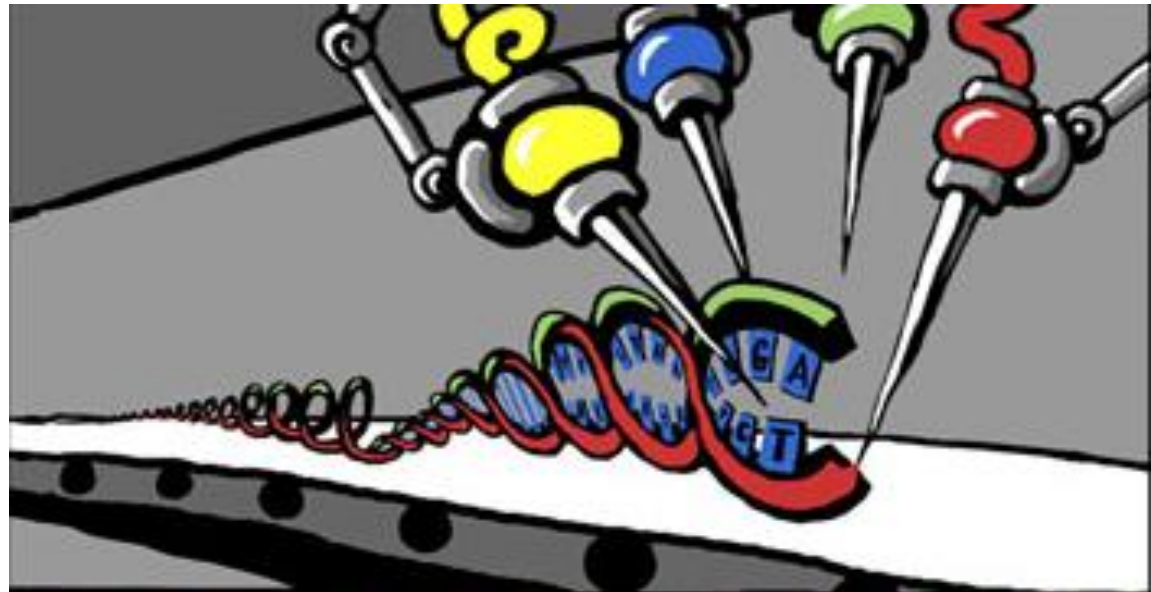


# GMOs: the Myths, Concerns, propaganda and drivers of GMOs into Nigeria

- by Nnimmo Bassey
- @ Just Governance: The Nigerian Biosafety Act and GMOs - Implications for Nigerians and Africa
- Abuja, 24 May 2016



# The GE Mindset



“The goal is not just to do science and something cool.

It is to make an industry”

- Randy Rettberg - IGEM/MIT

# Eroding our Genetic Diversity

- Single traits and monster impacts



A real tale

## – Rabbits in Australia

- 1859: Thomas Austin imported 24 rabbits from England to Victoria: "*The introduction of a few rabbits could do little harm and might provide a touch of home, in addition to a spot of hunting.*" Quote from:

<http://www.agric.wa.gov.au/programs/app/barrier/history.htm>

## History of rabbit control

- Shooting, trapping, poisoning, fencing: labour intensive, but ineffective on large scale
- 1951: biological control of rabbits through introduction of the virus-disease myxomatosis.
  - Rabbits reduced from ~600 to ~100 million

# What can Australian rabbits teach us?

- Similarities to GM-exotics in ecosystems
  - Unintended ecosystem effects
  - Short-sightedness of societies
  - Risks of inaction
- Differences
  - Public invisibility of GMOs
  - Intended large scale release of GMOs for industrial production – continuous input of exotics

# Co-existence & Traceability

- Unintended ecosystem effects that are not immediately visible for decades
- The time lag is a blind spot to short-term policy makers
- Biological pollution by harmful organisms. Block their entrance or eradicate soon after entry
- Public cannot distinguish between GM and non-GM organisms
- GMOs are produced and released at industrial scale... not small, unintended releases

# Genetically Engineered Myths

## **GM Crops Will Not Feed the World**



- **GE has failed to produce disease resistant crops.**
- Monsanto's attempts to develop a virus-resistant sweet potato in Kenya failed in 2004 trials that showed the GM crop as less resistant to disease than conventional varieties.
- Yet the music of the GM sweet potato is still repeated to show how millions in Africa can be spared from hunger.



