

BTBRINJAL IS UNDER ‘LIFE SUPPORT’:

EXPERIENCES OF FARMERS IN SECOND ROUND FIELD CULTIVATION

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INTRODUCTION

This is UBINIG's report on the second round field cultivation of Btbrinjal, an ongoing monitoring of the unethical promotion of GMOs. There are evidences that in the previous field cultivation, the Btbrinjal promoters completely ignored the scientific precautionary ethics and international protocols and principles with regard to the release of GMOs in the environment, particularly in a biodiverse agro-ecological condition posing serious threat of bio-pollution and health hazards. (Please see [‘Farmers are cheated in Btbrinjal ‘field cultivation’](#) and other stories at www.ubinig.org)

For the second round field cultivation, UBINIG research team has collected information from all the 19 districts that were included for the field cultivation of Btbrinjal for the second time. A list of 110 farmers with their full address along with cell phone numbers, to find the farmers and to interview them, was available. The team went out to meet the farmers to document their experiences. We also had monitored the Btbrinjal in the field during the first round. In the second round, UBINIG conducted the field level documentation after the farmers have already harvested the crop. A questionnaire was developed to get systematic information for all the farmers so that their experiences could be compiled to make an objective analysis on the second round of field cultivation.

The evidences from the farmers prove that Btbrinjal, the controversial genetically modified eggplant, has failed again in the second round field cultivation during 2014-2015. The field exercise failed to demonstrate a reasonable performance of the crop, the minimum that might graduate the technology for meaningfully scientific debate. It failed to prove any additional agronomic value to the farmer. The BtBrinjal promoters conducted the field cultivations violating precautionary scientific ethics, regulatory principles, directives from the Ministry of Environment and protests of farmer organizations and civil society. The second round field cultivation was done under more direct supervision of the promoter themselves taking care like a patient in an intensive care unit under Life Support. In the modern and commercial medical care “Life Support” is being used to keep the dead persons ‘alive’ as long as the doctors and the relatives decide to accept the reality. Btbrinjal is a dead case; it is just kept under Life support waiting for a decision to stop it.

BACKGROUND INFORMATION

The National Committee of Biosafety (NCB) of the Ministry of Environment has approved four varieties of Btbrinjal for field cultivation in October, 2013. After that, these were given to farmers in the field in two rounds. The first one was in January, 2014 with 20 farmers in 5 districts and the second round in late 2014 to early 2015 with 110 farmers in 19 districts during the winter crop season. The decision to increase in the number of farmers and the number of districts has no valid reason since the first round already showed a failure. No report on the field cultivation is publicly shared or available to discuss the findings, and the promoters did not clarify the issues and criticisms raised about the highly questionable field cultivation. They felt no scientific or ethical responsibility to disprove the evidence that their claims on the first round field cultivation is utterly false.

The farmers of the first round demanded compensation for the loss incurred, before the second round. So the farmers who challenged the performance of the technology were dropped in the second round and were not repeated the cultivation in their field; saplings were not for distributed to them by the Bangladesh Agriculture Research Institution (BARI). There was no request or demand from the farmers

either to get the saplings. Despite the fact that there was no demand from the farmers to plant the GMO, yet the second round was in the field with newer farmers. This strategy was very convenient for the GMO promoters, since they did not know anything about this technology, nor were at all aware of the debates and the experiences of the farmers who already incurred loss in the first round field cultivation. They were also unaware of the precautionary measures that must be taken to prevent potential biological pollution.

Btbrinjal is a GMO or Genetically Modified Organism. Crystal gene from *Bacillus thuringiensis* has been inserted into brinjal genome to increase the resistance of brinjal against Fruit and Shoot Borer (FSB) insect. Bangladesh Agricultural Research Institute (BARI) has conducted this research with the support of ABSP II of USAID. BARI received the seeds of Btbrinjal from Maharashtra Hybrid Seed Company (MAHYCO), India. There was no innovation by BARI scientists; they only used the Monsanto-Mahyco technology to conduct experiment with the genetically modified Btbrinjal through the farmers in Bangladesh. Bangladesh, in the absence of a democratic atmosphere, is merely an experimental field and BARI was used to bypass the scientific ethics and regulatory measures to impose a field cultivation that is difficult to conduct in other countries. There is no technology transfer or knowledge sharing and BARI as public research institution has hardly any benefit by collaborating as a local field cultivation agent for a highly questionable and harmful technology of multinational corporations.

The four varieties of Btbrinjal approved for field cultivation were Btbrinjal 1 (Uttara), Btbrinjal 2 (Kajla), Btbrinjal 3 (Nayantara) and Btbrinjal 4 (Ishwardi 006). A circular was issued by Ministry of Environment and Forest (section 2) which accorded approval to Btbrinjal on 30 October, 2013 vide memo no. 22.00.0000, 073.05.003 2012-271 [http://bari.gov.bd/home/latest_news] which included 7 conditions to be fulfilled by BARI including the labeling of the fruits while selling in the market.

