Imposing Bt brinjal in Bangladesh:

A Failed Project

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UBINIG/Nayakrishi Andolon

Presented at the Webinar:

Bt brinjal in India: The Danger is back

27 August, 2020, 4.30 pm Bangladesh time

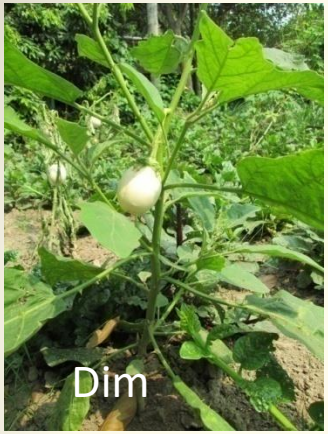
BANGLADESH

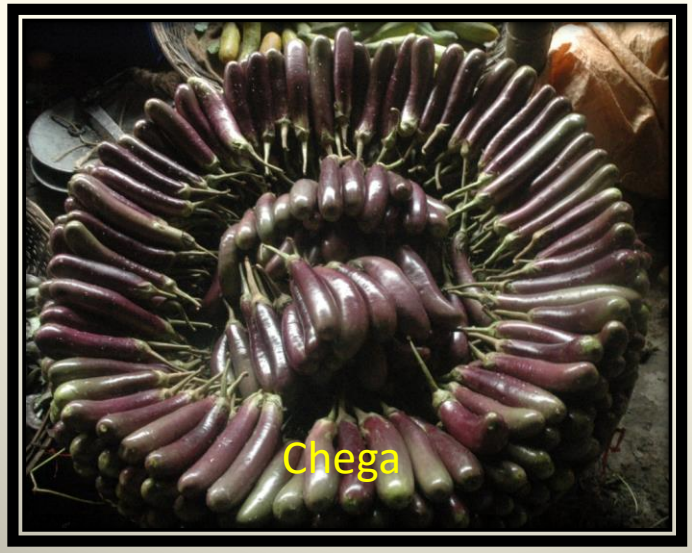
Known for

Very Rich Diversity of Brinjals

- **Bangladesh is among the few known countries as the country of origin for S.*melongena* (Indo-Burma region).** [AEGROPEDIA, 2012]
- **Bangladesh has 248 different varieties and cultivars of brinjals (aubergine) in different agro-ecological zones** (GOB, 2007).

Examples of BRINJAL (Eggplant) DIVERSITY





Some Facts on brinjals in Bangladesh

- Brinjal is the second important vegetable after potato grown in two seasons Rabi and Kharif and vary by different agro-ecological zones.
- Kharif brinjal cultivated in 47213 acres, production: 170189 MT (2018-19) – mostly by small scale farmers (Source: Yearbook of Agricultural Statistics, 2019, GOB)
- Rabi brinjal, including HYV and Hybrids: 27,540 acres and 224040 MT in production (2011-12) [source: BBS , 2014]
- Bangladesh Agricultural Research Institute (BARI): 6 HYV, hybrid, mostly for Rabi season
- Private seed companies: 19 Hybrid varieties for Rabi season
- Commercial brinjal cultivation uses HYV and hybrid in Rabi season

Nayakrishi Seed Wealth Centres & Farmers Cultivate 45 Local Varieties both for Rabi and Kharif season

Pest infestation & pesticide use

- Pest infestation is higher among Kharif brinjals than those of Rabi season leading to a loss of yield by 86%. [Ali, et al, J.Agril.,Sci.,7, 1980]
- Pesticide use is higher in the commercial cultivation of the HYV and Hybrid brinjals applied upto 50 times in a cropping season
- High yielding varieties are more susceptible to FSB (Fruit & Shoot Borer pest) than low yieldng ones.
- BARI study showed 24 brinjal varieties resistant to FSB, infestation rate between 9% to 30%. [Source: Mannan et al; PJBS, 2003]
- Reduction of pesticides was the main promise for Bt brinjal " If pest attacks can be avoided through genetic intervention, that will be our choice" – Matia Chowdhury, past Agricultural Minister (Daily Star, 2011)

Bt brinjal introduction

- Bangladesh became a target country for the Bt brinjal under the Agricultural Biotechnology Support Project II (ABSP II) particularly after the moratorium in India in 2010 and court order in the Philipines against Bt brinjal.
- The introgressions of Bt cry1Ac gene into 9 Bangladeshi local variety brinjals were done at MAHYCO, (Maharashtra Hybrid Seed Company) the Indian company. Monsanto had 26% share at Mahyco-Monsanto Biotech (MMB) later divested. The ABSP II is funded by USAID and led by Cornell University, USA.
- Knowing about the moratorium in India and the Philipines court order, Bangladesh environmentalists protested against approval process, concerns were expressed by International scientists.
- During 2013, Bangladesh was going through political disturbance for the upcoming election in January, 2014. The last session of the National Parliament was held on 30 October, 2013.
- Since the media report about application for approval, there have been protests, memorandums, writ petitions in the court.

