Book reviews

Issues in Agricultural Bioethics, eds T. B. MEPHAM, G. A. TUCKER & J. WISEMAN. xi + 413 pp. Nottingham: Nottingham University Press (1995). £70.00 (hardback).
ISBN 1 897676 239.

Agricultural ethics is one of the many branches that has developed on the tree of so-called applied ethics in the last twenty-five years. Often such fields flourish in the wake of new dilemmas, new technologies or new institutional or strategic arrangements in the area, like genetic modification entering the field of agriculture and creating the possibility that in future cows will not only give milk to drink but will also deliver with this milk substances of pharmaceutical value. Ethics takes a reflective stance towards such possibilities and weighs them in the light of values like justice, welfare, equity, animal integrity, sustainability and survival. Sometimes, however, due to a variety of causes, it takes considerable time before the branch has acquired recognizable features and has succeeded in establishing itself as a distinct field of moral interest.

This book goes a long way to marking out the field of agricultural ethics and this is quite an achievement in view of the fact that it was not conceived as an introduction to the subject. It contains papers that were originally read at a conference at Nottingham University: in some such collections it is said that only the cover holds the collection together, however in this book this saying does not apply. True, the division under seven headings (social and philosophical dimensions, bio-ethics of food, crop production, environmental sustainability, biotechnology in animal production, animal welfare and appropriate biotechnology) by which the editors have organized the contributions seems rather arbitrary, but the twenty-four articles cover fairly well the philosophical as well as the ethical and practical issues to date in agriculture. The only other issue that to my mind would have qualified for a heading of its own concerns justice and fairness – this forms part of the background of the sustainability debate and is referred to in some articles as a distinct ethical problem, for instance in that of Mepham on the justifiability of promoting the use of 'formulas' at the expense of breast-feeding in Third World Countries. But a more systematic ethical treatment that takes issue with the cultural, political and economic developments in agricultural practice, from the point of view of justice and fairness, is missing. This is a pity because there is a lot of empirical data in the book that lends itself very well to such an ethical analysis and evaluation.

The great virtue of this collection of papers is that it gives substance to the idea that agricultural ethics can only flourish as an interdisciplinary activity. The article by Mepham on the marketing of infant foods is exemplary in this respect, as it keeps ethical and empirical data together in a controlled and sustained argument. The great problem with the collection is that it contains simply too much and contributions are too diverse. The ethical significance, level of abstraction and practical purport of the other contributions differ considerably, but as it is unlikely that all the articles will be read through in succession, in practice, this does not have to be much of a problem. Most authors also make their aims and claims clear right from the start. Preston, on the sustainable use of natural resources in the tropics might be a bit too practical and empirical for ethicists, just as Frey on the ethics of using animals for human benefit might be a bit too philosophical for scientists. Personally, I have the impression that in some of the articles on food there were more moral hairs split than needed, but all-in-all the book stands a good chance that it will become what the editors hope for – 'a valuable catalyst and source of reference' for those who are concerned with applying the new biotechnologies in an ethically appropriate and sustainable way.

J. M. G. VORSTENBOSCH

The Role of Soil Science in Interdisciplinary Research, eds R. J. WAGENET & J. BOUMA. xvii + 143 pp. Madison: ASA & SSSA (1996). $22.00 (paperback).
ISBN 0 89118 821 5.

This is a focused examination of the increasing need for soil scientists to tread the co-operative path and expand their scale of reference without compromising the integrity of their subject. The book features authors from Europe (Belgium, the Netherlands, Scotland) and the USA. There are ten chapters, dealing with the co-operative role of soil scientists at the conceptual and practical levels. The introductory chapter by Bouma & Hoosbeek offers an underlying philosophy for interdisciplinary work and attempts to systematize the organization of soils knowledge in terms of scale and level of understanding. I found the

approach only occasionally platitudinous but ultimately a useful contribution which set the tone for the rest of the book rather well.

The examples of inter-disciplinary studies examined in the following nine chapters are excellent and cover a familiar gamut of 'soil-related' topics. Subjects include (global) food production (Ch. 2), soil bioremediation (Ch. 3), ecology (Ch. 4), watershed hydrology (Ch. 5), agro-chemical fate (Ch. 6), University teaching (Ch. 7), wetlands research (Ch. 8), land-use planning and modelling (Chs 9 and 10). Each chapter sustains the general theme of the book but also, without exception, stands alone as a useful overview of a specialist topic.