Dr. Md. Rafiqul Islam Mondal, Director General of Bangladesh Agricultural Research Institute (BARI), told The Dhaka Tribune “We selected 106 farmers in 17 districts to distribute the saplings. The distribution began in October 2014”. Each farmer is given saplings of two varieties for half bigha (16.5 decimal) land, though BARI initially decided to suggest one bigha (33 decimal of land) for each variety. (see [BARI moves to popularize Btbrinjal](#), in Dhaka Tribune).

NO REPORT OF THE FIRST ROUND: OLD FARMERS ARE DROPPED, NEW FARMERS ARE INCLUDED

In the absence of a detailed report and explanation of the first round field cultivation the second round of field cultivation plan is based on false claims by the government and the ISAAA. The International Service for the Acquisition of Agri-biotech Applications [[ISAAA Brief 47-2014](#)] has given a report on the performance of Btbrinjal but there is no report published by BARI about the performance of first round of field cultivation. The complete silence is a surprise. ISAAA considers the decision to approve the official release of four genetically modified Btbrinjal for seed production and initial commercialization as a ‘historic’ decision.

The BARI chief claimed that ‘this time farmers will not face any difficulties as “October-November is the appropriate season for brinjal cultivation.” Last time it was given in January, considered to be late for planting.

BARI has been claiming about the advantages of cultivation of BARI Btbrinjal varieties that would bring economic benefits to the farmers and the country through (a) controlling the brinjal fruit & shoot borer

(FSB), the main pest of brinjal in Bangladesh, which causes 50-70% damage to the brinjal fruit; (b) reducing the use of pesticides; and (c) reducing the cost of brinjal cultivation.

In each of the 19 districts UBINIG team visited or contacted the farmers directly for information collection. At least 3 to 5 farmers were selected in different villages except Rangpur (11 farmers) and Pabna (10 farmers) (Appendix 1). In the selection of districts all those of the First Round of field cultivation in 2014 were included but in the selection of farmers BtBrinjal promoters have dropped farmers belonging to the first phase field cultivation. All the farmers were new except one in Pabna. Out of 20 farmers of the first round at least 16 farmers demanded compensation for the huge loss incurred by them. Other 4 were intensively supervised by the Regional Station of BARI complained less because they did not have to incur costs.

The selected farmers in the second round did not know about each other and had no connection. Each of them was selected separately. Most of the selected farmers were either known to the Officials of Department of Agriculture Extension (DAE) or were selected because they were educated or were known as vegetable farmers. The selection process showed that Btbrinjal was given in the vegetable growing areas and to the vegetable growing farmers. This is an added risk for the area.

UBINIG research team collected information during 27 September to 9 October, 2015. Within this time out of 110 farmers 79 could be interviewed. The rest were either not available, could not be visited because of distance and bad communication. During the interviewing time, the Btbrinjal plants were not there in the field anymore. In most cases the genetically modified brinjals were harvested by March to April, having been in the field for 4 to 5 months.

FINDINGS OF THE SECOND ROUND FIELD CULTIVATION

A. SAPLING DISTRIBUTION OF BTBRINJALS IN FIELD CULTIVATION

In the 19 districts, four Btbrinjal varieties were distributed by BARI and Department of Agricultural Extension (DAE) in specific plots and with number of saplings. In the field it was found that the farmers were given one or two varieties or in each district one of two varieties were tested. The most cultivated varieties were Btbrinjal 2 and Btbrinjal 3 along with control local or BARI developed varieties as shown in the Table 1.

Table 1: Type of Btbrinjal and the control local brinjals

Type of Btbrinjal	Control local brinjal	Areas	# districts, # farmers
Btbrinjal -1 (Uttara)	ISD-006, Uttara, BARI brinjal 1	Comilla, Rangpur, Gaibandha, Joypurhat, Bogra, Rajshahi, Dinajpur	7 districts/ 26 farmers
Btbrinjal -2 (Kajla)	Nayantara, Volanath, Kajla	Jessore, Bhola Narsinghdi, Manikganj, Chittagong, Meherpur, Kushtia, Gazipur, Pabna, Tangail, Mymensingh, Sherpur	12 districts/ 46 farmers
Btbrinjal – 3 (Nayantara)	Volanath, Nayantara, BARI Brinjal 1, BARI brinjal 3, BARI brinjal 5	Narsinghdi, Manikganj, Chittagong, Gazipur, Rangpur, Gaibandha, Joypurhat, Dinajpur, Tangail, Mymensingh, Sherpur, Bhola	12 districts/ 46 farmers
Btbrinjal -4 (ISD-006)	No control brinjal, Jhumka, BARI Brinjal - 6, Uttara	Meherpur, Kushtia, Comilla, Pabna, Bogra, Rajshahi	6 districts/37 farmers

