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The beef feedlot industry's access to imported feed grains

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Summary

- Australia's beef feedlot industry does not have free access to world grain supplies in times of domestic feed grain shortages — for quarantine reasons unprocessed imported whole grain cannot be moved to regional areas where feedlots are located.

- This restriction on unprocessed feed grain imports:
  - imposes significant additional costs on lot feeders;
  - reduces the contribution of the beef feedlot industry to the development of the Australian beef industry, the agricultural sector and the national economy; and
  - may not be of net benefit to the grains industry.

Quarantine issues

- The import of any agricultural product involves some risk of disease and pest entry.
  - But the presence of quarantine risk is not by itself sufficient to preclude imports — if a no risk policy were implemented, international trade in agricultural products would cease.
  - The key issue is one of acceptable risk — which (as set out in the December 1988 Federal Government policy statement on the guidelines to be followed in assessing quarantine risk) requires a careful assessment of:
    - strategies to prevent disease and/or pest entry;
    - the economic benefits and costs of continued exclusion; and
    - the economic benefits and costs of alternative options for importing.

- During the 1994-95 drought, AQIS proposed three protocols to manage quarantine risk in grain imports:
  - protocol 1 — heat treatment of grain at port of entry;
  - protocol 2 — cracking of grain in metropolitan and/or port areas; and
  - protocol 3 — movement of whole unprocessed grain into rural areas in sealed trucks.

- Following protests from the Grains Council of Australia no imports were permitted under protocol 2.
- Following an assessment by the Bureau of Resource Sciences (BRS) that the quarantine risks under protocol 3 were high, no imports have been permitted under this protocol.
- It is now apparent that the process used to generate ministerial advice on this issue and the quality of the 'analysis' which supported it fell well short of what is required by the government's guidelines for assessing acceptable risk.
  - Trials to test the adequacy of protocol 3 were set up on a 'no risk' basis — which represents an impractical benchmark.
  - These trials were aborted prematurely.
- The initial BRS assessment of scientific risk did not adequately assessed the possibilities for managing risk offshore. (The BRS is re-examining the issues and is due to report in 1997. It is likely that the BRS will suggest that whole grain can be imported with minimal risk — with risk management offshore and procedures for handling grain in Australia.)
- The economic 'analysis' behind the advice to the Minister on the costs to the grains industry of imports under protocol 3 was extremely shallow — being based on assertion rather than estimates and facts.

Economic costs to the beef feedlot industry

- The decision to ban imports under protocol 3 imposed significant additional feed costs on lot feeders.
- The size of the feed cost impost represents the difference between the cost of imports under protocol 1 (which are permitted) and the cost of imports under the banned protocol 3.
- This ban operates as a variable tariff on feed grain imports. Our estimates are that during the 1994-95 drought the tariff equivalent of the protocol 3 ban rose to around 16 per cent — representing over $30 per tonne in additional feed costs to lot feeders.
- We estimate that, over the eight months between October 1994 and May 1995 when the need to import feed grain was at its highest, the

total additional cost imposed on lot feeders through the ban on imports under protocol 3 was $16.4 million.

- The economic losses in terms of reduced value added in the beef feedlot industry and reduced national income are a good deal higher than the feed cost burden.
  - Higher feed costs over the period dramatically reduced the profitability of lot feeding, causing lot feeders to curtail their production — between June 1994 and February 1995 the number of cattle on feed in Queensland fell by 65 per cent.
  - Our estimates suggest a reduction in value added from the lot fed beef industry of $27 million between October 1994 and May 1995, which can be directly attributable to the ban on imports under protocol 3.
- This estimate is a short term one and is likely to considerably underestimate the longer term economic costs — in terms of reduced beef industry value added and national income — from a continuing ban on grain imports under protocol 3. In particular, it does not account for the economic losses through investment foregone in the feedlot industry as a result of continuing uncertainties about feed grain availability and price during future periods of domestic grain shortages.
- This loss of agricultural and national income must be set against any net gains to the grains industry and the economy from the ban.
  - But the analysis to date provides no clear evidence of any benefit to the domestic grains industry of the ban.
  - In fact, it is likely that the ban is not in the best interests of the Australian feed growing industry. This industry would appear to have much to gain — through a secure and expanding domestic market for its product — through a vigorous, internationally competitive beef feedlot industry.

Uncertainty over feed grain import arrangements needs to be urgently resolved

- It is now over two years since the feed grain import issue last arose — yet the protocol 3 import ban remains in place and little progress seems to have been made in undertaking a proper assessment of acceptable risk.

- During this period Australian grain fed beef has faced enormous competition from US beef in the key grain fed beef markets of Japan and Korea.
  - In Japan, Australia's share of chilled beef imports fell by 12 percentage points between 1994 and 1996 — with most of the fall due to increased grain fed beef sales from the US.
  - In Korea, a market becoming increasingly sophisticated and demanding more grain fed beef as a means of ensuring beef eating quality to consumers, Australia's market share has also declined sharply relative to the US.
- The profitability of the entire Australian beef industry will largely depend on how Australia performs in the higher value markets such as those represented by Japanese and Korean grain fed beef.
  - This in turn will depend on the ability of lot feeders to achieve productivity gains and control costs.
  - In addition to higher feed costs, Australian lot feeders face several other disadvantages relative to US suppliers.
  - Investment in more productive production technologies provides a way for the Australian industry to meet the competitive challenge.
  - Lot feeders need confidence in the future to undertake these productivity improving investments.
  - This confidence is impaired by the continued uncertainty about future access to imported feed grain — a situation which urgently needs to be resolved.

1 Introduction

Australia's beef feedlot industry has expanded rapidly over the past decade. This has been largely in response to increased demand for grainfed beef in Japan and by domestic consumers. And, with increasing demand for grainfed beef in Korea, there is considerable potential to expand exports into that market in future years. But Australian grainfed beef in Japan and Korea is facing strong competition from the United States. On several counts, the Australian industry operates at a competitive disadvantage compared with the US industry. In particular, a major concern of the Australian industry is its inability to have free access to world grain supplies in times of feed grain shortages in Australia. For quarantine reasons unprocessed imported whole grain is not permitted to be moved into regional areas where feedlots are located.

During the recent prolonged drought in eastern Australia, this issue received considerable attention from all stakeholders. In late 1994 and early 1995 grain was in short supply and domestic grain prices in northern NSW and southern Queensland rose to in excess of $250/t, well above import parity levels. Some lot feeders were unable to get the grain supplies they needed. Others were required to pay inflated prices which made their lot feeding operations uneconomical. The inability to import at import parity prices thus imposed a substantial cost on lot feeders.

