Boro Production Strategies 98-99

Some Suggestions

by Dr Md Ayubur Rahman

In the context of Bangladesh, it is very much natural that one crop in a year may be subjected to natural calamities like draught, flood etc. But appropriate packages have been taken to increase the production of next crops to compensate the loss of the preceding year on the basis of technology available and the experiences we have.

SINCE independence, the government has given top priority to increase production of food and meet the deficit. The agriculturists have worked very hard and have generated new technology to boost the production of cereals and tuber crops. In 1988, a target for producing 2 million tons of food grain by 1990 was made and various strategies were worked out. These were implemented and it was possible to reach close to the target by 91-92(over 1.83 million tons).

However, several factors all the times have played a crucial role to offset the plan target. In spite of this, the increasing production trend was maintained more or less at the same level until 94-95. Then the production came down to 1.6 million tons and is going down and perhaps it would be the worst during this year because of damage of Aman crop due to the last flood.

In the context of Bangladesh, it is very much natural that one crop in a year may be subjected to natural calamities like draught, flood etc. But appropriate packages have been taken to increase the production of next crops to compensate the loss of the preceding year on the basis of technology available and the experiences we have.

I think, every sensible person would be surprised to see the crop compensation strategies, the Ministry of Agriculture has taken this year. It has been reported that "The loss of transplanted and broadcast Aman by century's worst flood was 20.14 metric tones, the loss will now be made up by producing additional 12 lakh metric tons foodgrain through extended irrigation during the next dry season by June, 99". It also said that extended irrigation facilities would include use of hybrid seeds of Boro on 50 thousand hectares of land, use of high quality seeds and use of diammonia phosphate (DAP) urea super granule.

Very recently, the entire community of agricultural scientists have expressed their concern about the import of hybrid rice seed and numerous kinds of chemical fertilizers like diammonia phosphate, single super phosphate, triple super phosphate etc. Reports published in different papers indicate that new kind of diseases and insects have caused serious damage to Aman crop. In the northern districts, many farmers have reportedly suffered the loss because of crop diseases and insects, which was alleged to have been spread through use of hybrid rice, and other seeds imported from abroad.

If the above reports are correct, then I must say that we have made ourselves mad. With vigorous attempt to use hybrid rice seed in India during the last 15 years, they have been able to bring only about 10,000 ha. under it, whereas our Ministry of Agriculture has taken plan to bring 50,000 ha. under hybrid rice only within the ensuing Boro season by importing seed from India! It is not understandable who are doing this and what are their purpose to play such a risky game with our only staple food crop. It is also feared that in the name of hybrid seed something else may be brought in and sold at 10-20 times higher price to our poor farmers. Eventually the farmer may have poor harvest and the economy of the country get shattered. Government should immediately inquire into this programme to check any probable sabotage.

We are now in a serious stage of food deficit and we must not take any step, which has even one per cent risk of crop failure. We must ensure that every single seed put in the soil grows up as crop and nothing causes any harm to the crop as well as the soil.

The next Boro-crop mostly will decide the country's fate in aggravating or ameliorating the sufferings of the millions. So we must take programme of next Boro-crop with all seriousness and appropriate technical viability ensuring 100 per cent chance of a good harvest.

The crop area under Boro during the last two years (1996-97 and 1997-98),reportedly were about 28 and 30 lakh hectares and the production was estimated to have been about 74 and 78 lakh tons respectively. Now we have to decide first, a practical achievable target of area and production for the coming Boro-crop.The last year's Boro production was exceptionally well because of favourable environmental factors, namely moisture availability with optimum temperature and radiation for carbon assimilation. There was not much pest attack and water stress. We do hope even a better environment this year, but we can't ensure it. On the other hand, nation demands the surety of high production of Boro this year in view of our heavy food deficit situation. Question arises how it can be done?