The farmers in Jessore complained that the Btbrinjal given to them was from a variety unfamiliar to them. This was Btbrinjal 2 (developed from Kajla local variety). Jessore farmers have been growing Chaga as a popular variety so the Btbrinjal that came out was not attractive to them. Same was the case with farmers in other areas. To the promoters, it is Btbrinjal 2 and they have no sensibility to the farmers' preferences and were just trying to cultivate the brinjal just as a mechanical product, disregarding farmer's choices and needs. It was also notable that none of the first round farmers wanted to cultivate the Btbrinjal for the second round.

In the 19 districts visited, farmers in 13 districts received saplings from Bangladesh Agricultural Research Institution (BARI) and farmers in 11 districts received from the Department Agricultural Extension (DAE). However in 5 districts such as Chittagong, Meherpur, Kushtia, Pabna and Rangpur farmers received saplings/seeds both from BARI and DAE. In Meherpur and Kushtia, the farmers received saplings from On-Farm Research Department (OFRD) of BARI. In the districts such as Jessore, Pabna, Rangpur, Dinajpur and Chittagong BARI has regional research stations. At the same time in all the districts, there is Department of Agricultural Extension. Those districts which did not have BARI Research Stations, DAE took responsibility of distributing the saplings.

The selected farmers were given training after/before seed distribution ranging from 1 day to highest 4 days in the nearby Agricultural research centers. The training included land preparations, use of organic and inorganic fertilizers, the planting of the sapling by keeping recommended distance, use of pesticides, irrigation, fencing with net etc. The farmers were told that the officers will keep in touch with them.

B. SUPERVISION BY DAE AND BARI

During the field cultivation the farmers were extensively supervised by BARI and DAE officials. The DAE officials at Union, Upazila and district levels visited daily or at least weekly and supervised the growth of the plants. So in case of growth failures, the plants were replaced and also gave necessary advice to the farmers. According to the farmers, most of the time, the officials took care of the plants themselves as they had to show a good performance. This made the farmers inactive and they did not know the details of cultivation of Btbrinjal. They were also told that if any person or any journalist visits them for any information they should call them first and then answer. The UBINIG researchers had to wait sometime to get information as the farmer had to talk to an “official” before giving information.

However, besides the national level supervision by BARI scientists and officials, they were also supervised by some external agencies such as scientists from India, USA and Sudan. This happened mostly in the cases of Field Days or locally known as “*Math Dibosh*” observed to promote Btbrinjal. BARI Director General was accompanied by “foreigners” and was introduced to the farmers. At that time they knew that some of them were from USA, India and Sudan. The *Math Dibosh* was observed in almost all the districts and visits were made by the BARI and DAE officials along with foreigners on a regular basis. This means that the farmers alone could not carry out the cultivation and they needed intensive supervision, although it is a common vegetable except that it was not supposed to spray or use pesticides and was not supposed to be affected by FSB pest.

Table 2: Time of planting of Btbrinjals

Type of Btbrinjal	Time of planting	Areas
Btbrinjal -1 (Uttara)	Late Oct. Early Nov.	Comilla, Rangpur, Gaibandha, Joypurhat, Bogra, Rajshahi, Dinajpur
Btbrinjal -2 (Kajla)	mid. Dec 2014 mid. Oct., mid to late Nov. 2014 Early Dec. Mid. Jan	Jessore, Narsinghdi, Manikganj, Chittagong, Meherpur, Kushtia, Gazipur, Pabna, Tangail, Mymensingh, Sherpur, Bhola
Br. Brinjal – 3 (Nayantara)	mid. Oct., late Oct. mid to late Nov. 2014; Early Dec mid Jan	Narsinghdi, Manikganj, Chittagong, Gazipur, Rangpur, Gaibandha, Joypurhat, Dinajpur, Tangail, Mymensingh, Sherpur, Bhola
Btbrinjal -4 (ISD-006)	mid. Oct, mid. Jan	Meherpur, Kushtia, Comilla, Pabna, Bogra, Rajshahi

The normal planting time for the local Boro season brinjals is October to November. The second round Btbrinjals followed the same time of the season in October-November 2014, however, for those which had plant damage were given again in December, 2014 and January, 2015. It may be noted that one of the main causes given for the failure of the first round that it was planted late (January-February).

