PADDY

A NEWSLETTER FROM THE SAVE OUR RICE CAMPAIGN

NO. 11&12 JULY 2011

Editorial

Pesticides on Paddy - How long will we go on like this?

Whenever our little children savour their daily lunch of rice, a staple food without which sustenance is not possible in this part of the world, one can feel a fear creeping in. How much pesticide are they consuming in one lunch? What all kinds of pesticides are they eating? How dangerous are these pesticides? How will it affect their health?

The tragic impact of Endosulfan on children in Kasaragod and the impact of pesticides on children living in and around plantations across the world, are still not known to many. But those who know flinch at the thought that even the rice they eat and feed their children could have enough pesticide residues to cause slow poisoning. For that matter it is not just little children that we need to be worried about, all of us are consuming enough pesticides to make us susceptible to a range of diseases –evident in the rampant increase in cancer, birth defects, neurological problems and so on.

A Professor in the Kerala Agriculture University was recently telling us about Basmati rice: It is the costliest, and one of the most exported rice varieties of India. Basmati is a must for our Biriyani, Fried Rice and Ghee Rice...and many of our exotic rice based Kheers. The Basmati growers stop at nothing to achieve successful harvests year after year. The result, Basmati rice happens to be one of the most pesticide contaminated crops, he said. This was revealed in a study by the All India Coordinated Research Project (AICRP) on pesticide residues. He said, "every packet of Basmati rice that we tested had pesticides much above the Maximum Residue limits (MRLs)."

Our own non-basmati rice growers are no different. Surveys conducted by us (Thanal team) some time back in the kole lands of Thrissur revealed a shocking scenario (details in PADDY April 2009)[1]. There is a package of practices for pesticide use recommended by the University. On the ground it was not being followed. The Agriculture Department has qualified officers who are supposed to advice farmers to follow pest control methods. It is a joke, because no farmer ever bothers to ask them for advice. The pesticide dealers are the main source of information for the farmers, and the pesticide companies have their agents, who directly sell pesticides to the farmers and the farmer societies, and most of these pesticides have neither been tested for paddy, nor are they registered for such use. It is a dangerous free for all in this sector.

While this is the situation on the farmers' fields, the regulatory system at the Central Insecticides Board is also in an equally dangerous state. This total collapse

Courtesy:
Sunder kenaje
Bathada loka book

is best demonstrated by one simple fact – In 2002, a question was asked in the Indian Parliament as to how many pesticides are used in India that have been banned in other countries. The answer was 33. The question was repeated in 2010, and the answer was 67! In the last 8 years, countries across the world have found that 34 more pesticides are hazardous enough to be banned. But our Indian regulator does not think so! In fact today, we have a situation where all the countries globally have decided that Endosulfan, the dreaded killer pesticide should be banned, and India thinks it is safe!

But does agriculture need pesticides? Has it made any contribution that makes it indispensible? The answer clearly is NO. Scientists at International Rice Research Institute in a detailed study across countries discovered that pesticides have not contributed to increase in production, as believed during the Green revolution era. They also found that paddy cultivation actually does not need pesticides. Some of our own scientists, based on experiences from the field, now accept this finding. But, on the ground things are different or the same -with rampant use and misuse of pesticides! A technology – a real Bhasmasura has been unleashed and today it is on its way to kill its own creators.

Now, our scientists are hell bent on unleashing the next set of technologies – the pesticidal plant – Bt Rice – with the Bacillus Thuringiensis(Bt) toxin embedded in the plant itself. Farmers do not need to go to the shop for a pesticide; they get it as a poisonous plant itself. And the scientists who develop it claim it is safe. And this time if we let them have their way, a new era of unleashing a biological poison would be the result, and this time it will be an irreversible disaster.

In this issue of PADDY we focus on pesticides in paddy and also alternatives. The experiences are diverse and have spread to hundreds of thousands of acres. All we need are farmers who decide not to poison themselves and their brethren, and governments that decide to invest time and money into making the much needed change to a pesticide and chemical free agriculture. It is an "ever-green revolution" that this country needs.

-Editors

Endnotes: 1. http://www.thanal.co.in/images/docs/PADDYApril2009print.pdf

Red Rice Mela

Anitha Reddy and Shantha Kumar.C

Rice, in addition to being a staple food and an integral part of social rites, rituals and festivals in almost all Asian countries has medicinal value too. In India, rice is a deeply revered treasure, especially the red rices. Many of the Indian rice varieties have been traditionally used for their medicinal properties in Ayurveda, Unani systems of medicine and by traditional healers since generations. The use of rice in traditional medicine is closely interwoven with its use as food. The coloured rice varieties are often prized for their health properties.

Red rice varieties have occupied a special position since time immemorial. To showcase the nutritious red rice and the diversity of the red rice varieties of the State, "Red Rice Mela" was held in Bangalore at Gandhi Bhavan by Sahaja Samrudha in collaboration with NABARD, Save Our Rice Campaign and Pristine Organics. The two-day mela on May 14th and 15th, 2011 was inaugurated by Dr. Venkatesh Tagat, Chief General Manager, NABARD, Dr. Prema, renowned Nutritionist and women farmers by pouring paddy to symbolize the celebration of rice diversity. The book *"Anna Thinni"* was released by Dr Venkatesh Tagat, and posters declaring "No to GM Rice" (Genetically Modified) were released by the Deputy Mayor.

A study was done comparing red rice varieties with improved varieties and the results suggest that red rice shows great potential as the source of functional phytochemicals to provide beneficiary effects for human health. With this backdrop Sahaja Samrudha began stressing that rice should be consumed for its medicinal benefits. Rice should be a part of the daily diet of people, especially the urban population that avoids eating rice. Rice is a very essential food and red rice or the unpolished rice is loaded with vitamins, minerals and nutrients that are not available in white rice. It is also rich in fibre and essential oils.

The popularization of red rice and its inclusion into our daily diet was the focus of the Mela. Red rice being the store house of nutrients is miles ahead of polished rice but still an ignored food crop. Farmers are into cultivation of hybrid varieties that are high in yield value. Even the government encourages the distribution and cultivation of hybrid rice that is less nutritious. The mela addressed some of the issues pertaining to the neglect of crop diversity in paddy cultivation. An exhibit of about 150 traditional rice varieties was on display and so was a stall of specialty ready to eat foods. More than 5000 people visited the mela and 7 tons of rice worth three lakh rupees was sold.

Pesticides and Paddy

by Usha S .

In last January a paddy farmer from Vidarbha in Maharashtra committed suicide because of his mounting debt and inability to sell his harvested paddy. In 2010 many paddy farmers in Orissa also committed suicide. Even in Kerala some paddy farmers killed themselves! In the seventies the picture was very different, especially in Kerala and Tamilnadu where paddy farmers were in the forefront of the society. Many government employees even resigned their jobs and took up paddy cultivation. Paddy was a socially and economically valued crop.