In the light of our experiences on crop production for the last 40 years and present situation of the country, I would like to put forward the following suggestions:-

i. The import of so-called hybrid rice seed must be stopped. If there is any imported hybrid rice seed in the country, that may be used as food and not planted at all.

ii. The maximum area under Boro may be raised from 28 to 30 lakh hectares of land, ninety per cent of which to be HYV and plenty of seeds of HYV and local Boro made available in the country. Top most priority has to be given for preparation of ideal seedbed for raising good seedlings.

iii. The entire Boro-crop depends on the availability of water and irrigation facilities. We have experienced quite often that Boro crop suffers either from severe draught or physiological water stress during its growing period. The irrigation appliances for Boro include Locally Devised Irrigation Appliances (LDIA), Low-Lift Pump (LLP), Shallow Tube-well (STW), Manually Operated Tube-Well (MTW) and Deep Tube-Well(DTW). The Deep Tube-Wells, however, are less affected due to draught. The most vulnerable irrigation appliances to draught are LDIA, STW and MTW. These STW, MTW and DTW are spread all over the country and their concentration is highest in Boro growing districts. We made a field survey about the location of these appliances even under Than level and published the report in 1995. At that time, the number of LLPs was about 25,000; STWs — surface set — about 2,07,932 and deep-set, about 9,000 and MTWs about 55,000. How many of these are usually vulnerable to draught, was well identified. I hope these information have been updated and the Ministry of Agriculture knows the present position of all the available irrigation systems. On the basis of this, the irrigation strategies of Boro may be prepared right now so that any draught, if it happens, can be encountered in time and effectively. If the Ministry of Agriculture does not know the existence of the present vulnerable irrigation appliances, there is enough time to have a new survey and records may be updated, so that advance strategies and action plan can be taken against draught or water stress.

iv. In our experience with the import of unknown rice seed in the name of hybrid, new pest attack has been reported in Aman and thereby one cannot rule out heavier pest incidence in Boro crop. Therefore, preparation for adequate plant protection measures may be required to be taken more seriously for this year.

v. I think there is enough stock of fertilizer and there is no worry for its supply and distribution, which has recently been reorganized and functioning effectively.

It is too early to make any prediction about the area and production of ensuing Boro crop which is always subjected to many complicated growth factors and which influence the production. Even then with our long experiences in this field and with the review of production trend for the past many years, I like to emphasis that we must make our crop estimation very cautiously and shall be contented with a production of seventy lakh tons plus and our food procurement and distribution programme be prepared accordingly.

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Lead Poisoning

Another Affliction besides Arsenic

by Dr Sabrina Q Rashid

Lead is a heavy metal and we don't need it in any of our body mechanisms. When it enters through our nostrils into our lungs, it is absorbed into our blood stream and carried to all the organs of our body. Here is where its damaging affect is seen — in the liver, kidneys, brain etc.

IN Bangladesh not many people have heard about lead poisoning, neither has it been taken seriously as yet. In western countries too, effective steps against this menace has been taken only in the recent past. Before that, doctors were detecting some strange symptoms, until finally they could come to a conclusion that lead poisoning was the reason. But in Bangladesh we are so concerned about other poisoning that we have simply overlooked this area of contamination. At the moment everybody is worried about arsenic poisoning through ground water which until recently was considered the safest drinking water. Then we are exposed to carbon monoxide poisoning from the exhaust fumes of the sub-standard motorised vehicles. But lead poisoning is worst of all in the sense that it affects the IQ of children exposed to it. What a catastrophe it will be if a whole nation's IQ is gradually diminished! How can we then ever dream of prospering? For intelligence is the sole human faculty that can help a nation march ahead in the shortest possible time. If we don't fight this menace now, the price would be too high to pay later.

Lead is a heavy metal and we don't need it in any of our body mechanisms. When it enters through our nostrils into our lungs, it is absorbed into our blood stream and carried to all the organs of our body. Here is where its damaging affect is seen — in the liver, kidneys, brain etc. From blood it goes to the bones where it displaces calcium and itself gets accumulated there, thus making the bone weak and brittle as the calcium content of the bone is decreased. From the bone it is regularly released into the blood stream and thus taken to the organs even when one is no more externally exposed to lead!