Approval process

- Bangladesh government took an unusually quick process to approve Bt brinjal for field cultivation.
- Application for approval by National Technical Committee for crop Biotechnology (NTCCB) in mid July 2013.
- Writ petition in August, 2013 against approval.
- Expert committee declared all scientific findings sound (meeting on 19th Sept. 2013)
- Writ petitions reject by court on 22nd September, 2013.
- Second writ petition on health risks got direction not to release without assessing possible health risks on 29th September, 2013.
- Expert Committee meeting sent the report to National Committee on Biosafety at the ministry of Environment.
- The International scientists and environmentalists letters were sent to the Expert Committee, but were ignored.
- Application for approval was sent to the Biosafety Core Committee (BCC) on October 21, 2013.
- Meeting between the Ministry of Agriculture & Ministry of Environment held on October 27 & 28.
- On 30th October, 2013 the approval was given because of political decision.
- No media press briefing was done.

The Daily Star

Published: Thursday, July 11, 2013

Brinjal modified

Bangladesh set to join elusive club of 28 GM crop growing countries

Reaz Ahmad

- **Traditional brinjal** is very vulnerable to pests. Excessive use of pesticides by farmers poses health hazards
- **Genetically modified brinjal** is infused with a bacterial gene that destroys pests. No pesticide is needed.
- **Anti-GM activists** say govt is not sharing test results; farmers will have to buy seeds from multinationals
- **Scientists/regulators** say there will be public consultation before its release; farmers will be able to use its seeds

Bangladeshi scientists have readied the country's first genetically modified (GM) crop — brinjal infused with pest-resistant genes — that will see a drastic fall in the use of harmful pesticides in the crop. Bangladesh Agricultural Research Institute (Bari) will apply to the National Technical Committee for Crop Biotechnology on Sunday for its release next month, said officials concern

No biosafety or health safety research done

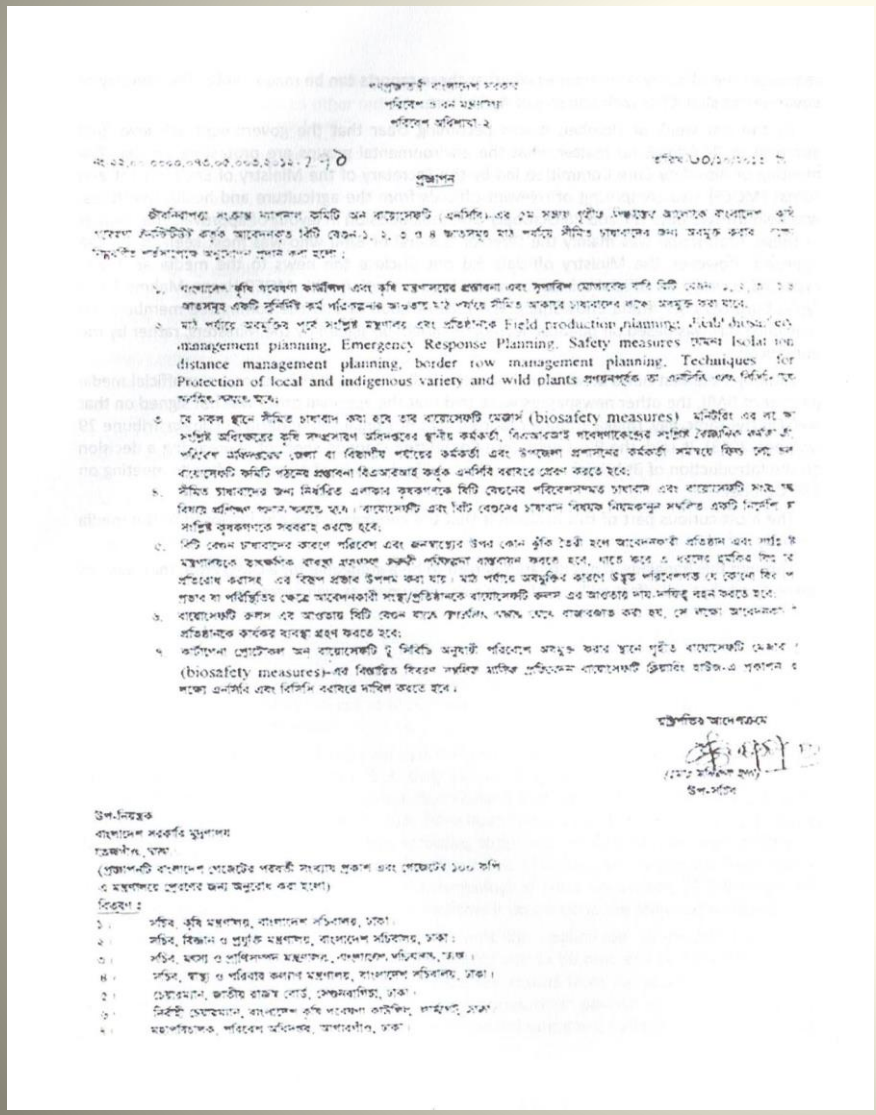
- Despite Court order for independent research on health safety issues, no such report was available.
- BARI report submitted has no information regarding the name of the laboratory (s), research methodologies and the parameters on which the bio-safety researches were conducted, nor have they elucidated any data of the toxicity tests done on the mammals.
- "We could not carry out any test regarding human health hazards of Bt brinjal in Bangladesh due to the absence of necessary laboratories," Dr Rafiqul Islam Mondol, Director general of the Bangladesh Agricultural Research Institute (BARI), -(Dhaka Tribune, 14 September, 2014)

