which 10 bags were paid out as harvesting wages. The remaining 31 bags = 1860 kg. Even selling this at the government minimum support price (MSP) of Rs 10/kg it works out to 18600 gross - 5000 expenses = Rs 13600 Net. If as usual we convert this to idli rice then we should realize around 1200 kg of rice which in today's market price of Rs 20 / kg would fetch Rs 24000 This would realize a net of 12000/acre.

So paddy is really a cash crop, if we know how to cultivate and sell it!

I am convinced that an average family of 4-5 members living in a village with 4 acres of land can lead a really luxurious life. With 2 acres they can live a self-reliant and sufficient living. Yet a lot of my neighbours with 3 acre and 4 acre holdings cannot make ends meet and go for daily wages in other farms for their family upkeep or send their daughters to Tirupur as helpers in textile mills and hosiery units.

All that our industrial growth and development has achieved is to sow discontent in self-reliant villages and break the social fabric so that landowners have become labourers and got into debt and the environment is raped by the so-called growth promoters.

Visit <http://earth.org.in/index.php> to read more about Balaji's experiences.

GENETICALLY ENGINEERED RICE - PART IV:

THE DRIVING FORCES BEHIND GE RICE

by Karsten Wolff

When looking at who is behind the drive for genetically engineered rice, a mixed picture emerges. The interests, motivations and actors are similar to those of the Green Revolution, with a few new additions, such as pharmaceutical and bio-fuel production. As during the Green Revolution, concern is being expressed as to how to feed growing populations. Everyone involved is pointing at the predicted population figures of 8.9 billion by 2050 while some refer specifically to the numbers suffering from hunger and malnutrition today. For both scenarios, the main solution being put forward is technology and the scientific community is primed to deliver this solution via genetic engineering.

THE RACE FOR THE RICE GENOM

The project to obtain the complete DNA sequence of all the genetic information (genome) of rice was started by Japan in the 1990s. Eventually, in 1997, the International Rice Genome Sequencing Project (IRGSP) was launched as a public project. It was widely recognised that having genetic information on rice also opened up a gateway for all other cereal food crops. Furthermore, the reward was not only knowledge; patent protection could also be secured. For these reasons, private companies quietly joined in the race.

In April 2000, the agro-biotechnology company Monsanto announced it had completed its own draft sequence for the rice genome, which still had numerous gaps. Though offering to share the information, control over the intellectual property remained largely with Monsanto. In January 2001, another draft version was announced by the agro-biotechnology company, Syngenta.

In December 2002, the IRGSP finally announced the completion of a high quality draft sequence, which was finalised and published by August 2005. In the meantime, Chinese scientists had worked on the sequence of *Indica* rice – the main rice variety in China and many Asian countries. In April 2002, their draft sequence was published in *Science*.

COMPANY INVOLVEMENT

Transnational biotechnology companies that have clearly stated their interest in marketing/commercialising GE rice are Monsanto, Bayer, Syngenta and the seed company Delta&Pine Land.

Monsanto, a US-based agro-chemical corporation and world number one seed company, has developed both herbicide-tolerant as well as insect-resistant genetically engineered rice. Their Roundup Ready rice (RR rice) is tolerant to Monsanto's glyphosate-based herbicide Roundup. Since 1998, about 50 field trials have been carried out in the US. In India, Monsanto is also known as Mahyco-Monsanto Biotech (MMB) or in the form of its seed partner, Mahyco (Maharashtra Hybrids Seeds Co Ltd). Having already commercialised its Bt cotton (Bollgard) in India, Monsanto wants to commercialise its Bt rice first in India. Field trials are presently taking place in a number of states, provoking widespread objection. Another food crop genetically engineered for insect resistance using Bt toxins is Bt-okra (lady's fingers), which is also undergoing field trials.