# Golden Rice Hoax...now Cassava Captured!

- **“Golden Rice” modified to enhance level of vitamin A**
- **Cassava modified for enhanced levels of Vitamin A**
- **Illegal Liberty Link Rice 601 in 2006/2007...detected in S/Leone (USDA), Ghana and Nigeria (commercial imports)**
- **Over 15 European countries identified the rice in their supplies. Some withdrew them from market shelves**

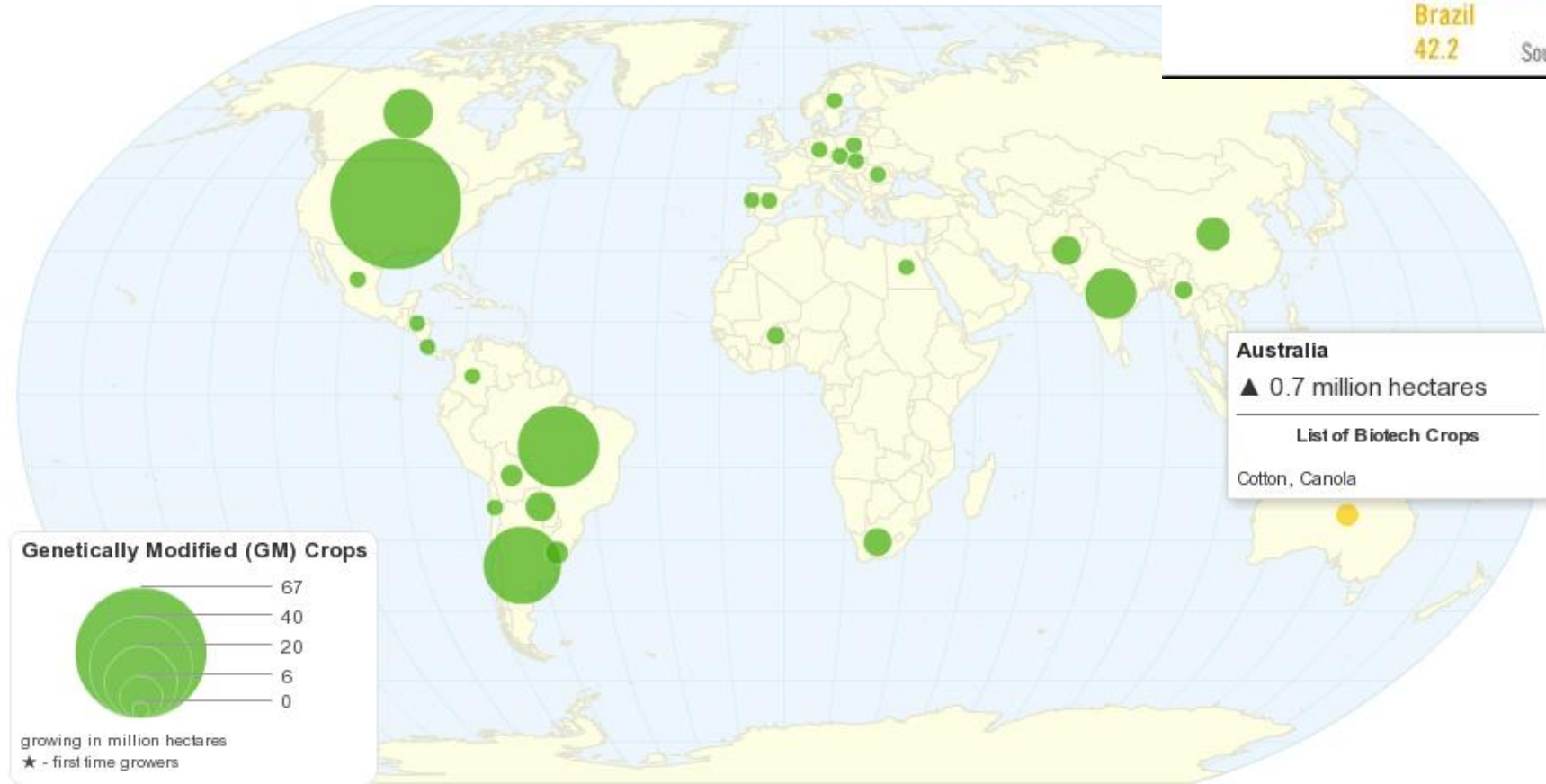
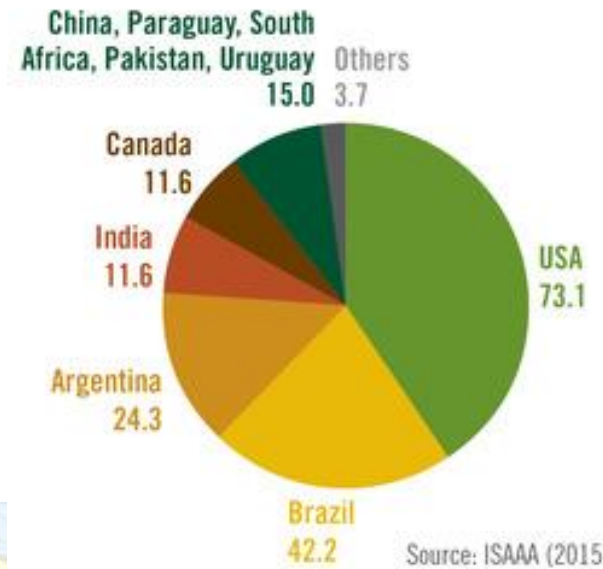


