

## **Economic and marketing influences on future agronomic production**

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### **introduction**

Economic and marketing influences will be critical determinants of future agronomic production. In this paper the economic factors affecting recent and future developments are reviewed and the opportunities for a more market-oriented approach are considered in the Australian context.

### **Economic factors**

Despite the doubling of output the relative importance of agriculture to the Australian economy has declined from a 25 per cent share in the immediate post-war period to around 5 per cent in recent years. Agricultural exports have fallen from 80 per cent to around 40 per cent in the same period. However, the total contribution of agriculture and the agriculturally related industries (input supplies, financial, transport, processing and marketing services) is around 20 per cent of the Australian economy. Thus agriculture is still of significant importance to the economy and this was clearly demonstrated by the adverse impact the 1985 commodity price collapse had on the Australian economy.

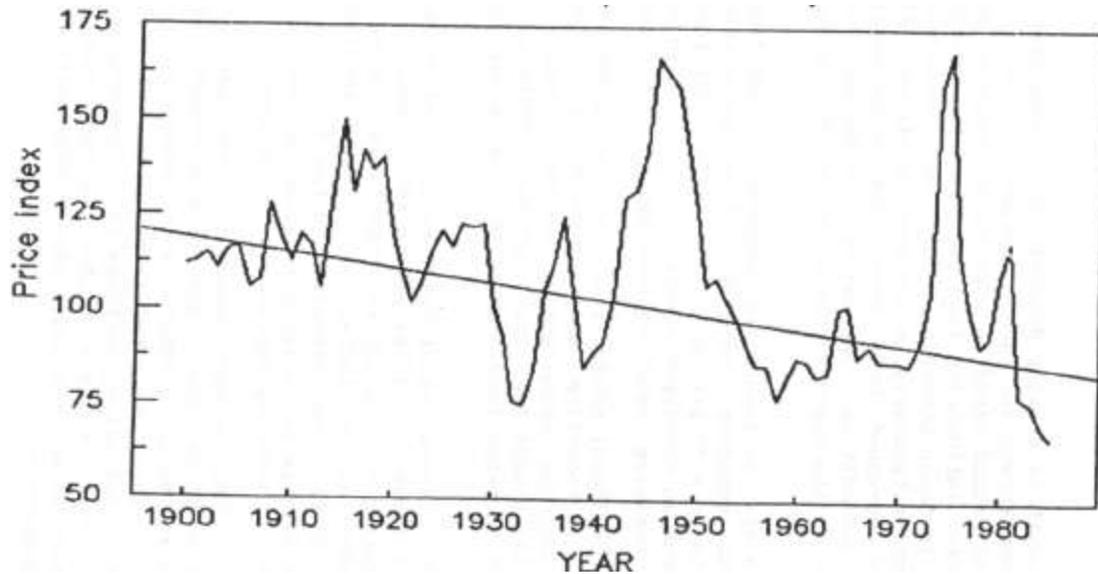
#### *International Factors*

The economic factors influencing production changes are both domestic and international. However, the most significant matters in recent times have nearly all been related to the overseas situation. International factors are important because the prices paid for almost all our broad-acre industry products are determined either directly or indirectly by world market prices. More than 90 per cent of output from the two biggest industries (wool and wheat) is exported, and in the case of industries less dependant on exports, world market prices are often the basis for determining Australian prices.

Freebairn (8) has analysed international prices paid for Australian food exports this century, (Figure 1). The graph indicates that there has been both a long-term downward trend in the prices paid for agricultural products, and that variations in prices paid for products over quite short time periods are very significant. Food products produced in Australia received above trend prices for a period in the fifties, and again during the seventies. However, the 1980s have seen a rapid price decline below the trend.

Our long term price trend reflects the fact that the growth in supply has exceeded growth in demand. Demand growth for Australian exports is determined primarily by the interaction of three major factors, namely (i) population growth and demographic change, (ii) the growth rate, level and distribution of income, and (iii) growth in agricultural output in the rest of the world. Factors affecting food demand growth are shown in Table 1.