The grains industry strongly resisted efforts to allow the import and movement of unprocessed grain into rural areas under quarantine protocols proposed at the time. The industry claimed that movement of imported grain into hinterland areas exposed grain growers to unacceptably high risks through possible introduction of foreign pests and diseases notwithstanding the proposed protocols.

It is now more than two years since the dispute over feed grain imports first arose. Yet, the issue of quarantine protocols remains unresolved. Movement of any imported unprocessed grain into rural areas remains prohibited.

The issues involved are complex and go beyond just the events of the last drought. If the feedlot industry is to reach its full potential and be competitive on international markets, lot feeders must have the confidence that, at all times, they have access to supplies of feed grains at prices no higher than import parity. At the same time Australia's grains industries

must not be exposed to undue phytosanitary risks. The task ahead for government is to devise a suitable grain import protocol that will best meet these requirements.

In this report the key issues are highlighted. Particular attention is given to the economic costs on the feedlot industry of maintaining a prohibition on the movement of unprocessed imported grain into rural areas.

2 Key issues

Quarantine issues

During the prolonged drought in 1994 and 1995 several proposals were put to the Australian Quarantine and Inspection Service (AQIS) to import barley, sorghum, wheat and maize from the United States and/or Canada. AQIS commissioned the Bureau of Resource Sciences (BRS) to report on the quarantine issues and risks involved. The report, *Pest Risk Analysis of Seed Borne Pests of Barley, Wheat, Maize and Sorghum from USA and Canada* (BRS,1995) identified a number of pests and diseases known to be present in North America but not present in Australia. These fell into three risk groups: seed borne plant diseases, insect storage pests and weeds. Of these, the report concluded that insect storage pests presented the least risk as the technology for handling insect pests in bulk grain storage is well established and there are few species of concern which are not already present in Australia. Concerns with the other two risk groups were identified. It was concluded that:

> ... the movement of viable grain for processing at feedlots in the grain growing areas represents a higher level of risk than has been accepted by AQIS, particularly when compared with other known existing risks and alternative pathways of pest introduction. It may be possible to reduce this risk by management arrangements that reduce spillage and dust release in grain handling and transport. However, these arrangements would need to ensure that spillage was kept to an extremely low level.

The protocols

AQIS proposed three protocols to manage quarantine risks in grain imports as follows.

Protocol 1: Heat treatment of grain at the port of entry;

Protocol 2: Cracking of grain in metropolitan/port areas; and

Protocol 3: Movement of whole unprocessed grain into rural areas in sealed trucks.

BRS advised that:

- protocol 1 represented minimal risk;
- the risk under protocol 2 related mainly to dust and spillage of weeds and whole grains — although the risk was small and manageable; and

- the risk of adopting protocol 3 represented 'almost the highest possible level of risk of introducing foreign pests and diseases second only to actually sowing the seed in the field without any prior treatment'.

At the time, AQIS had protocols 1 and 2 in place and was assessing each application on a case-by-case basis. Some 500 kilotonnes of grain had been approved for importation under these two protocols (mostly protocol 1). Subsequently, on the basis of protests from the Grains Council of Australia (GCA) no imports were permitted under protocol 2.

A reassessment

It is now apparent that the initial BRS reports did not adequately take into account the possibilities of managing quarantine risk offshore. In May 1995 a 'US grain mission', comprising government and industry representatives, visited the United States to gather information relevant to importing sorghum and maize from selected disease-free regions in North America. The agreed conclusions of the mission were that (for maize) 'for some US states the incidence of the quarantine diseases and the potential for disease transmission was lower than initially assessed' (Supplementary Report of the Grain Mission USA 1995, p1). The mission arrived at a position supporting the concept that grain could be imported into Australia from certain disease-free US states with minimal risk provided that the risk was managed offshore.

The BRS is also re-examining the issues and is due to report early in 1997. It is understood that they will reassess their earlier 'hard line' advice and suggest that whole grain can be imported with minimal risk by managing the risk offshore as well as quarantine management procedures for handling whole grain in Australia. Should the BRS report along these lines the issue changes from a ban on the movement of imported whole grain into rural areas to the details of an acceptable protocol and costs associated with its adoption.

Australia's international obligations

Australia is a signatory to the WTO *Agreement on the Application of Sanitary and Phytosanitary (SPS) Measures* and was a leading force in devising the final agreement. It is unlikely that Australia could be successfully challenged under this agreement if a prohibition on imported grain remains.

This conclusion can be drawn by considering the key requirements the SPS Agreement places on member countries.

First, countries must ensure that their SPS measures are justifiable on the basis of scientific risk assessments (Article 5(1)). But each country may choose the level of risk appropriate to particular circumstances and levels of risk can vary between different circumstances. Australia has, in general, adopted a low risk policy on quarantine issues given its isolation and freedom from many pests and diseases prevalent elsewhere. Given that Australia already permits grain imports under protocol 1, and the prohibition on movement of imported unprocessed grain into rural areas is still under consideration, it would be difficult for other countries to argue that Australia does not conform to Article 5(1).

Second, countries must be consistent in applying the concept of an 'appropriate level of protection' (Article 5(5)). Arbitrary decisions which are inconsistent with other quarantine measures already in place for the same or similar commodity, and which have the hallmarks of unjustifiable non-tariff barriers, are not permitted. In the present circumstances it would be difficult for some other country to mount a case that Australia was not being consistent in the application of SPS measures.

Third, the SPS Agreement establishes the general principle that quarantine measures should not unduly restrict trade over and above that required to achieve the appropriate and scientifically based level of quarantine protection (Article 5(6)). The precise meaning of this is unclear and has not yet been tested. Member countries generally accept that a complete 'no risk' position would be unduly restrictive. It could be (and has been) argued by some that the prohibition on protocol 3 is unduly restrictive, especially if consideration is given to where foreign grain is sourced and what measures are adopted to minimise risks.

Under Article 5(8), Australia could be asked to explain how its position conforms to the SPS Agreement.

There are a number of grey areas in the SPS agreement and the specific meaning of various terms and conditions is likely to evolve over time as disputes arise and are settled. But, overall, the basis principles are sound. Any country wishing to challenge Australia would also take into account that grain imports by Australia are limited in volume and tend to occur only in times of drought.

