The book’s two main strengths are its comprehensive approach and accessible style. The range of issues covered is broad, yet there is sufficient detail for the reader to gain a deep appreciation of the complex system that affects farmland conversion and the resulting outcomes. The conceptual framework and arguments presented are useful yet easily understood by interested lay readers. The blend of chapters discussing the farmland conversion issue in general are complemented nicely by the case studies that illustrate that nuances and diverse experiences of individual US and European localities. Occasional lapses into a condescending tone (some authors come close to suggesting that anyone who disagrees with their ideas must be ignorant) and shrill rhetoric (“Do we really think that the biotech gene-jockies or the shop-till-you drop children of the urban mall can take the lead in creating healthy and productive landscapes?”) distract from the strong conceptual presentation. Further, despite the amount of the book devoted to the question of why farmland should be preserved, relatively little empirical evidence is presented about the magnitude of nonproductive services of farmland — particularly compared with those from other non-developed land — and the tradeoffs inherent in different land uses. The “global food security” argument ultimately boils down to a suggestion that we should exercise “prudence”, given that empirical studies do not conclusively demonstrate that there will be a global food production problem in the future if farmland conversion continues at current rates.

Thus, for the ardent proponent the book provides a comprehensive framework and many conceptual arguments to support farmland preservation efforts. Opponents of national land-use policies will find gaps in the logic and empirical evidence presented by the book. The reader interested in an objective understanding of the farmland preservation issues may be left with the question: “What’s the other side of the story?”

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This book provides an overview of the development of the Kenya Maize Data Base Project (MDBP), especially as it relates to the application of local spatial data bases and geographic information systems (GIS) for research improvement. The first
part of this book describes the methods and surveys used to develop the various spatial data bases, to input and store the data in a GIS, and several applications of the system. The second part describes some ex ante research evaluation and the setting of priorities. The third part describes the various methods used to analyze the patterns of maize technology diffusion and the impact of research on maize yield improvement. In the final part of the book the major findings of the Kenya MDBP are summarized and recommendations are made for future research priorities.

The Kenya MDBP was established in 1992 by the Kenya Agricultural Research Institute (KARI), through a collaboration with the Rockefeller Foundation, the Economics Program of the International Maize and Wheat Improvement Center (CIMMYT) and the Kenya Mission of the US Agency for International Development (US AID). Although KARI’s maize research program has been one of the most successful in sub-Saharan Africa, farmers have been unable to maintain sustained growth rates in maize yields during the last decade. Limiting factors include rainfed farming systems, poor management techniques, and the shift of production to marginal lands due to population growth. The Kenya MDBP was therefore developed as a research planning tool to help KARI determine where maize research can have its greatest impact for maintaining yield increases well into the next century.

In the first chapter background information is provided about the current growth rates of maize production in Kenya, the adoption of new technologies, and the impact of maize research. This chapter also defines the objectives of the Kenya MDBP and the justification for using computer-based data bases and GIS technologies. In the second chapter the maize production zones are classified, using climatological data. A total of eight zones were delineated, based on both temperature and precipitation. The third chapter describes the design of a geo-referenced and spatial sampling frame for farmer and village surveys. The fourth and final chapter of Part I combines the geo-referenced survey data with the agroclimatic zones to characterize maize production systems.

In the fifth chapter an analysis is presented of the trends in the types of maize research that have been conducted, as well as research findings and outcomes over the past 12 years. It showed that most of KARI’s research has been directed towards the highland tropics, while less emphasis was placed on the moist transitional zone, where one can expect most of the potential research gains. In the sixth chapter the potential economic research benefits are estimated. However, it is unfortunate that this analysis is based on 1994 maize prices and 1989 population growth data, rather than more recent data. One of the recommended research priorities for future research includes the development and adoption of new varieties for the moist transitional zone and highland tropics, and improvement of crop management for the dry and moist mid-altitude and dry transitional zones.

Part III of this book starts with an analysis of the adoption patterns of improved maize for the various agroecological zones and farmer groups, described in the previous chapters. Although maize hybrids have been developed in Kenya since the 1960s farmers have been slow in the adoption of these improved maize varieties and hybrids. Farmers adopted hybrids much faster than open pollinated varieties, mainly due to the large potential yield differences in poor environments. Seed dis-
tribution and road infrastructure were also limiting factors in improving production, especially in low yield potential areas. In many cases farmers also do not apply fertilizers, sometimes due to the risks associated with rainfed production systems; as a result hybrids do not express their yield potential. In Chapter 8 the determinants of fertilizer use by farmers and the gap between farmers’ maize yields and potential yields are described. The authors state that 1 million more tons of maize could be added to current domestic production (an increase of one third) if farmers improved their soil fertility management practices. Limiting factors include poor yield gain from fertilizer use and fertilizer–grain price ratios. Infrastructure again seems to affect both the price as well as the distribution of fertilizer. Striga or witchweed is one of the pests that limits cereal and maize production in sub-Saharan Africa. Chapter 9 provides an analysis of various options farmers have to control striga. In particular, intercropping and crop rotation can prevent the spread of this parasitic weed. The last chapter of Part III presents the effectiveness of the extension services and the dissemination of information to maize farmers in the more marginal production zones. It was observed that there was a bias against female farmers.

Chapter 11 provides a synthesis of the Kenyan MDBP. Recommendations are provided for future research, especially changes in breeding strategy which can be led by the public sector, and improvements needed in the private fertilizer sector. Especially enhanced collaboration is needed between the public and the private sectors to help improve yields in maize-based cropping systems in Kenya.

This book also contains six appendices that summarize some of the functions and equations applied in the MDBP, as well as tables that include data related to adoption of new technologies and improved maize varieties. Geographic data are depicted in color maps and presented in the front. Overall this book provides an excellent overview of the Kenyan MDBP. The use of GIS to link and combine all spatial data bases is state-of-the-art and provides an excellent example of combining both research and extension activities and evaluating their effectiveness for delivery of information to the resource-poor maize farmer in Kenya.

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Against the Grain is a book that goes beyond emotional and political concerns to examine the implications of the genetically modified food revolution. Each of the 13