Paddy is also a cultural crop. In India we have a long history of paddy cultivation, with locally adapted varieties and practices, trying to feed the burgeoning population. But the colonisation and the two world wars led to a lot of social uncertainties and economic collapse and the rural people had to pay a big price. So naturally independent India had to think of her food security, food self sufficiency and stop the import of food. The policy makers and political and social leaders sought ideas from the scientific community and technocrats and thus the idea of adopting Green Revolution dependent on irrigation and other technological breakthroughs to increase production, was born.

HYVs and pesticides

The Green Revolution was launched in India in 1966 with the introduction of the high yielding paddy seed IR-8 from the International Rice Research Institute (IRRI), Philippines. This was also the first International Year of Rice, launched by Food and Agriculture Organisation (FAO). IRRI exported not only their newly developed seeds but also the idea of using chemical fertilisers and pesticides in the Asian rice fields. Governments took a lot of effort to teach the traditional farmers the idea of increasing productivity as well as the new methods to achieve that. Various strategies were used, starting from free supply of chemical fertilisers, subsidies for chemical pesticides, to giving loans and other support to only those paddy farmers who adopt these technologies.

When farmers started cultivating HYVs they realised that these varieties are susceptible to pests and diseases. Scientists came up with the idea of spraying chemical pesticides to save the crops from pests. In the beginning agriculture departments organised demonstrations of pesticide spraying and pesticides were distributed by the department through its extension machinery which was followed by the opening up of pesticide shops in every nook and corner of the country to make them easily accessible. The pesticides were also subsidised by the government and hence very affordable. Within a few years farmers realised that the pesticides were becoming ineffective and they tried higher dosages and newer chemicals and thereby creating opportunities for more pesticide companies. They sold different varieties of pesticides directly to the helpless farmers. This resulted in more and more pest out breaks and pest resurgence. The chemical pesticides could not eliminate pests; instead they eliminated many predators from the field.

Pesticides in Paddy

The pesticide saga in paddy began with DDT, from DDT farmers moved to endrin, folidol, endosulfan, monocrotophos, chlorpyrifos, quinalphos, furadan, karate etc. All of them are either highly persistent, highly toxic to all life forms including human beings. The list is long!

Rice stands next to cotton in terms of consumption of chemical pesticides in India. As per statistics on an average paddy cultivation uses 17% of total pesticides used in the country. Why does paddy, the most

Various governments adopted different strategies to expand this revolution. In Philippines up to 1981, government loans were given solely to farmers who agreed to plant one of the ten government HYVs. The Kenyan government forbade outreach workers to teach local farmers how to make compost, and thus promoted the use of chemical fertilisers. In Iran during the 1970s large land owners who mechanised were exempt from a land reform act. These were all part of the tremendous push to adopt Green revolution technologies as rapidly and widely as possible, in the process decimating knowledge systems and tried and tested practices which existed for centuries or more.

important food crop of the country, need so many pesticides to give a good harvest? In Punjab, Andhra Pradesh, Tamilnadu, Kerala, where ever paddy is cultivated extensively (two crops a year) with irrigated water and HYV seeds the situation is the same. Many of them use the same pesticides. What has been the effect of this rampant use of pesticides in paddy fields? Nothing less than a nightmare come true with detrimental effects on farmers health, ecological devastation of rice paddies, loss of aquatic life , and above all increased pest outbreaks!

Numerous studies have revealed the detrimental effect of pesticide use on farmer health. A recent study from Thanjavore in Tamilnadu by IIT Chennai brought out the acute effects of various pesticides on farmers health. The conclusions from this study is as follows[1]

"Use of pesticides in the agriculture sector poses a serious environmental and public health problem. The relationship between the extent of pesticide-use and signs and symptoms of illnesses due to exposure among farmers of Thanjavur District (South India) was assessed. 631 farmers were interviewed using pre-tested interview questionnaires during a cross sectional survey (537 men and 94 women). 433 (68.6%) farmers (of whom 4 were women) sprayed pesticides by themselves and therefore were directly exposed to pesticides. More than 75% of farmers used either "moderately" or "highly hazardous" pesticides. 88% did not use any form of protection, while handling pesticides. About 50% of sprayers mixed different brands of pesticides, many of which were substitutable to each other. 56% of farmers obtained information on pesticides from retail shop owners. Farmers reported the following acute signs and symptoms: "excessive sweating" (36.5%), "burning/ stinging/ itching of eyes" (35.7%), "dry/sore throat" (25.5%), "excessive salivation" (14.1%). These signs and symptoms had a higher prevalence among the sprayers. ....There is need for creating more awareness among the farmers and authorities in enforcing and ensuring the use of protective gear while handling pesticides."

The modern green revolution farms produce on an average 3 tons of paddy per hectare, but the traditional Indian farms grow a mixed crop and do crop rotation and through that they easily produce at least 15 tons per hectare. In a document titled 'Towards a New Green Revolution' produced for the 1996 World Food Summit, the FAO claims that 'the gains in production were dramatic; world cereal yields jumped from 1.4 tons per hectare in the early 1960s to 2.7 tonnes per hectare in 1989-91. Over the past 50 years, the volume of world agricultural production has doubled and world agriculture trade has increased three fold. Between 1970 and 1990 fertiliser application in developing countries shot up by 360% , pesticide use increased by 7-8% and the land under irrigation increased by one–third.

The cancer epidemic in the heartland of Indian Green revolution, Punjab, is extensively documented. Two recent research reports from Punjab, in addition to the existing evidence over the years, about the link between pesticide use and incidence of cancer have prompted the state government of Punjab to set up a cancer registry program in the state. A recent study from Punjabi University found that there was high rate of DNA damage and fragmentation among farmers using pesticides thereby increasing the chances of cancer and chromosome mutations. 36% of blood samples of farmers occupationally exposed to pesticides showed DNA damage and cotton, paddy and wheat growers were found to be the worst affected.[2] Another study conducted by a committee headed by J S Bajaj, vice-chairperson of the Punjab State Planning Board, in 17 villages in South West Punjab, found extensive contamination of drinking water with pesticides and heavy metals [3]

Not only farmers' health but also the whole ecosystem becomes burdened with pesticide residues as in the case of endosulfan. Rice paddies were a great source of fish, snails, crabs and other biota. These were the main source of protein for the rice eating populations, especially the poor. Most of these resources got wiped out in the process of increasing paddy production. In regions where sustainable paddy cultivation or non pesticidal management (NPM) is implemented, farmers admit that these valuable resources are coming back.

The disappearance of frogs from the paddy fields is by now well known and it's after effects are being talked about even by ordinary people. Frogs are known to be excellent indicators of ecosystem health because the thin skin of the amphibian makes it susceptible to environmental contaminants, particularly agricultural

chemicals. Research has established that many insecticides act as endocrine disruptors, inducing feminizing effects and severely affecting frog populations. In some studies it was also revealed that organs of frogs exposed to pesticides were malformed.