I found it difficult to select one chapter as particularly outstanding. However, Ch. 3, on biodegradation and bioremediation by Hans Stroo is a possible candidate. Stroo presents a very candid and readable account of the achievements of soil microbiologists in this applied field; an excellent introductory source. A generally upbeat and celebratory approach is sustained in several chapters but is tempered with a plea for soil scientists to expand their frame of reference and learn to adapt soils information to the broader requirements of large research teams. On the whole, the message is delivered without evangelical 'hand-waving'. Another general theme is the duality of a soil scientist's 'affiliation'; to agronomy and to environmental science. This is addressed directly in Ch. 7 in a study of changes in University teaching (Pepper) and incidentally with respect to adaptation of research topics (paddy soils and natural wetlands) in Ch. 8 (Reddy *et al.*).

From my perspective, this publication fulfilled the three essential requirements of a good book: it's concise, it's cheap and my favourite subjects were those of which I know the least.

SCOTT YOUNG

Japan's Beef Industry: Economics and Technology for the Year 2000, by J. R. Simpson, Y. Kojima, R. Kada, A. Miyazaki & T. Yoshida. ix + 207 pp. Wallingford: CAB International (1996). £30.00 or $45.00 (hardback).
ISBN 0 85199 105 X.

The authors evaluate the decline in Japan's agricultural self-sufficiency, in general, and the beef industry, in particular. They determine that if bold steps are not taken the Wagyu (Japan's beef breed) industry could essentially die out early in the next century under pressure from the next round of world trade negotiations. The first two chapters contain very useful data on Japan's agricultural economy, and on production, trade and the consumption of livestock products. In the next three chapters, the authors review and analyse the livestock industry structure, beef production, feeds, grades, prices, production costs and returns.

In the following four chapters, the authors review cattle production technologies, and conclude that embryo transfer (ET) using high quality, proven Wagyu cows as donors, and Holstein cows on dairy farms as recipients, could be a viable production technique.

This is the only book, in either Japanese or English, which contains a comprehensive analysis of the beef industry in Japan and also economic analyses of a potential technology. This book is valuable not only for researchers interested in Japan's beef industry but also those concerned with the economics of embryo transfer. The authors include an evaluation of twinning and conclude that this procedure has a beneficial effect and should be encouraged despite additional problems for dairy producers.

It is recommended both to researchers and for graduate student courses concerned with world agriculture because of its review and analysis of beef production technologies.

TETSURO KOMIYAMA

Tree–Crop Interactions. A Physiological Approach, eds C. K. Ong & P. A. Huxley. xiv + 386 pp. Wallingford: CAB International (1996). £25.00 (softback).
ISBN 0 85198 987 X.

After so many books and papers describing the practices, promises and premises of tropical agroforestry, it is a delight see a book which takes an objective and analytical look at tree–crop interactions. In the early years of ICRAF, there was a tendency to assume that agroforestry was always a good thing. This was effective in getting agroforestry on the agenda, but it suggested that the research problem was simply to demonstrate which agroforestry systems worked best in different places. Now we know that in some circumstances it doesn't necessarily work at all, and before recommending a practice or embarking on costly field research, we need to examine more closely the tradeoffs involved when introducing trees into cropping systems.

This examination was spearheaded in ICRAF by Ong, Huxley and van Noordwijk, who are responsible for two-thirds of this book. The initial stimulus for the book was a simple linear equation put forward by Ong, which states that crops benefit from the presence of trees only when improvements in soil fertility (F) are greater than competitive effects (C). The problem, of course, is that F and C are inversely related – trees don't improve soil fertility without using water and light. The aim is to optimize the tradeoff – which

means maximizing resource capture (light, water and nutrients), resource conversion to useful biomass and optimizing its distribution among tree–crop components. Ong, van Noordwijk and co-workers give comprehensive and thoughtful accounts of the principles involved, related to their observations in India, Kenya and Indonesia. An analytical and 'resource capture' approach is used, for instance, to define the limitations and potentials of agroforestry when water is limiting (pp. 17–18), soils are already fertile (p. 64) or tree products are not of high value (p. 56).

The value of the book is enhanced by chapters on the theory of plant competitive interactions (Ranganathan & deWit), microclimate modifications (Brenner), water balances (Wallace) and erosion (Garrity), and by a comprehensive account of the biological attributes of trees and crops which affect their performance in mixtures (Huxley). The book is essential reading for agroforestry researchers. It provides a shaft of clear thinking, some solid ground, in what is so often a swamp.

MELVIN CANNELL

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