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# AUSTRALIAN AGRICULTURAL ECONOMICS SOCIETY AWARDS 1981

## MASTERS THESIS PRIZE

The prize was awarded to David Godden for a thesis entitled 'An Economic Evaluation of Property Rights for Plant Varieties with Special Reference to Plant Variety Rights in Australia', submitted to the Faculty of Economic Studies, University of New England, for the degree of Master of Economics.\*

### *Thesis Abstract*

Plant Variety Rights (PVR) legislation, which creates property rights in new commercial plant varieties, has been enacted in most industrialised countries. During the past decade, consideration has also been given to the adoption of PVR in Australia. By the encouragement of additional private investment into plant breeding, it is anticipated that PVR will improve the efficiency of plant breeding research.

Despite the extensive overseas adoption of PVR, there have been no economic evaluations of the benefits and costs of PVR enactment. In the absence of previous studies, attention was focused on evaluating the major issues which would have to be encompassed in an empirical investigation of the net economic effects of enacting PVR in Australia. Two broad themes were considered: the contributions of theoretical studies to providing a suitable framework for analysing adoption of PVR and the contributions of studies in applied economics.

In the review of theoretical studies, three issues were examined. First, the nature of PVR as a property right was reviewed in the context of the general economic function of property rights. It was shown that PVR extend opportunities for breeders to appropriate utility from new plant varieties, but that the degree to which these opportunities are extended depends on economic, legal and political structures. With regard to the latter, economic theories of regulation were shown to be useful in explaining activities of groups interested in PVR.

Second, PVR were examined within the context of allocative efficiency. Arguments about PVR contained in an IAC report were evaluated critically. It was concluded that *a priori* analysis of the allocative effects of adopting PVR based on Pareto welfare economics is not possible because the assumptions required for such an analysis are inappropriate.

Third, it was argued that evaluation of the effects of adopting PVR should be carried out in analysis which assumes an oligopolistic structure of plant breeding and seed multiplication. General implications of

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oligopolistic market structure for allocative efficiency and firms' business conduct were reviewed.

In the evaluation of applied economics to the PVR issue, a further three areas were examined. First, literature relating to technical change was reviewed, since one objective of adopting PVR is to accelerate technical change in agriculture through stimulating the development and use of new plant varieties. It was argued that the benefits of PVR would tend to be concentrated at the applied end of the plant breeding research spectrum, and that the appropriation of benefits from increased plant breeding by Australian farmers would partly depend upon the price at which new varieties were made available to them.

Second, the intellectual property right to which PVR are most similar are patents. As there has been extensive economic research into the effects of industrial patents, this literature was evaluated for its implications for plant breeding with PVR. It was shown that the drafting of PVR legislation enables PVR systems to avoid difficulties apparent in patent systems of defining material appropriate for the grant of an intellectual property right. In most other aspects, the PVR-patent analogy is strong, and controversy as to the desirability of patent systems in general, and the relevance of particular features of such systems, is relevant also to PVR.

Third, seeds and pharmaceutical drugs, and the industries that produce them, appear to have many features in common. In particular, PVR and pharmaceutical product patents are very similar. Economic studies of the pharmaceutical industry have implications for the structure of plant breeding and seed industries that may develop with PVR, and the operating characteristics of these industries.

Based on this assessment of PVR, an indication of the areas where PVR are likely to have major effects and of the research methods that would be necessary to conduct an empirical study of PVR, is offered. In addition, an *a priori* evaluation of many of the arguments in favour of, and against, PVR is provided.

## JOURNAL ARTICLE PRIZE

The award for the best article published in the *Australian Journal of Agricultural Economics* was awarded to John Quiggin for his article entitled 'Risk perception and risk aversion among Australian farmers' published in Volume 25(2), pp. 160-9.

**26th Annual Conference  
Australian Agricultural Economics Society  
Melbourne**

**9-11th February, 1982.**

*Presidential address*

Anderson, Jock (University of New England), 'Agricultural economics, interdependence and uncertainty'.

*Dinner address*

Quilkey, John (La Trobe University), 'Agricultural economics in Australia: my part in its downfall'.

*Invited papers*

Campbell, Keith O. (University of Sydney), 'Changing institutions and processes in the formation of Australian agricultural policy'.

Flinn, J. C. and Denning, G. L. (International Rice Research Institute, Philippines), 'Interdisciplinary challenges and opportunities in international agricultural research'.

Garnaut, Ross and Anderson, Kym (Australian National University), 'Australia's trade growth with developing countries'.

Ingram, J. C. (Australian Development Assistance Bureau), 'Options for Australia's assistance to the agricultural development of third-world countries'.

Lewis, Jack (BAE), 'Recent developments in Australian agricultural policy: a personal view'.

Richardson, Bob (Australian Wool Corporation) and Standen, Bruce (Australian Meat and Livestock Corporation), 'International trade and Australia's grazing industries'.

Sgro, Pasquale (La Trobe University), 'Review of developments in trade theory'.

Trebeck, D. B. (National Farmers Federation), 'Evolving rural policy—substances and shadows'.

Yudelman, Montague (World Bank, Washington), 'Development issues in the 80's: achieving food security'.

*Contributed papers*

Anderson, Kym (Australian National University), 'Growth of agricultural protectionism in South Korea and its trade and welfare effects'.

