Part III Integration, includes Chapters 7, Manipulating Fluxes, and 8, Synthesis. Chapter 7 discusses how water, nutrients, land preparation, and weed control can be best managed to achieve maximum crop performance. Chapter 8, twice the size of the others, discusses some relevant historical developments in agriculture, such as the Green Revolution and development of the ideotype concept. It describes a crop simulation methodology used to study the bambara groundnut (Vigna subterranea) under limitations for research in Africa. The feasibility of using this successful experience for assessing the potential of underutilized species, when such a model is combined with a general methodological framework, is discussed. Finally, the contribution of agronomy “as an intermediary among a range of disciplines, linking science to practice” is briefly analyzed in this chapter too.

The text is not just a presentation of facts; it is analytical, clear, and very well written. Several practical examples throughout the text demonstrate the tropical experience of the authors and their didactical orientation. The price of $45 for the book is reasonable, and it should not be an obstacle for this book to be part of library collections, especially in tropical institutions.

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DeVries and Toenniessen (both working at the Food Security Program of The Rockefeller Foundation) provide an overview of genetic enhancement of the most important crops grown by African farmers, some of which are not truly African in origin, e.g., banana–plantain and rice are from Asia and cassava and maize are from America. This book ensued from the restructuring of The Rockefeller Foundation that was undertaken to serve the rural poor better, particularly those being left behind by ongoing globalization and its benefits to economic growth and development.

The book consists of two sections; the first includes an overview of breeding, biotechnology, and seed systems in Africa, and the second provides details on seven important crops in African agriculture: cassava, maize, banana–plantain, sorghum, pearl millet, rice, and cowpea. In my view, this section misses two other important food crops in the rural landscape of sub-Saharan Africa: yams—a truly African crop—and peanut, as well as cash crops such as coffee, cotton, and cocoa, which are important sources of revenue for the rural sector of this continent. In this second section, each of the seven chapters includes a brief history of crop cultivation and utilization in Africa, production levels, trends, and constraints in the continent. They give a review of crop improvement through conventional breeding and biotechnology and the principal challenges to be addressed by crop genetic enhancement and seed systems. The crop chapters end with a review of priority areas for research for development in crop improvement. As the authors indicated in the caveat for this second section, “...the chapters attempt to characterize the major challenges ahead in attempting broadly to improve the performance of these crops when grown under marginal, low-input conditions common to small-scale farmers in much of Africa.” This section will serve as a provocative entry point for further stimulating discussion among breeders and other researchers working for the betterment of African cropping systems.

In the first section of the book, DeVries and Toenniessen argue strongly for the need of biotechnology and end-user participatory methods for crop breeding in Africa, which should be driven by the needs of the rural poor to ensure such work effects positively on their livelihoods. The writing of this book appears influenced by what they regard as “the part of the world bypassed by the ‘Green Revolution’.” In the authors’ view, crop breeding in Africa, to become cost effective and efficient, MUST follow an agroecozones approach with farmers participating with professional plant breeders in developing locally adapted cultivars. This will need to rely on responsive local seed systems for its dissemination to the farming community. An important aim for crop breeding in Africa, as indicated by the authors, should be “to assemble a set of traits that reduce yield loss and confer greater yield stability.”

An important take-home message from this book is the need to establish (or support) decentralized, country-level breeding programs because their teams can only operate efficiently when near to the various targeted agroecozones for each crop. The authors see a facilitating role for the international agricultural research centers to allow these country-level programs to succeed. Following their proposal, international centers and advanced research organizations should allocate their resources to tackling with innovative crop breeding methods—including biotechnology—the most “intractable” or difficult-to-breed-for traits that affect crop productivity in Africa.

Although agro-biotechnology seems to be in its infancy in this continent, some national researchers are well trained in this area but lack of funding from their national governments does not allow them take advantage of their knowledge and professional skills. Among the agro-biotechnology tools, tissue culture ranks first in the micropropagation of asexual crops such as banana–plantain, cassava, and yam, and some other tree crops. The authors predict that DNA marker-aided breeding for a range of traits (particularly to overcome diseases and pests or low input environments) should become the second most important application of agro-biotechnology in the medium term. When biosafety laws are enacted by African governments, and appropriate regulatory frameworks and systems to ensure food safety and human health, and minimize environmental risks are in place, then transgenic crops may be added to the tool-kit of plant breeders working in Africa.

On the content, I found that most examples are taken from eastern and southern Africa, which may not be a surprise since the senior author works from Nairobi (Kenya) and many of The Rockefeller Foundation projects in support of agricultural are in this subregion. The book also does not discuss sufficiently seed health issues, which may affect both local and regional seed trade in Africa.

This book can be recommended to those readers looking for a reference source about crop genetic enhancement in Africa. Though the authors missed a few important references recently printed in international journals, their review includes many from the grey literature, especially institute annual reports or research project briefings, which are not always available or easy to find in a library, or even on the internet in these days of e-knowledge sharing. The easy and jargon technical writing allows this book to be read by undergraduate students. Nonetheless, the information provided and the provocative thoughts throughout its sections make Securing the Harvest mandatory reading. This should include international and national researchers, development investors, and