Economic issues

Under normal circumstances domestic grain prices are below import parity prices and there are sufficient supplies of domestic feed grains to meet the requirements of the intensive livestock feeding industries. But in times of severe drought when domestic grain is in short supply the current restrictions on grain imports including the prohibition on movement of imported grain into inland areas imposes additional costs on the beef feedlot industry and some other intensive livestock industries.

The immediate impact of the restriction is that lot feeders incur an additional cost by not having access to imported grain at import parity prices. There are also important longer term implications. Because of the additional costs and risks of not having assured access to grain at all times, investment in feedlot enterprises is hampered and the industry does not develop to its full potential.

On the other hand, relaxing the current ban on the movement of unprocessed imported grain inland may increase the risk of introducing harmful foreign pests and diseases depending on how any new protocol is framed. The probability of introduction is important in any evaluation of the expected net present value of the costs to the grains industry.

The grains industry also stands to gain by the further development of the feedlot industry — which is a significant value adding domestic industry and a large and growing market for feed grains.

Costs to the feedlot industry

What are the costs of maintaining the current ban on grain imports by a refusal to implement protocol 3 or some similar protocol?

The industry currently has access to imported grain under protocol 1. But there are costs of complying with this protocol. These include the costs of heat treatment at port of entry, any additional handling charges and lost productivity. Heat treatment tends to make the grain brittle and, according to industry sources, there is some loss of nutrient value. Nevertheless, lot feeders in a drought situation can revert to use of imported grain under protocol 1 if domestic prices rise too far above import parity prices for grain.

Movements in grain costs to lot feeders under alternative scenarios can be conceptualised as shown in chart 2.1. The chart distinguishes three cost levels:

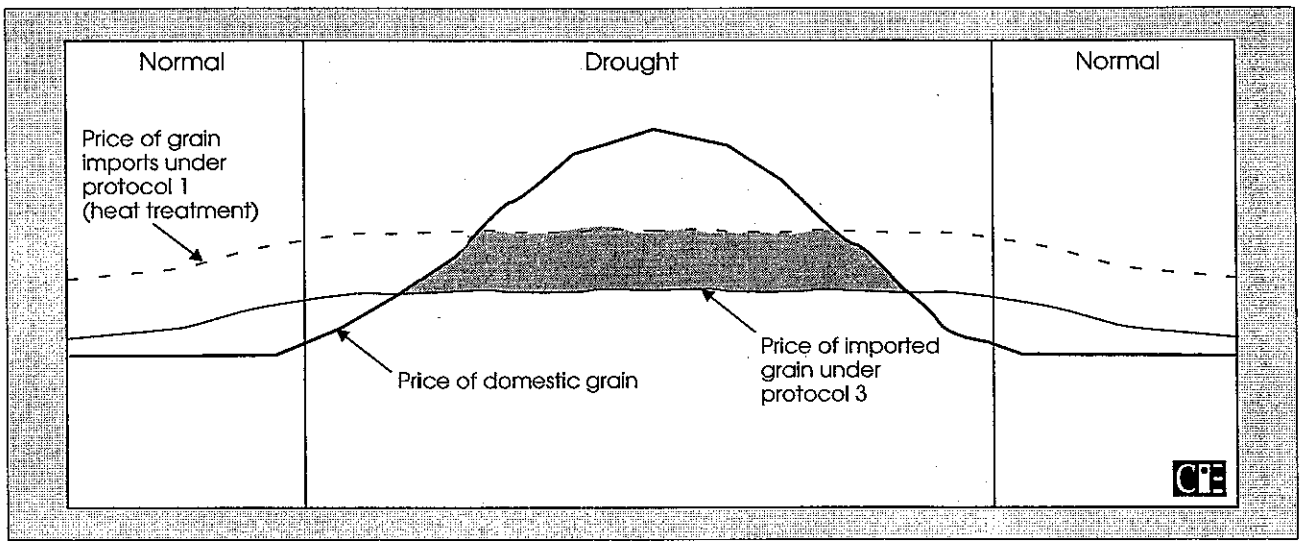
- the cost of domestic grain;
- the cost of grain imported under protocol 1 (heat treatment); and
- the cost of grain imported under (the disallowed) protocol 3 (unprocessed grain moved in sealed trucks).

The cost of grain imported under protocol 1 includes the cost of heat treatment and the costs (in additional grain requirements) associated with a loss of feed conversion productivity through feeding heat treated grain.

In a normal year, domestic prices of feed grains are at or around export parity and lot feeders purchase all their grain requirements from domestic sources. During the previous drought the price of domestic grain rose above the price of domestic grain which could be imported under protocol 1. There are a number of possible explanations for this. For example, a decision to import grain and arrange for it to be heat treated involves certain transaction costs. And there might be doubts about the process and the capacity of the existing plant to perform the treatment. Sellers of domestic grain might seek to exploit these uncertainties.

But, given the possibility of importing grain under protocol 1, the price of imports under protocol 1 should be regarded as the fall back position. The relevant additional cost to lot feeders of not being permitted to import grain under protocol 3 is represented by the gap between the prices of imports under protocol 1 and protocol 3 — the shaded area in chart 2.1.

Chart 2.1 **Movements in grain costs to lot feeders** Normal and drought situations



The additional cost burden imposed on the lot fed beef industry from a ban on protocol 1 imports reduces industry profitability. As a result, there is a contraction in grain fed beef output, exports and value added, and a diminished contribution of the lot fed beef industry to national economic performance.

While other intensive livestock industries, such as poultry and pork, are also affected, the adverse effects are a good deal less. The other intensive livestock industries are better able to use heat treated grain and, in some cases, are also able to take advantage of protocol 2. The disallowing of protocol 3, as well as worsening the competitive position of Australian grain fed beef against US supplies in the major international markets of Japan and Korea, also worsens the competitiveness of grain fed beef against competing meats in the domestic market.

In the longer term, the severity of droughts and their probability of occurrence combined with restrictions on grain imports, will affect the confidence of producers in the feedlot industry and investment in new capacity. Demand and supply projections for feed grains in Australia which take account of the projected growth in intensive livestock industries indicate that periodic grain supply shortages relative to demand could become more frequent in the years ahead. It is highly unlikely, therefore, that the events of the last drought were a 'one off — never to be repeated' event.

The feedlot sector is now an integral part of the beef industry and factors which affect the international competitiveness of lot feeding have ramifications throughout the beef industry. In Japan and Korea, Australia's position in the market for both grain fed and grass fed beef will increasingly depend on Australia raising its image as a supplier of high quality beef. Market share, once lost, is difficult and costly to regain.