Bayer CropScience, with headquarters in Germany, took over from Aventis CropScience, which used to be AgrEvo. It is a company haunted by GE contamination scandals. The first was 'Starlink', a genetically modified Bt maize not approved for human consumption but grown as animal feed. This maize found its way into the human food chain on a global scale in 2000 and 2001, including in European Union countries and Japan. Products had to be withdrawn from the shelves internationally. In 2006, one of Bayer's genetically engineered herbicide-resistant rice strains (LL601) contaminated rice crops in the USA, severely affecting its international export market. Though only ever grown in trial plots, it managed to contaminate two top rice varieties grown in the US, namely Cheniere and Clearfield 131. It actually contaminated rice supplies to Europe and other countries.

Syngenta is involved with Golden Rice, especially Golden Rice 2 (GR2). In 2000, Syngenta (then Zeneca) emerged as the main actor with regard to patents and licensing agreements for the original Golden Rice (GR1). Part of the agreement reached was that "resource-poor farmers in developing countries" would not have to pay royalties or technology fees as long as they generated less than USD10, 000 annually.

The original Golden Rice was mostly designed and created in public laboratories. The levels of beta-carotene (Pro-Vitamin A) produced by this Golden Rice were very small and widely criticised. Golden Rice number 2 (GR2) is based on the original design, but uses fewer or different genes and is said to produce higher levels of Pro-Vitamin A than its predecessor. GR2 was solely developed by Syngenta, which used the attention of World Food Day on 16 October 2004 to announce the donation of its GR2 to the Golden Rice Humanitarian Board, under the same conditions and licensing terms as the previous Golden Rice.

Experience and data gathered with GR2 so far seem to indicate that the beta-carotene levels achieved in the harvested grain drop quickly during storage, thus not offering the expected improvement. Given the true causes of Vitamin A deficiency (VAD), GR2 offers no more effective an answer to VAD and malnutrition than the original Golden Rice. The following commentary from the book *Hungry Corporations* therefore still holds true: "The problem is not a lack of foods containing vitamin A and beta-carotene, but a lack of access to these foods. It is 'hidden hunger', including the loss of knowledge about the relation between diet and health, and the consequences of eating only rice. Furthermore, Vitamin A and beta-carotene are fat-soluble nutrients and can only be properly absorbed in the presence of oil and other components. Children who suffer from diarrhoea due to dirty water and poor hygiene conditions will not be able to take up or retain nutrients like Vitamin A from their food."

Many plants are sources of Pro-Vitamin A, especially carrots, yellow cassava, yellow sweet potato, mangoes and apricots (also in dried form), leafy greens such as spinach, coriander, radish leaves, and, most of all, red palm oil.

As mentioned above, Syngenta has itself sequenced the rice genome, created its own database and secured its own patents. It has also developed GE rice varieties and conducted ten field trials in the US: six for herbicide-resistance, two for insect-resistance and two for seed composition. *(To be continued)*



PADDY FESTIVAL AT ADIRANGAM



The first Tamilnadu State Level Paddy Festival to create awareness about the importance of the traditional paddy varieties was organised at the CREATE organic farm at Adhirangam of Thiruvarur District on May 31st. More than 1000 farmers from across the state assembled. Each farmer was given two kilogrammes of seeds from six traditional paddy varieties - Jeeraka Samba, Kavuni, Kushiadichan, Kattuyanam, Aruvatham kuruvai, Poonkar, Sadar and Manjapponni with an agreement that they would return four kilogrammes of the same paddy seeds next year.

Organised under the auspices of the Save Our Rice campaign, the festival was supported by numerous organisations like CREATE, Adhirengam Panchayat, Indhia Iyarkal Ushavar Iyakkam, Ottrumai Arakkattalai, Nedumbalam, Kaveri Human Resources Development Centre, Women Coordinating Committee TN, G.T. Foundation - Thiruthuraipoondi, Kaveri Farmers Protection Union, Waves Foundation-Thiruvarur, Kudumbam - Thiruchi, Tamilnadu Consumer Protection Council- Adhirangam, Tamilnadu Consumer Protection Movement -Thiruthuraipoondi, FEDCOT, and Farmers Unions Federation United, Thanjavur.

An exhibition displaying samples of traditional paddy seeds and vegetable seeds from Karnataka and Auroville, Pondichery was inaugurated by the Thiruvarur District Collector Sri.M.Chandrasekaran in

the afternoon. CREATE also displayed 41 samples of paddy seeds traditionally grown in the Cauvery Delta Districts.

