Pretty and Bharucha present pathways to sustainable agroecosystems, arguing that agriculture will have to be intensified but this can be achieved without environmental and social harm. In other words, sustainable intensification is possible and the book seeks to outline means for achieving this, drawing on case studies, with a particular focus on smallholders in the developing world. It provides an authoritative and well-argued case for sustainable intensification.

Pretty and Bharucha define sustainable intensification as "a process or system where yields are maintained or increased without adverse environmental impact and without the conversion of more land." Sustainable intensification is thus an outcome, with this book seeking to outline how it can be achieved, drawing on illustrative, agro-ecological case studies. It brings together the authors’ thinking on the topic, published in academic journals, into a longer and holistic assessment.

The book consists of nine chapters. The short introduction outlines their viewpoint that sustainability and intensification in food production are compatible and necessary. A new type of farming is required, but there are multiple pathways toward agricultural sustainability, all requiring learning systems that include experimentation and action. Chapter 2 traces contemporary interest in agricultural sustainability, demonstrating an admirable and detailed knowledge of the literature, drawing on the authors’ longstanding editorship of the *International Journal of Agricultural Sustainability*. Data on the world’s triple burden of undernutrition, malnutrition and overnutrition are presented, arguing that the agricultural revolutions of the 20th Century led to a loss of biodiversity, deteriorating social health and an unhealthy dependence on synthetic pesticides. The authors pay particular attention to per capita meat consumption, arguing that it is "a good proxy for growing ecological inefficiency in the food system."
They conclude that existing food systems are broken as the earth has already exceeded its capacity to supply and sink resources without resulting to negative feedback loops, and that current consumption and population drivers will, if unchecked, exacerbate the problem.

Chapter 3 outlines the concept of sustainable intensification in greater depth. It argues that sustainable agricultural systems exhibit four characteristics: multifunctionality within economies and landscapes, tailoring to particular social-ecological contexts, a requirement for greater skills knowledge by farmers, and dependence on new configurations of social capital. They may not require a net reduction in input use but, rather, better use of existing resources and technologies. The task for farmers is to improve yields and incomes through knowledge and social capital in ways that minimize environmental harm. The chapter concludes with the case of China where improvements in agricultural output stem from increased use of fertilizers, pesticides, fuel and water but the efficiency of these resources has declined. It argues that China must produce 30–50 percent more food during the next 25–35 years without harm to the environment, which would be counterproductive in the long term.

Chapter 4 poses the question—is it possible to produce more without harming renewable capital assets? In answering this question, the chapter looks at cases that exhibit a simultaneous improvement in yields and environmental outcomes. The authors argue that such outcomes may emerge through combining the use of new and improved varieties with changes to agro-ecological management and/or via farm diversification, where new crops, livestock, or fish add to existing staple or vegetable cultivation. Reviewing 286 projects in 57 countries, they note that 12.6 million farms participated in sustainable intensification initiatives with a mean relative yield increase of 79 per cent across a wide array of farm systems and crop types. While noting the mean masks a wide spread in outcomes, the reasons for variations in outcomes go largely unexplored. Under the umbrella term sustainable intensification, the authors include Integrated Pest Management (IPM), zero tillage, improved genetics, carbon sequestration, and precision farming. Positive effects of IPM in Asia and Africa, where pesticide use declined but yields increased, are presented.

Chapter 5 focuses on sustainable intensification of smaller farms in developing countries. It begins by taking issue with the notion that transgenic crops only benefit large farms. Rather, the authors call for the development of new varieties better adapted to ecosystem-based agriculture with superior resource-use efficiency. For example, this may be in the form of wheat cultivars suited to zero tillage. In the rest of the chapter, the authors present overviews of cases including conservation agriculture in Kazakhstan, double-dug raised beds in Kenya, integrated farming on small plots in China, greening of West Africa’s drylands, and rice-fish systems in Asia. The authors argue that the cases indicate "that remarkable progress is being made towards sustainable intensification of agriculture in many ecological and social contexts," with smallholders at the vanguard.

Chapter 6 considers sustainable intensification in the context of industrialized countries, drawing largely on evidence for the UK and USA. The authors note examples of better resource-use efficiency and substitution, as well as redesign, although "long legacies of unsustainable cultivation persist." While acknowledging the positive role that consumers can play in the spread of sustainable consumption, through purchasing more environmentally friendly offerings, willingness to pay remains largely unconsidered.

Chapter 7 argues that meaningful changes across whole landscapes only occur through
collaboration and cooperation between farmers. This draws attention to social capital and the costs and benefits of working together. The authors identify farmer field schools as an exemplary mechanism for increasing agroecological knowledge and practices as well as group building. However, participatory user groups often fail—water user associations in India exhibit variable performance with some subject to elite capture and only existing on paper.

Chapter 8 presents sustainable intensification as a pathway to the spread of transformational green economies. While political commitment is limited currently, the authors are optimistic that change is possible, pointing toward China’s recent investments in forestry and watershed management. The concluding chapter sums up, arguing that sustainable development can work and is working, and currently occurring at scale across a wide range of agroecosystems.

The strengths of this book are its global coverage, detailed knowledge of the sustainable intensification literature and cases. It succeeds in showing "what is possible, how worlds are indeed being redesigned and rebuilt." The book fleshes out ideas first presented in Pretty (1997) and distills the current thinking of the two foremost scholars of sustainable intensification. It can be read alongside more critical treatments of sustainable intensification such as Mahon et al. (2017).

Regarding limitations, some readers may wish to see greater coverage of failed sustainable intensification schemes, to learn more about how best to design reform programmes and avoid common pitfalls. While recognizing the possibility of increasing yields without adverse environmental impacts, some trade-offs inevitably remain: for example, the downsides of declining use of low yield, and traditional varieties. Situations where redesigned agro-environmental systems lead to positive improvements on all economic, environmental, and social indicators remain rare. These issues should not detract, however, from a readable and insightful contribution to the literature on sustainable intensification.

REFERENCES