Continued and excessive use of pesticides in paddy fields has been reported to cause pests out break as well. Brown Plant Hopper (BPH-appropriately called the Green Revolution pests) outbreaks due to insecticides have been recognized for many years. Kenmore (1980) reported this in the Philippines and others have described and quantified the ecological impact of insecticides to rice arthropod communities (Heong and Schoenly 1998). The importance of these natural enemies was emphasized by Ooi and Shepard (1994) and over 100,000 copies of "Friend of the Rice Farmer: Helpful Insects, Spiders and Pathogens" by Shepard, Barrion and Litsinger (first published in 1987 by the International Rice Research Institute) have been printed and distributed in over 25 non-English languages.

In a recently concluded workshop in Singapore , organised by Ramsar Convention, it was reported that unbridled and unregulated manufacture and use of pesticides in Asian countries without inadequate farmer education has led to a situation where pests are thriving and laying to waste vast tracts of Asia's paddy farms."[4]

Nevertheless, majority of the governments and international agencies have neither taken cognizance of these facts nor made appropriate course correction.

A Glimpse of sustainable alternatives

IRRI which was one of the leading promoters of chemical based paddy cultivation has changed its policy and stance on the use of pesticides. Since the mid 1990s IRRI has said that productive paddy cultivation does not require the use of chemical pesticides. A major study done under the aegis of IRRI concluded among other things that if the economic impact of pesticides on farmer health is taken into account, then natural pest control is the most profitable pest management strategy.

A trial was undertaken in Indonesia When President Suharto issued a Presidential decree to ban 57 kinds of insecticides in 1986 aimed at removing the insecticide subsidies that accompanied the rice intensification program. Insecticide use gradually declined when subsidies were removed. IPM training followed a year or so later. The results were clear and dramatic.

Another glimpse of a different future for pesticide free paddy farming is available in our own country in Andhra Pradesh, where the community managed sustainable agriculture (CMSA) began. Introduced under the aegis of Centre for Sustainable Agriculture (CSA) this initiative focused on eliminating chemical pesticides from the package of farming practices. None of the crops including paddy grown under the NPM program use any chemical pesticide; instead farmers depend on ecological, biological and cultural methods of pest control.

Pesticides, rice productivity, and farmers' health an economic assessment

Overview of conclusions

- Pesticide use for rice will remain lower than for other high-value crops.
- Researchers'/policymakers' perceptions of pest losses are usually higher than farmers' perceptions of losses which, in turn, are usually higher than their actual losses.
- Indiscriminate pesticide use leads to larger pest-related yield losses than not applying pesticides at all.
- Where insecticide use is low, poorly implemented IPM programs could increase the amount of insecticides applied.
- Frequency of application and use of very toxic chemicals increase risks of farmer health damages due to chemical exposure.
- Under normal circumstances, the natural control option is often the economically dominant pest management strategy.
- In the choice of pest control techniques, when pesticide-related health impairments are explicitly accounted for, the natural control option is the best one, even for risk-averse farmers.
- Sustainable IPM programs are location-specific and require community participation in design and implementation.
- Pesticide import, licensing, and pricing policies are essential components of a national IPM program.
- Inadequate and underfinanced research and extension services can seriously limit small farmers' effective use of IPM.

Authored by Agnes C. Rola and Prabhu L. Pingali,
Published by IRRI in 1993
Full report can be accessed at http://dspace.irri.org:8080/dspace/bitstream/10269/240/2/9712200374_content.pdf

CMSA is based on a judicious combination of scientific methods, indigenous practices and traditional wisdom. With integrated pest management as its centrepiece CMSA advocates managing pest populations through understanding pest behavior, improving soil health, increasing diversity of crop systems and using local land races ,replacing chemical pesticides with physical methods and bio pesticides and reducing (and eventually stopping) the use of synthetic fertilizers [5]. CMSA has been ably managed by robust community institutions and able leadership within the community; farmers are mobilized into self help groups, trained through farmer field schools and provided institutional support for credit and value addition. Currently a million farmers are practicing non pesticidal management across an area of 2.5 million acres (1 million ha) spread over 7000 villages in 22 districts of Andhra Pradesh[6] .

Conclusion

In the second week of May many of us participated in a seed sowing ceremony in a tribal village in Kerala along with 35 students. The tribal chief described to us the rituals which they follow during sowing, transplanting and harvest. Children got really enthused since they were seeing it for the first time. Some of the students were from the same district but they had not seen something like this before.

These tribal farmers have been cultivating paddy for generations and they continue to use the same varieties of paddy. They have not gone in to the 'seed replacement' scheme and they have not used pesticides so far. They are satisfied with their heritage seed collections developed by their forefathers. The ritual was to pay respect to this heritage and remember those who developed these varieties from the wild cultivars. They get a satisfactory yield with the application of cow dung and other green manures. They have various cultural methods to control pests as well.

This must be true for most of the indigenous rice farmers of India. But the economists and policy makers are not satisfied and they have not learnt from the tragedy caused by the first green revolution. They have not realised that rice farmers have lost their position in the society and this is not because they did not produce enough rice. In fact they produced well beyond their capacity and their soil's capabilities (and their produce did not reach the needy and poor but

A few NPM practices from the CMSA project in Andhra Pradesh

Cow dung -Urine- Asafoetida solution: Mixing of 200gms of Asafoetida in cow dung and urine make it strong fungicide. This solution is effective against blast in paddy. It is also effective against Bacterial diseases in paddy

Basil- Piper beetle-Coral jasmine: The decoction from all these leaves will prevent all diseases of paddy

Pomegranate waste decoction: Take one kg of pomegranate wastes and grind them. Decoction of this is effective against paddy blast. This prevents growth of fungal hyphae.

10 % Vitex decoction: Take 10Kg of Vitex leaves and boil it for 30 minutes and cool it. Add some soap nut solution to it. Add 100- 150 litres of water to it and use on for one acre. This will prevent many diseases in paddy and other crops.

10 % Bael (Aegio marmolos) decoction: Take 10 kg of bael leaves, boil and then filter it. After filtering add some soap nut solution. This decoction can be added to 100-150 litres of water to spray on one acre. It is effective against Blast in Paddy.

Paddy stem borer control: To control stem borer in paddy prepare a solution by mixing green chillies, onion, tobacco and asafoetida in 10 litres of water. Mix it with 50 ml buttermilk and spray on paddy crop. By placing calotropis leaves at few locations in paddy field, stem borer can be controlled.

Turmeric extract: Powder one kg turmeric and add 4 litres of cow urine to this. Mix the solution and filter with a thin cloth and add 100 g soap powder. Add 100 litres of water to this solution and spray in on an acre during evening hours.