# Where are the GE Crops?

- **3 countries still account for over 75% of GMO cultivation in the world:** United States, Brazil and Argentina.
- **Over 90% of the total area is in just six countries** (US, Brazil, Argentina, Canada, China and India account of 95% of the area grown)
- **By 2015 the acreage planted with GMOs declined** due to a number of factors including price falls, rejection
- Biotech industry looking for new crops and new markets because the market for their GM **corn, soybeans, cotton and canola** is already saturated.

# GMO's – Global spread

## Global area of genetically modified crops



# GE Crops Planted on 12% of World's Cropland



~40% of all GE crops planted in U.S.

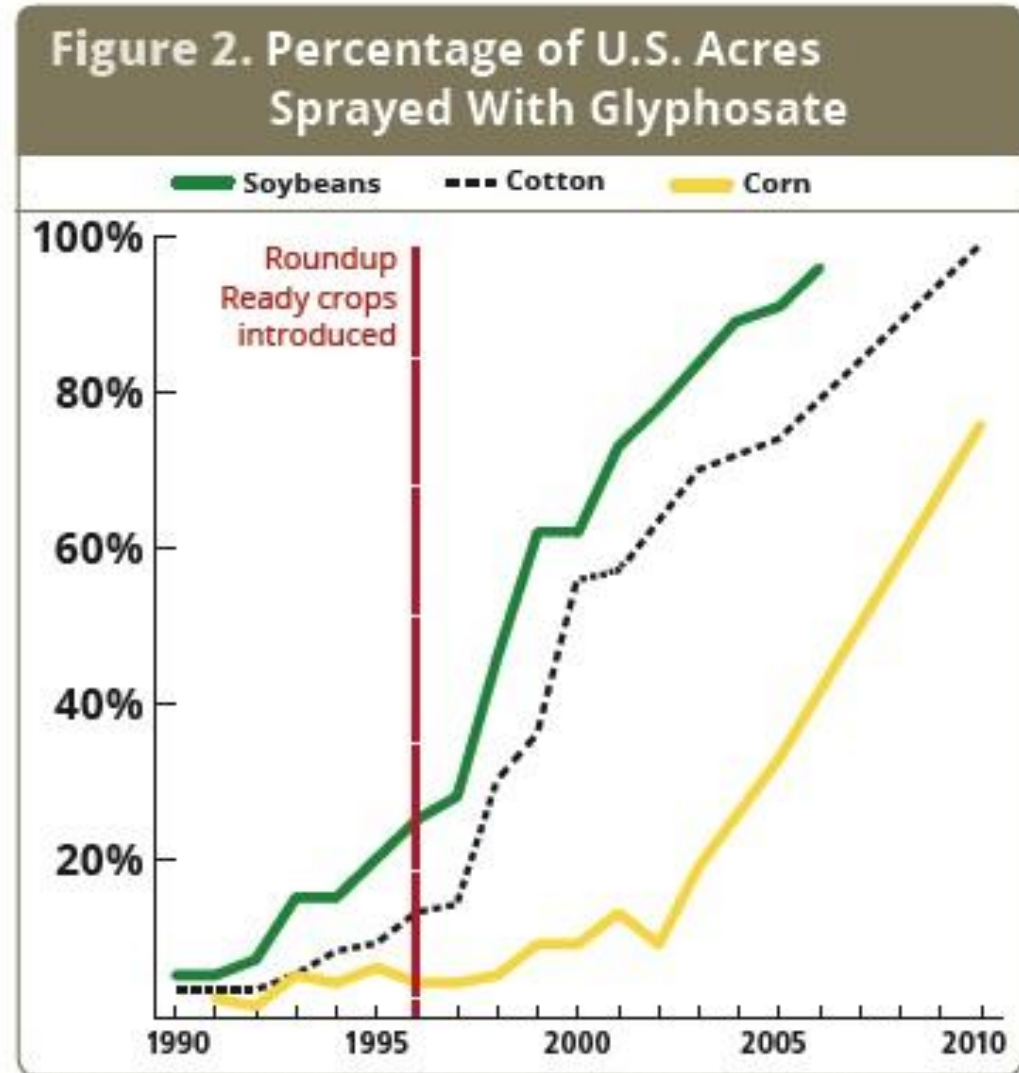
- MAIZE
- SOYBEAN
- COTTON
- CANOLA
- SUGAR BEET
- ALFALFA
- PAPAYA
- SQUASH
- POPLAR
- BRINJAL/ EGGPLANT
- POTATO
- APPLE