- For approval from the Ministry of Environment and Forestry, BARI submitted the same dossier that Mahyco-Monsanto submitted to GEAC (Genetic Engineering Approvals Committee) of India.

Protest in front of BARI before Approval

Bt brinjal approval in 2013

Four Bt brinjal varieties were approved in October 2013 for field cultivation; seeds are distributed to farmers by Department of Agri. Extension (DAE)



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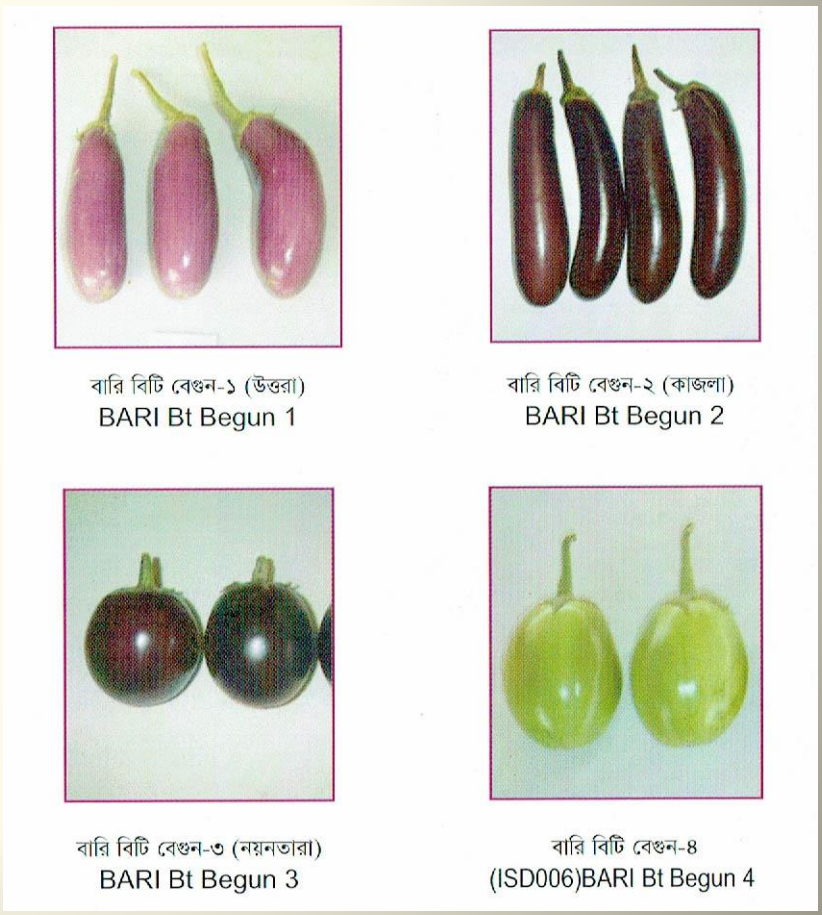