The harmful effect of lead poisoning is seen more in the malnourished people and children. But none is spared if he is exposed to high concentration of lead in the air that he breathes in. Lead can get into our body via the air that we breathe or food and water that we consume. According to a survey carried out by Dr T Rahman the sources of lead contamination in Bangladesh are—

Recycling of old batteries: Toxic chemicals from old car batteries are often thrown away randomly. It slowly seeps into the soil or into our water system, which we then consume. From the soil it may get absorbed into the vegetables and other crops.

Automobile exhaust: All our vehicles use leaded petrol, which is the main source of polluting the atmosphere with fumes containing lead.

Lead-based paint: Children who lick or bite on painted objects, like their toys and baby cots etc, may be adversely affected, if the paint contains lead. Most of our glossy paints do.

Roadside dust: Street urchins and children playing on roadsides are exposed to high concentration of lead from the roadside dust contaminated by lead from automobile exhaust.

Lead solder of water pipes: Joints in water pipes are often soldered by lead. Which slowly leaks into the water that runs through the pipes. So the concentration of lead in the water of a newly constructed building may even be higher than an old building.

Metal polishing industry: Labourers working here are understandably exposed to lead.

Ground water: Here the contamination is most likely to occur from industrial source. Cosmetics containing lead, among others, surma and kho used in the eyes contain lead.

Improperly glazed ceramic ware: Lead content in some such crockeries may contaminate our food.

Lead entering our body via any of the above sources can result in its concentration in our blood. Normally there should be no lead in our blood. So when it starts accumulating in our blood it affects our health adversely, in different ways.

Following are its impact on human health at different concentration levels in blood —

10 micro gm./dl of blood — concerning for children

15-30 micro gm./dl of blood — haem (blood) synthesis affected.

30 micro gm./dl of blood — nervous system disease

33-35 micro gm./dl of blood — Vit. D deficiency

40-50 micro gm./dl of blood —anaemia; kidney, liver damage

50 micro gm./dl of blood — reproductive system damage

In the survey conducted by Dr T Rahman in Dhaka, between July and Oct. 1997, it was revealed that the concentration of lead in blood was in the following order:

1. Highest in drivers of trucks and baby-taxis
2. Outdoor labourer
3. Traffic police (even then they don't punish the sub-standard vehicle drivers!)
4. One who rides a rickshaw or walks to work in Motijheel.
5. Housewife
6. Indoor worker (20-22 micro gm/dl-Dr Rahman's own).
7. Student

A Princeton study revealed that when air lead level increases by 1 micro gm./cubic m., the blood lead level increases by 3 to 5 micro gm./dl.

Lead poisoning is afflicting everybody in our country, rich or poor, and damaging our health irreversibly. Worst of all it is the children who are most susceptible to lead poisoning and are gravely affected when exposed to it.

Following are the impacts of lead at low concentration on children (UNICEF report) —

1. Diminished IQ and attention span.
2. Reading and learning disability.
3. Hyperactive and behavioural problems.
4. Impaired visual and motor functioning also hearing loss.

and at high concentration of lead —

1. Anaemia.
2. Damage to organs e.g. liver, kidney etc.
3. Death.

Steps must be taken by our government to contain this menace. Arrangements should be immediately made for the proper disposal of industrial wastes and old batteries. Unleaded petrol should be used in all automobiles. For this some changes have to be made in the automobile engines too. In developed countries they have already achieved this. All kinds of paints should be made lead-free as people working with it are at high risk too. Solders used in water pipes should also be made lead-free.

(Some information collected from a paper on Pb. poisoning by Dr Toufiqur Rahman PhD in Organometallic Chemistry)

From Poison, Fish Have Nowhere to Hide

Dynamite fishing is an old-established ritual the world over. Tanzania has banned it, only to see it replaced by methods which, Gemini News Service reports, can be just as lethal to the final consumer as to the fish themselves. **Alfred Mbogora** writes from Dar es Salaam

THE loud crash of dynamite and the sight of a tall waterspout have been banished from Lake Victoria.