# Engineered to Tolerate Herbicides

- Survive direct application of herbicide that would kill conventional crop
- Simplifies weed control, saves labour
- Of special value to larger growers – farm more land with less labor
- HT soybeans, corn, cotton, canola, sugarbeets commercialized
- Nearly all **carcinogenic** glyphosate-tolerant (Monsanto's Roundup Ready)

# GMO Crops Accelerate Herbicide and Insecticide Use

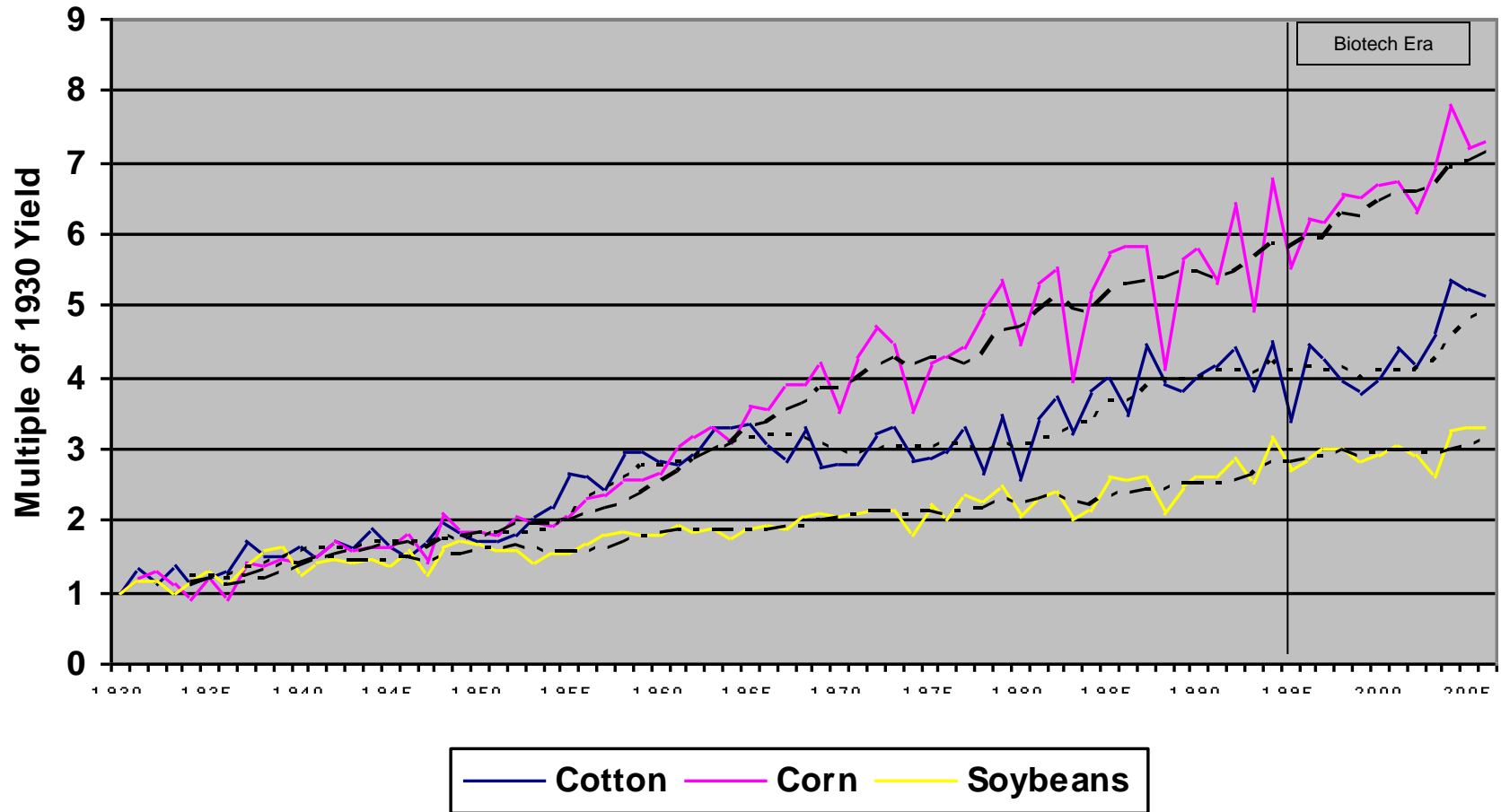
More than 99 percent of GMO acreage is engineered by chemical companies to tolerate heavy herbicide (glyphosate) use and/or produce insecticide (Bt) in every cell of every plant over the entire growing season.-