Pests that can be controlled: aphids, tobacco caterpillar, diamond back moth, paddy stem borer and pests of legumes and storage pests.

Dry chilli -Garlic solution:

Required materials: 1. Dry chillies and garlic – I kg each Grind 1 kg dry chillies and add 5 litres of water and keep the solution over night. Take one kg of garlic (remove top layer) and grind it to make paste and add 5 litres of water and keep it over night. Next day mix the two solutions and filter it through a thin cloth. Keep the mixture for four hours and add 100 litres of water, this can be sprayed on one acre of Paddy field. This is effective against rice Gandhi bug

- Adapted from "Sustainable Agriculture with local resources organic manures, plant extracts, decoctions", Centre for Sustainable Agriculture Hyderabad

fed the rats in the government godowns instead) and in the process lost everything while the pesticide companies gained tremendously.

Now the people in power have planned for a second green revolution with hybrid seeds and this time they have tied up not only with pesticide companies but seed companies as well. Any person with some common sense can see that the future predicted by Rachel Carson, in her famous book 'Silent Spring' about the future of chemical farming and humanity, has become true although she did not live long enough to see it.

(Endnotes)

[1]Use of pesticides & its impact on human health: a case of farmers in South India , Chitra Grace A, MSC, MPH, V.R. Muraleedharan, PHD, T. Swaminathan, PHD & D. Veeraraghavan, PHD

[2] Assessment of genetic damage in workers occupationally exposed to pesticides in various districts of Punjab, Raminderjeet Kaur, Department of Human Biology, Punjabi University

[3] Punjab govt starts cancer registry: studies indicate pesticides-cancer link, Infochange India, June 11, 2008, Sourced from Down to Earth, http://infochangeindia.org/health/news/punjab-govt-starts-cancer-registry-studies-indicate-pesticides-cancer-link.html

[4] Asia rice output threatened by pesticide overuse, http://www.physorg.com/news/2011-03-asia-rice-output-threatened-pesticide.html

[5] Ecologically Sound, Economically Viable Community M anaged Sustainable Agriculture in Andhra Pradesh, India, http://www.kisanswaraj.in/wp-content/uploads/Ecologically_sound_economically_viable.pdf

[6] Dr.Ramanjaneyalu, Executive Director, CSA.

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.**

Five new rice varieties launched in Mysore by the Save Our Rice campaign

A function was organized under the aegis of Save Our Rice campaign and Karnataka Rajya Raitha Sangha (KRRS) in Mysore on April 23rd to release farmer bred rice varieties. The varieties released during the function were; Mysooru Mallige, a hybrid paddy variety developed by Lingamadaiah, a farmer from Chennapatna, NMS-2 developed by Shankar Guru of T. Narasipura, Chinnaponni developed by Rajendra of Tamil Nadu, HMT developed by Ramji of Maharashtra and KA-1 developed by Raghuvanshi of Varanasi.

Krishna Prasad of Sahaja Samruddha/Save Our Rice Campaign (Karnataka) said that seed conservation has become very critical as farmers have lost the ability to produce seeds and are at the mercy of the multinational seed industry. Governments have also washed their hands off and do not regulate seed prices, which have reached unimaginable levels and this is making farming an increasingly risky occupation. Farmers present, said that the public sector has stopped producing high quality seeds and distributing it to farmers, whereas the agriculture universities are engaged in research to further multinational corporate interests. Vivek Cariappa, an organic farmer, pointed out that DCH-32 the most popular cotton variety grown widely in Mysore is no more produced and available. Not only that the parental lines of this variety have been contaminated.

The aim of the campaign is to popularize farmer bred seeds, foster seed diversity and to help farmers regain their confidence to become seed breeders again.

Adapted from http://www.mysoretrendz.com/News/newsdetail.aspx?id=17367&y=4/24/2011 & Hindu April 22nd, 2011

Pesticides used in Paddy and their effect on the environment and human health

Below (Page-9) is a list of a few major pesticides used in paddy in the states of Orissa, Karnataka, Tamil Nadu and Kerala. This list is only a short compilation from a long list of deadly pesticides, weedicides and fungicides used on paddy. In Orissa the information was obtained through an RTI query about diseases and pests in paddy fields in Rabi and Kharif in different districts , and the pesticides and insecticides being used thereof. In Karnataka, Tamilnadu and Kerala the information was gathered through direct conversations with farmers.

The table below provides information on each pesticide - about its toxicity, effect of poisoning and environmental impact-collated from reliable sources. Misuse and overuse of pesticides continues to plague paddy cultivation despite the fact that organic farmers and NPM practioners have successfully demonstrated that paddy can be grown without it.

All the listed pesticides qualify as highly hazardous pesticides according to Pesticide Action Network(PAN).According to PAN, they classify pesticides as "Highly Hazardous Pesticides" (HHP) if they have one of the following characteristics[1]:

- high acute toxicity (including inhalative toxicity) and/or, long-term toxic effects at chronic exposure (carcinogenicity, mutagenicity, reproductive toxicity, endocrine disruption)
- and/or, high environmental concern either through ubiquitous exposure, bioaccumulation or toxicity,
- and/or known to cause a high incidence of severe or irreversible adverse effects on human health or the environment

(Endnotes)

[1] The PAN International list of Highly Hazardous pesticides,
http://panna.org/sites/default/files/PAN_HHP-List_090116.pdf

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Raghuvanshi – The Seedman

PADDY had featured an article by Suma Josson about Raghuvanshi in its April 2010 issue. Suma was then making a documentary film about Raghuvanshi. She has completed the film -19 and 10 min versions of the film are available both in Hindi and English. If anybody needs copies of the film please get in touch with Suma at sumajosson (at) yahoo (dot) com

Synopsis of 'Raghuvanshi: The Seedman' :

Prakash Singh Raghuvanshi is a farmer who lives in Tadia Village near Varanasi. He has three and a half acres of land. He is a plant breeder, who has revolutionised the propagation of indigenous seeds through seed selection processes. Since the past 14 years he has developed more than 100 improved varieties of rice, wheat, pulses, and some vegetables and fruits. These are high yielding and disease resistant varieties. Raghuvanshi has distributed his seeds freely to more than 10 lakh farmers in 14 states. "Once you allow the seed companies to dictate to you, you not only lose your sovereignty but also become dependent on them for all times to come. This is the beginning of the end of farming," he said.