বারি বিটি বেগুন-১ (উত্তরা)
BARI Bt Begun 1

বারি বিটি বেগুন-২ (কাজলা)
BARI Bt Begun 2

বারি বিটি বেগুন-৩ (নয়নতারা)
BARI Bt Begun 3

বারি বিটি বেগুন-৪
(ISD006)BARI Bt Begun 4

Protests & Concerns continued

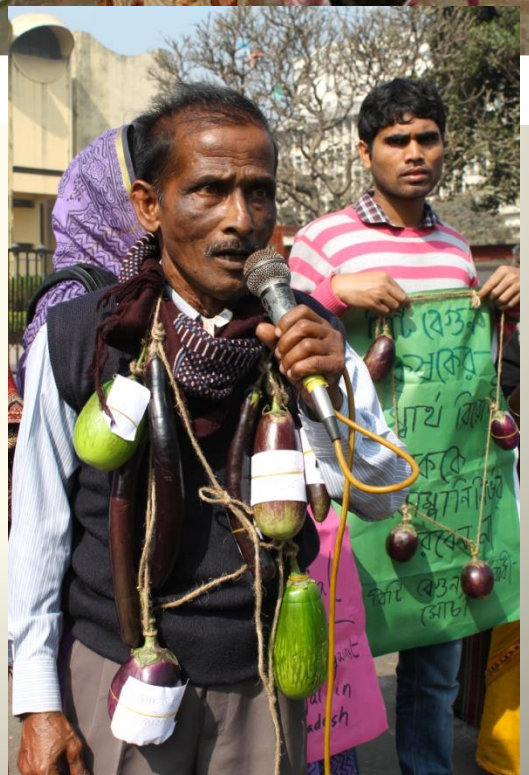
- UBINIG and Nayakrishi Andolon farmers have protested against the application by MOA for approval.
- Anti-GMO activists formed Coaltion against Bt brinjal organized human chains around the country.
- Articles and protest letters were published in newspaper and electronic media.
- Filing writ petitions in the High court appealing not to approve Bt Brinjal for commercial release.
- More than 100 international organizations and 42 eminent South Asian women sent memorandum to the Prime Minister.
- In August 2013, 10 international independent scientists wrote letters to the Prime Minister, Sheikh Hasina, GOB not to allow the introduction of Bt. Brinjal.
- Have witnessed in Tribunal against Monsanto in the Hague, Netherlands, 2016

- Professor David Schubert, Salk Institute for Biological Studies, USA: *unprecedented health hazard to the population of Bangladesh because there has not been adequate safety testing of Bt Brinjal for human consumption*.
- Scientists warned: *If the introduction of Bt Brinjal is allowed, an enormous number of individuals are going to consume amounts of Bt toxin that are thousands times higher than anytime previously in the short history of this GM technology.*
- This population is extremely heterogeneous in genetic makeup, age, and also with respect to underlying health


পরিবেশ ও স্বাস্থ্যের জন্য ঝুঁকিপূর্ণ এবং ব্যর্থ বিটি বেগুনের অনুমোদন প্রত্যাহার কর
বিটি বেগুন চাষ সম্প্রসারণের উদ্যোগ অবিলম্বে বন্ধ কর
তারিখ: ১২ নভেম্বর, ২০১৪
স্থান: জাতীয় প্রেসক্লাব, ঢাকা
নয়াকৃষি আন্দোলন, নারীগ্রন্থ প্রবর্তনা ও বিটি বেগুন বিরোধী মোর্চা


বিটি-বেগুনের
মালিক
কে?
কৃষক না
কোম্পানি?
নয়াকৃষি আন্দোলন


আলোচনা সভা
"বিটি বেগুনের উন্মুক্ত চাষ পরিবেশ ও জনস্বাস্থ্যের জন্য ঝুঁকি"
৩১ মার্চ ২০১৪
ঈশ্বরদী প্রেসক্লাব, ঈশ্বরদী, পাবনা।
বাংলাদেশ পরিবেশ আইনবিদ সমিতি (বেলা)
Community Legal Services
UKaid



