

# GENETICALLY ENGINEERED CASSAVA

## A threat to Africa's Food Sovereignty

Cassava, a root crop, also known as *Manihot esculenta*, constitutes the staple food for about 600 million people in parts of Africa, Asia and Latin America<sup>i</sup>. Reports show that Cassava is planted in around 16 million hectares in the world, with 50 percent in Africa, 30% in Asia and 20% in Latin-America.<sup>ii</sup> Nigeria is the top producer in the world, followed by Brazil and Thailand.<sup>iii</sup> Others are the Democratic Republic of the Congo, Ghana, Madagascar, Mozambique, Tanzania and Uganda.



The crop is both versatile and valuable. Its leaves and tubers (roots) are used for food while the stems are the planting material. Because of its hardy nature and ability to survive in harsh weather and soil conditions,<sup>iv</sup> cassava is a major food security crop for Africa<sup>v</sup>. Because cassava does well even in poor soils, the economic pressure imposed on poor farmers to purchase artificial fertilizer is greatly reduced.

It also has the combined abilities to produce high yield and store its tubers underground until needed. It can be stored in the ground for several months and afterwards harvested when needed. The crop finds other uses outside being valuable as food and feed. Pharmaceutical companies turn to it for glucose and sugar dextrose production.<sup>vi</sup> There is also the push for the growing of cassava for ethanol<sup>vii</sup> production as the interest in biofuel rises.

### The Lure of Cassava

Research in the genetic manipulation of cassava has been ongoing since the mid 1990s<sup>viii</sup>. Some of the objectives of the manipulation concerned the cyanogens content<sup>ix</sup>, the storage potential, the mosaic virus, and the increase of its yield of starch. Another reason advanced by the proponents is that GM cassava would “*potentially help improve the nourishment of millions*”<sup>x</sup> As in other claims of this nature, the potential of GM cassava to be practically more nutritious is highly debatable. Equally, the cyanogens content of cassava was not really the problem, even the “bitterness” of cassava was a

form of natural protection against insects, rats, monkeys and the poisonous varieties have the advantage of producing higher yields because they are less susceptible to pests. In addition suitable processing methods have been traditionally developed already.<sup>xi</sup>

The proponents of GM cassava must have seen this as a major frontier for the control of the food supply of a vast number of poor countries and as an inroad for the legitimization of biotech crops in such countries. This is the classic Southern crop.

### **Food Sovereignty and vulnerable societies**

Apart from the allure of business, GM cassava would pose a huge challenge to people in vulnerable societies where food shortages have been met with recorded failure. In the recent past, where grains had failed, local affected people in Angola and Zambia<sup>xii</sup> resorted to cassava to fill in the gaps. Cassava is thus easily seen as a food security issue. If GM cassava is introduced and planted in Africa, countries who strongly object to GM grains as food aid would have no recourse to this local staple. The implication is that Africa would have been forced to accept GMOs by this subtle move.

### **Grabbing for Nigeria**

There is a massive focus on cassava in recent times as a primary cash crop. The Federal Government is investing huge sums of money and its Cassava Enterprise Development Project (CEPD) is financially supported in this quest by the USAID and Shell Petroleum Development Company among others. There is also increasing investment in these efforts by the Niger Delta Development Commission (NNDC).

Sources informed FoE Nigeria that an application for “contained” field trial of GM cassava was received in 2004 from the International Institute for Tropical Agriculture (IITA), the National Agency for Biotechnology Development Agency (NABDA), the National Root Crops Research Institute and the Donald Danforth Plant Science Centre, by the Federal Ministry of Environment. It was reportedly being processed until early this year when IITA wrote to the Ministry to stop the application because the test (carried out by them in USA) failed to confer the resistance against the Cassava Mosaic Disease. FoE Nigeria has written to the Federal Minister of Environment for clarification on the status of the applications reportedly received by the ministry for GMO cassava<sup>xiii</sup>.



However, IITA has continued to play a leading role in this move supported by SHESTCO<sup>xiv</sup> a government establishment. IITA is happy that Ghana and Nigeria stand out as countries on the continent that have witnessed full presidential support in the

cassava venture<sup>xv</sup> It is a known fact that IITA has also developed cassava varieties in Nigeria which, according to them, have been introduced throughout Africa's cassava belt.<sup>xvi</sup> Ministry of Agriculture officials in Nigeria confirm that there are over 40 hybrid varieties of cassava that have the capacity to resist the cassava mosaic disease, the very problem that GM cassava is being produced to solve. Only about 10 of these varieties have so far been made available to farmers.

