

**9th International Conference on
Agricultural Biotechnology: Ten Years After**

organized by the:

**International Consortium on Agricultural Biotechnology
Research (ICABR)**

and the:

Catholic University of Leuven

CEIS - University of Rome "Tor Vergata"

Centre of Sustainable Resource Development, University of California at Berkeley

Economic Growth Centre, Yale University

Ravello (Italy), July 6-10, 2005

**“The Regulatory System for Maize Seed in East Africa:
Help or Hinder for Poor Farmers?”**

*Hugo De Groote^{*1}, Stephen Mugo¹, Evans Sikinyi², and Fred Kanampiu¹*

*Corresponding author: International Maize and Wheat Improvement Centre (CIMMYT), CIMMYT, P.O. Box 25171-00603 Nairobi, Kenya. Tel. 254-20-524600, fax 254-20-524601, Email: h.degroote@cgiar.org and s.mugo@cgiar.org.

¹CIMMYT, P.O. Box 25171, Nairobi

²Kenya Plant Health Inspectorate Services (KEPHIS), P.O. Box 49592, Nairobi

ABSTRACT

Heavy involvement of African governments in agricultural development in the 1970s lead to substantial increases in maize yields and production, but was not sustainable. Most countries liberalized their agricultural sector in the 1990s, allowing private sector development in marketing and research, including seed. The mid-2000s showed two new developments. First, the liberalization did not lead to an increased use of inputs such as seed and fertilizer, leading to stagnating yields and a deterioration of food security. Analysts wonder if liberalization went too far, or not far enough, and if other important factors such as the institutional environment were being overlooked.

Secondly, developments in biotechnology have led to promising technologies such as GM crops, which were embraced by North and South America, but rejected by Europe and Japan, who put in place very strict biosafety regulations. As a result, regulations for introducing GM crops in Africa tend to be very strict, possibly delaying the dissemination of available technologies to poor African farmers.

Agricultural research institutes now have to understand the relevant regulatory systems to identify bottlenecks in the regulatory system that can hamper technology development or dissemination, and to avoid research in products likely to be unacceptable. A better understanding also makes discussions with the regulatory system, its partners and the policy makers possible. Advocacy for changes can be based on sound analysis, indicating areas where regulations might hinder poor farmers' access to improved technologies, or make technology development prohibitively expensive to them.

This paper describes and analyses the maize seed regulatory system in East-Africa and how it affects the development and dissemination of two new technologies: herbicide resistant maize against the parasitic weed striga, and insect resistant maize against stemborers. Both pests are of major importance to poor farmers, who are unlikely to purchase expensive seed. Cumbersome and expensive regulation would therefore put these technologies out of their reach. While the first technology uses natural mutants, the second uses genetic modification, in particular Bt genes.

The research is based on

- i) Analysis of the technical aspects of the technologies and their implications on research, seed production, and dissemination;
- ii) Assessment of their benefits to the poor, comparing it to their costs and risks (the environment and human health);
- iii) Evaluation of the maize seed market in Kenya, Uganda, Tanzania and Ethiopia;
- iv) Evaluation of the regulatory system (seed and biosafety) in these countries.

Preliminary results of this research show that liberalization has led to an increase in the number of seed companies and available varieties, but generally not to an increase of maize yields and production per capita. Requirements for the release of new varieties have generally become more relaxed. Varieties with new traits, especially pest resistance, can pass through the system with special recommendations, instead of having to prove an overall yield increase, regardless of pest pressure. Research institutes and seed companies do engage in discussions with the regulators.

Progress on the biosafety regulations is much slower. Only one bill (Uganda) was passed, and only two countries have regulations and National Biosafety Committees (NBCs) in place. These have processed research applications for GM bananas (Uganda), and sweet potatoes and maize (Kenya). Tanzania and Ethiopia have only started the process.

In general, regulatory systems put heavy emphasis on protecting farmers, but mostly through limiting variety release. Regulatory systems do not let the market play its role to eliminate inferior varieties. Seed companies could be given more leeway, combined with better quality control in the market. Secondly, although seed regulations have improved, much more can be done. Especially, attention should be paid to the costs of regulations to the poor farmer. The development of less stringent “quality declared seed” label in Tanzania is particularly encouraging. Thirdly, the regional harmonization of seed systems and regional trade would benefit seed companies as well as farmers.