#### **Figure 1. Real international food prices for Australian exports 1900 to 1985\* (1977-79 = 100)**



\*An Index of export prices in US dollars for cereals, meats, dairy products and sugar, deflated by the US producer price index, with weights based on the importance of each commodity in Aust production in 1977-79. Source: Freebairn (1986)

**Table 1: Factors affecting food demand growth**

Item	Developed Countries	Developing Countries
Annual Population Growth Rates (1970-80) (%)	0.9	2.4
Annual Income Growth Rates (1970-80) GDP (%)	3.3	6.1
Income Elasticities of Demand for Total calories	0.07	0.35

Source: Webb et al. (16)

Population growth is a major determinant of long term growth in food demand. Income growth and income availability for food purchases converts potential food demand based on population levels to actual demand. An important factor influencing food demand in the seventies was the very high growth rates in Gross Domestic Product experienced by all developing countries, and particularly in the OPEC countries. Since 1980 the global recession has depressed income growth and consequently reduced prices for most primary commodities. Increasing debt burdens in developing countries make a return to the rapid demand growth by this group unlikely in the medium term.

Income levels also influence the response of food demand to income growth. For developing countries, the USDA (16) estimates that doubling per capita income results in a 35 per cent increase in total food demand (compared to only 7 per cent in developed countries). A fall in real incomes would have a significant negative impact on food demand in the developing countries.

Growth in agricultural productivity and food production, both in importing countries and in competing exporting countries, is another significant factor affecting the demand and prices for Australian agricultural exports. FAO indices (7) reveal that developed and developing countries are continuing to increase food production at a faster rate than population growth.

Growth in agricultural output has been fostered by some developing nations adopting more liberal policies within their domestic economies (eg. China), and others making substantial investments in infrastructure support and new technology adoption (eg. India) (5). In some developed countries, particularly the European community, United States and Japan, continued production growth is primarily stimulated by their artificial agricultural support policies inducing uneconomic production.

In addition to these primary economic determinants of demand for Australia's agricultural products, short term price movements and long term production developments are being increasingly influenced by broad macroeconomic factors (17). Fiscal and monetary policies, through their effects on interest rates, inflation, exchange rates and economic growth rates, have significant impact. Changes in these factors result in large volatile price movements that reflect the short term inelasticity of the underlying demand and supply responses.

The emergence of macroeconomic factors as a major influence on future production is related to three developments. First agronomic production is becoming much more dependant on purchased inputs with the cost of these production factors being determined largely outside agriculture. Second, farmers are more and more adopting capital intensive technologies and increasingly financing such technologies through debt. Further farm output is tied to an increasingly interdependent world economy and this sector is now much more sensitive to macroeconomic developments. (12).

It can no longer be claimed that farmers operate with low levels of debt. Farmer equity ratios in Australia have declined and farmers' ability to service outstanding debt has become a significant policy issue (11). In 1985/86 interest costs became the single most significant farm cost in Australia, representing 12 per cent of total farm costs.

#### *International Trade Issues*

The value of trade in agricultural products expanded rapidly, by 70 per cent in real terms, in the decade to 1980. However the value of trade declined rapidly from its peak in 1980. Further, despite the rapid growth in agricultural trade during the 1970s, agriculture's share of total trade continued its long term decline (falling from 14 per cent in 1973 to 10 per cent in 1983) because the demand for agricultural products is relatively unresponsive to income growth (6).

Developed countries, particularly North America and Western Europe, accounted for most of the increase in export volumes of agricultural products during the 1970s. In these countries agricultural policies have tended to encourage production and discourage domestic consumption.

Agricultural trade problems of the 1980s have resulted from the combined effects of the worldwide economic recession and agricultural policies in the major developed countries. These policies in the developed countries have protected their domestic producers from declining international demand for agricultural products and denied the benefits of lower prices to their consumers. This pattern of encouraging production while discouraging consumption has led to marked increases in the stocks of many commodities (9). This development, and the associated costs of holding stocks, has resulted in the European community and United States reducing stocks in crisis style management plans that dump products onto international markets through various expensive export subsidy programs (export restitutions, export enhancement and food aid programs).

Addressing the symptom (stocks) rather than the cause (protectionist policies) has further reduced world prices and shifted the burden of adjustment disproportionately onto lowly protected, efficient producers in exporting nations heavily dependant on world markets. Analysis prepared by the BAE (5) and documented in Figures 2, 3 and 4 clearly demonstrates the interrelationships of excessive production leading to rising stocks and declining prices.

