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Displacing Africa's Indigenous Food: Monsanto and AATF's GM Cowpea Project

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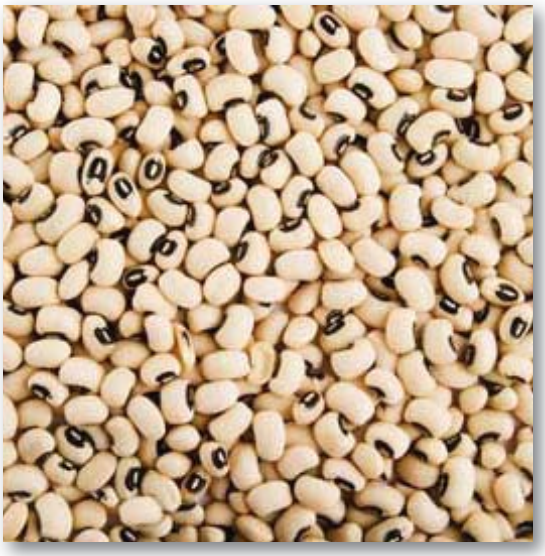
Overview

Nairobi based African Agricultural Technology Foundation (AATF) and Monsanto are set to introduce genetically engineered cowpeas in the coming years into the fields and tables of Africa.[1] It will use Nigeria and Burkina Faso as key entry points, with Ghana, Cameroon, Niger and Mali comprising the second tier of countries that will be targeted. The project is assisted by Nigeria- based International Institute of Tropical Agriculture (IITA), one of the 15 agricultural research institutes of the Consultative Group on International Agricultural Research (CGIAR). The CGIAR is funded primarily by the World Bank, the USA, Japan, the European Union and Canada. Indeed, the IITA has the mandate for cowpea research and is in the forefront of breeding high yielding varieties by using a range of genetic manipulation techniques to deal with biological constraints affecting crop yields and quality.[2]

Cowpea is one of the most ancient crops known to man, with its center of origin and subsequent domestication being closely associated with pearl millet and sorghum. Whilst India and China are centres of origin for cowpeas, Africa is regarded as another cradle because of the prolific occurrence of the plants in the wild in many parts of Africa.[3] Indeed, current food crops in Africa such as cowpea, millet, sorghum and yams were cultivated as mixed crops in the ancient empires of Ghana and Mali.[4]

The AATF holds itself out as a 'not-for-profit foundation designed to facilitate public-private partnerships for the access and delivery of appropriate technologies to the resource-poor smallholder farmers in sub-Saharan Africa', but it is really bent on introducing genetically modified crops and new agricultural technologies to the African market.[5] Established in 2002, it is funded by USAID, the Rockerfeller Foundation and the United Kingdom's Department for International Development as well as by several biotechnology multinational companies including Monsanto, Dupont, Dow Agro Sciences and Syngenta.[6]

Upon examination of the AATF's Project Business Plan, we have come to the conclusion that this reads like a pure top-down proposal initiated by Monsanto, who is in need of a new 'Makhathini type showcase for Africa.' The true aim of the project is to displace current cowpea varieties in the hands of African farmers by the introduction of a GM variety.



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Cowpeas

Cowpeas (*Vigna unguiculata* (L.) Walp), also commonly known as crowder pea, blackeyed pea, southern pea, lubia, niebe, coupe or frijole, are one of the most important food legume crops in the semi-arid tropics covering Asia, Africa, southern Europe and Central and South America. It is drought tolerant, grows well in poor soils, and because it is also shade tolerant, is compatible as an inter-crop with maize, millet, sorghum and other cereals.[7] Cowpea is thus an intrinsic part of traditional intercropping systems, especially in the complex and elegant peasant systems of the dry savannas in sub-Saharan Africa. Indeed, Sub-Saharan Africa accounts for about 70 % of total world production.[8] Cowpeas are used as a rich source of protein for human consumption, as well the leaves providing excellent animal fodder.

Snapshot of AATF and Monsanto's GM Cowpea Project for Africa

The AATF and Monsanto have teamed up to roll out an ambitious three phased project to bring GM cowpeas to Africa over the next 12 years, at an astronomical implementation cost of $US 23, 024, 720. AATF has obtained a license from Monsanto Company, USA, to use the Cry1Ab gene to transform cowpea. Research support for the project is provided by the Commonweath Science and Industrial Research Organisaion based in Australia (CSIRO), with the aim of developing cowpea varieties resistant to the legume pod borer (Maruca vitrata). Maruca is a Lepidopteran in the family Phyralidae and its larvae inflict damage to cowpea from the initiation of flowering to pod maturity.[9]

"the successful introduction of Bt-cowpea in Africa will rely on winning the support of policy actors through allaying the fears and assurance of safety through proper communication"

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The project will produce high yielding transgenic cowpea varieties with the expression of the Cry1Ab gene. This gene will be inserted in selected cowpea varieties through a combination of genetic transformation and marker-assisted backcrossing techniques. Public acceptance of the GM cowpeas will be orchestrated 'within defined boundaries at the right time, to the right audience and through the right channels.'[10] Seed multiplication and distribution is set to start in Nigeria and Burkina Faso. These countries will constitute the 'pilot countries' for the first three years of the project. Whilst breeding work will be done by research institutions, the seed bulking and production will be done by the seed industry. The second tier of countries for introducing the transgenic cowpea would be Ghana, Cameroon, Niger and Mali. The commercialisation is to involve 'elite' transgenic cowpea seeds that will be certified.

Failures of the GM Cowpea Project

Generally speaking, the GM cowpea project is underpinned by an economic model that has at its basis, the typical 'race to the bottom' thinking, whereby the poor peasant famer will always be the loser unless he or she is able to develop the farm into a business-like enterprise.