Tanzania's government has proscribed the practice of fishing with explosives, thanks to pressure from environmentalists. By enlisting the services of the combination of the police and the army, Tanzania has significantly minimised the use of dynamite.

But the fish still float dead to the surface in the Mwanza, Musoma and Kagera regions. In place of the dynamite, the fishermen have switched to poisoning the fish.

Theodan, the chosen poison, is a cotton pesticide, and is highly effective, the fishermen say, bringing in huge catches extremely quickly.

On the other hand, as Angelus Mahatane, the Mwanza regional fisheries officer, points out, the method actually renders the fish dangerous to eat — alarming, since almost half the "Sato" (tilapia), the most popular fish species in the region, have been caught this way.

"Partakers of Sato should know that they are consuming that fish at their own risk," he said, listing the diseases which can be caught by poisoned fish as cancer, dysentery and diarrhoea.

The perpetual application of poisonous chemicals to catch fish has drawn the wrath of Tanzania's first president, Julius Nyerere. "Fishermen using pesticides are murderers who deserve a life sentence," he said recently.

The existing Water Utilisation (Control and regulation) Act puts the penalties for water pollution at a fine not exceeding 5,000.

But many agree with Nyerere that punishments must be stepped up. "We cannot continue having such fishermen in our midst," said Petro Magige, a Biharamulo district chairman in Kagera region. "Let the state confine them where they ought to be — total solitary. That way they won't have room to poison people."

He adds that should he be given an opportunity to draft a bill on fishing by poisoning, he would suggest what normally befell murderers — hanging.

In contrast, the Marine and Urban Environmental Legal Protection Association (MULEPA), says much as it supports booking of polluters of water bodies, it does not believe in harsh punishment.

Jerome Msemwa, its chairman, said: "MULEPA fully supports the need for stiff punishment against those using poison to catch fish. But we differ with Nyerere, the father of the nation, in what we regard life sentence as being too harsh," he says.

Msemwa who is also a private lawyer in Dar es Salaam said the important thing was to invest enough money for education on better ways of fishing. It is counter productive to wait for people to err so that you can punish them, he added.

Soon after Nyerere's call the government sent a highly powered delegation to Mwanza to study the extent of the problem. At the end of its visit the delegation, led by Edward Lowassa, minister of state in the vice president's office, appealed to the public to ambush and arrest the erring fishermen.

"We must arrest them or else we will all perish," said Lowassa. "Apart from risking peoples lives, such fishing is likely to damage the reputation of our fishing industry."

Once the outside market found out that Tanzania was catching "sato" with poison, the country was likely to lose markets for other fish species as well.

Residents heartily agree with the sentiment Lowassa expressed. But they scoffed at the notion that citizens' arrests could stop the practice. The armed forces were needed in the struggle against poisoning fishing, because most of the fishermen were ruthless and ready for any eventuality.

"Some fishermen carry firearms with them, while others are armed with machetes and even bows and arrows," said Jackson Matage, a resident at Mwaloni in Mwanza. The fishing mostly took place at night, he explained adding to the hazards of taking them on.

He suggested that more police should deployed for surveillance along the lake shore during night-time.

What Tanzanian fishermen do to their catch is of absorbing interest outside the country as well as within it.

As a whole, Lake Victoria — spreading through Tanzania, Kenya and Uganda — offers a huge fishing potential of up to half a million metric tonnes spanning 300 species, while the total continental production is only four times that figure.

— Gemini News

India's Forgotten Fruits

by Indira Kurana

INDIA is the world's second largest producer of fruits and its fruit diversity is astounding. But with commercially viable fruits, not necessarily native, taking precedence, fruits that are native to India are becoming extinct!

Given the rapid decline in the number of cultivated fruit varieties, genetic erosion of the fruits due to deforestation and the threat posed by virus attacks, the quality of whatever is produced is also on the decline. And conservation of fruit germplasm and research in genetic diversity is far from satisfactory.