Lack of Effective Regulatory Mechanisms

- No law and legally stipulated regulatory authorities to adequately safeguard ecology, biodiversity and human health.
- No law to protect people from the potential hazards of Biotechnology.
- Despite Bangladesh being a party to the Cartagena Protocol on Biosafety, there has always been resistance from corporate interests to enact proper biosafety law and regulatory regime.
- National Task Force Committee on Biotechnology of Bangladesh (NTCBB) is under the prime Minister as Chairperson.
- In 2005, the Ministry of Environment and Forest, GOB formulated the Biosafety Guidelines of Bangladesh to address the precautionary approach.
- Ministry of Environment passed Biosafety Rules 2012.
- No Biosafety Act yet

IPR issue

A Tripartite Agreement was signed by Mahyco, Sathguru Management Consultants Private Ltd. (India) and Bangladesh Agriculture Research Institute (BARI) on March 14, 2005

- Section 1.19 : all Bt Gene is a Monsanto or Mahyco technology and the intellectual property rights of the concerned will be infringed by unauthorised distribution of products containing Bt Gene.

- Sub-section (c) of Section 9.2

  it can be terminated by the sub-licensor or Mahyco if the laws and regulations in Bangladesh do not provide assurance of protection for commercial and intellectual property rights.

[http://unbconnect.com/btbrinjal/#&panel1-1]

Brinjals patented are listed in the Appendix

	Variety	Accession
1.	Uttara	EC549409
2.	Kajla	EC549410
3.	Nayantara	EC549411
4.	Singhnath (B009)	EC549412
5.	Dohazari(BL072)	EC549413
6.	Chaga	EC549414
7.	Khatkhatia (BL117)	EC549415
8.	Islampuri	EC549416
9.	Ishurdi local (ISD006)	Ec549417

List of varieties into which BT Gene may be crossed or backcrossed as per Section 2.5(b) of the Agreement

These are transformed into
Bt Brinjal 1, 2, 3, 4, 5, 6, 7, 8 and 9

Bt brinjal seed distribution

Modified brinjal goes to farmers

Matia distributes saplings of country's first genetically modified crop

Agriculture Minister Matia Chowdhury providing saplings of the country's first genetically modified crop, Bt Brinjal, to one of 20 farmers at a programme at Bangladesh Agricultural Research Council in the capital yesterday.

The Bangladesh Agricultural Research Institute (Bari) has formally started distributing saplings of the country's first genetically modified (GM) crop Bt Brinjal among the farmers Agriculture Minister Matia Chowdhury yesterday distributed the saplings among 20 farmers from four regions at a programme at the Bangladesh Agricultural Research Council (Barc) in the capital. Bangladesh has now joined a group of 29 countries that grows GM crops. **(The Daily Star January 23, 2014)**

- There was hurry in seed distribution b/c of loss of ravi season.
- Election was held on 5 January, 2014, government was formed and by 22 January seeds were distributed by the Agricultural Minister.
- Seeds are given only for Ravi season, where as the pest infestations are higher in the Kharif season.
- First round Jan 2014: 20 farmers in 5 districts – 17 farmers discontinued
- Second round seeds given in September (2014-15): 108 farmers in 19 districts, only one was from earlier round. 58 farmers discontinued, 16 farmers agreed if DAE give them support.
- Six round of seeds have been distributed till 2018-19.

UBINIG Field Studies

- First & second Round (2014 – 2015-16): Farmers were given saplings, fertilizer, pesticides, the net for fencing of the plot and cash money for cost. DAE officials regularly monitored the fields and if there was pest attack they recommended pesticide.
- The plants grew too small to have fruit.
- 16 of the 20 farmers (2014) incurred huge loss, 9 had saplings died at an early stage.
- Second farmers were mostly new, and agreed to give only 16 deci. Land for Bt brinjal at the persuasion of DAE for 33 deci. It was imposed on the farmers with persuasion.
- Farmer description: “The crop condition appears as was last season. However, there are more flowers but yield is very poor. The plants have burnt appearance. The farmers will incur heavy loss this year also”. (2015)
- Fertilizer use recommended by DAE were TSP, DAP, Urea, MOP etc.