Dr. Nammalwar, who addressed the farmers, highlighted the aftereffects of the Green Revolution and urged the agriculture experts to identify traditional paddy varieties, which would be able to protect the soil, water and atmosphere. He advised them to raise green fodder in their fields for feeding cattle and also asked the farmers to realise the importance of food free of poison, which should be produced only through organic farming. Many organic farmer scientists narrated their experiences while undertaking organic farming. Organic farmers and organic farming activists demanded that the government should encourage organic farming by giving subsidies directly to the farmers instead of fattening the chemical fertilizer industry. Many farmer scientists demanded that they should get remunerative prices for their agricultural produce.



Sri. Chandrasekaran, Collector, Thiruvarur District exhorted the farmers to take organic farming with pure traditional paddy seeds among the people as a people's movement. The collector also assured the farmers that the Self Help Women Groups (SHG) of the district would be involved in taking forward organic farming. Further he told the farmers that he would arrange to sell their

produce through the SHGs. He has also assured the farmers that their produce would be used in the anganwadis, school hostels and government hospitals in the district.



MESSAGE FROM DR. NAMMALWAR

The rice festival was celebrated in Thiruthuraipoondi at the campus of CREATE on 31 May 2009. Thanal of Kerala and CREATE jointly organised the festival. Farmers of Tamilnadu assembled in large numbers. In the right sense it was a festival of south India in which farmers and NGOs from Karnataka, Kerala and Tamilnadu participated.

Voluntary participation of farmers in large numbers brought interest and enthusiasm among the persons like me. This is the first time we saw 1200 persons coming in search of indigenous seeds of rice. It made me recollect the All India conference on "Save Our Rice" organized by Thanal at Kumbalangi in Kerala in 2004. In the real sense Thiruthuraipoondi festival is the phase II of the rice campaign. In 2004 there was not much awareness. In Tamilnadu our active involvement was in the line of organic agriculture connected with all aspects of food security. It was the Kumbalangi conference that talked about the threats to rice and the need for protecting our seeds - our culture.

Since then with guidance from people who have great experience in maintaining seeds, we collected more than 40 indigenous varieties of rice and now multiply these seeds. A widely circulated fortnightly magazine - pasumai vikadan - publicised these activities. What we have achieved at present is the cumulative effect of the campaign. Both in Kerala and Tamilnadu we were able to make inroads in to the plans and programmes of the government.

We need to look at this rice festival as a silent revolution. In producing our seeds, farmers are contributing to national food security and the right of the consumer to choose the food. We are sure there is a need to carry forward the Kumbalangi torch for many more long years. At the same time, the achievements of our past efforts provide energy and enthusiasm for those who are involved in the campaign.

SEED BANK INAUGURATION

by Krishna Prasad - Sahaja Samrudha, Karnataka

Enhancing seed savers' role in our agriculture and reviving our age old practices of seed exchange will increase conservation of agro-biodiversity. Setting up community seed banks will initiate recovery and restoration of local plant genetic material and utilisation of plant genetic resources. This is a traditional practice, which is instrumental in making the seeds available to farmers. It is in this regard that the Save Our Rice Campaign in collaboration with Bhoomi - Sustainable Development Society organised a Seed Fair and the inauguration of Community Seed Bank (CSB) on 5th June 2009 at Yadehalli, Sakaleshpur taluk, Hasan District (in the Malnad region¹). About 150 farmers from Sakaleshpur and surrounding taluks, the local MLA and department officials and scientists participated in the event.

Bhoomi - Sustainable Development Society is an organisation functioning in Malnad region and has initiated a rice conservation programme in Yadehalli and the neighbouring villages and more than fifty farmers are involved in conservation of paddy varieties that are specific to Malnad region. The organisation has been able to revive a few varieties – *gumsale* (a scented variety with low water requirement and good fodder yielding capabilities), *holesale chippiga* (variety used to make *madakki* [puffed rice]), *kyasakki*, *alur sanna*, and *kiruvan*.