The Project Business Plan falsely portrays Bt technology as the only solution to pest problems. According to the Plan, integrated pest management (IPM) measures have failed dismally, yet it fails to provide any references to substantiate this claim, nor is any assessment provided as to why it has failed and the underlying reasons therefore. No mention is made of the current experience with organic approaches especially those involving intercropping. These approaches may well be infinitely cheaper to implement than the exorbitant costs associated with the GM project and its attendant Biosafety risks to the African environment and biodiversity.

No attention is paid to whether the Bt toxin produced by the transgenic plant will produce effects in the entire 'complex of pod-sucking bugs.' In other words, if bugs are bugs in the strict zoological sense, they will not be affected by the Bt toxin but will very likely form new major pests after the Bt-sensitive pests disappear.[11]

The GM cowpea project aims to use non-African varieties for the development of GE methodologies and in this way, it hopes to bring to the African market new elite varieties not yet grown in African fields. The true aim of the project thus is to displace current cowpea varieties in the hands of African farmers by the introduction of a GM variety.

According to the project, AATF and Monsanto have as long ago as 2005, signed a royalty-free licensing agreement. Yet, no information is provided regarding the ownership issue concerning the new GM varieties or the conditions of the licensing agreement. What will happen to the patent claims when African farmers cross the Bt varieties with their own varieties? Or when the patented gene contaminates other varieties by pollination?

On the whole, we have found the technical quality of the Business Plan to be shoddy and unscientific, with numerous references missing. It fails to present any new data. Indeed, no data has been provided with regard to the geographic, ecological and economic complexities of the target countries. Although one case study is quoted from Benin, no data or references are provided to substantiate this work. Numerous other quoted studies could not be found in the reference list, rendering the so called needs assessment scientifically questionable.

Certainly, their needs assessment-those of the AATF and Monsanto - are not based on farmer experience or inputs from the target countries themselves. The Business Plan is unable to show the need from farmers for a variety that fights *Maruca* but not the additional pest. No assessment of the damage caused by *Maruca* is provided in comparison to other risk factors. Crucially, no assessment is provided of the damage that may be caused by Bt insensitive pests in comparison to the *Maruca* damage. No data is provided on *Maruca* infection and recorded negative impacts that already exist in the different target regions. Nor is data provided regarding existing resistance breeding programmes and efforts, for instance, regarding the screening of genetic resources in the field and with marker assisted selection methods.

Conclusion

The document's 5 pronged 'P' strategy: people, product, price, path and promotion is perhaps the most revealing: "Our clients, the small-holder farmers, need to be aware of the value of Bt cowpea."[12] Clearly, African farmers have no knowledge of this Plan, they have not been consulted and most certainly, they have not asked for it. The whole notion of creating public acceptance through more and more biotech propaganda and misinformation is totally unacceptable. A Project that speaks of public acceptance operates from the assumption that it is a done deal and that the public only have to be convinced that Bt cowpea is good for them.

The time is long overdue for African farmers to take the lead with renewed vigour, and with their counterparts in Latin America and Asia, to push forward the successful agroecological and economic alternatives that have developed genuinely sustainable agricultural production methods, contributing towards the eradication of localized poverty. New methods on how to raise yields, protect soils, conserve water and enhance agro-biodiversity, while ensuring that economic, social and ecological benefits are distributed equitably, have given new hope to such farmers. Rather than promoting a tragically flawed agricultural development model that brings enormous risks, Africans are urged to look at these and their own resource base and skills to lead a more sustainable social, economic and political revolution.

Endnotes

1. African Agriculture Technology Foundation. Development and Deployment of Insect-resistant Cowpea Varieties for Utilization by Smallholder Farmers in Sub-Saharan Africa. Project Business Plan. December 2007.
2. HYPERLINK "http://www.iita.org/cms/details/cowpea_project_details.aspx?zoneid=63&articleid=269" http://www.iita.org/cms/details/cowpea_project_details.aspx?zoneid=63&articleid=269
3. Kenneth F Kiple, Kriemhild Coneè Ornelas. (2000). The Cambridge World History of Food. p. 1763.
4. Hans Normann and Ina Snyman. (1996)Indigenous Knowledge and its Uses in Southern Africa.
5. African Agricultural Technology Foundation HYPERLINK "http://www.aatf-africa.org/" http://www.aatf-africa.org/
6. African Agricultural Technology Foundation. GM Watch Profile. HYPERLINK "http://www.gmwatch.org/profile1.asp?PrId=163&page=A" http://www.gmwatch.org/profile1.asp?PrId=163&page=A
7. Cowpea from Wikipedia, free encyclopedia. HYPERLINK "http://en.wikipedia.org/wiki/Cowpea" http://en.wikipedia.org/wiki/Cowpea
8. Alternative Crop Guide. Cowpea A versatile legume for Hot, Dry conditions. (1999). Published by Jefferson Institute. HYPERLINK "http://www.hort.purdue.edu/newcrop/articles/ji-cowpea.html" http://www.hort.purdue.edu/newcrop/articles/ji-cowpea.html
9. African Agriculture Technology Foundation. Development and Deployment of Insect-resistant Cowpea Varieties for Utilization by Smallholder Farmers in Sub-Saharan Africa. Project Business Plan. December 2007, p.8.
10. Ibid. p.16.
11. Huang et al. Insect-Resistant GM Rice in Farmers' Fields: Assessing Productivity and Health. Science 29 April 2005: 688-690
12. African Agriculture Technology Foundation. Development and Deployment of Insect-resistant Cowpea Varieties for Utilization by Smallholder Farmers in Sub-Saharan Africa. Project Business Plan. December 2007, p.12.