

## Book reviews

*The World Food Problem: Tackling the Causes of Undernutrition in the Third World*, 2nd edn, by Phillips Foster and Howard D. Leathers. Published by Lynne Rienner, Boulder, Colorado, and London, 1999, pp. xv + 411, \$US23.50, ISBN 1 55587 703 6.

In this second edition of the well-received work by Phillips Foster published in 1992, Foster and Leathers present a very broad approach to the analysis of the world food problem. It is explicitly interdisciplinary: ‘we have drawn on the fields of nutrition science, economics, demography, agronomy, history, anthropology, philosophy, and public policy analysis’ (p. xiv) in order to deal with the challenge of the world hunger problem. Based on this general promise, the book contains three major parts. The authors start in Part 1 with definitions and facts on malnutrition. Part 2 deals with ‘Causes of Undernutrition’, and Part 3 covers ‘Policy Approaches to Undernutrition’.

Four types of malnutrition are distinguished in Part 1: (i) overnutrition; (ii) secondary malnutrition; (iii) micronutrient malnutrition; and (iv) protein-calorie malnutrition. Foster and Leathers concentrate in most of their book on protein-calorie malnutrition, as this ‘is a major source of nutrition-related disease’ (p. 18) in developing countries. When the impacts of undernutrition are discussed, the authors elaborate clearly that measurement is difficult as, e.g., ‘body size is the product of heredity and environment’ (p. 37). Therefore, it is not easy to decide what is normal and which reference group is appropriate in order to conclude that an individual has a nutrition problem. Often-used anthropometric measures like height-for-age or weight-for-height must be regarded with such reservations. Nevertheless, anthropometric measures of undernutrition like clinical, biochemical or dietary assessments of nutritional status are crucial. They are discussed in Part 1 as are measures of aggregate nutritional status in a society like food balance sheets and associated per-capita food intake. Furthermore, a compact survey of the extent and development of undernutrition in the world is given. It clearly shows important facts and trends like the decreasing proportion of undernourished people in the world, the failure of the Malthusian view in a worldwide context, the seasonality of undernutrition, the vulnerability of children and females to undernutrition, and the concentration of undernutrition in rural areas and in parts of Asia and Africa.

In Part 2, ‘Causes of Undernutrition’, the concept of food security is illustrated first. Starting out from the Malthusian thesis, Foster and Leathers discuss the demographic factors and their influence in per-capita food

production. An analysis of economic determinants of food consumption and undernutrition follows: income and the price of food in Chapter 8, the distribution of income, wealth and education in Chapter 9. In Chapter 10, the effect of demographic factors on per-capita food consumption is analysed. Chapters 11 and 12 focus on determinants of agricultural production, i.e. on 'Agricultural Land, Water, and Yields' and on 'Agricultural Production and the Environment'. Issues like the Green Revolution, land degradation and global warming are captured here. It is this part, Chapters 11 and 12, which is completely new in this second edition and the authors stress that they put 'more emphasis than did the first edition on increasing agricultural production as a way of reducing the extent of undernutrition' (Foreword). Chapter 13 lays down health-related causes of undernutrition. It is argued that a successful therapy against undernutrition has to be directed against poor health and nutrition.

It is the central goal of Part 3 'to explore public policy alternatives of interest to nutrition planners' (p. 231). Consistent with the general approach of the book, there is a wide array of policy options discussed. After clarifying some philosophical approaches to undernutrition in Chapter 14, policies aimed at health-related (Chapter 15) and demographic (Chapter 16) causes of undernutrition follow. Then, policies aimed at reducing inequalities and raising the income of the poor (Chapter 17) and those lowering the price of food through subsidised consumption (Chapter 18) are covered. Measures like land reform, minimum wages, food subsidies or food aid are discussed here. Policies that lower the prices paid to farmers and lead to urban bias are then investigated (Chapter 19) as are supply-increasing policies which reduce input costs (Chapter 20). Basic questions of policy concepts and policy-making are presented in Chapter 21 and scenarios of world food supply and demand in the next half century in Chapter 22 conclude the book. In this action framework for policy reform, four sets of policy measures are proposed: (i) reduce the rate of population growth; (ii) invest in improved agricultural productivity; (iii) protect soil and water resources; and (iv) encourage economic growth among the poorest.