The CSB functions as a facility for meeting seed requirements of farmers in the village area, and to enhance and keep alive the tradition of nurturing diversity. The CSB establishment therefore maintains and improves local crop varieties and the seeds that are distributed to farmers and collected back in double quantity soon after harvest.

¹ Malnad is the rice bowl of Karnataka and home to some of the popular rice varieties. For generations, farmers in this region have been growing different varieties of traditional rice like *Rajmudi*, *Kyasakki*, *Chppiga*, *Alur sanna*, *Gamsale*, *Netti bellakki*, *Sampige*, *Rathnachoodi*.



WAYANAD RICE CAMPAIGN GAINING MOMENTUM

The paddy festivals and exposure visits to the organic paddy fields in Karnataka and Tamilnadu, as part of the rice campaign, gave the paddy farmers of Noolpuzha panchayath in Wayanad an idea about the rice diversity and its importance to rice culture and food security. After the Wayanad paddy harvest festival in December they gathered along with the staff of South Malabar Gramin Bank , who are interested in the rice campaign, and discussed about starting a rice diversity based organic farming activity in the panchayath . They came up with the idea of leasing 3 acres of land and starting a collective organic farm. They got the land in March and planted a bush type of cowpea in April to improve the soil. They had a good harvest of the beans and they shared the beans with neighbours and friends. They dried and kept some 10 kg of the beans in a traditional manner to be used later when they begin transplanting.

They have sown four traditional paddy varieties from Wayanad and these will be transplanted in the middle of July. They are planning to organise a large event during the transplanting to create awareness and interest among a larger cross section of farmers.



NOW IT IS BAYER TESTING GM RICE IN INDIA!

After reports of violations by Mahyco during field trials of its Bt rice in Jharkhand last year, yet another report about field trials of GM rice has come to light. Now we have Bayer CropScience field-testing its LL62 rice, which is genetically modified (GM) to be resistant to Bayer's own herbicide glufosinate. The field trial is happening on a company-owned research farm in the village of Chinnakanjarla, about 45 kilometers from Hyderabad in Andhra Pradesh.

End of June, ten Greenpeace activists raided the field trial of Bayer CropScience, planted five scare crows and painted the words 'Bio Hazard', and held the message "Bayer, Hands off our Rice" in English.

Along with the herbicide tolerant (HT) rice, farmers are supposed to spray the herbicide glufosinate.

THE SAVIOR OF SCENT

A Poem By Dr Balaram Sahu

Green paddy fields are stretched
Right up to the hill
Blue sky pours its best scents
For a heavenly feel.

When the autumn starts to fade
Fragrance spread to air
And I always love to spend
Some moonlit nights there.

I listen to the music of flowing water
From one field to the other
I smell the scent of growing rice
To cure the malady of bother.

The rice tract is very famous
For many scented breeds,
Tribal are the real savior
And keepers of these genes.

Tribal stores their scented rice
With utmost love and care,
They never mix any pesticides
To retain the aroma there.

They bring green leaves of lotus
And dry well under shade
The scented rice are packed in bins
From the lotus leaves they made.

Dried leaves of lovely lotus
Tell this wonderful tale
Insects are also warded off
And scent is saved very well.

Glufosinate will be phased out in the EU and thus soon be banned due to serious health and environmental risks. Glufosinate (trade name Basta in India and Liberty in the EU and USA) is classified in the EU as toxic for reproduction, category 2 (R2) it is teratogenic meaning it can also cause birth defects.

Bayer is currently seeking approval for this rice in Brazil, South Africa, India and the Philippines. Ironically EU has asked the experts of the Standing Committee for Food Chain and Animals' Health to allow the sale of Bayer's LL62 GE rice for consumption, but not cultivation. Even though it has been approved in the US, American farmers have been reluctant to plant it due to their fear of losing export markets.

Adapted from Deccan Herald, June 23 and Greenpeace publication "Bayer's double trouble"



MARKER ASSISTED SELECTION (MAS) AS PANACEA FOR DROUGHTS AND FLOODS!