C. FERTILIZER USE EXCEEDS RECOMMENDATION GUIDE

The farmers used fertilizers as recommended by the Deputy Agricultural Extension Officer (or the Block Supervisor) of Department of Agricultural Extension. The main fertilizers used were Cow dung, MoP, TSP, DAP, Urea, Zinc, Gypsum, Boron, oil cake, magnesium and even hormone. There was no particular reason given for the use of the fertilizers. However, it appeared from the field observation that Fertilizer Amendment as recommended by the Bangladesh Agricultural Research Council (BARC) vide Fertilizer Recommendation Guide – 2012 in Bangladesh (p.118) (www.barcaapps.gov.bd/documents/books/fertilizer_recommendation_guide_-_2012.pdf) was not followed for cultivation of Btbrinjal varieties. No soil test was made in any of the Btbrinjal fields to assess the needs of kinds of fertilizers and the doses. A blanket dose for Nitrogen (N), Phosphorous (P), Potassium (K), Sulphur (S), Zinc (Zn) and Boron(B) for all the plots in addition magnesium was given for the two plots in Manikganj.

In the booklet distributed to farmers [*Bangladeshe Adhunik projuktir btbeguner jat udbharon O utpadon projukti*] by BARI, Gazipur, January, 2014, the recommended fertilizers are cow dung, urea, TSP and MOP.

D. PESTICIDE USE IN BTBRINJAL

It is claimed by the promoters that Btbrinjal is safe because it is pesticide free. It is called “**Poka bihin begun**” (no-pest brinjal) that it does not require use of pesticide for the most common pest called Fruit and Shoot Borer (FSB). The GM crops are claimed to be safe because it does need application of huge amount of pesticides.

But the reality was that the farmers had to use huge amount of pesticides recommended by the supervising authorities of BARI and DAE. These included Comfidor, Ektara, Admasar, Dithen M-45, Bavistin, Thiovit, Basudin, Furadan, Borax, Demsa granular, Vim powder, Admire, 200sl (Bayer crop science), Bleaching powder, Heckel, Salclox, Diazinon etc. There were many other Insecticides and Fungicide sprayed as provided by DAE.

In the booklet distributed to some of the farmers, they recommended organic pesticides such as Neem seeds, Neem oil, powder soap, Trix. Among the chemical pesticides Malathion, Omite, Baviston were suggested for different pest/disease attacks. It seems in the real situation the supervising authorities were giving more pesticides than those recommended because were pest attacks of different kinds.

In the field investigation of Btbrinjal second round field cultivation, pesticide use was more prominent than the first round. Different pesticides have been used in several times beginning from transplanting to growth, development, bearing and harvest of fruits. The major pests observed in the Btbrinjal field included virus, fungus, insect and mite. The virus infection included tulshi virus and mosaic virus. The fungi appeared as root rot, stem rot, wilting, leaf spot and fruit rot. The insect included aphid, leaf curling, whitefly, sucking insects, Fruit and shoot borer and many others. There was also infestation of red mite.

Thirty five types of pesticides including acaricide, insecticide and fungicide were sprayed several times in the Btbrinjal fields as per direction of the supervising officials.

E. BANNED INSECTICIDE USED

Five banned insecticides including Basudin, Bidrin, Darsbun, Diazinon and Furadan were used in different Btbrinjal fields. Thirty other pesticides used in Btbrinjal fields were not from the list of 76 pesticides recommended for brinjal crop production in Bangladesh (List of registered agricultural bio-pesticides and public health pesticides in Bangladesh, approved up to 65th pesticide technical advisory committee meeting).

The list of banned insecticides used in Btbrinjal fields are presented in the table 3.

Table 3: List of banned insecticides used in Btbrinjal fields

SI No.	Name of the pesticide	Registration Number	Name of the Company
1	Diazinon	14 GAP-08	Satu Corporation Ltd
	Diazinon	90 LAP-20	Ciba-Geigy (Bangladesh) Ltd
	Diazinon 14 G	AP 236	Liza Enterprise Ltd.
2	Bidrin 24 WSC	AP-74	Shell Company Bangladesh Ltd.
	Bidrin 85 WSC	AP-80	Shell Company Bangladesh Ltd.
3	Basudin 10 G	AP-23	Syngenta Bangladesh Ltd.
4	Furadan 3 G	AP-85	FMC International S. A
5	Darsbun 20 EC	PHP-5	Auto Equipment Ltd.
	Darsbun 20 EC	PHP-85	Auto Equipment Ltd.

Source: www.IGsplgd.gov.bd/wp-content/uploads/2014/09/Banned-Pesticides

These banned insecticides were used in farmers' fields in Gaibandha, Kushtia, Manikganj, Mymensingh and Sherpur districts.