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Inauguration of the red rice mela

contd....Pg-8

Pesticide Name	Category	Env Impacts	Poisoning Symptoms	Toxicity
Carbaryl (sevin)[1]	**HHP**	High acute toxicity to honey bees, potential ground water contaminant	Inhalation- convulsions, dizziness, excessive salivation, muscle cramps etc Ingestion- abdominal cramps, diarrhoea , vomiting etc	Moderate acute toxicity, Carcinogen[1], suspected endocrine disruptor[2],reproductive toxin[3], Cholinesterase inhibitor[4]
Carbofuran(Furadan)[2]	**HHP**	Potential ground water contaminant, high acute toxicity to honey bees	Inhalation-Dizziness. Sweating, Unconsciousness. Vomiting, Pupillary constriction muscle cramp etc Ingestion- Abdominal cramps. Diarrhoea. Headache. Nausea. Vomiting. Weakness	High acute toxicity, suspected endocrine disruptor, Cholinesterase inhibitor
Chlorpyrifos[3]	**HHP**	high acute toxicity to honey bees	Inhalation- Convulsions. Dizziness. Sweating, nausea, unconsciousness, pupillary constriction Eyes- Blurred vision Ingestion- Diarrhoea. Unconsciousness etc	Moderate acute toxicity, suspected endocrine disruptor, Cholinesterase inhibitor
Endosulfan[4]	**HHP**	Very toxic to fish and other aquatic organisms, toxic to birds, bees, earthworms, beneficial insects, micro organisms	Inhalation or dermal exposure- headaches, irritated eyes, malaise,nausea, vomiting, dizziness, confusion, agitation,disorientation, irritability, weakness, shortness of breath, impaired consciousness, writhing, muscle twitching, and convulsions	endocrine disruptor, interferes with male hormones, poisoning has resulted in death and severe disability, contaminates breast milk, allows breast cancer cells to grow, affects nervous system
Lambda-cyhalothrin (karate)[5]	**HHP**	Highly toxic to bees & fishes	Inhalation - burning sensations, convulsions, coughing, labored breathing, shortness of breath, and sore throat. Ingestion- Abdominal painEyes- redness & pain	Moderate toxicity,Corrosive effect on skin and eyes, Extreme levels of exposure can cause seizures and coma
Malathion[6]	**HHP**	Potential ground water contaminant, high acute toxicity to honey bees	Inhalation- Dizziness. Sweating. Laboured breathing. Unconsciousness. Pupillary constriction. Muscle cramp etc. Ingestion- Abdominal cramps. Diarrhoea. Nausea. Vomiting	Moderate acute toxicity, suspected endocrine disruptor, Cholinesterase inhibitor, possible carcinogen
Monocrotophos[7]	**HHP**	Toxic to fishes, amphibians	Inhalation- Dizziness. Sweating. Laboured breathing. Unconsciousness. Pupillary constriction. Muscle cramp etc. Ingestion- Abdominal cramps. Diarrhoea. Nausea. Vomiting	High acute toxicity, Cholinesterase inhibitor
Phorate[8]	**HHP**	Potential ground water contaminant, Moderate acute toxicity for honey bees ,highly toxic to fishes	Inhalation- Convulsions. Sweating. Laboured breathing. Pupillary constriction muscle cramp etc. Ingestion- Abdominal cramps. Diarrhoea etc	High acute toxicity, Cholinesterase inhibitor
Phosphamidon[9]	**HHP**	Potential ground water contaminant,High acute toxicity for honeybees	Inhalation- Dizziness. Sweating. Vomiting Unconsciousness etcCauses Redness & pain in eyes Ingestion- Diarrhoea. Nausea. Vomiting.etc	High acute toxicity, suspected endocrine disruptor, Cholinesterase inhibitor, possible carcinogen

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Action to reduce insecticide misuse in Thailand- An international panel meets!

As part of the celebration of farmers' day and national rice day a conference was organized in Thailand to discuss the critical issue of plant hopper outbreaks in paddy crops due to excessive use of insecticides, particularly cypermethrin and abamectin. Due to excessive use of insecticides there has been unprecedented outbreak of brown plant hopper (BPH) during the last few seasons in many provinces of Central Thailand; in some places the attacks have increased 150,000 fold. These insecticides kill the natural predators of BPH and also cause resistance and increased fecundity in the pest. BPH has affected about 11% of the Thai rice crop this year and caused millions of dollars in losses and devastated farmer livelihoods and adversely affected the country's rice exports.

The rice conference had representatives from the rice department, industry, International Rice Research Institute (IRRI), academia and Thai Agro Business Association (TABA). They discussed the adverse impact of insecticide use on the pests, on ecology and farmer health and also the social and economic impact of crop losses. It was observed that the root cause of excessive use of insecticide was due to the lax regulation governing the sale of insecticides, which are currently sold under FMCG (fast moving consumer goods) category, and the wrong advice that pesticide retailers give to farmers who completely rely on them. In addition the advertising used spreads misleading information and promotes insecticide misuse.

The rice department along with IRRI and TABA decided to launch a campaign to stop the use of cypermethrin and abamectin in paddy. Along with this it was decided that a few more strategies were required to bring about effective change in farming practices. Research into alternatives for insecticides; urgent steps to alleviate problems faced by farmers due to insecticide misuse; training of extension officials, farmers and insecticide retailers; regulation of misleading advertising; cooperation with national and international agencies; change in pesticide laws, particularly that allows them to be sold as FMCG goods and classifying insecticides as poisons are some of the steps detailed for action.

Editors' comment: It is ironical that IRRI which has promoted the culture of high input responsive varieties and heavy use of fertilizers and pesticides is now joining hands to reduce the use of pesticide in rice paddies in South and South East Asia. Sadly the price is being paid by rice farmers, not the scientists or the organizations that promoted these technologies glibly and have now moved on to their new passion- GM rice. Instead of recognizing and acknowledging their mistakes, and becoming more responsive to knowledge from the ground and farmers, IRRI insists of doing more of the same. Now they are advocating, promoting and lobbying for the GM rice agenda (Golden rice and Bt rice) with the same fanaticism. The beleaguered rice farmers will have no respite!

Adapted from Reducing insecticide misuse in Thailand, June 9, 2011 http://ricehoppers.net/2011/06/reducing-insecticide-misuse-in-thailand-%E2%80%93-international-panel-explores-actions/ & IRRI supports Thai moves to stop insecticide use in rice, June 1, 2011 http://irri.org/news-events/media-releases/irri-supports-thai-move-to-stop-insecticide-use?print=1&tmpl=component

(Footnotes)

[1]The workshop was held as preparation for the Ramsar convention in Bucharest next year. Ramsar convention is an inter-governmental treaty on conservation and wise use of world's wetlands and the resources within.

[2] http://www.physorg.com/news/2011-03-asia-rice-output-threatened-pesticide.html

PADDY NEWS

Gates Foundation grant to IRRI for golden rice!

Gates Foundation has granted 10.3 million dollars to International Rice Research Institute (IRRI). The grant is to "support efforts to develop and evaluate" golden rice in Philippines and Bangladesh. IRRI will work on this project along with the Philippines Rice Research Institute, Bangladesh Rice Research Institute and Helen Keller International. The project will work to get regulatory approvals, do nutritional testing on Golden rice and is targeting regulatory approval in Philippines in 2013 and in Bangladesh in 2015.