A flood-resistant rice variety called the Swarna-Sub1 has been developed by the scientists of IRRI. The rice is capable of staying submerged and dormant for 15 days under water and has been bred by transferring the gene 'sub1', which carries flood-tolerant qualities, from a low yielding paddy variety from Orissa into the high yielding variety 'Swarna' through marker assisted selection (MAS). Scientists have said that this paddy, which was under research since many years, will come into the market in 2010.

The report states that the Swarna-Sub1 was field-tested in November 2008 in Bangladesh, West Bengal, Uttar Pradesh and Orissa, and the plants recovered even after 15 days of flooding while the non-Sub1 varieties perished.

IRRI has passed on the Swarna-sub1 variety to national organisations in South Asia, including the Bangladesh Rice Research Institute (BRRI), and the Central Rice Research Institute (CRRI) in Orissa, and Narendra Dev University of Agriculture and Technology in Faizabad, Uttar Pradesh, for testing and refinement. CRRI released the Swarna-Sub1 rice in May in Orissa and is waiting for approval from the Central Variety Release Committee for its release in other states.

Adapted from Financial Express, April 21, 2009 <http://www.financialexpress.com/news/floodproof-paddy-in-indian-fields-by-10/449255/>



Using the same marker assisted selection process, the Central Rice Research Institute (CRRI) has developed a drought-resistant variety, which they say is suitable for rain fed areas that have water problems in Jharkhand, Bihar and West Bengal. The rice called 'Sahabhagi' was developed by CRRI and the director said that, "the new variety, to be released soon after having been subjected to three years of trials in different parts of the country, can grow with little water and fetch about 3.5-4 tonnes of paddy per hectare".

There are many indigenous rice varieties in Asia which are stress-tolerant and there is hardly any research or work being done to identify, grow or propagate them and they are progressively being lost. IRRI and others connected with this research are quick to say that this is non-GM rice. However, issues related to gene transfer, patent rights, inability to reuse seeds would continue with this technology too.

Adapted from <http://www.zeenews.com/news539932.html>



PEASANT MOTHERS IN PHILIPPINES DEMAND LAND ON MOTHER'S DAY

On May 10th, Mothers Day, Philippine peasant mothers danced the Curacha (originally a courtship dance) with a militant twist, in front of the Philippine congress demanding the enactment of a Genuine Agrarian Reform Bill (GARF), that provides free land to landless peasants, grants land rights to women farmers and sufficient support services for them to make their lands productive, and protesting a bill which would allow 100% foreign ownership of agriculture lands. Almost 20 landless peasant mothers who identified with Amihan, a national peasant federation of peasant women, performed the symbolic dance in the militant tradition of Mothers' Day in the early 1900s.

Adapted from a press release by Amihan (National Federation of Peasant Women in the Philippines), 10 May 2009.



SPURIOUS RICE IN ALAPPUZHA, KERALA

An unknown variety of rice has been brought into the country from Vietnam and cultivated in the Viyapuram seed production centre in Alappuzha, in the rice bowl of Kerala. It is said to be the Taiwan Golden Rice, which was brought into the country without necessary import permits. A professor from the University who is investigating the rice said that it seems like a japonica variety, which is grown primarily in Japan, Taiwan and China, and used for preparing special rice dishes. Agriculture scientists are investigating the rice and said that such introduction of varieties without quarantine could result in the release of new pathogens, diseases and could affect biodiversity adversely.

Adapted from <http://www.thehindu.com/2009/05/07/stories/2009050754900500.htm>



PADDY ART IN JAPAN

Absolutely riveting images depicting Napoleon and a Sengoku-period warrior, both on horseback, are emerging in a pair of paddy fields in Inakadate village, 600 km north of Tokyo. The large images are not visible from the ground and can only be viewed from a 22 metre high mock castle. They have been created by precisely planting four traditional varieties of paddy with different coloured leaves.

In the early 80s during a road building project, a few paddies were dug up, which archeologists dated as 2000 years old. This impressed the people in the village who decided to do something to revitalize their ancient rice culture. Thus in 1993 rice paddy art began as a rice revitalization project. During the first nine years the village office workers and farmers grew a simple image of Mount Iwaki in Aomori Prefecture. In 2005, an enormous period picture, spreading over 15000 m², was painstakingly created.