Some critical comments have to be made about Part 3. There are many topics covered, too many for a comprehensive and uniform evaluation of all policies. Some instruments are mainly covered by country examples in the boxes, e.g., policies which lower fertility or food subsidies. In some cases, like price stabilisation, possible measures are briefly presented but not really assessed. A uniform concept for evaluation is not presented. For some policies, like input subsidies or progressive taxation, redistributive impacts are stressed, whereas allocative effects are in the foreground, e.g. when price discrimination against agriculture is discussed. From this reviewer's point of view, the distinction between 'the poor' and 'the rich' often used by the

authors in the policy analysis seemed too simplistic. It has been shown in the literature that the middle-income class in LDCs plays a major and growing role in the context of the world food problem (Yotopoulos 1985). Despite these weaknesses, the breadth of instruments discussed in Part 3 remains impressive.

In general, Foster and Leathers have provided an accessible introduction to the world food problem for a wide audience. They have written a very readable book, which is supported by many well-designed boxes in the text on individual issues and definitions. Given its interdisciplinary approach, the book will offer something to everybody. Economists will certainly gain from the comprehensive survey of nutritionist aspects to the world food problem. This element has been strengthened in this second edition by adding Chapter 3 on 'Impacts of Undernutrition', where effects on physical growth and size, intellect, learning, labor productivity, etc. are incorporated. Nutrition and health scientists will probably value the discussion on demographic and economic causes of world hunger. The interdisciplinary approach has the advantage that the readers gain insight into and access to very different issues and also to very diverse branches of the literature. Hence, Foster and Leathers can be congratulated on tackling the world food problem successfully with important concepts from various scientific disciplines.

The interdisciplinary approach has its price, too, as it is not possible to deal with some major issues with the depth one might wish in, for example, an economic course on the world food problem. Therefore, I would complement the book by a welfare-economic approach to assess the policy instruments in Part 3 and by a deeper discussion of Sen's entitlement approach and the microeconomics of health and nutrition. As in the first edition of this work, Sen's concept has not been covered in detail (see Ozanne 1994). Apart from that, this book by Foster and Leathers can be recommended as an important addition to the reading list for economic courses on the world food problem.

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ROLAND HERRMANN  
Institute of Agricultural Policy and Market Research  
University of Giessen,  
Germany

*A Rice Village Saga: Three Decades of Green Revolution in the Philippines*, by Yujiro Hayami and Masao Kikuchi. Published by Macmillan, Basingstoke, UK, ISBN 0-333-72617-0, and Barnes and Noble, Lanham, MD, USA, ISBN 0 389 21023 4, in association with the International Rice Research Institute, 2000, pp. xviii + 274, £50.

Readers familiar with other works of Yujiro Hayami (such as his 1997 book on development economics) will expect good things in this latest book, and they will not be disappointed. In spite of it being a joint effort of synthesis with his long-standing collaborator Masao Kikuchi, it is a distinctly personal account, from the opening description of his bumpy 1974 search of Laguna Province for *the* 'typical rice village', to the Epilogue emerging from his attendance at a village key-person's funeral in 1997.

He did well to fix on (the innocence-protecting pseudo-named) East Laguna Village for this study saga. Just one village can only be typical of a restricted population but the story of this one does seem to capture important aspects of the reality of many villages in the Philippines, not to mention other ASEAN countries. A reader grows to feel quite intimate in the understanding of village life here, as well as knowledgeable of how this case shares similarities with the dynamics of village life elsewhere in Asia, especially Japan, over the past century. The writing style is accessible and inviting, if not always in perfect English and, if one is prepared not to dwell too much on the richly detailed tabular presentations of factual survey data from the many field studies, the work can be read almost as a novel or a family saga.