Effects on the grains industry

The feed grain growing industry faces potential costs through relaxed quarantine restrictions. It also stands to achieve significant gains.

Any relaxation of quarantine restrictions increases the risk of introducing undesirable pests and diseases. The cost to the grains industry of grain imports being allowed under protocol 3 is the cost of any eradication measures and/or loss of productivity should an outbreak occur, taking into account the probability of a harmful outbreak occurring. An additional cost might be the loss of market opportunities if the introduced pest or disease means that Australia faces greater restrictions on access to some markets.

The relevant cost measure is the expected net present value of the above factors. This is the present value of any future costs of eradication measures or loss of productivity multiplied by the probability of pest or disease introduction. Importantly the probability of any introduction may be negligible depending on the framing and administration of the protocol finally adopted.

It is not possible for Australia to have a completely 'no risk' quarantine policy. There is always some risk of the introduction of some foreign pest or disease harmful to grains, for example, through people visiting or returning to Australia — foreign grass seeds can be attached to clothing and go undetected through quarantine. There is also risk of foreign pest or disease introduction through the importation of seeds for breeding purposes and, as a signatory to the WTO–SPS, Australia must be consistent in the quarantine measures adopted. The issue is how Australia manages the risk and the economic implications of alternative policies.

AQIS or BRS have not assessed the numerical probability of introduction of any of the pests or diseases identified as potentially harmful, nor have there been any assessments of the likely physical loss of production, eradication procedures required or costs to the grains industry should an introduction occur. Neither is there any definition or explanation of what is meant by acceptable risk, what level of risk would be acceptable and why. It is, therefore, not possible to make any meaningful evaluation of the net present value of costs to the grains industry.

The grains industry also has much to gain from a relaxation of current restrictions on grain imports. The ability to import grain under protocol 3 would provide reassurance to the lot fed beef industry of grain supplies at import parity prices during periods of domestic shortfall. The removal of this source of uncertainty would improve the investment environment for the lot fed beef industry. A vigorous and expanding lot fed beef industry means a secure and expanding domestic market for feed grains. This in turn would improve the investment outlook for feed grains leading to further development of strategic alliances between grain growers and lot feeders.

The decision making process

In December 1988 the federal government issued a policy statement which laid down the guidelines for the formulation of decisions by AQIS (Commonwealth of Australia 1988). When assessing the quarantine risk of any particular decision, AQIS was required to follow a multidisciplinary

approach to make decisions. This included not only identifying strategies to prevent the entry of a disease or pest but to also consider in its assessment the economic benefits of the continued exclusion of the disease or pest and the costs and net benefits of various strategies. Using this approach, AQIS can then develop the most appropriate strategy for managing the potential threat.

It was also acknowledged in this policy statement that the economic analysis be 'called in' and include assessments of:

- the potential loss of production;
- the flow-on effects of each strategy, including those on export earnings, employment and infrastructure; and
- the costs and benefits of alternative controls.

Despite the long time period since the issue of grain imports arose, there is still no sound basis on which AQIS could competently make a decision. Trials to test the adequacy of protocol 3 were aborted prematurely and in any case, were set up on a 'no risk' basis in terms of the sealing of trucks. This requirement seems to have been made more stringent than other quarantine measures relating to seed imports — for example, the checking of seeds attached to the clothing of people visiting or returning to Australia or the handling of imported seeds for breeding.

It is also apparent that the transparency and quality of ministerial advice on this issue leaves much to be desired. The costs to the grains industry of introducing protocol 3 cannot be made on the basis of *assuming* a 5 per cent fall in grain production each year, equivalent to a reduction in the gross value of production in the grains industry by over $200 million or a fall of around $60 million in the net value of production — without any justification for such an assumption. This was the basis of advice to the Minster on the issue of costs to the grains industry ('Imported grains — consideration of pest risk analysis', Minute to the Minister for Primary Industries and Energy from the Secretary of the Department, 21 December 1994, obtained under the *Freedom of Information Act*). It was acknowledged that the probability of a disease or pest introduction was relevant but no probabilities were given.

The experience with the grain import decision clearly demonstrates that there is a need to greatly improve the transparency of the decision making process and the quality and rigour of both the scientific risk analysis and the economic analysis of benefits and costs.

3 Economic evaluation

Significance of the feedlot industry

At present, the industry has an estimated capacity of nearly 700 000 cattle and a turnover of around 2 million cattle valued at over $1.2 billion a year. This represents nearly a quarter of the total number of cattle slaughtered annually in Australia, but a higher proportion of total beef production because of the heavier slaughter weights of lot fed cattle. The industry has two distinct sectors — a formal sector comprising the major company feedlots and an opportunity sector made up of smaller feedlots, generally as one of several enterprises on farms. Nearly two thirds of grainfed beef is produced in the formal sector.

There are three main regions where commercial feedlots are located — the Darling Downs, northern New South Wales and the Riverina. By contrast, other intensive livestock industries are mainly located in or near metropolitan areas.

The feedlot industry is now a substantial market for feed grains. Feedlots require about 1.5 million tonnes of grain annually which represents about 28 per cent of the 5.5 million tonnes of feed grains used each year by all intensive livestock industries in Australia (table 3.1). This makes the feedlot industry the biggest user of feed grains in Australia.

Feed grains are a major cost item around 30 per cent of the value of feedlot production. Therefore, even small changes in the costs of feed can substantially alter the profit margins and value added in cattle feeding operations.

Table 3.1 **Feed grains use by industry, 1994**

	kt	*Percentage of total use*
Poultry	1 416	26
Pigs	1 356	24
Dairy	1 175	22
Beef feedlot	1 506	28
Total	5 453	100

Source: Input requirements for Cattle Feedlot Industry; report undertaken by GRM International and PDP Australia in conjunction with Centre for International Economics and Total Cattle Systems for the Meat Research Corporation, November 1994.

Why lot feeders require unprocessed whole grain

Large commercial feedlots are strategically located in the Darling Downs, northern New South Wales and the Riverina because these locations enable operators to source sufficient numbers of store cattle and supplies of feed grains from nearby regions under normal circumstances — and they are also in close proximity to export abattoirs. Most large feedlots have their own processing plants on site and formulate rations on a least cost per energy unit basis. Processing enhances the energy value of grain (table 3.2). There are three main processing methods in use:

- reconstitution;
- steam flaking; and
- dry rolling.