The most of common insects were aphid, whitefly and other sucking insects. There are many insecticides of lower toxicity recommended for these insects. Then why such highly toxic banned insecticides like Diazinon, Bidrin, Basudin, Furadan and Darsbun were used for Btbrinjal? Was it a pre-emptive strike against the attack of Fruit and shoot borer (*Leucinodes orbonalis*) or a desperate act of saving the crop from infection of Fruit and Shoot Borer (FSB)?

Interestingly the pre-emptive application of Basudin and Diazinon and spray of Darsbun after infestation of shoot borer, 2-3 times in the Btbrinjal fields were observed mostly in the fields of farmers in Sherpur district. Their fields were under constant supervision of the DAE, BARI and Indian experts. All the plant protection measures were taken as per the advice of the concerned scientist of BARI and the officers of DAE.

Btbrinjal has been created to be resistant to Fruit and shoot borer (*Leucinodes orbonalis*) commonly known as FSB. In the fields it was observed that insecticides were applied indiscriminately including those

from the list of banned pesticides. It is an irony that the farmers were given signboards to show that Btbrinjal were pesticide free!

PRODUCTION PERFORMANCE OF BTBRINJAL

It is claimed that the Btbrinjal is profitable because the yield will be free from the loss from the FSB attacked brinjals. However, the yield performance was not according to the expectations of the farmers. This is shown in the table 4:

Table 4: Yield information given by Btbrinjal farmers

Districts	Btbrinjal	Production
Jessore	Btbrinjal 2	1.1 ton in 22 deci
Narshingdi	Btbrinjal 2 & 3	10 kg
Manikganj	Btbrinjal 2 & 3	261 kg
		10 kg
		60 kg
Chittagong	Btbrinjal 2 & 3	6 kg
		10 kg
Meherpur	Btbrinjal 2 & 4	1.26 tons – 2.23 tons
Kushtia	Btbrinjal 2 & 4	746 kg – 1.1 ton
Gazipur	Btbrinjal 2 & 3	560 kg – 746 kg
Comilla	Btbrinjal 1 & 4	336 kg
Pabna	Btbrinjal 2 & 4	186 kg – 298 kg
Rangpur	Btbrinjal 1 & 3	746 kg
Gaibandha	Btbrinjal 1 & 3	224 kg - 447 kg
Joypurhat	Btbrinjal 1 & 3	866 kg
Bogra	Btbrinjal 1 & 4	784 kg – 1.1 kg
Rajshahi	Btbrinjal 1 & 4	1.3 tons
Dinajpur	Btbrinjal 1 & 3	336 kg – 2.2 tons
Tangail	Btbrinjal 2 & 3	1.3 tons – 2.6 tons
Mymensingh	Btbrinjal 2 & 3	3.7 tons
Sherpur	Btbrinjal 2 & 3	1.8 tons – 2.9 tons
Bhola	Btbrinjal 2 & 3	1.5 tons - 3 tons

In terms of some narrative information, farmer Md. Abul Bashar in Jessore said that he had to incur cost of Tk. 25,000 for cultivating Btbrinjal in 22 decimal of land. He got 30 maunds, which he could sell only at Tk. 12000. The Net loss is Tk.13500. Farmer Md. Mosharraf Hossain spent Tk. 29,000, could sell only at Tk. 10000. Net loss is 19,000.

In Narsinghdi, Farmer Abul Hayat said: “Crop was not at all good. Produced one maund of Kajla and three maunds of Nayantara variety of Btbrinjal. The farmer Abul Hayet incurred loss.” But another farmer Abul Hossain in the same area said that he had good crop. Farmer Abul Hayat reacted to this information saying that Abul Hossain did not speak the truth. “his brinjal crop was also badly affected. He had lied to you because his close relative Dr. Asadullah is a scientist in the BARI. We cultivated Btbrinjal out of his patronization. If Abul Hossain now speaks the truth the onus of our loss will fall to Dr. Asadullah. In order to save Dr. Asadullah, he has narrated all that lies to you. On top of that the statement of the benefit that he mentioned was gained from cultivation of “Volanath” a local variety of brinjal cultivated after the damage of Btbrinjal crop by disease.”

The farmers could not see any special benefit in cultivating Btbrinjal. On the other hand, the farmers in the nearby fields enjoyed better performances of their crops as shown in the table 5:

Table 5: Btbrinjal and local brinjals in the nearby fields

Areas	Btbrinjal	Local brinjals nearby fields	performance comparison
Jessore	Btbrinjal 2	Makra begun and Iret begun nearby	Local brinjals performed better
Narshingdi	Btbrinjal 2 & 3	-	-
Manikganj	Btbrinjal 2 & 3	Karate begun, Iret Begun and Narsinghdi begun	Local brinjals performed better
Chittagong	Btbrinjal 2 & 3	Deshi gol begun and Dohazari	Local brinjals performed better
Meherpur	Btbrinjal 2 & 4	-	-
Kushtia	Btbrinjal 2 & 4	-	-
Gazipur	Btbrinjal 2 & 3	-	-
Comilla	Btbrinjal 1 & 4	Shingnath	local brinjal performed better
Pabna	Btbrinjal 2 & 4	Jhumka, Laichon and Atghoria	Local brinjals performed better
Rangpur	Btbrinjal 1 & 3	Dista, Shoila, Nodi, Guti, Himti, Collage	Local brinjals performed better
Gaibandha	Btbrinjal 1 & 3	Narikel jhuki, Baula and hybrid	local brinjals performed very good

Joypurhat	Btbrinjal 1 & 3	Hybrid brinjal	no information
Bogra	Btbrinjal 1 & 4	Hybrid brinjal	no information
Rajshahi	Btbrinjal 1 & 4	Rangila, Futki, Narkeli, Jessori	Local brinjals performed very good
Dinajpur	Btbrinjal 1 & 3	Hybrid brinjal	No information
Tangail	Btbrinjal 2 & 3	Jhumki, Shignath, Tabla, Rangupuri, nasimon	Local brinjals performed very good
Mymensingh	Btbrinjal 2 & 3	Desi gol Begun, Deshi lomba Begun, Shignath, Lomba kalo	Local brinjals performed very good
Sherpur	Btbrinjal 2 & 3	Jhumki, Bottle begun, Shabonti begun, Kaike begun	Local brinjals performed very good
Bhola	Btbrinjal 2 & 3	Gol kalo begun	local brinjals performed well

Except in Meherpur, Kushtia and Gazipur districts, the farmers could compare their Btbrinjal performance with that of local brinjals varieties.

MARKETING OF BTBRINJAL

Btbrinjals cultivated in the farmers' field were consumed by the farmers and also sold in the market. For consumption of Btbrinjals, the farmers were not told about any precaution or any potential hazards that might happen or should be noted by the farmers. For selling of the brinjals in the market they were only given a sign board that indicated that it was a "pesticide-free" brinjal. However, there were no separate selling of the Btbrinjals. So for consumers it was not possible to know which Btbrinjals were. In fact farmers found it difficult to sell Btbrinjal separately because it lost its freshness much more quickly than the normal brinjals. So for the farmers labeling was not in their interest which makes the consumers more at risk of not knowing which Btbrinjal is and which is not.

In this investigative report we have found that about 36 markets had Btbrinjals in the whole sale and open market.

Table 6: Selling of Btbrinjals in the market

Areas	Btbrinjal	Name of the market	Form of marketing
Jessore	Btbrinjal 2	Jhikorgacha bazar	whole sale
Narshingdi	Btbrinjal 2 & 3	Shibpur bazar	whole sale
Manikganj	Btbrinjal 2 & 3	Manikganj bazar	whole sale
Chittagong	Btbrinjal 2 & 3	Katir Hat, Hathazari bazar	whole sale
Meherpur	Btbrinjal 2 & 4	Gangni bazar	Whole sale
Kushtia	Btbrinjal 2 & 4	Modhupur bazar	Whole sale
Gazipur	Btbrinjal 2 & 3	Dhirasram bazar	Whole sale open market
Comilla	Btbrinjal 1 & 4	Nimshar bazar	open market/ whole sale
Pabna	Btbrinjal 2 & 4	Pushpapara, Atghoria bazar, Khidirpur and Tebunia bazar	Wholesale market open market
Rangpur	Btbrinjal 1 & 3	Boirati, Katgara bazar, Bamandanga, Khalashpir bazar	Open market
Gaibandha	Btbrinjal 1 & 3	Kolitola, Gobindaganj bazar, Khashitola bazar	Whole sale & open market
Joypurhat	Btbrinjal 1 & 3	Panchbibi, Hili	Open market
Bogra	Btbrinjal 1 & 4	Sherpur, Mirzapur bazar	Open market
Rajshahi	Btbrinjal 1 & 4	Babesgwar	Whole sale & open market
Dinajpur	Btbrinjal 1 & 3	Bahadurpur, Raniganj bazar	open market
Tangail	Btbrinjal 2 & 3	Ganga bazar, Elanga Bazar, Jugni, Baghil bazar	open market
Mymensingh	Btbrinjal 2 & 3	Shambhuganj, Vaitkandi, Kathal kandi, Charniamatpur	whole sale and open market
Sherpur	Btbrinjal 2 & 3	Kusun Hati, Jamalpur bridge bazar	Whole sale and open market

Bhola	Btbrinjal 2 & 3	Bepari bazar	whole sale and open market
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With the increase in the number of districts, the threats are increasing particularly for the consumers because the Btbrinjals are being mixed with the normal brinjals. Consumers have no way to decide whether they want to consume the Btbrinjals separately; if they are “good for health” or “threat to health”. This is also a clear violation of the Terms of approval and there has been no monitoring by the Ministry of Environment.

