Book review

Applications of Seasonal Climate Forecasting in Agricultural and Natural Ecosystems: The Australian Experience edited by G.L. Hammer, N. Nicholls and C. Mitchell (Kluwer Academic Publishers), ISBN 0-7923-6270-5. USD 200.00.

The book is based on a series of papers presented at a symposium conducted in Brisbane in November 1997. The aim of the symposium, which has been captured in the book, was to review developments in seasonal climate forecasting and present details of ongoing work related to the application of forecasts on a number of spatial scales and in non-traditional areas. Whilst all the presentations made at the Brisbane symposium are represented in the text, a number of additional chapters have also been added to expand the discussion of the relevance to primary producers and the importance of climate variability to the Australian economy.

While relatively expensive at USD 200.00 (excluding postage and handling), the book is an invaluable guide to the challenges faced by both scientists in terms of forecast development and producers related to the correct use of the information generated.

Applications of Seasonal Climate Forecasting in Agricultural and Natural Ecosystems represents the research and commentary of 55 authors who possess considerable experience and expertise in the application and development of seasonal forecasts in Australia. This text is a welcome addition to the general literature on seasonal climate forecasting, as it is one of only a limited number of publications dedicated to this topic. As the editors point out, there is an extensive history to the development of seasonal forecasts in Australia and in my opinion this book manages to distil over two decades of research and development into a structured and comprehensive text.

The book is ordered around four major themes as well as including a comprehensive introduction and synthesis. The themes as they appear in the text are 'Seasonal Climate Forecasting', 'Farm Scale Agricultural Decisions', 'Regional and National Scale Agricultural Decisions', and 'Natural Systems'. The introductory chapters provide a pertinent and interesting account of the difficulties involved in predicting aspects of the climate system, the importance of climate variability to the Australian economy, the relevance to the rural producer, and the importance of an integrated systems approach to forecast application.

The chapters explicit to the 'Seasonal Climate Forecasting' theme (chapters 5 to 10) provide an important insight into both operational and developmental forecasting capabilities in Australia. A number of these chapters also explore methods for improving statistical and dynamic forecasting systems through the use of, but not exclusive to, the incorporation of a greater range of predictors or improving the simulation of natural variability in general circulation models (GCMs). While the uninitiated might find some chapters in this section very technical, the synthesis and commentary make them a worthwhile read for individuals with both developmental and practical interests in seasonal forecasting.

The application and value of seasonal climate forecasting becomes apparent in the theme entitled 'Farm Scale Agricultural Decisions'. The varied examples provided in chapters 11 to 18 highlight the benefits of using seasonal climate forecasts for a number of enterprises and the lessons learned at farm and local scale. In chapter 17 the authors suggest 'there are increasing opportunities for farmers to use climate forecasts to assist with their management of grazing enterprises, but the value of the forecasts needs to be assessed in the whole enterprise context, with the realistic consequences of management decision-making'. This I believe is true of any production-based enterprise and so the inclusion of an additional chapter/s considering the whole enterprise context and the consequences of management decision-making would have strengthened this theme markedly.

In the 'Regional and National Scale Agricultural Decisions' theme (chapters 20 to 22), attention is focused on the larger scale issues of regional and national level agribusiness and the use of seasonal climate forecasts in government policy. It is clear from this section that Australia has some way to go before national scale agricultural decisions can be made beyond the scope of grassland and rangelands condition assessments.

The final theme explores the application of seasonal climate forecasts in natural ecosystems with particular reference to assessing the probability of invertebrate pest and vector-borne disease outbreaks, regulation of green turtle populations and management of water resources. While this is a relatively new

direction for seasonal climate forecasting, it provides valuable insights into the applicability of integrated management.

The difficulty with books comprised of a series of symposium papers is maintaining the continuity throughout the text. The editors have more than adequately achieved this task and have provided a thought-provoking synthesis of the key issues related to the effective application of seasonal forecasts in the final chapter (chapter 27).

On the whole, this reviewer found Applications of Seasonal Climate Forecasting in Agricultural and Natural Ecosystems: The Australian Experience an extremely interesting and rewarding read. I would not hesitate to recommend this book to fellow climate researchers or to those with a keen interest in the application of climate data to production management. In addition this book would serve as an excellent reference text for students exploring these issues at a tertiary level.

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Steven Crimp is a senior climate change impacts scientist at the Climate Impacts and Natural Resource Sciences Group (NR&M) in Brisbane. He is currently investigating the impact of climate change on a number of fronts with specific emphasis on Queensland. He also has a keen interest in the development of statistical downscaling methods for assessing the impact of climate change at a fine spatial resolution.