It is, of course, much more than just a mere story of economic development, instructively juxtaposing as it does the observed experience of East Laguna Village with the writings of such different observers as Chayanov, Dewey, Geertz, Hardin, Hirschman, Lewis, Lipton, Marx, Myint, North, Olson, Ostrom, Otsuka, Popkin, Putnam, Ruttan, Schultz and Todaro, to mention some of the more significant among the many cited. As such, this work is bound to find its way onto the reading lists for many courses linked to development, not just those run by economists.

For me, the highlight of the book is the insightful description of the different types of rural non-farm activities that have come to play such a large part in the village economic life today, and how the links to Metro Manila and other large urban centres have played their part in these developments. Others will perhaps be more intrigued by the role of the proximity of East Laguna Village to one of the major sources of technical innovation driving the Green Revolution, IRRI — the International Rice Research Institute, a co-sponsor of this publication. Which brings me to the relevance of the sub-title. This account is much more than a story of the Green Revolution, although the (limited but surely significant) crop-

improvement aspects of economic advance in the village are well told indeed. I may be wrong to decry the further possible mystification of that revolutionary process, but a more accurate depiction of the scope of village development would have been captured if 'and Industrial' or some such had been inserted after 'Green'.

Titles aside, this is an excellent book that students of agricultural development will treasure. They will profit from heightened understanding of the practicalities of phenomena as diverse as agrarian structures and land reform, irrigation administration and management, dynamic community and labour relations, declining real prices of staples, and marketing and globalisation, with implications for emerging rural non-farm industries and for income distribution.

JOCK R. ANDERSON

World Bank,  
Washington, DC

*Agricultural Values of Plant Genetic Resources*, edited by R.E. Evenson, D. Gollin and V. Santaniello. Published by CABI Publishing, Wallingford, UK, 1998, pp. xvi + 285, ISBN 0 85199 295 1, £40.

This book derives from a 1996 symposium on the Economics of Valuation and Conservation of Genetic Resources for Agriculture, co-sponsored by the Food and Agriculture Organization's Economic and Social Department, and the Tor Vergata University of Rome.

The book has an Introduction by the editors and five parts. In the Introduction, the authors survey the dimensions of the genetic conservation problem within an economic framework, noting that (neoclassical?) 'economists agree on a utilitarian approach to valuing genetic resources' (p. 6). Within this framework, extinction costs, genetic uniformity and diversity, substitutability between species and higher orders of classification, and existing conservation activities are discussed. The chapter concludes with a survey of non-market valuation methods, and their application to genetic resources.

The four chapters in Part I, 'Modelling the Role of Genetic Resources in Plant Breeding', are generally mathematical treatments of the plant breeding process (separate chapters by Evenson, and Simpson and Sedjo) and investing in biodiversity (Cooper), and a conceptual paper (Swanson, which partly covers similar material to the Introduction).

The two chapters in Part II, 'Empirical Studies: Plant Breeding and Field Diversity', are on bread wheat varietal diversity (Smale) and Turkish wheats (Brush and Smale). The seven chapters in Part III, 'Empirical Studies:

Breeding Values', encompass a variety of crops and research methods: maize (Salhuana and Smith), Italian durum wheat (Bagnara and Santaniello), hedonic pricing and Indian rice conservation (Gollin and Evenson), Indian rice trait valuation (Rao and Evenson), Indian varieties (Evenson), Indonesian rice (Evenson) and breeding values for rice genetic resources (Gollin and Evenson).

The four chapters in Part IV, 'Property Rights', comprise papers on valuing genetic resources (Artuso), detailing the development of farmers' rights (Esquinas-Alcázar), relationships between formal property rights systems and farmers' rights (Wright), and valuing farmers' rights (Gollin). The final part, 'The Implication [*sic*] of Development in Biotechnology', comprises two chapters on the effects on demand for rice biodiversity (Pray) and biotechnology and genetic resources (Evenson).