India's fruit variety, native to the country, includes banana, mango, citrus, durian, rambutan, jackfruit and breadfruit. Besides mango (*Mangifera indica*), banana (*Musa* cultivated types) and citrus varieties. Some of the other major commercial fruits that are cultivated in many parts of India include pineapple (*Ananas comosus*) and *papaya* (*Caria papaya*).

Minor tropical fruits which are collected from the wild areas and eaten by the local inhabitants include jujube (*Ziziphus mauritiana, ber*), pomegranate (*Punica granatum,*), fig (*Ficus carica*), *bael* (*Aegle marmelos*), date palm (*Phoenix slyvestris*), jamun (*Syzygium cumini*), *phalsa* (*Grewia subinaequalis*), *kokam* (*Garcenia indica*) and *karonda* (*Carissa congesta*).

Besides, there are the "under-utilised" fruit like the tamarind and *aonla* which exhibit rich diversity. These fruit are mostly grown in small farms, backyards or marginal lands with the choice of species depending on the multipurpose use of the plant.

But there are still a whole lot of fruit in India that remains to be sampled, and whose nutritional value is yet to be studied. Tropical fruits like *barhal* (*Artocarpus lakoocha*), *chironji* (*Buchanania lanzan*), *dillenia* (*Dillenia indica*), *manasari* (*Mimusops elengi*), rose apple (*Syzygium jambos*), hogplum (*Spondias pinnata*) and tropical almond (*Terminalia catappa*) are yet to be exploited and their genetic base explored and enhanced.

In addition to these, there are fruits specific to ecosystems — the Himalaya and the Thar desert, for instance, have still to be explored.

Wild fruit grow in abundance in the Garhwal Himalaya region. A rich source of proteins and carbohydrates, these fruit are yet to be considered a food source or for products like jellies, jams, squashes and sauces, which could increase the earnings of local communities.

"There are 36 varieties of edible figs in the Himalayas, some of which make excellent jams," says A N Purohit, director, High Altitude Plant Physiology Research Centre at Srinagar, Garhwal.

The most frightening aspect is that attempts in conserving germplasm in gene banks are far from satisfactory in India. Germplasm forms the basis for collection and conservation of any fruit species, most importantly, for future breeding programmes where breeders look for desired traits in a particular fruit. The absence of a central germplasm management system to co-ordinate with the field gene banks located in various places is taking its toll on conservation efforts.

Most significantly, little attention is paid to protecting existing varieties of fruit. The malbhog, considered to be the finest variety of banana found in Vaishali district of Bihar, is on the road to extinction because of soil infertility and unscientific farming practices.

Though the number of mango cultivators in India is a whopping 1,000, ranging in size, from a peanut to a musk melon, a lot of genetic erosion has taken place. The same is the case with citrus fruits where monoculture of economically important species is wiping out native varieties.

The makhana (Euryale ferox) has a similar tale to tell. The wetlands of Bihar are home to this unique food crop, the popped seeds of which are a popular non-cereal meal eaten on religious occasions. The medicinal properties of the makhana are on par with lotus (*Nelumbo nucifera*) and it is used to cure stomach and circulatory problems and is also believed to increase hormone secretion. But large scale denudation of the Himalayan vegetation is causing repeated floods in north Bihar, virtually rooting out makhana and the lotus.

Also, reliable characterisation of the different species and varieties based on biochemical and genetic parameters are yet to be carried out in the country. A 40 per cent decline in the mango germplasm collection at the Institute of Subtropical Horticulture, Lucknow, has been reported. And if this is the state of major fruits like banana and mango, the plight of the minor ones is not worthy of mention.

Research institutes on fruits lack funds for establishment of gene banks, proper genetic assessments leading to effective utilisation and carrying out conservation efforts. Through the years, a large amount of germplasm has already been lost. Though there have been national programmes to collect fruit diversity, efforts have been sporadic.