Adapted from http://foundationcenter.org/pnd/news/story.jhtml?id=335600013

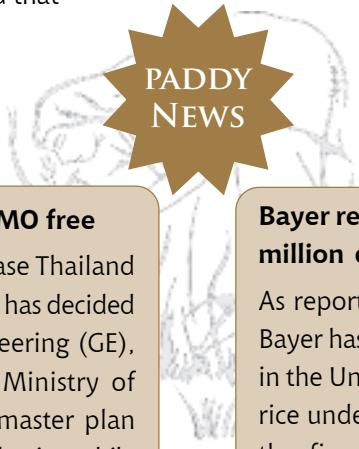
Pesticide overuse threatens rice output in Asia

Indiscrimate large scale pesticide usage in paddy fields may be impacting rice yields negatively in Asia, concluded scientists at the Ramsar workshop in Singapore in March 2011[1]. They said, "increased production of cheap pesticides in China and India, lax regulation and inadequate farmer education are destroying ecosystems around paddies, allowing pests to thrive and multiply". [2] Over application of pesticides has led to huge pest outbreaks which are termed "pest storms" in China. One of the reasons for over use of pesticides is due to the mistaken over reliance on chemical pesticides by farmers to increase yields. On one hand pests have developed resistance due to over use on the other due to indiscrimate spraying the ecosystems surrounding paddy fields have also been destroyed.

Paddy farming is further threatened due to the over reliance on a small pool of germplasm by farmers who cultivate too few varieties of rice. Lukacs , one of the organizers of the convention said that beyond registering pesticides, there is no regulation of the industry in these countries and there is an urgent need for pesticide manufacturers, government regulators and communities to come together to define best practices. Along with many other Asian rice growers, India and China, the leading producers and consumers of rice, are both reeling under this problem.

Editors'comment: The situation is appalling and there is urgent need for course correction, even IRRI , listened to by governments of all these paddy growing nations, which has promoted pesticide use in the past , now says that rice paddies do not require pesticides for high yields. They have on their website cited that from 1994 to 2010 their own research paddy fields have reduced pesticide usage by 94%.

Adapted from report: Asia rice output threatened by pesticide overuse, March 6, 2011, http://www.physorg.com/news/2011-03-asia-rice-output-threatened-pesticide.html



Thailand decides to keep its rice GMO free

According to a Greenpeace press release Thailand the largest exporter of rice in the world has decided to keep its rice free of genetic engineering (GE), this was outlined by the Thailand Ministry of Agriculture in their "Rice Strategy" master plan which is focused on improving rice production while improving farmer livelihoods and encouraging consumer confidence. However there have been no public announcements of the policy from the government of the country which accounts for 27% of all rice traded in the global markets and is home to some of best rice varieties in the world.

Such a move from Thailand would not only help conserve indigenous varieties of rice and prevent contamination but also help consumers around the world who eat Thai rice. The Thai Rice exporters association had said No to GE rice in 2008 and there has been an active campaign supported by civil society and farmers groups to keep GE rice out of Thailand.

Adapted from Greenpeace report, June2, 2011 (http://www.greenpeace.org/international/en/news/Blogs/makingwaves/ge-free-rice-victory-for-farmers-and-consumer/blog/35096)

Bayer reaches out of court settlement of 750 million dollars

As reported in January 2010 edition of PADDY, Bayer has been facing litigation from rice farmers in the United States as a consequence of their GE rice under field trial contaminating rice crops in the five states of Texas, Louisiana, Missouri, Arkansas and Mississippi. The cases had come up for hearing and the farmers had won victories with punitive damages awarded to them.

As per news reports Bayer has agreed to a settlement to the tune of 750 million US dollars bringing to close all the litigations. The settlement is subject to at least 85% of long grained rice growers, between 2006 and 2009 being party to it.

Business Standard , July 3rd, 2011 http://www.business-standard.com/india/news/bayer-to-settle-gmo-rice-suits-for-750-mn/441324/

Allahabad farmer sows paddy seeds inserted in clay pellets!

Ram Abhilash Patel a paddy farmer in Allahabad developed a method of sowing paddy seeds within clay pellets. The farmer said he got the idea when he noticed small seedlings sprout, during rains, from clay pellets thrown away by his children after playing. He struggled to find the right kind of clay which will hold, and then he found that pond or river soil holds well, is very fertile and also prevents weeds.

He has been practicing this method since the last 15 years. He has experienced numerous advantages of using this method, for instance he doesn't have to prepare a paddy nursery and the seeds sown through this method take 145 days to mature as against 160 days taken normally.

One Straw revolution – Masanobu Fukoka

If rice is sown in the autumn and left uncovered, the seeds are often eaten by mice and birds, or they sometimes rot on the ground, and so I enclose the rice seeds in little clay pellets before sowing. The seed is spread out on a flat pan or basket is shaken back and forth in a circular motion. Fine powdered clay is dusted over them and a thin mist of water is added from time to time. This forms a tiny pellet about a half-inch in diameter. There is another method for making the pellets. First, the unhulled rice seed is soaked for several hours in water. The seeds are removed and mixed with moist clay by kneading with hands or feet. Then the clay is pushed through a screen of chicken wire to separate it into small clods. The clods should be left to dry for a day or two or until they can be easily rolled between the palms into pellets. Ideally, there is one seed in each pellet. In one day it is possible to make enough pellets to seed several acres..... Between mid-November and mid-December is a good time to broadcast the pellets containing the rice seed among the young barley or rye plants, but they can also be broadcast in spring.

He makes the pellets during April –May and they dry in 2-3 hrs. These seed pellets can be sown manually or using a seed drill and can be sown before monsoons. In addition the crop requires less fertilizer as the clay pellet is made from fertile river/ pond soil. The pellet also protects the seeds from birds.

Mr.Patel has done comparative experiments on his field using the three different methods, namely pellets, direct sowing and nursery. His experiments proved that output was highest with the pellet method. Impressed by his success many farmers in the area are using this method in their fields.

For more details contact Mr. Ram Abhilash Patel, Vill. Tikari, Po. Kanti, Allahabad, Uttar Pradesh 212107, Mobile: 08127199855.

Adapted from The Hindu, June 29th, 2011, Clay pellet method of rice cultivation maximises yield

http://www.thehindu.com/sci-tech/agriculture/article2145266.ece

PADDY NEWS

Progressive rice farmer of Godavari belt!

Bhupatiraju Ramakrishnam Raju farms organically in his 20 acre land in Nachgunta, West Godavari district growing paddy. He primarily grows Swarna and BPT varieties and harvested 20-26 bags of rice during 2010 Kharif using only organic inputs. He regularly welcomes farmers, researchers, agriculture department officials to his farm and demonstrates his farming techniques. His farm then becomes a live laboratory offering hands-on experience to interested visitors.