### **Keep GMO Cassava off Our Table**

Farmers have grown cassava over several centuries and have mastered cultivation methods and processes that are both sustainable and have nourished African consumers for thousands of years. Africans have a right to maintain this staple crop without any threat of contamination and consequent loss of local knowledge. The



importance of this is further underscored by the fact that cassava stems are usually saved by farmers for replanting. The introduction of GM varieties will inevitably mean that local farmers would have to purchase stems either from the industry or their agents. Large scale cassava farms will equally negatively impact local small lot holders.

As with other GM foods, the health impact of GM cassava is largely unknown. The world does not need GM cassava and research laboratories should not turn Africans into guinea pigs on the pretext of helping to fight malnutrition. GMOs are not the solution to the hunger and nutrition questions in Africa.

The stand against the introduction of GM cassava may well be the last one in the struggle to secure an African environment safe from GM contamination. It will be an epic

battle of the laboratory against the indomitable will of the peoples of Africa and the tropics.

Notes

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- <sup>i</sup> SciDev. GM Cassava has supersize roots. 15 May 2006  
<http://www.scidev.net/News/index.cfm?fuseaction=readNews&itemid=2839&language=1>
- <sup>ii</sup> Nigeria is the largest producer of cassava tubers in the world with a production figure of 34 million metric tons a year. Figures show that the total area harvested of the crop in 2003 was 31 million hectares with an average yield of about 11 tons per hectares. This level of production has been attained without recourse to genetic modification.
- <sup>iii</sup> IFAD. A cassava industrial revolution in Nigeria. The potential for a new industrial crop. Rome 2004.  
[http://www.fao.org/documents/show\\_cdr.asp?url\\_file=/docrep/007/y5548e/y5548e00.htm](http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/y5548e/y5548e00.htm)
- <sup>iv</sup> [www.africancrops.net](http://www.africancrops.net) .Background information on Cassava
- <sup>v</sup> Background information on Cassava, as above
- <sup>vi</sup> <http://knowledge.cta.int/en/content/view/full/2964> : Cassava industrialization in the ACP Region – Myth or Feasible Option? by Y. Baguma and R. Kawuki, National Crops Resources Research Institute (Kampala, Uganda)
- <sup>vii</sup> <http://www.vanguardngr.com/articles/2002/features/education/edu118052006.html> - Why Biotechnology is goldmine — Prof. Bello By Emmanuel Edukugho, The Vanguard, Lagos, May 18, 2006
- <sup>viii</sup> <http://www.scidev.net> : The genetic code of cassava – one of Africa's staple crops – should be sequenced next, say Raven and colleagues, 30 January 2006: Source: Science. In a letter to his fellow Scientists, on January 30 2006, Peter Raven and colleagues say sequencing or in other words genetic modification should now focus on the crops vital to farmers and wondering aloud, they said “... *where should the science go next?*”His research group is said to have plans to work with others in Kenya, Nigeria, the United Kingdom and United States on the cassava project.
- <sup>ix</sup> <http://researchnews.osu.edu/archive/cassava.htm>
- <sup>x</sup> [http://www.fao.org/documents/show\\_cdr.asp?url\\_file=/docrep/v4510e/v4510e00.htm](http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/v4510e/v4510e00.htm) , FAO document about on post storage capacities of cassava.  
[http://www.ciat.cgiar.org/biotechnology/cbn/sixth\\_international\\_meeting/pdf\\_presentations/Guy\\_Henry.pdf](http://www.ciat.cgiar.org/biotechnology/cbn/sixth_international_meeting/pdf_presentations/Guy_Henry.pdf)
- <sup>xi</sup> Zweifel, H. Cassava: a symbol of controversial approaches to food security.
- <sup>xii</sup> See FoEI: Playing With Hunger
- <sup>xiii</sup> Open Letter dated 24 May 2006
- <sup>xiv</sup> Sheda Science and Technology Complex, Abuja, Nigeria
- <sup>xv</sup> [www.iita.org](http://www.iita.org): Cassava
- <sup>xvi</sup> Cassava industrialization in the ACP Region , op cit

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