



FOREWORD

BELOW-GROUND BIODIVERSITY IN KENYA

Agriculture has changed dramatically, in the world, Kenya inclusive. Food and fiber productivity soared due to new technologies, mechanization, increased chemical use, specialization and government policies that favored maximizing production. These changes allowed fewer farmers with reduced labor demands to produce the majority of the food and fiber.

Although these changes have had many positive effects and reduced many risks in farming, there have also been significant costs. Prominent among these are loss of biodiversity, topsoil depletion, groundwater contamination, the decline of family farms, continued neglect of the living and working conditions for farm labourers, increasing costs of production, and the disintegration of economic and social conditions in rural communities.

A growing movement has emerged during the past two decades to question the role of the agricultural establishment in promoting practices that contribute to these social problems. Today this movement for sustainable agriculture is garnering increasing support and acceptance within mainstream agriculture. Not only does sustainable agriculture address many environmental and social concerns, but it offers innovative and economically viable opportunities for growers, labourers, consumers, policymakers and many others in the entire food system.

With increasing global concern about the impact of man's activity on the environment, steps have been taken to counteract and these have been enshrined in international conventions to combat desertification, climate change and the loss of biological diversity. Kenya is a signatory to a number of International Conventions on Biological Diversity (CBD) which is a reflection of the country's commitment to the conservation and sustainable management of above and below ground biodiversity. This further shows the recognition of the ecosystem benefits from soil organisms such as bacteria, fungi and fauna which include nutrient cycling, hydrologic cycles regulation of greenhouse gas emission and soil carbon dynamics. This special issue presents results of a five year GEF/ UNEP project on Sustainable Management of Below-ground Biodiversity which was implemented in two benchmark sites in Kenya.

It is an effort to identify and demonstrate alternative soil management practices that would contribute to sustainable agriculture, practices that would increase yield while at the same time conserve below ground biodiversity. To achieve these results a 5 year collaborative research was implemented by a multidisciplinary team of scientists from Kenya: The University of Nairobi, The National Museums of Kenya, Kenya Agricultural Research Institute, Kenya Forestry Research Institute, United States International University and Ministry of Environment and Natural Resource - Department of Resource Surveys and Remote Sensing. These institutions were backstopped by staff of the Tropical Soils Biology and Fertility Program of CIAT which was coordinating the activities in the seven countries where this project was being implemented. This issue evaluates selected soil fertility management interventions for suppression of soil born diseases in a maize and beans intercrop and effect of soil fertility management practices on below ground biodiversity and efficacy of bioinoculants. Farmers knowledge, attitudes and practices (kap) in the two benchmark sites before and after the project interventions is analysed.

The team was able to affirm the hypothesis that integrated soil fertility and pest management is the best option for approach to sustainable and cost-effective management of soil fertility. Because the concept of sustainable agriculture is still evolving, the papers contribute toward reaching the goal of sustainable agriculture which is the responsibility of all participants in the system, including farmers, labourers, policymakers, researchers, retailers, and consumers. Each group has its own part to play, its own unique contribution to make to strengthen the sustainable agriculture community.



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