The role of the AATF in Promoting Appropriate Agricultural Technologies for Sustainable Use by Smallholder Farmers in Sub-Saharan Africa

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Outline
- African Agricultural Outlook
- AATF - Rationale & Purpose
- Current activities

Agriculture Backbone of Economy
- Agriculture is central to economic development in Sub-Saharan Africa
- Growth in agriculture is 11 times more effective in reducing poverty in SSA than growth in other sectors – IFAD
- Majority - More than 70 per cent of Africa’s poor depend on agriculture for their livelihoods

No. of Hungry Increase in Africa
- One in three people who live in SSA are hungry – although continent offers great potential
  - Africa is the most food insecure continent according to UNDP
  - Number of hungry people up by 36% (64 million) in last two decades (FAO)
  - Worst drought in 6 decades increased numbers of hungry by 20 million in the last 4 years alone
Yields Still Low

CEREAL YIELDS STAGNATED FOR DECADES IN
SUB-SAHARAN AFRICA

Not all Doom...

African Agriculture Has Potential

- Annual growth strong in a number of countries (IFPRI 2012)
  - 12-15% in Angola and Liberia
  - 7% in Botswana, Ethiopia & Malawi
  - 5% in Rwanda
  - 4% in Ghana & Tanzania
- Fuelled largely by
  - Increased investment in agriculture;
  - Increased fertiliser use;
  - Adoption of high yielding varieties

Challenges to Agriculture in SSA
- Low farm productivity due to several constraints:
  - Diminishing land sizes
  - Declining soil fertility trends
  - Climate and weather variability
- Inappropriate policies, weak institutions and market related failures
- Low use of technology (unimproved seed, tools etc made difficult due to IP protection)

Advanced Agricultural Technologies
- Agricultural S&T offers potential to improve food security & reduce poverty — e.g. Asia and Latin America
  - But technology alone will not address SSA’s food productivity issues
- African governments and institutions have recognised Africa’s need to access new and better agricultural technologies (AUNEPAD)
- Some of these technologies are available and have been proven
- Challenge: Cost, availability, licensing, testing, safety & IP issues
Rationale for AATF

Private & public sectors hold key to accessing these technologies. AATF was created to fill need;

- For effective mechanism to negotiate the access and transfer of appropriate agricultural technology - including proprietary - held by the public and private sectors anywhere in the world;

- For appropriate long-term networks (partnerships) to manage the development & deployment of these technologies at all stages in the value chain, including market access and distribution;

Legal Status

- Incorporated in UK January 2003 and in Kenya in April 2003

- Registered as charity under the laws of England & Wales in January 2005

- Granted host country status by Government of Kenya in June 2005

- Granted tax-exempt status in the US in May 2006

AATF vision & mission

Vision - what we want for Africa's farmers

Prosperous farmers and a food secure Africa

Mission - what we do for Africa's farmers

Access, develop, adapt and deliver appropriate agricultural technologies for sustainable use by smallholder farmers in Sub-Saharan Africa through innovative partnerships and effective stewardship along the entire value chain

What AATF Does

- Facilitate PPP's that link needs of resource-poor farmers in SSA with potential technological solutions (biological, chemical, mechanical, information) - including expertise, knowhow, best practice etc

- Takes on role of "responsible partner" between owners and/or holders of technologies and those that need them - ensuring technologies are appropriately and responsibly developed & used

- Thus, AATF enables SSA scientists, development experts and farmers to gain access to the new tools they need
**Project-specific Roles**

- Technology identification, negotiation, licensing (royalty free or business model)
- Entering contractual agreements for product development, testing, production & commercialization
- Ensuring subsequent constraints after access are addressed – regulatory approvals, stewardship, issue management, public awareness, project & partnership management
- Enhance the capacity of scientists and other players including farmers to utilise the tools

**Approach to Technology Transfer**

**Focus**
- Food & high value crops produced by smallholder farmers in SSA

**Criteria for Technological Interventions**
- SSA priority agricultural constraints – per SRO’s etc
- Technologies that are accessible, transferable, adaptable & proven
- Achievable within reasonable time
- Reasonable geographic balance

**Priority Areas for AATF**

- Impact of climate change on agriculture
- Pest Management
- Soil Management
- Nutrient enhancement in foods
- Improved breeding Methods
- Mechanization

**Enabling activities**

- IP Management, Licensing and Technology Stewardship
- Regulatory Science and Management
- Communication and Issue Management
- Market Linkages
- R&D Management and Coordination

**CURRENT ACTIVITIES**
Maruca-Resistant Cowpea
Developing high quality insect-resistant cowpea varieties for use by smallholder farmers - CFTs show little to no damage

Improving Banana for Resistance against BXW disease
Developing BXW resistant transgenic banana from East African germplasm, using two genes found in sweet pepper - Prf and Hrp.

Improving Rice Productivity
Developing rice varieties with Nitrogen-Use Efficiency, Water-Use Efficiency, and Salt Tolerant Traits

Hybrid Rice
- Increase rice production among small scale rice producers in Africa through breeding
- Develop and expand 2-line hybrid rice technology
**Aflatoxins control in maize & Peanuts**

Using bio-control product, Aflasafe, with holistic strategies to address aflatoxin problems in maize and peanuts.

**Water Efficient Maize for Africa**

Developing white hybrid maize varieties adapted to moderate drought conditions in SSA and insect resistant to increase yields 20-35%, through conventional, marker assisted breeding and transgenic technology.

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**Water Efficient Maize for Africa**

**Problem**

- Increased drought incidences in Africa – in frequency and duration as a result of climate change affecting production of maize

**Technological Intervention**

- Drought tolerance and insect resistance introduced in maize

**Product**

- Hybrid maize varieties endowed with water conserving and insect protection traits that are capable of boosting harvests by 20 – 35 % under moderate drought (conventional and transgenic)

**Current activities:** Efficacy trials

**Project Timeline:** 2008 – 2017. Pilot countries: KE, UG, TZ, RSA, MZ

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**Striga Control in Maize Fields**

Applying Striga-killing herbicide, Imazapyr, to maize seeds that are bred to be herbicide resistant, increasing yields 300% on average.
Cassava Mechanisation & Agro-processing
Brokering access to mechanisation and agro-processing equipment for development and use in Africa, accelerating harvesting and processing

Seeds 2b
Making seeds available at the right time, place, price and quality

Problem
- Availability of quality seed varieties is constraint
- Reliable access to, and supply of improved seed needed by farmers in SSA

Intervention
- Business model to link available seeds from national and international technology owners (public and private) with seed companies in Africa

Open Forum on Agricultural Biotechnology in Africa (OFAB)
- Established by AATF in 2006 for frank discussions on the benefits and challenges of biotechnology
- To enhance knowledge-sharing and awareness on biotechnology
- Increased appreciation of agricultural biotechnology
- Contribute to building an enabling environment for decision making

- Countries: GH, UG, NG, BF, KE, TZ

Enabling Initiatives
- Trends Monitoring
  - R&D Priorities
  - Regulations for GM crops
  - Evolution of Seed Systems
  - IP policy and legislation
  - Crop Value Chain Management