



# The Future of Ag-biotech in Africa and its Contribution to Household Food Security

By  
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# Africa Harvest

- International non-profit foundation
- Global vision with an African focus to fight poverty, hunger and malnutrition
- **Vision:** Africa free of hunger, poverty & malnutrition
- **Mission:** Use of science & technology, including, biotech tools for sustainable agricultural development



## AHBFI Projects

- ✍ Africa Biofortified Sorghum Project – Funded by B&M Gates Foundation
- ✍ Tissue Culture (TC) Banana Project – Funded by DuPont, & AHBFI facilitated Tissue Culture Banana Enterprise Limited (TCBEL)
- ✓✍ Tissue Culture Banana Project – Funded by Rockefeller Foundation
- ✓✍ Biotechnology Public Acceptance & Communication Project – Funded by Crop Life International
- ✗✍ Biotechnology Communication Project – Funded by USAID through KARI



# State of ag-biotech in Africa

- 1 country has commercialized (South Africa)
- 9 countries have reported field trials (Burkina Faso; Egypt; Kenya; Morocco; Senegal; South Africa; Tanzania; Zambia; Zimbabwe)
- 20 countries are engaged in GM R&D
- At least 24 countries have some capacity and institutions to conduct ag-biotech R&D
- 27 countries have ratified the Cartagena Protocol on Biosafety to date



# State of ag-biotech in Africa: Selected country assessment



# State of ag-biotech in Kenya

- Infrastructure & legislation
  - Has level II biosafety greenhouse
  - Kenya accepted US maize and soy milk food aid in 2001 without restrictions
  - Kenya Biosafety Bill has gone through first reading in Parliament



# Ag-biotech in Kenya

- Non-GM tissue culture: Pyrethrum, Citrus and Banana
- GM - Sweet potato: Began in 1991 as a PPP: USAID, KARI & Monsanto
  - Insect resistance maize: KARI/CYMMIT; Syngenta Foundation; Field tests done in 2005
  - Bt-Cotton- Monsanto 2<sup>nd</sup> Year contained field trials



# State of ag-biotech in South Africa

- Yellow Maize (used in animal feed): 20-30% of total area
- White maize (human consumption): 8% of total area
- Bt Cotton: 92% of all cotton produced
- GM soy: 59% of all soybeans



# Ag-biotech in South Africa

- Insect resistant potato:
  - Performed well in field trials but commercialization delayed
  - Syngenta, which owns the rights to the Bt genes, has not been able to obtain full regulatory approval before a commercial license is given
  - Biosafety legislation in neighboring countries is in progress



# State of ag-biotech in Burkina Faso

- Background facts
  - Less than 1/5 land is arable
  - 90% of population involved in subsistence agriculture



# Ag-biotech in Burkina Faso

- GM cowpea: key traits are drought tolerance, insect and virus resistance
- Bt cotton field trials (2003)
- Bt-cotton trials in multi-location sites in advance stage (2007); possibility of commercialization in late 2008



# TC Banana Has Demonstrated Impact

- Tissue cultured banana plants:
  - grow faster
  - are free from pests and diseases
  - Produce true-type, shorter growth cycle and has superior performance than clones from suckers
- TC banana yields two times more than non-TC banana, which is double the conventional material
- Small scale farmers income improved significantly from US\$1 to 3.



# Report of the High-Level African Panel on Modern Biotechnology

- Undertaken at request of African heads of states
- Summary of findings
  - Biotech critical if Africa is to play rightful role in a globalizing world economy
  - Need for coordinated approach in promoting technological approach to innovation
  - Need for common approach to issues pertaining to modern biotechnology
  - Need for critical mass in technological expertise



# Africa Harvest Experience

- Need for scientific institutions consortium approach to complement limited capacity
- Many of Ag-Biotech public projects are poorly funded lacking regulatory expertise with limited chance of success.
- Public/Private and partnerships and North/South partnership are necessary for public good Ag-biotech projects
- Africa Harvest experience with the ABS Project is a good example; more details on Wednesday 10:15 am



# Conclusion

- The co-Chairpersons of the AU High Level Panel on Biotechnology, Professor Calestous Juma and Dr. Ismael Serageldin, expressed the need to couple biotechnological applications with biosafety measures so that technological advances relevant to Africa are seized for the benefit of the continent.
- The experts noted that Africa needs to move away from paralysis induced by the inertia of risks and champion the utilization of modern biotechnologies