

Preface

Africa remains the only continent that has not been able to fully benefit from the effects of the Green Revolution. The first Green Revolution failed in Africa because it did not take account social and ecological variability, culture, institutional bottlenecks and a host of other issues. This Revolution failed to recognize that although agricultural technology is an important factor, it is only one aspect of a complex socio-economic-ecological system.

Various local, regional and international forums have been held to discuss how Africa's Green Revolution can be achieved. The African Heads of State and governments have developed the Comprehensive African Agricultural Development Program (CAADP) as a framework for agricultural growth, food security, and rural development. CAADP has set a goal of 6% annual growth rate in agricultural production to reach the UN's Millennium Development Goal of halving poverty and hunger by 2015. The African Heads of State Fertilizer Summit held in Abuja Nigeria in June 2006 led to the Abuja Declaration on Fertilizer for the African Green Revolution. The Summit identified three most critical issues that need to be addressed if millions of African farmers are to increase utilization of fertilizer. These are access, affordability and the use of incentives. The Summit recognized that given the strategic importance of fertilizers in achieving the African Green Revolution, there is need to increase the level of use of fertilizer from the current average of 8 kg ha⁻¹ to an average of at least 50 kg ha⁻¹ by 2015. Similar sentiments were echoed at the African Green Revolution Conference in Oslo where it was resolved to take concrete and concerted action towards the development of self-sustaining changes in African agricultural growth through the use of enhanced approaches to public-private partnerships.

Achievement of the desired growth in agricultural production calls for deliberate effort to increase access and affordability of inorganic fertilizers, seed, pesticides and profitable soil, water, and nutrient management technologies by the smallholder farmers in Africa. For many years now, agricultural research has generated numerous technologies that can launch the African Green Revolution but these have not been widely adopted and benefited the smallholder farmers in the continent. There is need for a shift in paradigm from the linear model of research-to-development to the systems perspective. This calls for agricultural innovation, which is the application of new and existing scientific and technological (S&T) knowledge to achieve the desired growth in agricultural production and overall economic development in Africa.

Crop diversification is an important instrument for economic growth. Through the use of biotechnology, high yielding crop varieties have been bred with potential to significantly increase production. NERICA, "New Rice for Africa", for example,

is a new rice variety that has been bred through the application of biotechnology and offers great potential for transforming agriculture in the continent. Other high yielding crop varieties such as maize, sorghum, millet, cowpea, soybean, cassava, cotton with additional benefits of being disease and insect resistant have also been bred and these have the potential for increasing food production and incomes if accessed by smallholder farmers in the continent. There is need for agricultural practitioners in Africa to explore the application of the benefits of biotechnology and crop diversification in achieving the desired Green Revolution.

The world is experiencing rapidly evolving production, consumption and marketing conditions driven by new technology, globalization, urbanization and associated phenomenon. There is need for smallholder farmers to be aware, prepared and equipped to face the resultant challenges. Farmers need to be linked to input-output markets and supported in order to access the required seed, fertilizer, pesticides and also access market information and better prices for their produce. Further, there is need for change in paradigms in development practice where participation, diversity and self reflection are incorporated in agricultural research and development. There is need therefore to build strong institutions among all actors in the natural resource management (NRM) sector as basis for influencing change.

Africa needs to adopt a holistic, dynamic and innovative approach to availability of all agricultural inputs, improved output markets, and policies that encourage input use by farmers and fair prices for their produce if significant growth in the agricultural sector is to be achieved. What is needed is innovative application of existing and new knowledge, the narrowing of the gaps between income generation and investment in the natural resource base through linkages to markets, policy be informed by sound natural science, investments be made in extending this knowledge to farmers, and proper institutional linkages in NRM built and strengthened.

It is on the above backdrop that the African Network for Soil Biology and Fertility (AfNet) in collaboration with the Soil Fertility Consortium for Southern Africa (SOFECSA) organized this International Symposium entitled '*Innovations as Key to the Green Revolution in Africa: Exploring the Scientific Facts*'.

The goal

The overall goal of this symposium is to bring together scientists, agricultural extension staff, NGOs and policy makers from all over Africa to explore the scientific facts and share knowledge and experiences on the role of innovation in soil fertility replenishment as a key to the Green Revolution in Africa.

Objectives of the symposium

- (i) To assess the potential and feasibility of use of external input and improved soil and crop management to achieve the African Green Revolution
- (ii) To identify and learn about innovative approaches needed to build rural input market infrastructure
- (iii) To review the main policy, institutional, financial, infrastructural, and market constraints that limit access to innovations by poor farmers;
- (iv) To evaluate strategies for scaling out innovations to millions of poor farmers in the continent

Symposium Themes

Theme 1: Constraints and opportunities towards the African Green Revolution

Theme 2: Potential and feasibility of use of external input and improved soil and crop management to achieve the African Green Revolution

Theme 3: Factors that limit access to and adoption of innovations by poor farmers

Theme 4: Innovation approaches and their scaling up/out in Africa

It is trusted that this volume of abstracts will enlighten the reader and will contribute significantly to elucidating the importance of innovation in achieving the desired growth in the agricultural sector in the continent.

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