Reconstitution involves bringing the moisture content of the grain up to about 30 per cent and then sealing it in air tight containers. There is initially sufficient air to start the process of germination which converts the starches to sugars but once the air is used the process stops. The grain is then stored for 15 days in the sealed containers and then dried, milled and fed to the cattle within a short time. This process must use whole live grain and so feedlots using this process cannot use inert heat treated grain as under protocol 1.

Steam flaking involves steam heating the grain to soften it and gelatinise the starchers. The grain is then passed through rollers to flake it. After drying it is fed to cattle.

Dry rolling is the least sophisticated of the three methods and merely involves passing the grain through rollers to crack it. In each case the aim is to improve the digestibility of the grain and productivity of converting grain into meat. Its effectiveness in this regard is a good deal less than reconstitution and steam flaking.

Table 3.2 **Energy values for processed and unprocessed grain**

	Net energy values		
	Unprocessed	*Reconstituted or steam flaked*	*Percentage change*
	Mcal/kg	Mcal/kg	%
Maize	1.55	1.67	7.7
Wheat	1.50	1.58	5.3
Sorghum	1.32	1.55	17.4
Barley	1.40	1.55	10.7

Source: Nutrition Services Associates.

The use of heat treated inert grain (protocol 1) has several disadvantages which adds to the costs of lot feeding. The process involves steam heating the grain at port of entry to about 95^{0} Celsius and then drying. Initially, the grain moisture content falls to about 8 to 9 per cent but over time moisture is absorbed from the atmosphere. After treatment the grain is brittle and easily cracks with handling. This significantly adds to screenings. As noted, this grain cannot be used in the reconstitution process and feedlots which use reconstitution could only mill heat treated grain and feed it dry — if forced to use imported grain under protocol 1.

Lot feeders report productivity losses of around 10 per cent by using heat treated grain compared with either steam flaking or reconstituting whole grain. This comes through significantly more screenings and worse feed conversion ratios in cattle feeding. Because of this grain productivity loss the profitability of feedlot operations would be significantly reduced if feedlots were forced to use imported grain under protocol 1 rather than protocol 3.

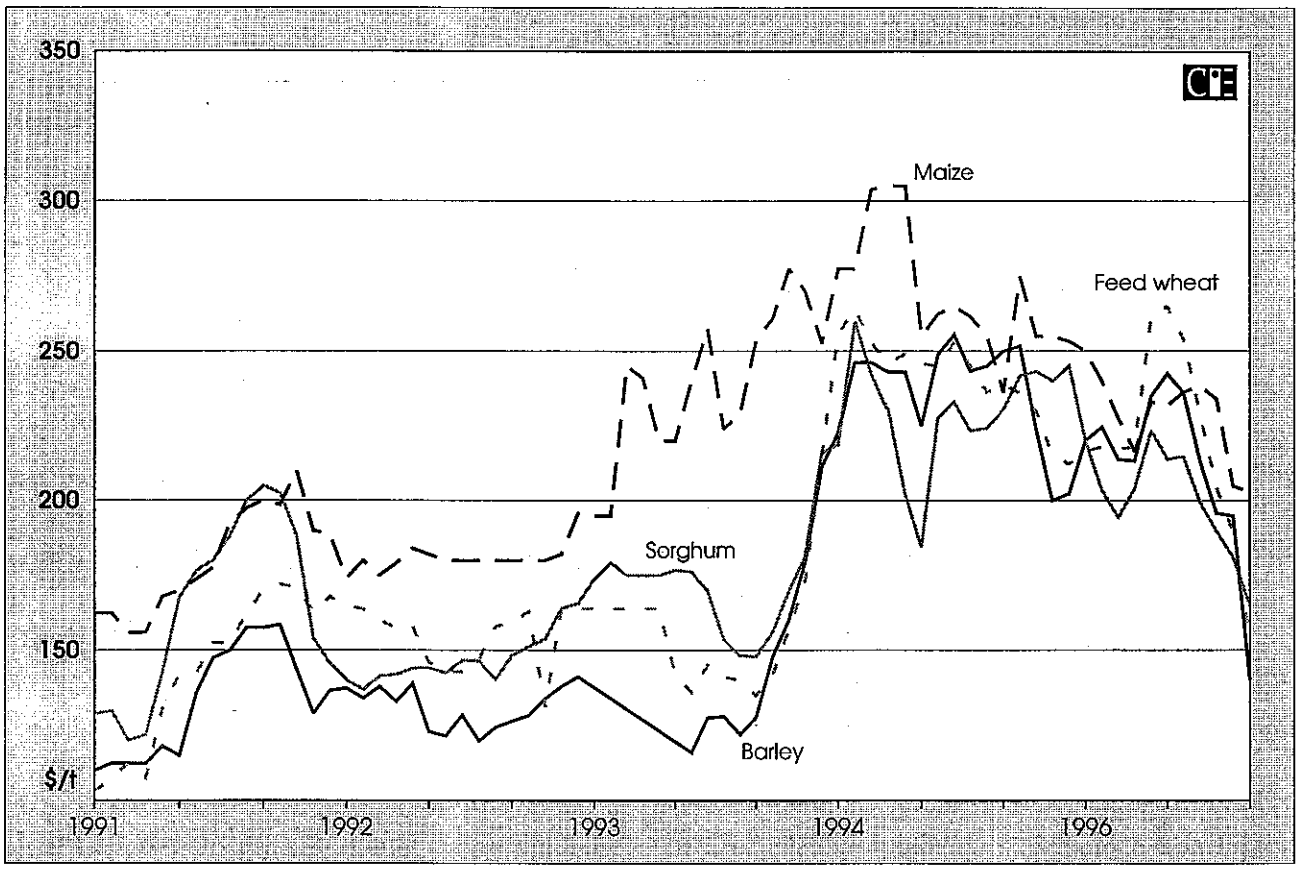
Effects of grain import restrictions on feed costs

The bans placed on feed grain imports under protocol 3 during the 1994-95 drought resulted in significantly higher feed grain costs. The extent of escalation in prices of all grains during the drought, and subsequently as a result of rises in world grain prices, is shown in chart 3.1.

Chart 3.2 shows the monthly movement in unit costs per tonne of grain feed to cattle in the Darling Downs region under three alternatives available to lot feeders — purchase of domestic grain from a ban on imports under protocol 3 and use of imports under protocols 1 and 3.