Raju says that he uses cow dung and Jeevamrutam supplemented by green manure compost. He has 38 cows of indigenous breeds whose dung he uses for bio-manure. Raju uses cow urine to prepare organic pesticides while cow dung is also used as a fungicide for seed treatment.

He said the basis of his farming principle is to safeguard human and soil health. Of course the economics of this method is also far more beneficial than chemical based farming, Raju said that his expenditure on bio pesticide and bio fertilizer per acre is a mere Rs 1500 against Rs 6000 spent by other farmers.

Adapted from The Hindu: Progressive farmer makes waves, April 28th, 2011, http://www.hindu.com/2011/04/28/stories/2011042866570800.htm

A deficient approach - Grassroots groups in Philippines and Bangladesh respond to Gates Grant!

Grassroots groups and farmers in Philippines are worried about the threat of Golden rice as they believe that it would do more harm than good. They are worried about the ecological, economic and environmental effects of high fertilizer use, loss of diversity of their local and traditional rice varieties and the impact on the agriculture eco system

According to Raj Patel Vitamin A deficiency exists in South East Asia as many families can afford to eat only rice and the best way to address vitamin A deficiency in malnourished children is not through golden rice but by making investments in agriculture, education and rebuilding a robust economy where people can be food secure. The World Bank has also conceded that rediscovery of local vitamin A rich leafy greens and increased fruit consumption has reduced VAD in a cheap and sustainable manner in the last 20 years.

Rice Inc, working in Philippines on conserving traditional varieties of paddy using traditional knowledge and creating a culturally appropriate enterprise, MASIPEG, a farmer led network of organizations and scientists working towards sustainable use of biodiversity through farmer control over genetic resources and Palawan Centre for Appropriate Rural Technology are all against the introduction of Golden rice in Philippines.

The Bangladesh Resource Centre for Indigenous Knowledge (BARCIK) believes that the solutions to problems of malnutrition and hunger lie in local varieties and knowledge which is overlooked in favour of "modern science". For example post cyclone Aila, BARCIK has identified 14 local varieties which are saline tolerant and can tolerate climate change vagaries and give high yields. Whereas Gates foundation's response to Aila was to fund research to develop saline tolerant varieties and hybrid maize.

Adapted from "A deficient approach" by Bess Mucke, Slow Food, 16th May http://www.slowfood.com/international/food-for-thought/focus/95481/a-deficient-approach/q=7042BF?-session=query_session:427589840c9ff311A8luL4203B11

From....Pg-9

[1] The PAN International list of Highly Hazardous pesticides, http://panna.org/sites/default/files/PAN_HHP-List_090116.pdf
[2] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC32816#Toxicity
[3] Cancer causing or has potential to be cancer causing
[4] Linked to the disruption of hormone function in humans and/or wildlife. These chemicals have been shown to alter levels of male and female hormones, as well as certain thyroid hormones. Changes in these hormone levels affect developing organisms more than adults and can result in abnormalities in reproduction, growth, and development, as well as cancer and immune system disorders, even at very low levels of exposure (http://www.pesticideinfo.org/Docs/ref_toxicity5.html#EDSummary)

[5] Pesticides known to cause birth defects or interfere with normal development

[6] Proper functioning of the nervous system requires an enzyme called cholinesterase (ChE), which facilitates the transmission of nerve impulses. ChE-inhibiting pesticides disable this enzyme, resulting in symptoms of neurotoxicity—tremors, nausea, and weakness at low doses; paralysis and death at higher doses. Most of these pesticides are insecticides with a similar mechanism of action in both insects and humans. Exposure to cholinesterase-inhibiting pesticides has been linked to impaired neurological development in the fetus and in infants, chronic fatigue syndrome, and Parkinson's disease.

[7] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35055#Symptoms
[8] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC33392#Toxicity
[9] http://www.thanal.co.in/images/docs/EndosulfanMonograph.pdf
[10] http://toxipedia.org/display/toxipedia/Lambda-Cyhalothrin
[11] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC32924#Symptoms
[12] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC33331#Symptoms
[13] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC33402#Symptoms
[14] http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35125#Symptoms
[15] The PAN International list of Highly Hazardous pesticides, http://panna.org/sites/default/files/PAN_HHP-List_090116.pdf

Courtesy:
Sunder Kenaje
Bathada loka book

Naba Digantho farming offers hope of self-reliance

-Sridhar Radhakrishnan

Mammadpur is a small village in the Hingalganj islands of the Sundarbans in West Bengal. It is situated in the North 24 Parganas District. Unlike many other villages in these islands, this island boasts of electricity and a good road that connects Par Hasnandpur to Lebukhali, both boat jetties -the only connection the island has to the main land.

A small group of 20 farmer families have come together in this village to make their farming self reliant. This thought dawned on them after the serious and debilitating impact of the AILA floods three years ago. Their paddy lands were made totally uncultivable and till last year crops were a failure. The seeds they were using, supplied by the Government, could not withstand the salinity that was left after the waves of brackish water receded. The group led by a sharp thinking farmer Thushar Das and his friend Manush, started thinking about an agricultural system that will sustain them, and at the same time be ecologically sustainable. Thushar's short experience with an NGO, and his association with Alauddin, the State Coordinator of the Save our Rice Campaign(SOR), led him to the idea of a Biodiversity-based Ecological Agriculture model for their farms.

So, he set about doing it first. He introduced a model of permaculture in his small paddy land of 3 biggas (3 biggas is an acre). A pond was built in one corner of the paddy land, and he started growing many vegetables, tubers and fruit trees like papaya. The bunds on all the sides of the pond and his agriculture land was used for this purpose, not only increasing the total utility of the land as diversely as possible, but also providing for much of his household needs. In the paddy land he tried indigenous varieties of rice – Kerala Sundhari, Govind bhog etc that not only withstood the conditions, but also yielded very well. Kerala Sundhari according to him yielded atleast 7-10 bags / bigga. (one bag is 60 kg of paddy) This was 420 to 600 kgs / bigga i.e, atleast 1.2 tonne to 1.8 tonnes of paddy per acre. This was quite on par, if not more, with the high yielding CR and Sona Masoori whose yields they claim came down over time. After the paddy season, he produced pulses from the land, which also enriched his soil and then jute was cultivated in the boro[1] season. Once the paddy cultivation is done, the water from the paddy land bearing fishes flow into the ponds where natural fish cultivation continues. This is also a source of food and income.

