rhetoric of progress, and the increasing if erratic penetration of state power are highlighted. However her examination does little to extend the analysis of these subjects. She does demonstrate well that colonial officials were struggling to address both the demands of their subjects and their bosses in the capital.

Perhaps not surprisingly, Becker shows that poverty persists because of constraints of the environment on production, the erratic nature of markets, and the neglect and lack of effective action and policy by colonial and post-colonial governments. Less elaboration is provided on the details of this environment, agricultural production and the livelihood strategies of the region's residents. While poverty is the focus of the book, there is little actual elaboration on how it is defined or measured, either by Becker or by the region's residents. Becker's work here might have benefitted from more attention to these nuances provided by scholars of Tanzania such as Maia Green (*Journal of Development Studies*, 2006), who complicate definitions of poverty. Becker's examination of markets, the environment and agriculture, does not engage with the rich literature on these subjects, such as the work of Jayne *et al.* (*World Development*, 2010), Djurfeldt (*Journal of International Development*, 2015), Christiaesen *et al.* (*Journal of Development Economics*, 2011) and others. Additionally, her consideration of the performance of state-society relations in Tanzania ignores some work already done on this subject such as Harrison's excellent analysis of Lushoto (*Journal of Modern African Studies*, 2008). Greater attention to these works might have resulted in new insights.

The book will be of interest to scholars of Tanzania, but its ability to be of significance to a wider audience is limited in part by the lack of clarity produced both by the limits of the archival material and Becker's rather complicated and confusing verbiage which frequently gives way to rhetoric and jargon. The data on which she bases her arguments, particularly about environmental constraints, is quite thin as it is presented. There are questionable Swahili translations and curious misuses of English words. While these are perhaps minor issues, they do distract. Given the price of the book, one would have hoped for more careful copyediting. Becker's work shows, as do many others in the scholarship on development, how complex and often persistently misguided efforts to address rural poverty in the Global South have been.

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Africa's Gene Revolution: genetically modified crops and the future of African agriculture by MATTHEW A. SCHNURR
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Matthew Schnurr's new monograph is an important read for anyone interested in African agriculture, development, technological change and the ongoing controversy over genetically modified (GM) crops. Clearly written, richly empirical and intelligently analysed, *Africa's Gene Revolution* offers the most comprehensive interrogation to date of the promise that GM crops hold for improving the lives of smallholder farmers. Schnurr examines 10 case studies associated with two 'generations' of GM crops in Africa: first-generation crops that were originally designed for US

agriculture and subsequently adapted for use in Africa, and an emergent, second generation of staple crops that were historically ignored by profit-oriented biotechnology firms but are extremely important to smallholder farmers. Examples of the former include insect-resistant cotton in South Africa and Burkina Faso, while examples of the latter include a genetically modified banana in Uganda and the 'water-efficient maize for Africa' (WEMA) project.

Based on a decade of study, Schnurr approaches the gene revolution through a political ecology lens that is sensitive to context, multi-scalar processes and political-economic interests. This multidisciplinary conceptual-cum-methodological framework distinguishes his analysis from most studies of GM crop technologies, which take a strictly disciplinary approach and favour a singular methodology and set of measures, leading to partial and unrealistic assumptions about farmers' circumstances and behaviour. (Relatedly, his synthetic overview of a political ecology framework, aimed at the non-specialist, is one of the best I have seen.) It also allows Schnurr freedom to draw on and triangulate a wide range of evidence types and sources, from his own field visits and interviews with farmers, scientists, government officials and NGO activists, to project documents and scientific studies, which he artfully explains to the reader.

Schnurr's most valuable contribution lies in his careful assessment of the existing evidence against the yardstick that matters most: how well the GM crops that have been developed for Africa fit smallholder farmers' needs, circumstances and preferences. He examines the utility of particular GM crops in the context of farmers' asset bases, ways of doing things, food preferences and tolerance for risk. He also considers these new crops' gendered labour demands. In his most in-depth case studies, Schnurr employs interviews, focus groups and ranking exercises with farmers to analyse how a GM crop has worked (or is likely to work) and who is likely to benefit most *in practice* rather than simply accepting the claims of biotechnology's cheerleaders or naysayers. To his credit, Schnurr is open to the possibility that GM crop technologies, especially the newest ones, could address smallholder farmers' primary concerns under the right conditions. He then explores whether those conditions exist.

While many books lose steam as they come to a close, the opposite is true of *Africa's Gene Revolution*. In a provocative conclusion, Schnurr confronts the tough questions about where to go from here in a debate that remains deeply polarised. Schnurr proposes that rather than being top-down and donor-driven, as is currently the case, the search for better agricultural technologies should follow a decentralised model that starts from the bottom up and involves *technology co-development* by African farmers and scientists. This would mean doing many more and much smaller projects, i.e. developing technologies to fit local circumstances and practices. Other, non-technological issues, such as institutional support – especially agricultural extension – would also need to be addressed. It is only this sort of grounded, holistic approach to technological change, contends Schnurr, that holds promise for smallholder farmers.

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