Field trials of \textit{Bt} eggplant and biosafety regulations in the Philippines

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Advancing the Understanding of Biosafety
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Prologue
From India: once

TYA (?). Wild Brinjal varieties

Local breeding selection

Long Purple
Talong (eggplant) in the Philippines

Is everyone’s everyday vegetable!

grilled

salsa

sauteed

stuffed

with coco milk

stir fried

Photos from various Internet sources; downloaded, Sep’12
Eggplant festival
January in Villasis, Pangasinan

Source:
http://www.pixoto.com/images-photography/people/musicians-and-entertainers/talong-festival-40446473; downloaded, Sep '12
Talong (eggplant) in the Philippines

- 28% of annual vegetable production (Francisco, 2010)
- FSB is most significant pest which accounts for 51-73% of crop losses (Hautea, 2012)

Photos from various Internet sources; downloaded, Sep’12
From India: twice

2006. BC1 seeds of FSBR from MAHYCO

Turn over of BC1 seeds at the MAHYCO Research Center. MAHYCO Joint Directors for Research Dr. Brent Zehr (extreme left) and Dr. Usha Zehr (third from left) with Drs. Desiree M. Hautea and Josefina O. Narciso.

Source: ABSP_Newsletter_vol2_no3.pdf downloaded, Sep 2012
Regulating agencies:

1990. Highest regulating body

Grants permits

Monitor

Clearing House

Four permits issued by the DA-BPI for plant and plant products only and only after satisfactory conduct of risk assessment:

1. Permit to import for contained use (granted in 2005)
2. Permit to field test;
3. Permit for propagation; and,
4. Permit to import for direct use as food, feed or processing.
The *Bt talong* story
The *Bt talong* story

2006.
Signing of Agreement. 
Turn over of seeds from MAHYCO.

2007.
Confined field tests.

2010.
Multi-location field tests.
The *Bt talong* story

June 2010.
Davao City as one of the 7 field locations which are all inside the campus of state universities.
13 Dec 2010.
Cease and
Desist Order

...the City Government is ordering you to cease and desist the operation of the field trials and to uproot all existing Bt talong specimens which have been planted in your area.
The *Bt talong* story

17-18 Dec 2010, UP Mindanao Campus
Implementation of the CDO = Uprooting of *Bt talong*
The spirit and provisions of the legal framework and policies on biosafety

1. Public Consultation

A Public Information Sheet
... inviting comments on the proposed field testing

PIS at the city hall
Public consultations
The spirit and provisions of the legal framework and policies on biosafety

29 Dec 2010.
Suspension of permits at UPMIn and Visayas State University by the Bureau of Plant and Industry (BPI) for failure to post the PIS.
The spirit and provisions of the legal framework and policies on biosafety

June 2011:
- UPMIn granted permit to resume field test
- *Bt talong* project goes through the process again
- City conducts own consultations

*"There is no compelling reason for us to welcome the Bt talong, the fruit and shoot borer pest can be managed by the organic method. The city government could not also gamble against the damages that the Bt eggplant can inflict in the future."*

— Davao City Mayor Sara Duterte
The spirit and provisions of the legal framework and policies on biosafety

2. Local Autonomy

“Organic Agriculture Ordinance is incompatible with GMO technology.”

Civil Society, Davao City
3. Consensus

The three remaining locations went through extensive public consultations PRIOR to start of field test.

North Cotabato Vice Governor Gregorio T. Ipung explains in a briefing with the provincial government that they would first listen to all sides before deciding on the multi-location trials of Bt eggplant.
4. Inclusivity
April 2012.
Multi-sector groups petition for a ban of *Bt talong* at the Supreme Court
The spirit and provisions of the legal framework and policies on biosafety

May 2012.

✓ SC issues *Writ of Kalikasan* (Nature)
   *Right to a healthy environment*

✓ *Bt talong* team
   holds press con

(left to right) NAST President Dr. Emil Q. Javier, UPLB Chancellor Dr. Rex Victor Cruz, BIOTECH Director Dr. Reynaldo Ebora, and Bt eggplant project leader Dr. Desiree Hautea face the media during the May 15 press conference.

July 2012:
First season *Bt talong* hybrid field trials completed in the Philippines

Field Performance Evaluation Design

**Bt** eggplant hybrids vs. non-**Bt** hybrid counterparts

1. **Criteria:**
   a. agronomic-morphological traits
   b. bioefficacy (shoot and fruit damage) against fruit and shoot borer
   c. food safety through compositional analysis
   d. biosafety, direct samplings to determine and compare the number and types of other associated arthropods present above-ground and in the soil

2. **Statistical analyses**

   Source: ABSP_Newsletter_vo18_no2.pdf downloaded Sep 2012
Challenges for the Philippines

Organic Agriculture Act of 2010

Promotion of Modern Biotechnology
Partners ‘left and right’

DA
DOST
DENR
DOH
Challenges for the Philippines

Science & Technology

Rural Dev Right to health
Challenges for the Philippines

Evaluate 10-yr impacts of *Bt corn* on:
1. environment
2. health
3. socio-economics

Make an intelligent decision on:
1. *Bt talong*
2. Other GM crops in the pipeline
Two assessments for GM technology

1. **Mandatory:** A risk assessment prior to any importation or release to the environment (DA-AO 8 s. 2002).

2. **May take into account:** Social, economic, ethical, cultural and other assessments, as appropriate, particularly prior to decisions to commercialize - in a transparent, participatory and rigorous manner. (Socio-econ impact only.)
Epilogue

- 3 hybrids are high-yielding with excellent shelf life and pest-tolerance.
- Natural predators identified.
- Physical and biocontrols are available.

Why opt for genetic modification???
The End

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