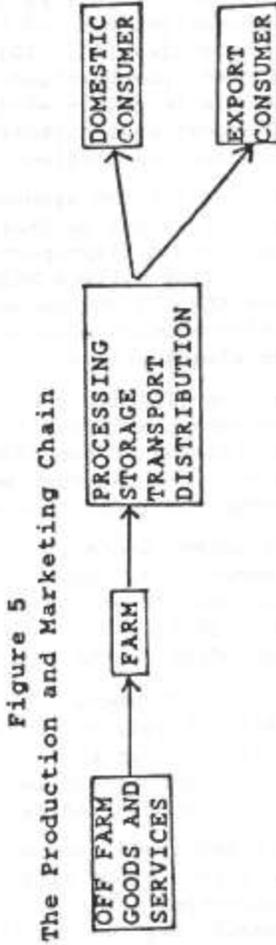
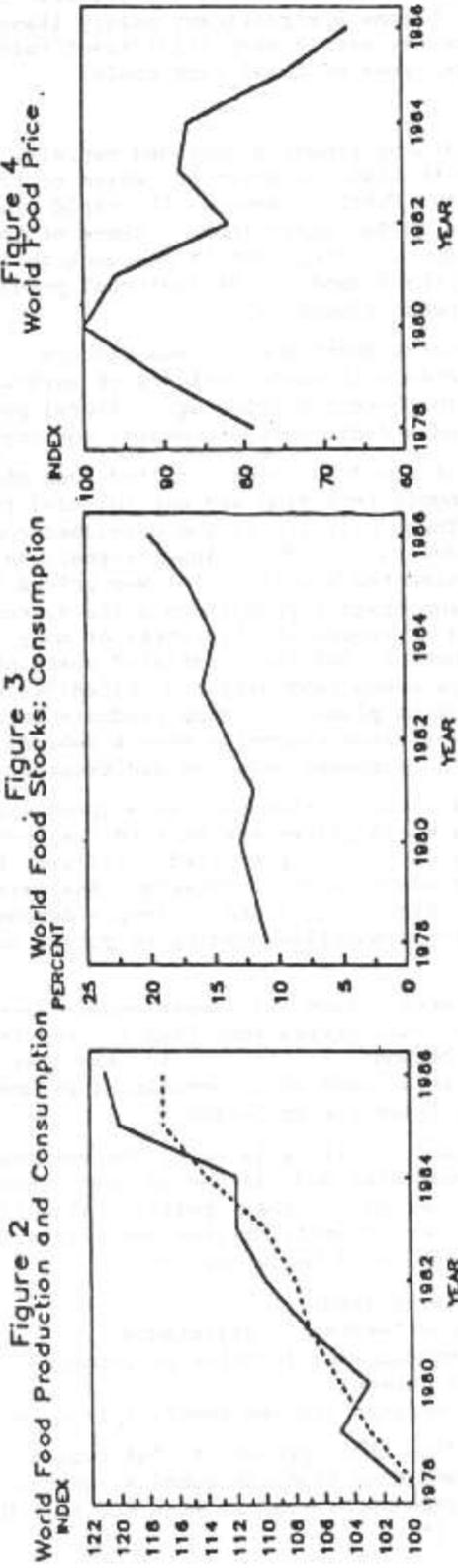
Miller (10) has argued that recent trade and macroeconomic developments represent a crisis in international agriculture that is comparable to the depression of the 1930s. In response to this crisis, the

Australian Government has been pressing in a range of international forums for a reduction in protectionist policies for agriculture.

As noted, protectionist programs artificially raise the returns from commodities, induce excess production and, if passed onto consumers, reduce consumption of the protected commodity. These policies give rise to additional costs both to the country applying them and internationally. Depending on the policy the costs will be imposed on:

- consumers, through higher prices;
- taxpayers, through budget funding of assistance;
- the general economy, through misallocation of resources and consequent loss in real income;
- other trading nations, through reduced benefits from world trade.

All developed countries subsidise their producers, but Australia does so only to a minor extent. The weighted producer subsidy equivalents in percentage terms for 1982 to 1984 were: Jap-n, 70; EC, 41; USA, 22; Canada, 24; and Australia, 6 (4).



**Table 2 - Sources of producer support, 1982-84**

Country / Region	Commodity		
	Wheat %	Beef %	Dairy %
European Community - Borne by consumers	67	92	77
- Budget contribution	33	8	23
Japan - Borne by consumers	63	76	58
- Budget contribution	37	24	42
United States - Borne by consumers	29	42	95
- Budget contribution	71	58	5

Source: Council of Economic Advisors (4)

When assessing future developments the source of assistance is of particular importance. Table 2 demonstrates that in the European Community and Japan support is primarily delivered by consumer transfers, whereas in the United States it is funded mainly by taxpayers through budget contributions.