The book has several interesting features. Not surprisingly, given the book's origins, most contributors are from international organisations (e.g. FAO), the United States or Italy. This orientation has significant implications for the type of material covered, and the ways in which the material is treated. Thus, for example, Wright's conclusion on farmers' rights stresses the benefits to (south and north) consumers from new varieties based on germplasm originally largely sourced from the 'south'. Additionally, since much valuable germplasm is already in *ex situ* collections, development of intellectual property systems should take care that exchange of this material 'is not damaged too severely by taxes, fees or, worse still, individualized prior approval requirements' (p. 230). Given the strenuous efforts in developed countries in the last two decades to develop a patent system suitable for the new molecular biology *with exactly these same features*, it is puzzling that it is acceptable to have a patent system with these features (which benefits the north) but unacceptable to have a system for 'south' countries in the form of farmers' rights.

In their introduction, Evenson *et al.* argue for a primarily utilitarian response to the conservation of plant genetic resources. Thus, for example, the costs of a species extinction are that 'its genetic materials cannot be put to utilitarian purposes' in the future, and that ecological perturbation from genetic extinction 'can cause damaging effects for humans' (p. 6). Even in the face of extinction of particular species, there are substitutes. Given that resources are not available to conserve all species, particularly in *ex situ* collections, it is necessary to rank species' values and this 'must be based on current and future consumption and production values' (p. 8). There is no hint of the humility of, say, Randall (1987, p. 240) in dealing with discount rates:

Yet [it] is not satisfying to conclude that a drastic ecological disturbance several generations from now should have only minor influence on

decisions made today. When considering events that may greatly restrict the opportunities of future generations, it seems that discounting theories based on the logic of ordinary investments are simply out of their depth.

The editors argue that ‘improved plant breeding markets could be created through stronger intellectual property rights’ (p. 10) although the non-rivalry properties of genetic materials in breeding (p. 11) suggest that the ‘second best’ caveat of welfare economics might at least be alluded to. They infer that, with the exception of F1 hybrid plant types, formal intellectual property rights are a precursor of private plant breeding, without investigating the private sector seed and breeding industries that existed in Western Europe and the USA *prior to* PBR/PVP. Interestingly, in discussing *in situ* and *ex situ* collections (pp. 11–12), the editors do not mention the fierce controversy in the 1960s and 1970s over the relative merits of *in situ* and *ex situ* collections (cf. Pistorius 1997).

There is a major economic issue concerning conservation of plant and animal genetic resources which, on a first pass at least, can be handled by utilitarian economics. If budgets for germplasm conservation are fixed, and are exceeded by the resources necessary for conservation, difficult decisions must be taken to prioritise conservation. Even if budgets were more generous, prioritisation would still be required. But the costs of conservation appear trivial, e.g. the present value of conserving an existing wheat variety for 100 years at CIMMYT is at most \$US27 (Pardey *et al.* 1999, table 8). The principal problem in genetic conservation appears to be to find a non-Procrustean economics that adequately handles uncertainty and the future at a *global* level for which a utilitarian-based economics might simply be inadequate, rather than worrying about lower-order problems of economising within given budgets.

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DAVID GODDEN  
University of Sydney

*Genetically Modified Crops: The Ethical and Social Issues*, by the Nuffield Council on Bioethics. Published by the Nuffield Council on Bioethics, London, 1999, pp. xv + 164, ISBN 0 9522701 4 5 (paperback), £20.

This book was written by a working party chaired by Professor Alan Ryan from the University of Oxford. The Working Party's terms of reference were to review developments in the genetic modification of crops and their impact on human food consumption and the environment; and to consider the ethical and social implications of these developments.

The book contains eight chapters dealing with ethical principles, the scientific basis of genetic modification, intellectual property, the implications of the technology for developing countries, consumer choice, and the environmental impact of genetically modified plants.

Chapter 1 dealing with the ethics of genetic modification establishes a policy evaluation framework using the three principles of general societal welfare, maintenance of people's rights, and justice. Justice is considered in terms of the benefits and costs of policies and practices being fairly shared among those who are affected by them.