Each cost series relates to a representative feedlot situated in the Darling Downs. The cost of imported grains under protocols 1 and 3 are based on US maize (no. 2) fob Gulf. Lot feeders have indicated that the imported grain they are most interested in is maize. Domestic grain cost estimates are based on barley, as this is the grain most frequently used in feedlots in normal years. No allowance has been made for the different net energy values between barley and maize. The method of calculation and data sources are illustrated in table 3.3 for December 1994. As illustrated in chart 2.1, the relevant additional per unit cost of grain imposed on the feedlot industry from the ban on imports under protocol 3 is represented by the shaded area. This represents the difference in cost per tonne between protocols 1 and 3.

Chart 3.1 **Movements in grain prices** Sydney region



Data source: ABARE, *Commodity Statistical Bulletin*, p. 50 (1996 and previous issues).

Chart 3.2 **Monthly movement in unit costs per tonne of grain feed to cattle** Darling Downs region

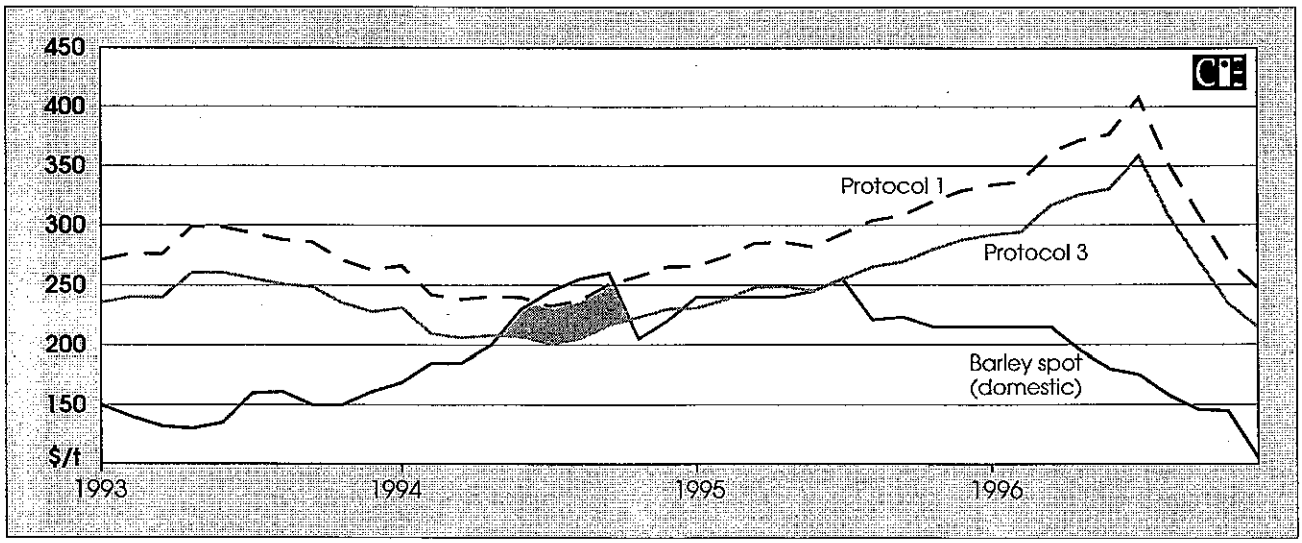


Table 3.3 **Cost of grains to lot feeders** December 1994

		Imported grain		*Domestic grain*[a]
	Unit	**Protocol 3**	**Protocol 1**	
US no. 2 yellow corn fob Gulf[b]	US$/t	101.0	101.0	
Freight (Gulf–Brisbane)[c]	US$/t	27.0	27.0	
Exchange rate[d]	US$/A$	.7768	.7768	
Landed price Brisbane (cnf)	A$/t	164.8	164.8	
Stevedoring charges[e]	A$/t	2.0	2.0	
Grainco storage and handling charges[f]	A$/t	10.0	10.0	
AQIS charges[g]	A$/t	6.4	5.4	
Heat treatment costs[h]	A$/t	–	12.0	
Inland transport to feedlot[h]	A$/t	17.0	15.0	
Cost of grain at property gate	A$/t	197.8	206.8	250.0
Loss of productivity (10 per cent)[h]	A$/t	–	23.0	–
Cost of processing at feedlot[h]		0.5	5.0	5.0
Net cost of grainfed to cattle		**205.2**	**237.2**	**255**

[a] Price quotations for barley delivered in Darling Downs region: Australian Wheat Board, Brisbane. [b] ABARE, Commodity Statistical Bulletin (1995) p. 60. Other issues used to derive price series in chart 3.2. [c] Derived from discussions with grain traders and shipping grain freight companies. [d] Reserve Bank of Australia, *Bulletin*, various issues. [e] Estimated on basis of discussions with grain traders. [f] Grainco estimates. [g] Based on December 1996 AQIS charges of $86.90 per hour (daily rate); assumed rate of grain discharge and storage at port equal to 120 tonnes per hour; rate of loading from storage equal to 50 tonnes per hour; rate of unloading at rural or metropolitan processor equal to 30 tonnes per hour. Assumed additional cost for protocol 3 equal to $1 per tonne to account for greater scrutiny of loads. [h] Based on feedlot industry estimates.

The ban on imports under protocol 3 operates as a variable tariff on feed grain to lot feeders. The additional costs per tonne of grain as a result of the ban on protocol 3 for each month during the drought (when domestic prices were above import parity prices) and the corresponding implied tariff equivalents are shown in table 3.4.

The feedlot industry utilises around 1.5 Mt of grain a year, equivalent to about 125 kt a month. Assuming no change in the average monthly feed grain usage, the additional cost of feed grain imposed on the feedlot

Table 3.4 **Tariff equivalents implied by ban on protocol 3** By month during drought

Month	*Additional cost of grain to lot feeders*	*'Tariff equivalent'*
	A$/t	%
October 1994	22.5	10.9
November 1994	31.7	15.8
December 1994	32.2	15.7
January 1995	33.6	15.5
February 1995	na	na
March 1995	na	na
April 1995	9.2	4.0
May 1995	2.1	0.9

na Not applicable.
Source: CIE estimates.

industry as a result of the ban on grain imports under protocol 3 is estimated at $16.4 million. This estimate assumes that the situation which prevailed on the Darling Downs during the drought was similar to that experienced in the other main feedlot areas. Feedlots in the Riverina are located closer to the major sources of barley in South Australia and Victoria where the drought was less severe on reducing grain production and domestic grain prices were less than in the Darling Downs. However, over two thirds of the cattle fed in Australia are now located in northern New South Wales and Queensland.