The underlying goal of these countries has been to shield their producers from foreign competition. The direct costs of these policies to consumers and taxpayers, is estimated to be in the order of \$225 billion per year for developed countries (4). The emphasis on the budgetary nature of United States support means that it is likely to come under more scrutiny by domestic policy makers than the more disguised consumer transfer assistance provided by the European Community and Japan. Nevertheless the Community itself is facing serious budgetary problems.

Recent work by Australians has focussed on drawing the attention of the major international powers to the substantial costs they bear internally from the misallocation of resources toward their inefficient agricultural sector.

A study of Japanese agricultural policies (2) shows that while Japan is now the world's largest importer of agricultural commodities, and accounts for 20 per cent of Australia's exports, it is more highly protectionist than any other major economy. Protectionist agricultural policies have been estimated to cost Japan as much as \$10,000 million per year (1 per cent of gross domestic product). In conjunction with similar policies in South Korea and Taiwan they are estimated to have depressed world ruminant meat prices by as much as 9 per cent. (15).

A study by the BAE in 1985 (1) estimated that in the five years to 1984/85 the EC policies had resulted in Australia foregoing almost \$1 billion in export earnings from agriculture. A more recent report (3) has revealed that in addition to the consumer and taxpayer costs, these policies impose significant costs on the manufacturing and services sector and increase unemployment by nearly 1 million persons in the EC.

It is with studies such as the above and a range of international trade initiatives that Australia is seeking to reduce international protectionism. However, change will be slow as there are substantial difficulties in reducing protection. Even if significant progress is made in reducing protectionism, other macroeconomic developments will continue to have a major impact on the future of Australian agronomic production.

### **Marketing factors**

Producers and governments alike are recognising that international competitiveness depends on each of the links of the production and marketing chain (14). The multiple marketing and production stages involved in the delivery of agricultural products to final consumers in Australia and overseas (Figure 5) all represent opportunities for improvement, modification, and the addition of services that will add to competitiveness of agricultural products. Increasingly the share of the consumer dollar expended on food is associated with services and activities prior to or beyond the farm gate. For sales within Australia the farming sector accounts for only one-third of the consumer food dollar. Innovation and improving performance and economic efficiency in these other areas is just as important to success as on farm improvements. Significant opportunities exist for improvements in the transport, storage and distribution of agricultural products. For many products marketing chain costs are increased by State and Commonwealth Governments and their agencies. It is critical that these bodies assess and review options for improved performance. The Royal Commission into Grain Handling and Storage is but one example.

Profitable value added activities will be an increasing focus of the improved marketing of agricultural products. Further stages of processing and packaging to meet specific market requirements will become more important. Developing such opportunities has been enhanced by the depreciation of the Australian dollar, the recognition that all Australian industries need an export focus in order to remain competitive, and the desire on the part of Government to remove unnecessary regulatory impediments and to streamline other regulations to improve Australia's competitive position.

Increasing attention to the marketplace and all the stages of production will be essential. Particular industries will need to target specific markets following basic market research. Market requirements, specific attributes, appropriate industry infrastructure, technology and marketing are all essential as well as an enterprising approach that focuses on client quality and supply requirements, and economies of size to give a competitive edge.

Effective industry coordination must be developed to provide products of uniform quality, proper documentation, effective and coordinated pricing, proper product selection and packaging, and proper pre and post sale support for products.

Improved market intelligence and information is required to provide basic and ongoing understanding of market needs, segments, trading requirements and competitive activity. This must be combined with research and development of appropriate technologies to produce quality products through the integration of researchers, producers and marketers. Provision of adequate and appropriate foreign market support, capital investment and promotional activity will be essential to capitalising on marketing initiatives.

## **Conclusion**

In conclusion, monitoring and assessing economic developments, and more investment in marketing as well as on farm technologies, will be crucial to future agronomic production. In my view this sector of the Australian economy will continue to grow (although the share of the total economy will probably decline). Our prospects will depend on those producing and marketing products being able to out-perform Australia's international competitors in all areas including marketing requirements, product quality, and reliability of supply as well as price.

To date issues discussed have been beyond the direct control of the agronomy practitioner. However, technical innovation will remain a critically important element in the future of agronomic production in Australia. Worthwhile technical innovation is of continuing importance to the growth and development to the Australian agricultural economy. Adoption of more efficient production methods eases the production constraints imposed by limiting resources and reduces the marginal costs of production. Benefits of technical change accrue to those farmers, and countries, who adopt new innovations first. Countries adopting innovations that improve their relative competitive position will succeed in the international market. Those that do not will be faced with an intensifying cost price squeeze as the economic impact of the innovators works its way through the international agricultural economy (13).

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## INVITED SUBJECT REVIEWS