Those chapters of the book dealing with the science of genetically modified organisms, its applications and impacts on human health and the environment are particularly useful in view of the limited information currently available. For example, the Australian debate on gene technology appears to be suffering as a result of the lack of generally available factual information about the science of gene technology and its associated risks.

In subsequent chapters where the authors delve into public policy prescription in areas such as the impact of gene technology on developing countries and consumer choice, economists may debate some of the perspectives and conclusions reached. For example, in the chapter on developing countries, an attempt is made to assess the social desirability of gene technology on the basis of 'social justice' arguments and the ability of the technology to feed the poor. While this would be a welcome benefit, it is not necessarily a 'first round' prerequisite. It is further argued that a strong case exists for governments to subsidise gene technology research to address developing country food shortages. The merits of this argument, however, would seem to rest on a wider discussion of the alternative ways in which this policy objective might be met.

A further issue receiving significant attention in Australia is that of labelling which is discussed in the chapter on consumer choice. The authors fervently uphold the principle of consumer choice and use it somewhat simplistically to justify mandatory labelling, despite the Working Group being unable to find any evidence of food safety risk associated with consumption of GM foods. Consequently, the public policy framework used



by the authors must be questioned. To arrive at any reasonable conclusion in relation to labelling, seemingly it would be appropriate to first consider the primary market failures being addressed by government through the establishment of regulatory pathways to minimise food safety and environmental risks. To the extent that these risks are reduced to levels comparable to other food products, arguably, the case for further government intervention in the form of mandatory labelling is weak.

Continuing on from their labelling prescription, the authors then recommend more explicit support from government through agricultural subsidies to maintain a viable non-GM food sector.

Overall, the technical aspects of this book make it an extremely valuable contribution to the GM debate, particularly the review of human health and environmental risks associated with gene technology. On the other hand, much of the policy prescription in the book is debatable.

SCOTT DAVENPORT  
Economic Services Unit  
NSW Agriculture  
Orange NSW

*Coping With Risk in Agriculture*, by J.B. Hardaker, R.B.M. Huirne and J.R. Anderson. Published by CAB International, Wallingford, UK, 1997, pp xi + 274, ISBN 0 85199 119 X.

I learned my risk theory from Anderson, Dillon and Hardaker (1977) (ADH), so I came to this book with a positive sentiment. ADH was primarily a university text, but the authors of this book have more ambitious aims. As well as students, their intended audience includes extension workers, financial advisers, veterinarians, agricultural researchers, policy-makers and even 'some farmers'. They have, therefore, attempted to make the book less theoretical and more practical in style. To this end, they have attempted to explain concepts and procedures clearly and simply, they have included many numerical examples, illustrated how to lay out examples in spreadsheet templates, and omitted much of the algebra that was included in ADH.

Like ADH, this book is a presentation of decision analysis, based on subjective expected utility (SEU) theory. Only passing reference is made to the accumulated evidence that the axioms underlying SEU theory are often violated in practice. Given the practical and normative focus of the book, this is appropriate.

The structure of the book is logical. After a general introduction (Chapter 1) and an outline of decision analysis (Chapter 2), the reader is led through subjective probabilities, risk preferences, and their systematic integration in decision analysis (Chapters 3 to 6). Bayesian probability revision and its role in decision analysis are given much less prominence relative to ADH, while stochastic efficiency is promoted to an earlier and more prominent place (Chapter 7). Chapters 8 to 10 cover a selection of more advanced/specialised topics (multiple objectives, whole-farm risk modelling, dynamic risky problems). The book finishes with two chapters containing general, non-technical discussions of issues arising in the practical application of decision analysis in farming and in policy analysis.

In general, the scope of the book and the material covered are very suitable for an introductory text. The numerical examples are well chosen and well explained. Since it was published, I have recommended the book to a number of agricultural economists as being the best introductory text on risk in agriculture.