Production response

Lot feeders respond relatively quickly to changes in profitability of cattle feeding. This is because purchased input costs (principally feed grain and feeder cattle) represent a very high proportion of the value of feedlot production. During the 1994-95 drought, the number of cattle on feed in Queensland fell by 65 per cent between June 1994 and February 1995. Over the same period, the price of the cheapest available feed in the Darling Downs region rose by 60 per cent. On this basis we can estimate a production response elasticity of 1.08. That is, a 1 per cent rise in grain prices will induce a 1.08 per cent fall in the number of cattle on feed.

Using this estimate, we can estimate the change in value added in the feedlot industry directly attributed to the increase in per unit feed costs as a result of the ban on grain imports under protocol 3. For this we have taken an average tariff equivalent of 7.7 per cent over the period October 1994 to May 1995 derived from table 3.4. The change in value added over this period as a result of the ban on protocol 3 is given by:

Change in value added = Value added assuming protocol 3 imports permitted − Value added assuming a ban on protocol 3 imports

For this estimation, value added is taken as follows.

Value added = [Price of fed cattle × Quantity of fed cattle] − [Price of feeder cattle × Quantity of feeder cattle] − [Feed grain costs]

The cost of feeder cattle and feed costs normally accounts for over 85 per cent of the total value of lot fed beef production. This means that other, mainly fixed, costs can be ignored in the above estimation of change in value added. Box 3.1 gives the basic input data used in the estimation.

On the basis of these assumptions the change in value added from cattle feeding as a direct result of the ban on grain imports under protocol 3 is estimated at around $27 million for the eight months of the 1994-95 drought.

The loss in value added of $27 million is a short term one. For several reasons it is likely to significantly understate the true costs to the beef industry over the longer term of the ban on imports of feed grain under protocol 3.

- The short term loss is based on an industry with production around 1994-95 levels. To the extent that the industry is able to grow to take advantage of the strong export opportunities for grain fed beef the loss in value added from feed grain import restrictions is likely to be higher — perhaps much higher — with future droughts. Future droughts of the severity of the 1994-95 drought are inevitable. Studies of climatic variability in Australia indicate that a serious regional drought can be expected in one year out of five, while a widespread national drought can be expected in about one year out of every ten years (ABARE, 1995).

Box 3.1 **Data and assumptions used in estimating change in value added from lot feeding as a result of a ban on protocol 3**

Production elasticity with respect to change in feed costs	1.08
Average tariff equivalent on imported feed grains (table 3.4)	7.7 per cent
Average price of fed cattle	470 cents/kg cwe
Average price of feeder cattle	230 cents/kg cwe
Quantity of grainfed beef production in Australia (GMI database) over eight months	170 kt x 8/12 = 113 kt
Average weight of feeder cattle	248 kg cwe
Average weight of fed cattle	395 kg cwe
Quantity of grainfed in eight months	1.5 Mt x 8/12
Basic price of feed grain	$205/t

- The estimate of $27 million also fails to take into account the economic losses in terms of value added foregone from the reduced investment in the feedlot industry because of the continuing uncertainty about feed grain availability and cost during times of domestic shortfall. This can only be resolved by secure access to imports at import parity prices. Although the full longer term costs of current import policies are difficult to quantify, they need to be recognised in the decision making process on future protocols on grain imports.

4 Longer term considerations

There are strong market growth prospects for grain fed beef. The challenge for the Australian industry is to participate in this growth. To the extent that it is successful in this regard it will also benefit the feed grain growing industry. There is the prospect of a win–win situation for both industries.

In the past few years Australia has suffered a significant loss of market share in Japan — the industry's most important market for grain fed beef. Australia's trade share of the total market (chilled plus frozen) is estimated at 45 per cent for 1996, a drop of 8 percentage points since 1994. Australia's share of the frozen trade is largely unchanged, but there has been a big fall in our share of the chilled market — 12 percentage points between 1994 and 1996 (from 69 to 57 per cent). Most of this can be traced to a shift from Australian chilled grain fed product to US chilled grain fed product.

To some extent, overall market growth has offset in volume terms the impact of this dramatic loss in market share. The expansion of the Japanese market has been a catalyst for change in the Australian beef industry. The quality composition of our exports has changed with an increasing emphasis on grain fed and grain finished beef, along with higher quality pasture fed beef cuts. Expanding Japanese demand for grain fed beef was primarily responsible for the rapid expansion in the Australian feed lot sector. But the Japanese beef market is now maturing rapidly. Future growth prospects in that market will increasingly be about winning market share against competitor suppliers.

The reasons for Australia's dramatic fall in share of grain fed imports to Japan are unclear. The shift was initiated by price competition from the US — driven by large US beef supplies and exchange rate movements. But non-price factors may also be contributing to a demand shift away from the Australian product. Australian product is less price competitive compared with US grain fed beef. This reflects higher unit costs of production in Australia, especially feed costs.

The Australian feedlot industry faces many challenges in the years ahead. The challenges include continued, and perhaps intensified, competition from US grainfed beef on international markets and production cost pressures. In particular, the future price of feed grains is an important constraint on expansion of the grainfed beef industry in Australia.

The industry is likely to continue to expand, but at a greatly reduced rate compared with the rapid growth of the past decade. A 20 per cent expansion by 2000 is a reasonable 'base line' projection.

The other significant international market for grainfed beef is Korea. Here too Australia has lost market share to the US. Australia's share in this market has fallen from 61 per cent in 1990 to 31 per cent in 1996. The Korean market is becoming increasingly 'sophisticated' and demanding more grainfed beef as a means of ensuring beef quality to consumers. Australia has a reputation of supplying lower priced, average to poor quality product. If Australia's market share and performance in the market is to improve, the quality and consistency of product exported to Korea will need to significantly improve. Otherwise, Australia's reputation will continue to suffer and its market share will continue to fall.