Farmers here generally do not cultivate boro paddy. This is also one reason why we could see their ponds did not dry up so easily as in the Atgorah area (Alauddins home village) in the same district where boro paddy using borewell irrigation has drastically brought down ground water and dried up the ponds as well. Tushar Das soon realised that it is possible to feed a family through this type of farming throughout the year with just 2 biggas of land. This was unbelievable, but many in his village and family friends decided to join him in this venture. They came together and called themselves the Mammadpur Naba Digantho Krishak Samaj (The New Dawn Farming Society). There are 20 member families and most of the farmers own 1 to 3 bigga of land, a few have upto 5 biggas. Only one farmer has 15 biggas. Tushar Das introduced organic farming methods – vermi composting, organic input preparation from cow dung and urine, multi cropping etc. Alauddin also trained them in Biodiversity based Ecological Agriculture (BEA) and 10 farmers have already started following the practices. They have also started a seed bank with some traditional seeds that are suitable for the area. They would be cultivating these varieties this season.

We found during our visit that for all the 20 families to adopt this, some of these families needed ponds and together they needed a pump set. The SOR Campaign decided to support them partly for the ponds and also began an action research programme there. This is a research that the farmer families will do to assess how this Naba digantho farming brings about a change in their lives. A base line survey followed by a daily record of input and output from the family will be maintained by them.

The farmers have already observed that their cost of production is much less compared to the intensive chemical agriculture they used to follow. Indigenous paddy gives them tall straw which feeds their cattle. They are even able to sell the same. The only complaint they have is the increasing cost of labour, which in general is a major problem for farmers. But there are no Government programmes to offset this as of now. Discussions are being held in many States,

like Kerala to introduce MGNREGA for farming, especially paddy, as it is a community activity for food security and environmental conservation, especially water conservation. Still policy decisions are yet to be taken in this regard.

The farmers during the discussions revealed that even the largest farmer with 15 biggas of land does not get more that Rs. 4000/month income after all their expenses. The rest of the farmers earned anything between Rs. 500 to Rs. 3000 per month. While much of their food needs are met by the rice, pulses, vegetables, fish and eggs they produce, still this cash income is insufficient for their many non-food needs.

But an interesting observation by Tushar das is that when he was cultivating CR variety of paddy his income was Rs. 600/bigga as its cost of cultivation was high. But when he shifted to Kerala Sundhari, an indigenous variety, it rose to Rs. 2000/bigga and he got Rs. 3500/ bigga when he used Hamai paddy for puffed rice, which yielded slightly less (7 bags / bigga) but fetched a higher price. Moreover, the last time they cultivated CR (HYV), the production had come down to 6 bags / bigga (approx. 1080 kgs / acre) , while both Kamini bhog and Govinda bhog (traditional varieties) yielded the same with lesser inputs and lower cost of production.

Now the Naba digantho farmers, before this season have already dug their ponds and are all in preparation for their aman[2] paddy cultivation.

They have also plans to improve their poultry farms and duckery in the ponds. Introducing ducks in the ponds will improve their fish cultivation. They also plan to maintain traditional seeds of pulses and oil seeds, as well as vegetables. As of now they are dependent on the markets for the seeds. The pump set they will buy will be used by all for irrigation from the ponds. The women in their families are also members of three SHGs. The activities of the SHGs are now limited to just thrift and savings and this they want to improve by introducing some value additions of their produce.

As dreams sore high, with the foundation of Naba Digantho Krishi rooted in the ecological farming approach, they hope to be self-reliant in farming in an year's time. And they hope to show case this ecological model, as one suitable for small and marginal farmers. This we feel is the model we need with atleast 90% of our farmers being small and marginal. It is also a model that can demonstrate that low income farmer families can improve their incomes without poisoning the lands with chemicals and GM crops, while conserving the environment and natural resources.

(Endnotes)

[1] The boro rice is commonly known as winter rice.The term boro is Bengali originated from theSanskrit word "Boro" which refers to a cultivation from Nov.-May under irrigated condition.(http://www.narc.org.np/rice_knowledge_bank/factsheet/boro.pdf)

[2] the aman season accounts for the bulk of annual rice production, lasting to November

The Legend of the Rice

In the days when the earth was young and all things were better than they now are, when men and women were stronger and of greater beauty, and the fruit of the trees was larger and sweeter than that which we now eat, rice, the food of the people, was of larger grain. One grain was all a man could eat; and in those early days, such, too, was the merit of the people, they never had to toil gathering the rice, for, when ripe, it fell from the stalks and rolled into the villages, even unto the granaries. And upon a year when the rice was larger and more plentiful than ever before, a widow said to her daughter "Our granaries are too small. We will pull them down and build larger." When the old granaries were pulled down and the new one not yet ready for use, the rice was ripe in the fields. Great haste was made, but the rice came rolling in where the work was going on, and the widow, angered, struck a grain and cried, "Could you not wait in the fields until we were ready? You should not bother us now when you are not wanted." The rice broke into thousands of pieces and said "From this time forth, we will wait in the fields until we are wanted," and from that time the rice has been of small grain, and the people of the earth must gather it into the granary from the fields.

Source: Eva March Tappan, ed., *The World's Story: A History of the World in Story, Song and Art,* (Boston: Houghton Mifflin, 1914), Vol. II: *India, Persia, Mesopotamia, and Palestine*, pp. 67-79. This text is part of the Internet Indian History Sourcebook (http://www.fordham.edu/halsall/india/hindutales.html)

BOOK POST – PRINTED MATTER

"Kuttivayal" project in Kannur

Leneesh K

The knowledge of survival is the best gift a community can give to its young members and of this the knowledge of producing food is the most important. Many societies in the recent past have stopped doing this. Fortunately some societies have started realizing this danger now and we have one such story from Thillankeri panchayath in Kannur district of Kerala.

Kuttivayal (children's paddy field) project of Thillankeri panchayath is a celebrated and inspiring endeavour. The project was designed to teach children about upland paddy cultivation. This is the practice of cultivating paddy in uplands during monsoon for which short duration drought tolerant paddy varieties were used. The project was jointly designed by the grama panchayath and krishibhavan. "Upland paddy cultivation was widely practiced in this panchayath 3-4 decades ago when the area faced grave shortage of rice. Farmers gave it up since cheap rice became available in the market and paddy cultivation became expensive. But we have started facing food shortages again. We believe it is our responsibility to equip our children to produce food to counter future food shortage", said R Rajalakhmi, Agriculture officer, Thillankeri.

Members of the balasabha (children's club of woman self help groups) were selected for the project and 800 children participated. Each child cultivated one cent (approx 435 sq feet) upland paddy using organic farming practices. MNREGP workers helped the children in preparing the land. Children themselves did the sowing, weeding and harvesting. They harvested the crop prior to onam, prepared payasam with the rice grown by them, and distributed to everybody.

"Since our parents have given up paddy and converted paddy fields for other purposes, children of my generation did not get hands on experience in paddy cultivation and we were never bothered about it. Kuttivayal project made us aware of the importance of learning agriculture and gave us practical experience to do it", said Akhila, a class XII student.

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