So, do the authors succeed in meeting their aims? In truth, they have set themselves an extremely difficult task. The topic is intrinsically complex and mathematical but their intended audiences will require an avoidance of complexity and mathematics to the extent that it is possible. They will also need a range of practical information not normally found in such texts. The authors are aware of these challenges, and have attempted to meet them. For example, Chapter 4 addresses practical issues such as the various sources of bias in judgements people make about probabilities, the use of scoring rules to keep people honest, and how to make best use of sparse data.

Nevertheless, most readers would find it difficult to undertake sound decision analyses of realistic problems based solely on their reading of this book. There are several reasons for this. First, there has not been sufficient thoroughness in carefully defining and explaining jargon. Clarity is sometimes marred by the use of unexplained terms such as 'positive semi-definite', or 'marginal distributions'. In general, explanations of concepts and procedures are sometimes well suited to readers with modest backgrounds in mathematics and economics, but sometimes are not (particularly when numerical examples are not given).

Second, there are some important practical issues that must be understood by any practitioner, but which have been glossed over or not covered. Here are a couple of examples. Novices often apply risk aversion coefficients elicited for large-scale decisions in analyses done on a per hectare or per animal basis. They need better warnings against this. Second, the identification of a decision-maker's initial wealth is often important but can be problematic. When is it important and why? How is it problematic? What should you do about it?

Third, for most realistic decision problems, one of the more specialised techniques in Chapters 8, 9 and 10 is probably needed. However, the reader would require considerable additional background knowledge in order to be able to apply one (e.g. in the methods of linear programming or dynamic programming).

My other quibble would be that, for a book with a practical orientation, it presents a surprisingly narrow perspective on dynamic simulation. At the least, it would have been good to recognise that results from bio-physical simulation models, if available, can strengthen an agricultural decision analysis considerably. Even more fundamentally, the necessity of processing biological, physical and economic information to identify a 'best' decision can be questioned. Some analysts believe that, in practice, presentation of sensitivity analysis results from a simulation model (broadly defined) is the most effective and valuable way to support agricultural decision-making. Discussion of this perspective would have been valuable.

The authors rightly observe that there has been a 'computing and software revolution [which] surely should have revolutionised agricultural risk analysis. The fact that, by and large, it has not yet done so may indicate the need to spell out to potential users just what can be done today in risk analysis' (p. x).

I am not confident that this book will prove to be the *Das Kapital* of agricultural risk analysis. But as a university text, or a practical introduction to the subject for agricultural economists, it is highly recommended.

### Reference

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DAVID PANNELL  
Agricultural and Resource Economics  
The University of Western Australia

*Applied Farm Management*, 2nd edn., by Jonathan Turner and Martin Taylor. Published by Blackwell Science, London, 1998, pp. iii + 394, ISBN 0 632 03603 6, A\$81.

This is a well-written and interesting book about practical issues for consideration and methods used in applying farm management principles to agricultural businesses. Although it was designed for the benefit of diploma

and undergraduate students, the authors believe that the contents would be useful for teachers and lecturers, bank managers and farm management consultants.

The first chapter gives an overview of the authors' interpretation of farm management which they couch in the not unfamiliar terms of permitting optimum results to be obtained from the investment of scarce resources of land, labour and capital. Emphasis is placed on management by objectives as the means to achieving the wants and needs of the farm family. Here the important point is made that the objective of maximising profit, often considered to be the basic one in economic theory, is frequently subordinated by other wishes of farm managers. These may be continuing a business that will provide an acceptable standard of living for the farm family or expanding the business with the view to handing it on intact to the next generation. Within this chapter, the process of farm management is described as a multifaceted set of actions which include skills in organisation, co-ordination, motivation, leadership, control and supervision. But those actions must be accompanied by management possessing strong levels of technical and practical expertise if the farm business is to be truly successful.

