FOREWORD

At a time when the world faces interrelated global challenges of climate change, broken food systems, widespread degradation of land and water resources, and alarming biodiversity loss, it is easy to feel overwhelmed. This book is here to help by offering practical guidance on how we can tackle these seemingly unsurmountable problems, by working with farmers to make more and better use of trees in fields, on farms and across landscapes – that is, through agroforestry.

Agroforestry tackles global challenges systemically rather than one at a time because trees can help farmers adapt to climate change while sucking carbon dioxide out of the atmosphere, provide habitat for biodiversity, regenerate soil and water resources and provide nutritionally important food and other high value products that boost farm income. Put simply, trees on farms are an investment in ecological infrastructure. Their deep root systems, elevated leafy canopies and longevity add functional diversity to farming systems that make them more resilient to climate change effects, like increasingly frequent and severe floods and droughts.

The beauty of this book is that rather than offering a few prescriptive technologies for farmers to adopt, it sets out principles, that when followed, can support farmers and communities in driving their own local innovation.

The first principle is to start with farmers. To recognise their knowledge, their needs and wants, and their capacities and then to codesign agroforestry practices that match local circumstances. This is important because farmers differ from one another and so need different solutions that suit their context. This leads quickly onto the importance of the second principle of agroforestry co-design: aptness to people, place and purpose.

Agroforestry is not 'a' solution to local and global challenges, it is a basket of options with different tree species, cropping and livestock management practices that can deliver production and environmental benefits tailored to local conditions and changing priorities. It is not always easy to select appropriate tree species and management practices, but it is worth putting a lot of effort into doing this, precisely because trees are long lived components of farming systems. This highlights the importance of the third principle: synergy.

It is synergistic effects that confound the impact of global challenges. For example, the combined effect of climate change and agricultural intensification is reducing insect abundance and diversity, including pollinators that are, in turn, important for crop production, precipitating a downward spiral.

Farming and food systems are complex, involving interactions amongst many ecological and socio-economic components. Because trees add functional diversity to farms, they increase the potential to manage interactions to achieve positive outcomes. Their extensive root systems may enhance nutrient recycling, associations with soil microbes lead to biological nitrogen fixation reducing the need to purchase inorganic fertiliser, they shade crops and livestock reducing heat stress, promote groundwater recharge by increasing infiltration and penetration of water, as well as protecting against soil erosion. Well-managed trees in agricultural landscapes may enhance natural pest control, reducing the need for use of environmentally damaging pesticides as well as storing carbon in soil, vegetation and durable wood products. Trees are also important social and cultural components of landscapes, interacting with land tenure and having variable access and uses, depending on people's gender and ethnicity.

It is clear that integrating trees within farming practice can have positive outcomes. The difficulty is that with so many different tree species and management options, agroforestry is knowledge intensive. And that is why this book is so important. It sets out in simple language, concrete steps for applying the principles of codesign of agroforestry solutions and provides well-illustrated case studies of how this has played out in various crop and livestock systems across different regions of the world. It covers both successes and failures, so that we can all learn from the experiences that these expert authors bring together in this landmark publication.

I encourage people to not only read this book but to take it into the field and use it to guide action. Whether you are a farmer, an extension worker, a policy maker or someone interested in promoting equitable and sustainable agriculture, there will be much within these pages to enhance your understanding of agroforestry and how to put it into practice.

Fergus Sinclair
Chief Scientist, CIFOR-ICRAF