- No soil test was done in the fields of Bt brinjal plots for the requirement of fertilizers.
- The major pests observed in the Btbrinjal field included virus, fungus, insect and mite. 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
- 35 types of pesticides including acaricide, insecticide and fungicide were sprayed several times in the Btbrinjal fields as per direction of the supervising officials.
- 5 banned insecticides including Basudin, Bidrin, Darsbun, Diazinon and Furadan were used in different Btbrinjal fields

- Farmers spent an average of Tk. 25,000 – 29,000 for the cultivation, could sell only at Tk. 10,000 -12,000 only. [ref: 2nd round farmers]
- Farmers were patronised by DAE/BARI officials as they had target to fulfill. These farmers could not give the real picture of their performance.
- Marketing was difficult for the bad look of brinjal conditions (skin and texture), consumers said taste was not good.

Bt brinjal 3 found in a Market of Jamalpur district

- 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.
- In the following rounds 68% farmers with bad experience were not willing to go adoption for next season.
- Only 13% continued for 2015-16, 10% continued for 2016-17 and only 6% continued for 2016-17.
- Among UBINIG study samples, 73% abondoned Bt brinjal cultivation.

- [see the reports in UBINIG website www.ubinig.org]

- Some interesting findings of International Food Plicy Research Institute (IFPRI) and GOB:
- Bt brinjal accounted for 4.7% and 9.6% of all winter and summer vegetable production.
- Four Bt brinjal lines are not “ideally” suited for all regions, agronomic performance and consumer prefernces.
- 75% of non-Bt brinjal fruits vs 58.2% Bt brinjal fruits could be sold because of skin color and texture retention problem.
- In different areas, farmers responded different. Only 48.5% wanted to continue in Jessore, while 70% wanted to continue in Tangail.
- But overall the problem of continuation remains in all the areas.

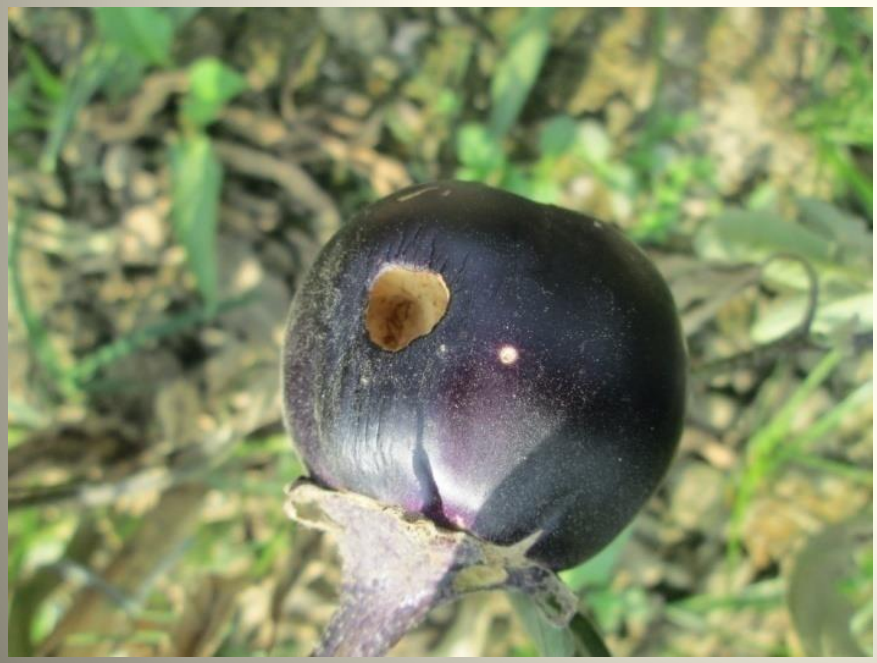
Field cultivation

A very well-supervised Bt brinjal plot with all Inputs provided by DAE and regular visits of officials