This beautiful and unusual art form is catching on in other rice growing areas of Japan with paddy art popping up in paddy fields in various villages. This transient show ends in September when the art bounty is harvested for food! Check out the websites below for amazing visuals of paddy art.

Adapted from <http://www.dailymail.co.uk/news/worldnews/article-1198381/Bizarre-spectacle-giant-crop-murals-covering-rice-fields-japan.html> & <http://search.japantimes.co.jp/cgi-bin/fl20070826x1.html>



50 YEARS OF IRRI IS ENOUGH—GIVE US BACK OUR RICE SEEDS!

As part of the Year of Rice Action (YORA), which began in April 2009 and will culminate in April 2010, along with the 50th anniversary of the International Rice Research Institute (IRRI), 35 organisations including PAN AP, Grain, and various farmers and consumers groups in Asia, have endorsed a joint statement against IRRI.

Amidst a food crisis, with the number of hungry reaching a billion, and a looming rice crisis, IRRI can't escape its responsibility, the statement asserts. 50 years of IRRI policies in Asia have led to farmers being left at the mercy of transnational corporations with these companies controlling seeds. In addition, their anti-farmer policies have led to degradation of soils, environmental and health damage and ever increasing usage of pesticides and fertilizers accompanied catastrophically by increasingly resistant varieties of pest outbreaks.

IRRI's research priorities have led to the narrowing of genetic diversity in rice due to its faulty 'lab to land' and top-down approach. Thanks to IRRI's various collaborations with transnational corporations, control over rice seed has passed to these companies from small farmers and the latter have become entirely dependant on the former for seeds and inputs. The organisations (who have signed the joint statement) all of whom work in Asia with rice farmers and consumers have unambiguously stated, "50 Years of IRRI is Enough! 50 years of Green Revolution, yet our food systems are in crisis with poverty and hunger rising across Asia. New technologies and modern varieties are clearly not the answer. The best thing IRRI can do for rice is to close down and give the seeds it has collected back to the farmers. We need food systems based on small farmers' control over seeds, land, water, and energy. We need them now. Not another year of IRRI."

More information on YORA at www.panap.net/yora



DEVELOPMENT OF SYSTEMS OF WET RICE GROWING

A History of World Agriculture –from the neolithic age to the current crisis- Marcel Mazoyer & Laurence Roudart (Translated by James H. Membrez)

“In the humid tropical regions , which receive several metres of rain per year, flooding rivers, water from runoff or even rainwater, periodically submerge valleys and low lying areas. It is in this type of environment that wet rice –rice that sprouts in flooded land- began to be cultivated more than 6000 years ago in several monsoon regions of Asia from India to Southern China. The cultivation of Asiatic rice (Oryza Sativa) next spread to all of the tropical and sub-tropical regions of Asia, and then to the hot temperate regions of Asia, Europe, and America. On the other hand, around 3500 years ago another species of rice of African origin (Oryza Glaberina) was domesticated in the central delta of the Niger...

Natural lakes: At the beginning, wet rice was cultivated in areas that were naturally submerged several months per year. Varieties of floating rice are particularly well adapted to these lakes, which have an uncontrolled and thus variable level. In fact, their stalk can grow by several centimeters per day as the water rises reaching four or five metres in length and curling over when the water level falls.

Rice paddies: Apart from natural lakes, wet rice growing expanded by the establishment of artificial lakes, due to the construction of small basins, or rice paddies, formed from a piece of relatively flat land surrounded by a earthen dike of a few dozen centimetres in height. Beyond simple isolated paddies, the complete development of more widespread land took the form of a grid pattern of dikes separating contiguous paddies, with naturally flat or leveled bottoms, spread out along the contour lines.” (Pages 134-135)



painting by: Ambareesh. S (10 years old)

BOOK POST – PRINTED MATTER

***Editors' Note:* please send us poems, stories, rice traditions and other material. If you have a rice related event coming up or if you have an interesting report on rice events already conducted or on policy or new practices. Please do send us the same in word format with pictures, at paddyeditors@gmail.com.**

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