The fact that the share of the finances allotted to agriculture is hardly commensurate with the requirements. For the ninth five year plan, horticulture has been allotted 7.7 per cent of the agricultural budget, while fruit comprise 25 per cent of agricultural exports.

R K Arora, co-ordinator (retd), International Plant Genetic Resources Institute, sums up the current status. "There is no proper assessment of the genetic diversity of Indian fruit. Under-utilised species and wild relatives are poorly represented in terms of conservation, evaluation and documentation. And there is also no record of fruits being lost due to habitat deterioration, changes in land-use practice and crop diversification programmes."

A major deterrent to fruit diversity in the country has been farmers shifting over to commercial varieties of fruits, not necessarily native, which have a ready market.

CSE/Down To Earth Features

Hill People Fight for Survival Again

Andrew Perrin writes from Ban Lung, Cambodia

THEY are known to the political leaders of Cambodia as ethnic minority groups.

But to the lowland Khmers living in the province of Ratanakiri in northeast Cambodia, the collection of 56,000 villagers who are scattered among the dense forests are simply hill tribe people.

For hundreds of years, with no formal education, they have lived a sustainable hunter and gatherer existence in the hills that surround Ban Lung, the provincial capital. But now the traditional lifestyle of the hill tribes is under threat.

In a country that has been ravaged by decades of war, the nation is shifting its focus from arms to economic development with the exploitation of its natural resources.

Ratanakiri has rich red volcanic soil, pristine rivers, abundant hardwood forests and relatively low population. It is the new frontier for proposed industrial plantations, hydro-electric projects and logging concessions.

But the concessions are threatening the hill tribes.

"I worry every day that men in trucks will come in and kill our great forest," said a 76-year-old chief of one village, 15 km west of Ban Lung.

With hardwood timber generating between $500-$800 per cubic metre on the international market, the logging industry has exploded.

The government has handed out massive logging concessions to local and international companies. But environmentalists say most of the logging is being done illegally by companies from neighbouring Vietnam.

Global Witness, a British-based environmental watchdog, estimates stockpiles of 260,000 cubic metres are being stored in southern Vietnam. The logs are worth about $130 million — the equivalent of nearly one-third of the Cambodian National Budget.

Royal Cambodian Armed Forces (RCAF) members have also been cutting down swathes of forest, transporting them across the border, and selling the logs illegally on the international market since last November.

Evidence is mounting that RCAF troops are operating under the guidance of Cambodian Prime Minister Hun Sen to stock the coffers of the ruling Cambodian People's Party's (CPP).

Global Witness founder Patrick alley said: "This trade is illegal, the logging is highly destructive and wasteful, none of the money will go to the Cambodian Treasury, and most dangerously, it will fund the military and political parties, predominantly the CPP."

Because political and pecuniary interests are driving the logging issue, the hill tribes' only chance of preserving the forests and their livelihood is to legitimise their claim to the land.

With no official deed governing the forests, the hill tribes have teamed up with the Oxfam-supported Non-Timber Forest Products (NTFP). Its goal is to have the government recognise the economic and ecological value of preserving the forests and the people who live in them.

"Our argument is that if the forests are cut down and modern agriculture implemented, all of the land would be used exhaustively at a great cost to the environment," said Gordon Paterson, NTFP project co-ordinator in Ban Lung.

"The traditional system is much more sustainable. These people maintain the land as a mosaic of fertility. They use small areas of land for swidden (*burnt clearing*) agriculture, leaving the vast majority of the old growth forests untouched, for this is the area where they collect bamboo, hunt small animals and fish."

Although the Department of Forestry and Agriculture has accepted in principle the hill tribes' proposal, the logging continues unabated.

The hill tribe people have rarely ventured out of the forests that have nurtured them.

They stayed when Pol Pot held them up as symbols of the agrarian, communal-based system he wanted to impose on the rest of the country during the Khmer Rouge's brutal rule from 1975-79. They even stayed when their forests were carpet-bombed by the United States in 1973.

It is doubtful they will leave now.

— Gemini News