Arnold, Anne (University of Adelaide), 'The relative effects of area and yield changes in South Australian wheat growing, 1857-1975'.

Beck, A. C. (Lincoln College), 'Predicting farm level response to government policy measures'.



- Beynon, Noel, Haszler, Henry and Johns, Murray (BAE), 'Fluctuating exchange rates and the minimum reserve price scheme for wool: a simulation study'.
- Blyth, N. (Lincoln College), 'Modelling world trade in sheep meats'.
- Bond, Gary, Crowley, Peter T. and Vlastuin, Chris (BAE), 'Commodity prices and world macroeconomic factors'.
- Burns, Penny (University of Adelaide), 'A simultaneous progressive auction'.
- Cairns, John A. and Hone, Phillip (BAE), 'Issues for determining the need for intervention in technical innovation in the marketing of wool'.
- Crellin, Ian and Watson, Bill (BAE), 'An Australia-wide research project information database for agricultural economics'.
- Crowley, P. T., O'Mara, L. P. and Campbell, R. (BAE), 'Import quotas, resource development and intersectoral adjustment'.
- Dalton, Mike (BAE), 'Toward a theory of wheat price formation'.
- Davis, Jeff (N.S.W. Department of Agriculture), 'The influence of alternative producer objectives on representative farm supply estimation'.
- Delforce, R. J., Hardaker, J. B. and Sinden, J. A. (University of New England), 'An application of multiattribute utility theory to a land-use problem'.
- Edwards, Roger and Hanna, Haydn (S.A. Department of Agriculture), 'A pig auction using classification: South Australia's success story'.
- Ferguson, M. F., Hardaker, J. B. and Wright, V. E. (University of New England), 'Dynamics of growth of sheep farms'.
- Fleming, E. M. (University of New England), 'Export supply response in an unstable world market: Solomon Islands copra exports'.
- Gaffney, J. M. (University of Adelaide), 'Sale by sample with measurement: the effect of market structure on its adoption over the past ten years'.
- Greig, I. D. (International Wool Secretariat, London), 'Using formal group techniques for wool research appraisal'.
- Hamal, K. B. and Anderson, J. R. (University of New England), 'Risk aversion and choice of rice technology in Nepal'.
- Hodge, Ian (University of Queensland), 'Property rights and the control of dryland seepage salinity'.
- Jackson, Brenda (Australian Wool Corporation), 'Computerised selling: the potential for the Australian wool industry'.
- Johnston, B. G. (CSIRO), 'External benefits in rural research and the question of who should pay'.
- Lee, Benny M. S. and Trenerry, Ray (BAE), 'The effects of the Sydney Futures Markets on sales and prices of wool in Australia'.
- Lindner, R. K. (University of Adelaide), 'The effect of risk aversion on the time lag to adopt'.
- Love, Graham and Smith, Garry (BAE), 'A new international wheat agreement? An economic analysis of the alternative approach'.
- Lumley, Sarah (La Trobe University), 'A partial benefit-cost analysis of the effects of reducing stream salinity in McCallum's creek catchment, North Central Victoria'.

MacAulay, T. G. and Musgrave, W. F. (University of New England), 'Aspects of the agricultural policy process'.

Myers, R. J., Piggott, R. R. and MacAulay, T. G. (University of New England), 'An econometric evaluation of past and current Australian wheat price policies'.

Nguyen, D-T., Campbell, Robert, B. and Carland, David J. (BAE), 'Export booms in a monetary framework: some preliminary findings from a simulation model'.

Ongkili, Max J. and Quilkey, John (La Trobe University), 'Some considerations in modelling the adoption decision processes of traditional farmers'.

Oram, D. A. (La Trobe University) and Cooke, J. W. (Victorian Soil Conservation Authority), 'An economic study of the relationships between farming systems and dryland soil salting'.

Parton, Kevin A. (University of New England), 'Information links in wool research'.

Quiggin, John (BAE), 'Higher interest rates and the farm sector'.

Quiggin, John (BAE), 'Common property, externalities and multiple use resources'.

Rich, Michael (Lincoln College), 'The impact of rising oil prices on farm-gate energy crop costs in the Canterbury wheatgrowing farm sector of New Zealand'.

Roberts, I. M. (BAE), 'EEC sugar support policies and world market prices: a comparative static analysis'.

bin Sepien, Abdullah and Etherington, Dan M. (Australian National University), 'A production function approach to the measurement of the technical efficiency of Malaysian rubber smallholders'.

Smith, Garry, Love, Graham and Foster, M. (BAE), 'The impact of export subsidies, concessional sales and food aid programs of some wheat exporting countries on the international wheat market'.

Soekartawi and MacAulay, T. G. (University of New England), 'Aspects of small-farmer productivity in four villages in East Java, Indonesia'.

Sondakh, L. W. and Hardaker, J. B. (University of New England), 'The impact of credit rationing on small farm development in Indonesia'.

Tyers, Rodney and Chisholm, Anthony (Australian National University), 'Agricultural policies in industrialized and developing countries and international food security'.

Tunstall, A. W. and Quilkey, J. J. (La Trobe University), 'Storage and pricing of the Victorian apple crop'.

West, Chris M. (La Trobe University), 'Differential fuel pricing and the Australian rural sector'.