Most of the farmers consumed at home. Only in one case in Comilla they gave to the neighbors as well. But the taste of the brinjal was not liked by the farmers. However, for the scientists they can at least trace the farmers’ families as those who consumed and can do some monitoring of health impacts.

The price of Btbrinjals has been very low as these could not attract the consumers by its look. The price range reported by the farmers is Tk. 2/kg to a maximum of Tk. 20/kg. The cost of production has been higher than the income received after selling of the brinjals. All the farmers could not give accurate estimates of the cost and income, but those who gave the following information.

In Jessore farmer Mintu Hossain, cost incurred in 22 decimal land was Tk. 25,000 and the income received was Tk. 12000 only, a net loss of Tk. 13500. In Narsingdi, farmer Abul Hayat incurred a loss of Tk. 15,000. Although government provided the inputs such as fertilizers, pesticides etc. free of cost, but yet the farmers had to spend money for land preparation, fencing and labor were incurred by farmers themselves. The net calculation of loss by farmers ranged between Tk. 15,000 to Tk. 30,000. In comparison they found that the fellow farmers cultivating local varieties could earn between Tk.70,000 to Tk. 100,000 from the same size of the field.

RESPONSE OF THE FARMERS

The farmers in different districts did not know that Btbrinjal is a genetically modified brinjal. It was never explained to them. In some cases, farmers were given the saplings first and were given sign board with the name of Btbrinjal much later. They were given through some acquaintances, which they respected and took the saplings. They also found that the officials from DAE and BARI came regularly and supervised their plots. All inputs such as fertilizers, pesticides were given in kind by the DAE and BARI. But after the cultivation, marketing and consumption, the farmers were not at all attracted to this new ‘variety’ and gave different reasons for not cultivating Btbrinjal in future. One farmer in Jessore told Dr. Rafiqul Islam himself, when he visited his field on a Field Day that he would not grow Btbrinjal in future”.

1. Farmers were given ‘unfamiliar varieties’ to their areas. In Jessore for example, Btbrinjal 2 (Kajla) and Btbrinjal 3 (Nayantara) are of blackish colour which is unfamiliar to the farmers of Jessore.
2. Economic losses due to lack of market demand and less price of Btbrinjals if they are sold separately.
3. Some farmers said that they may try to cultivate it if all inputs are given by the government. But farmers are not ready to spend their own money for its cultivation.
4. Many farmers said, “I will not cultivate Btbrinjal anymore and also tell other farmers not to cultivate it.”
5. “It is like burning the finger, so others should keep themselves away from it”.

6. “Btbrinjal is worthless crop. My money, land, labor and time were all wasted.; It is a bad experience”.
7. Some farmers could not even have the experience of harvesting Btbrinjal because the plants died or the fruits fell before the harvest.
8. There were heavy infestation of whitefly and aphid in Btbrinjal and spraying of pesticides for control of pests. There were also need for regular spraying of fungicide and other insecticides.
9. The farmer in Comilla Muhammed Ali said: *“I was told that it was new variety of brinjal. The officers of Agriculture Extension did not tell me that it was Btbrinjal. After a few days of planting the DAE came with Btbrinjal field experiment sign board. I then asked them why you came to my field with an experiment. You should have done it in the land of the Agriculture Department. I told them I would not continue with something experimental. They requested me to continue with the crop. I complied with their request”.*
10. Farmer in Pabna Shamsul Haque said: *“I cultivated Btbrinjal with the hope of earning a good return. But in reality I have a big loss. The Agriculture officers assured me that there would be no insect infestation in Btbrinjal. The lease money of land was also promised to be given from the DAE. The DAE officers were right in their statement that there is no fruit borer in Btbrinjal. The fact is that there was no fruit in the plants of Btbrinjal. So there is no object for fruit borers to be there. My land is very fertile. I had lot of options for crops. I incurred a loss of about BDT 15-20 thousands. So I swear I shall not grow Btbrinjal in future”*
11. Farmer in Pabna Babul Hossain said: *I was told by the Agriculture officers that there would be no insect infestation and high yield of brinjal. The fact is just the reverse. There were many pests and little bearing of fruits. I have done whatever they advised. I used irrigation when they had asked, I applied fertilizer as they asked. I sprayed pesticides when they asked. But the result was just ‘loss”.*
12. Few farmers said that they have saved the seeds and will try on their own to cultivate Btbrinjal to see if it grows. Pabna farmer Md. Almas Pramanik said: *I have saved some seeds of Btbrinjal.*
13. *I shall grow it experimentally on my own. Based on the performance I shall decide whether to grow or not to grow in future.*

Out of 79 farmers in different districts 58 (74%) farmers declared that due to incurring of loss they would not cultivate Btbrinjal anymore, and 16 (20%) farmers said they will do it only if the BARI or DAE provide all the support. Only one farmer showed interest to cultivate again.