Keeping good records and accounts is dealt with in the second chapter. According to the authors, the reasons for keeping records and accounts relates to their mandatory or legal requirements and those which are essential for analysis and planning. The latter uses of records for management purposes include assessing physical and financial performance, assessing progress, revealing strengths and weaknesses in the business, establishing bases for planning changes and for monitoring the effect of changes. The chapter concludes with a discussion about office procedures for handling purchases and sales and an account of the uses of computers in agriculture.

Chapters 3 and 4 deal with gross margins and comparative analyses respectively. These chapters provide some cause for concern. Gross margins, their calculation, strengths and general limitations in farm planning are well explained. Problems occur when the authors discuss the use of gross margins as a legitimate measure of management performance. They suggest that this can be achieved by comparing the gross margin for the activities conducted on one particular farm with known standard data from a group of farms. Additionally, Chapter 4 deals with a whole raft of issues to do with making comparisons in performance between unrelated farms. This theme of comparative analysis as a tool for improving the management efficiency of farm businesses has been roundly criticised in economic literature over the past fifty years. R. Mauldon and H Schapper in an article which appeared in the *Review of Marketing and Agricultural Economics* (1971) probably provided the most scathing criticism while L.R. Malcolm, again in the *Review of*

*Marketing and Agricultural Economics* (1990), provided a complete list of dissenting authors reaching back to 1944.

In Chapter 5, the authors discuss the way in which the profit and loss account is linked to the balance sheet of a business and how the balance sheet in combination with the profit and loss account can be used to assess the current and future health of a business. Establishing the long-term stability and viability of a business, according to the authors, depends on the consideration of five basic factors. These are: the potential of the business to survive adverse trading conditions; the potential which the business has to raise finance; the ability of the business to meet its trading commitments on time; the capability of the business to make an adequate return on employed capital and the ability of the business to generate sufficient profits to provide adequate cash to fund personal drawings, loan repayments, reinvestment and taxation.

Production economic theory and its link to the principles embodied in applied farm management are explored in Chapter 6. In Chapter 7, aspects related to the profitability of farm businesses, particularly indications of long-term viability, are investigated. This includes explanations of the use of the various tools for analysing changes in farm profit such as partial budgets. Although a particular change in a farm plan may produce an increase in profit, an important consideration relates to the feasibility of implementing the change. That is, the effect that the change will have on the cash flow for the farm business. Issues relating to cash flow feasibility are examined in Chapter 8. Finally, in Chapter 9, aspects that relate to changes in farm plans are considered in terms of their worthwhile elements or returns on resources invested for competing projects. Explanations also include the importance of using discounted cash flow techniques to determine the relative net present values and internal rates of return for alternative investment projects.

In Chapter 10, planning changes as they relate to labour and machinery which were identified as forming a large part of business overhead expenses are discussed. Within the context of this part of the planning process, tools such as programme planning using creep budgeting techniques, and the usefulness of linear programming methods are explored.

A full examination of aspects relating to sources of finance for agricultural investments is dealt with in Chapter 11. Distinctions are made between equity and debt capital with the emphasis being placed on the latter. The treatment of this aspect of applied farm management is initially examined in a generic way, but later information to do with specific sources of farm finance applicable in the United Kingdom would not be relevant to Australian readers. However, a very interesting segment of the chapter deals with the folly of farmers borrowing capital off-shore. This brought to mind the unfortunate effects on some Australian farm families in the 1980s who

borrowed funds from non-Australian sources. Although they experienced lower interest rates, they were severely penalised by unfavourable changes in currency markets which caused their capital repayments to be substantially increased.

The remaining chapters are concerned with taxation, marketing, the European Union, agricultural marketing organisation, grain marketing and livestock marketing. The chapter on marketing has particular relevance for agricultural firms. But the others, while being interesting, have little relevance for Australian readers.

In summary, while this book provides a useful coverage of the main factors relating to applied farm management, some minor flaws are present and I believe that Australian enthusiasts of farm management would obtain better value from a local textbook such as *The Farming Game Now* by J.P. Makeham and L.R. Malcolm (1993).

### References

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LINDSAY TRAPNELL  
Dept of Natural Resources and Environment  
Benalla, Victoria