NOT ALL FIELDS LOOK LIKE THAT


Plant not growing

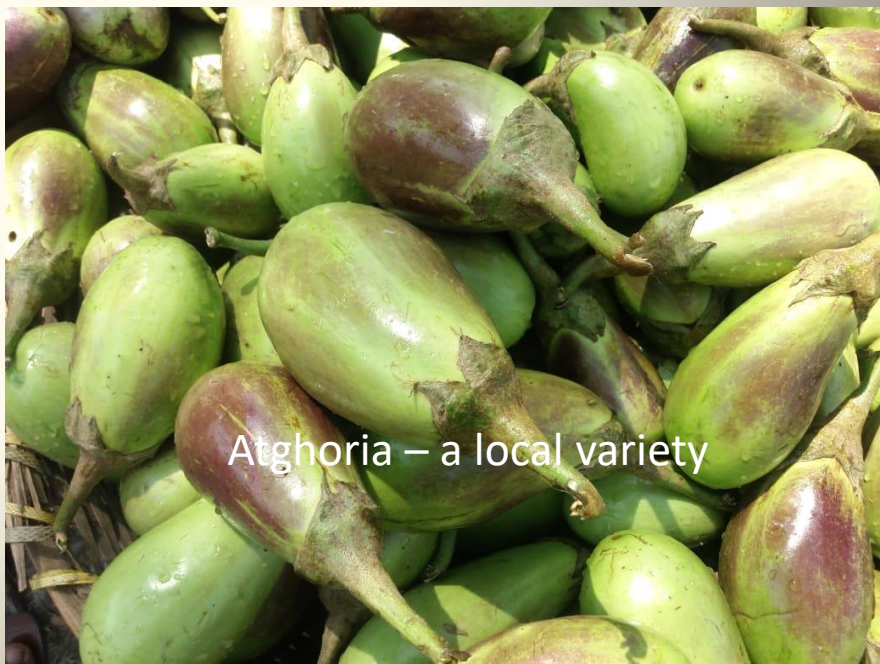

Plant not growing



General Complaints of farmers

- Farmers are not told what kind of brinjal it is. The names given are Bt brinjal 1, 2, 3 or 4 – numbered names vs real names
- Farmers are given false hopes of "no pest attack, no pesticide use", higher yield/income
- Longer time & weak plant growth, no or male flowers, no or less fruit,

- Reported loss ranged between BDT 15,000 – 30,000
- Local varieties earned BDT 70,000 – BDT 100000.



'This is the future of agriculture' Md Rafiqul Islam Mondal, director general of Bangladesh Agricultural Research Institute (BARI), explains to AKM Atikuzzaman about the experiment and controversy surrounding the country's first genetically modified brinjal variety.

"It is totally impossible to label the brinjals before going to market here in Bangladesh. We wrote this observation to the government that it would be difficult to distinguish the varieties with labels in markets".

NEWAGE, March 14, 2014

No labels, violations of approval conditions

- According to a condition imposed by the National Committee on Biosafety, no GM crop can be sold without labels. The Bt brinjals produced by the farmers were sold at local markets allegedly without any label.

  [Dhaka Tribune, 14 September, 2014]

From free public to private Bt seeds

- In the beginning DAE/BARI is pursuading the farmers with false promises of “No-pest attack” and free distribution of seeds with free inputs (fertilizer, pesticides, nets, cash)
- Bangladesh Agricultural Development Corporation (BADC) price is BDT 8 (US 10 cents) per gram – selling seeds at subsidized price.
- Commercial HYV seeds Tk. 1.00/gm, Hybrid seeds Tk. 2.5 /gm, local variety Tk. 0.60/gm
- Media report quote Officials of agriculture ministry, that preparations were afoot for the commercial release of Bt brinjal seed varieties through private seed company Lal Teer Limited. (East-West Company, a private Bangladeshi company) is a close collaborate of Sathguru Co. in India.

Aggressive propaganda & incentives to government for Bt brinjal

- The Cornell Alliance for Science was launched in 2014 with a $5.6 million grant from the Bill and Melinda Gates Foundation to "add a stronger voice for science and depolarize the charged debate around agricultural biotechnology and genetically modified organisms (GMOs).
- After massive failures of the Bt brinjal farmers in the first few rounds, Cornell Alliance brought up reports on "success" of Bt brinjal, writing international reports, even engage BBC (Panorama) for promoting the false claims!!

Prime Minister Sheikh Hasina was honored by Cornell University of the United States with a citation in recognition to her overwhelming contribution to the development of agriculture sector and ensuring food security in Bangladesh (May 21, 2015).

In response, Sheikh Hasina thanked the Cornell University for innovation of the BT Brinjal.

Contrarily, Intimidations against critics

- UBINIG field staff were attacked by ruling party workers visiting Bt brinjal field with journalists on 9 March 2014 showing non-performance of the plants.
- Bt brinjal farmers were told not to talk to any journalists or researchers without permission of DAE.
- Media was controlled. Anti-bt brinjal writings and reports about events were not published in major newspapers.
- Bangladeshi scientists with good intention want to develop their capacity in biotechnology, but they are not allowed to critic against Bt brinjal or any GMOs.

Thank you, lets work together