CONCLUSION & RECOMMENDATIONS

Bangladesh Agricultural Research Institution (BARI) and the Department of Agricultural Extension (DAE) tried all ways possible to make Btbrinjal field cultivation successful, but in two rounds it has shown nothing but miserable failures and most importantly it could not make brinjal cultivation free from pesticide use nor could it make it profitable crop. Btbrinjal project is based on false assumption, false information and false claims. Both the farmers and the consumers are becoming victims of such efforts to promote genetically modified crop in a biodiversity rich country like Bangladesh.

The approval for field cultivation was given by the National Committee on Biosafety, under the Ministry of Environment and Forest with 7 specific conditions to be fulfilled.

The first two conditions were to be filled by the authorities responsible for field cultivation of Btbrinjal before it was given to farmers. According to the Condition 3 of the approval there is a requirement for formation of a Field Biosafety Committee involving the concerned officer of the Department of Agriculture Extension, concerned scientists of the BARI Regional station, district and divisional level officers of the

Ministry of Environment for Biosafety measures monitoring. BARI was supposed to propose the formation of the committee to the NCB. There was no such information available about the proposed committee. It is only the Agriculture Extension Officer who was looking after all aspects of production.

According to condition 5 the applicant institution and the concerned Ministry will have to take proper step on emergency basis in case there is any impact of Bt brinjal on account of environment and public health. The applicant institution will be responsible for any adverse impact on environment due to release of such technology. No such effort was seen on the ground.

According to the Condition 6 the proponent institution will take effective measure for labeling of Bt brinjal at the time of marketing. It was observed in the first round in Rangpur that Bt brinjal was being sold in the market along with normal local variety brinjals. The farmer was telling the customers that these were brinjal of the Government. There was no label indicating that those were genetically modified brinjal. In the second round, no labeling was there at the time of selling Btbrinjal. Out of seven conditions, at least four could be seen at the field for clear violations. (For details see [‘Btbrinjals: Non-Compliance of Approval Terms’](#))

The investigative research findings showed, that farmers were not involved in the cultivation but their fields and their names were being used to show that it was done by farmers. The consumers of btBrinjals were not informed and no follow up health impact test wa ever conducted.

On the basis of the investigation and the monitoring of the second field cultivation of Btbrinjal, we recommend and demand the following:

1. The promoters including all stakeholders such as USAID, Cornell University and others directly or indirectly related in promoting GMOS in a biodiversity rich country must show the evidence that the first round field cultivation was successful and there are justification for a second round field cultivation. Mockery of science and manipulation of information must be stopped immediately. If there is no evidence and a credible public report that can be assessed and judged by both the scientists, civil societies and the farmers organizations desperately struggling to defend their environment, ecology and biodiversity and most importantly, the integrity and ethics of scientific research, any further move must be stopped and immediate measure must be taken to assess the damage already done in experimental areas.
2. If the first round cultivation was successful, the reason to drop the farmers of the first round in the second round cultivation must be explained. The first round farmers who did participate in the field cultivation must be compensated immediately for the economic loss they have incurred.
3. BARI with the GMO promoters must organize a public hearing on the issue and submit the first and second round report for public discussions.
4. Any intention or third round of Btbrinjal cultivation must be stopped since it is not a safe, economically viable and free from the use of pesticide.
5. To deal with the scientific, ethical and regulatory issues Government must include representative from civil societies, scientists not on the pay role of multinational or agencies and farmers organization in the Biosafety Committees at different level of decision making processes.
6. The government must publish a “White Paper” on the findings of the GM crop Btbrinjal to show incorporating the findings such as this report reflect balance and scientifically objective assessment of GMOs.

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Appendix: At a glance: Btbrinjal plots planted and plots visited by UBINIG in 2015

Sl. No.	Districts	Planted plots by BARI Farmers	UBINIG Visited plots
1	Gazipur	3	3
2	Manikganj	5	3
3	Tangail	5	5
4	Narshingdi	5	3
5	Comilla	7	4
6	Sherpur (Jamalpur)	5	5
7	Mymenshingh	5	3
8	Rangpur	11	6
9	Gaibandha	4	4
10	Dinajpur	5	4
11	Bogra	6	2
12	Joypurhat	4	2
13	Rajshahi	10	5
14	Kushtia	5	5
15	Meherpur	5	4
16	Pabna	10	9
17	Jessore	5	5
18	Chittagong	5	4
19	Bhola	5	3
	Total	110	79