SOURCE: USDA-NASS Quickstats: Survey, Environmental, Corn, Cotton, Soybean, Application, Percent Area Planted (Average) (Glyphosate).

# Yields Stagnating

Yield Increase of Corn, Cotton and Soybeans  
in the U.S.: 1930-2006



# Concerns

- **Sharply rising seed prices** from “trait penetration”
- **Environmental and health impacts...pesticides etc**
- **Dangers of biopharmaceuticals**
- **Intellectual property rights (and wrongs)**
- **Affordable and organic solutions ignored in favour of expensive GM crops**
- **Local agriculture at risk...for example, farmers lose right to save or share seeds**
- **Promotion of monoculture**





# IPRS and Corporate Sharks

- Patents on GM genes/seeds & contract can make seed-saving illegal
- Monsanto collects millions of US\$ from US farmers through lawsuits for alleged patent infringement
- Millions more collected from out-of-court settlements, from several thousand U.S. farmers
  - “Monsanto vs. U.S. Farmers,” Center for Food Safety, 2005 & 2007 update:  
<http://www.centerforfoodsafety.org/Monsantovsusfarmersreport.cfm>

# Bt Cotton in Africa

- **Makathini Flats, SA**
- **The high price of GM seed and accompanying chemical use is leading to spiralling debt for farmers.**
- A 5-year study published in 2005 by Biowatch of the Makathini Flats showed that Monsanto's initial "success story" of high-yielding Bt cotton farmers was due to high levels of support, subsidies and infrastructure in early years.
- When support was discontinued, a majority of farmers found themselves in debt from growing the crop.
- After 5 years, only 20% of the original farmers were still growing Bt cotton
- **Burkina Faso: Short fibre cotton Harvest failure- Local integrated pest management systems ignored**
- **In India, Bt cotton seed 3-4 times the price of conventional cotton seed. Farmers indebted with over 300,000 committing suicide since the 1990s.**

# Terminators and Suicide Mosquitoes

- Genetic modification to make harvested seeds sterile
- USDA, Monsanto and other companies hold patents on Terminator technology
- Warrior male mosquitoes being field tested in poor zones... Genetically engineered and can bite humans

# The Case of Zambia

- In August 2002, the Zambian government banned imports, sale and use of GM products because of health, environmental and trade concerns
- By 2013 Zambia still rejects GMOs



# Contamination through Aid

- Food aid enlarges export market
- Food products received as donations & sold in the market negatively impact local production capacity.
- Create dependency
- Contaminate agricultural systems
  - E.g. arguments over milled & non-milled grains in Angola
  - Sudan...pressure from conflicts



# Real Solutions

- UN-World Bank-sponsored International Assessment of Agricultural Knowledge, Science and Technology for Development (IAAASTD)
- 400 development experts, 3 years:
  - Revitalize public sector ag' l research
  - Small farmer-oriented, low-input agroecology
  - Reform unfair trade-related rules
  - “Business as usual is no longer an option” – Bob Watson, IAASTD chair

# Agroecology Works

- Organic & near-organic agricultural projects in Africa involving millions of farmers achieve average crop yield increase of 116%
  - Poverty Eradication Project through Environmentally Sustainable Technologies (PEEST) in Uganda: Organic cashews & vegetables in Tanzania
  - Mount Kenya Organic Farm: organic vegetables; organic borage for export

Hine, R. & Pretty, J. (2008). “Organic Agriculture and Food Security in Africa,” UNEP-UNCTAD

# Conclusions

- GM crop development driven mainly by agrichemical firms, focus on herbicide-tolerant crops
- Most suited to large-scale commercial growers, farm more with less labor
- Patented seed outlaws seed-saving, reducing self-reliance
- Agroecology offers more cost-effective solutions w/o patents, expensive seeds, or problematic pesticides
- Food Sovereignty
- Freedom from seed colonialism



We shall not be Silent

The Challenge  
And Threat Of Genetic  
Engineering For  
Organic Agriculture

Fine  
print of the  
food wars

**GMOs:  
A Costly  
Distraction**

# NO GMOs!



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