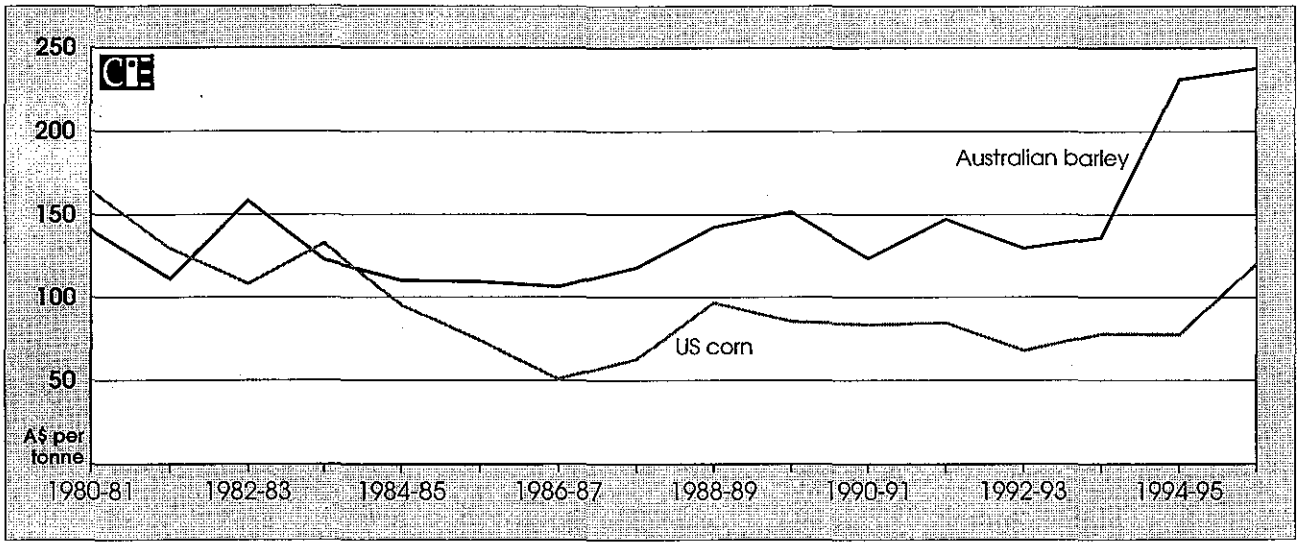
Australia's performance in the Japanese and Korean markets will increasingly depend on how it markets grainfed beef in competition against US grainfed product. Together, these two markets now account for nearly 50 per cent of Australia's total beef exports and virtually all of our grain fed beef exports.

A key element in Australia's international competitiveness is the price Australian lot feeders have to pay for feed grains compared with the price of feed grains in the US. Charts 4.1 and 4.2 show the absolute and relative movements in feed grain prices in Australia and the US over the past two decades. While in the past year there has been a shift in favour of feed grain in Australia, the overall trend has been an increase in Australian feed costs relative to US feed costs.

The US feedlot industry is heavily based on corn feeding and productivity gains in corn production have been impressive. In Australia, state and federal grain marketing boards may have had some influence in inflating domestic grain prices but a detailed analysis of this issue goes beyond the scope of this paper.

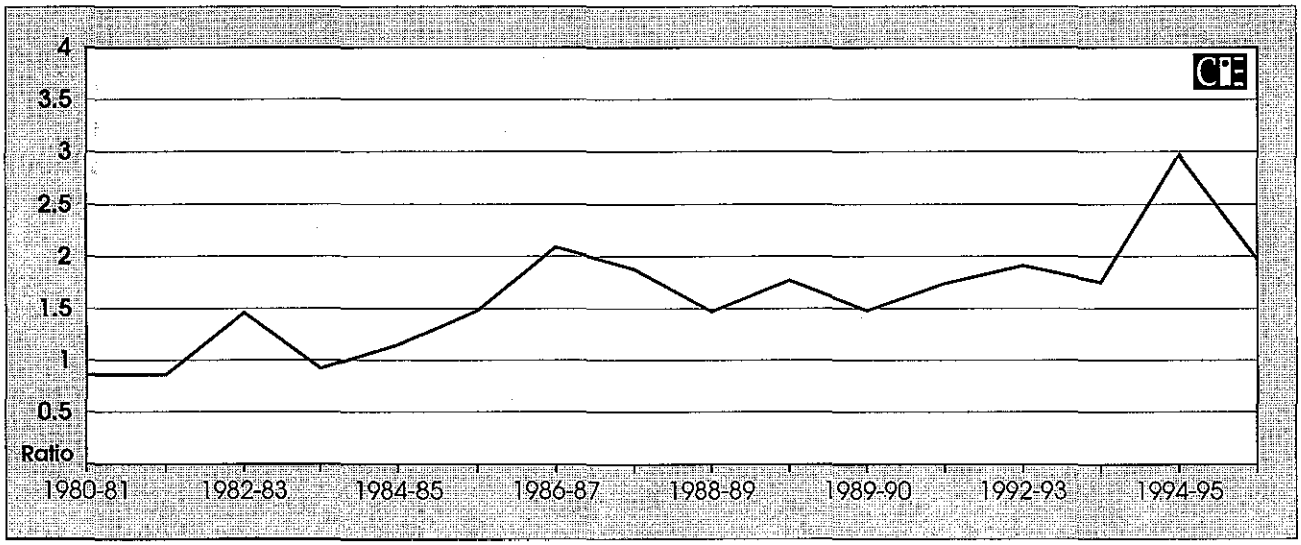
The key point is that the international competitiveness of the entire Australian beef industry will largely depend on how Australia performs in the grain fed beef sector and this will depend on how lot feeders in Australia can maximise productivity gains and keep costs as low as possible.

Chart 4.1 **Prices of US corn and Australian barley**



Data source: ABARE (1994), *Commodity Statistical Bulletin*, Canberra, pp. 50 and 55.

Chart 4.2 **Ratio of Australian barley prices to US corn prices**



Data source: ABARE (1994), *Commodity Statistical Bulletin*, Canberra, pp. 50 and 55.

Quite apart from the feed cost issue, Australian lot feeders are at a disadvantage compared to US feed lot operators because of the smaller size of feed lots and lower economies of size in Australia.

A key question for the Australian industry is how to bridge the productivity gap between it and the US industry. Bridging this gap is possible, but will require state of the art investment in facilities and processes, and improvements in abattoir efficiency. It will also require access to grain at lowest possible prices.

Lot feeders need confidence in the future to invest in productivity enhancing technologies. This confidence is severely impaired by the threat of substantially higher feed costs — above import parity — and uncertainty about the availability of feed grain every time there is a drought in eastern Australia.

Uncertainty about feed costs and availability created by the continuing ban on imports of feed grain under protocol 3 serves to inhibit the required investment. After more than two years of uncertainty, resolution of the issue is urgently needed. Resolution should follow the guidelines on assessment of quarantine risk — which require identifying strategies to minimise risk, a consideration of the economic benefits and costs of continued exclusion, and the costs and benefits of various strategies for importing.