

BACKGROUND

During the past 15 years the Australian meat industry has attempted on several occasions to enhance the effectiveness of its marketing system. Concisely, these attempts have aimed to price the product at the beginning of the marketing pipeline in some way which accurately reflects its worth at the end of the pipeline. It has been rationalised that if price for raw product in the form of cattle or carcasses, can be made to accurately reflect end-use value, then response time to changes in customer preferences will be shortened and the general goal of enhanced market effectiveness will be achieved.

Apart from pricing the 'raw' product more accurately, the attempts at market reform have concomitantly pushed for selling methods that have the livestock go directly from the paddock to the place of slaughter. Such methods minimize the operational costs of the exchange process.

The aim of this paper is to identify and analyse the economic, technical and political factors that have surrounded the development and implementation of enhanced meat marketing systems in Australia. Hopefully, this general approach will emphasise the complexity of market reform and lead to a better understanding of how meaningful change can be brought about in other primary industries and in other countries.

Market reform typically starts with problems that create an awareness of the need for change. In the mid 1970's, the problem that beset the Australian cattle industry was a dramatic and sustained collapse in saleyard prices. The associated hardship created a wave of introspective inquiry from the grass roots to the highest echelons of producer representation. The 'inquiry' was concerned with the capacity of the free market to deliver 'fair' prices for livestock and survival incomes for producers. A feeling to emerge was that the free market was not doing a satisfactory job and that the industry ought to act positively to make it function better. The notion of market reform, pushed along by political demand, had found its way to the Australian cattle industry.

This demand, it should be noted, was directed internally, not externally, so that any reforms to be brought about would be financed from the meat industry's own resources and not those wrested by Government from taxpayers.

One of the observations to emerge from the protracted inquiry of the mid 1970's was '...how can you market something properly if you can't even describe it?' The response was an attempt in 1975 to bring in carcass classification. The attempt was an ignominious failure—partly because carcass classification at that time could not be commercialised (technical failure), partly because the processors were not all that interested (political failure) and partly because an organisational framework to either entice or force implementation did not exist (administrative failure). The Australian cattle market recovered in 1978 before any noteworthy reforms could be put in place but not before a mental commitment to the notion of continuing and positive change was established.

Implicit in the cattle market recovery was a vast decline in the national herd (by some 10 million head) and an equally dramatic recovery in prices. During the nine year period 1977/86 annual per capita beef and veal consumption in Australia fell by 10 per cent to 40 kg. Despite the fact that cattle producers were suddenly making more money by selling less product, the drop in local consumption was viewed gravely and gave further impetus to the push for market reform. On this occasion, it was

realised red meat had become valuable and that the emphasis should be on selling the product according to its quality attributes, rather than just its price. In 1985 the political preparedness to fund and generally support market reform was confirmed through the appointment of a new-look Australian Meat and Livestock Corporation that heralded its arrival, 'A New Direction.'

The new Corporation announced two initiatives to deliver on its mandate for market reform. One was the Authority for Uniform Specification, Meat and Livestock (AUS-MEAT) and the other was Computer Aided Livestock Marketing (CALM). AUS-MEAT was framed as a very broad concept to firstly establish and then to protect the integrity of Australia's meat products. It would do this through three mechanisms:

- a standard language for describing livestock, carcasses and meat;
- operational procedures for capturing, recording and distributing information relating to livestock, carcasses and meat;
- a monitoring system to ensure maintenance of quality standards.

After an interim phase of 10 months, AUS-MEAT became operational in July 1986 but it has continued to develop and expand to the present time.

CALM was developed as a central, electronic auction for livestock. With CALM, the livestock remain on the farm until they are sold; buyers base their bids upon an objective description of the stock together with knowledge of the farm location (essential to estimating farm-to-usage-point transport costs). The seller can nominate one or more of four sale modes (\$/head for the lot, c/kg liveweight for the lot, c/kg carcass weight for the lot and c/kg for individual carcass) and the sale itself takes place once a week by computer hook-up. Compared to saleyards, CALM offers the operational advantage of direct delivery whilst compared to a private sale direct to the abattoir, CALM offers the potential price advantage that goes with open competition.

Both the AUS-MEAT and CALM programmes were placed under the control of industry-dominated committees. Thus, from the outset, a political pre-requisite of market reform was recognised to be leadership by the industry, for the industry. The corollary has been a loss of power and position by Government agencies (especially those concerned with quality control) and reliance for success upon voluntary rather than mandatory participation. Thus eligibility by abattoirs to participate in AUS-MEAT is determined by ability to satisfy 'accreditation' standards.

The 'New Direction' also called for much greater emphasis on butcher education and meat promotion. This emphasis can be rationalised in terms of creating demand for the meat product and the services that go with it (quality, preparation, presentation, etc.). The ability of the meat industry to exploit demand-driven forces is partly dependent of the perceptiveness of the retailing sector. Meat retailing in Australia is still dominated by small independent butcher shops and this structure, almost by itself, is considered by some to cause disruption to the smooth flow of information from meat consumers back to livestock producers. Plans are advanced in Australia to upgrade the skills of its meat retailers through better apprenticeship and on-the-job training.

The above comments provide some background to the reform process currently underway within the Australian cattle market. An important point to grasp is that much of the initiative for market reform has recently been taken away from the market itself and assumed by industry, which, through various instrumentalities, has dictated the pace and direction for change. The natural defence of this approach is that the free market was

either unwilling or incapable of picking up the required reforms. An alternative viewpoint however is that the reforms being pushed through by industry could be 'wrong' and have minimal impact in practice because they have been politically driven, not market driven.

The remaining discussion will analyse the relative merits of these two viewpoints in terms of specific reforms that have been attempted. Whilst market reform by either political or market led means are not mutually exclusive, both carry certain downside risks. The risk with leaving the market to initiate reform is simply that opportunities will be missed or delayed because innovation is neglected. With political intervention, the risks are complex. One problem is that the organisation formed to activate policy may become more interested in its own prestige and size than that of the industry's. Another danger is that innovation may be attempted in areas where no mandate exists. For politically driven reform to be successful, it should confine itself to those areas where the free market has demonstrably failed and where grass-roots support can be secured.

THE RELEVANCE OF THE CONSUMER

In a world of bountiful choice, it is the fickle consumer who has the final say on whether your product increases its market share, holds its ground or falls back. For meat to at least hold its ground in this volatile environment, it would be useful for the producer of the raw material (livestock) to be put in some sort of direct contact with the consumer or to at least have a current knowledge of consumer preferences.

The theoretical economist would argue that a free market pricing system should be all the 'contact' that is necessary. So if consumers begin to (say) shun meat with a thick fat cover, this will soon be reflected in saleyard prices and producers will stop delivering over-fat cattle. In practice however, the message does not get transmitted according to the textbook; the traditional pricing system is not sophisticated enough to either keep pace with changing consumer wants or to encapsulate the changes themselves in price variations (depending on the product's ability to satisfy particular wants).

Butchers, for example, who are of course closest to the consumer, exhibit great variation in how they go about satisfying consumer wants. This variation could be interpreted as an appropriate response to the natural variation between consumers according to incomes, backgrounds, etc., (see Bartley et al., 1988) or an inability by at least some butchers to perceive and react to consumer wants.

Consumer preferences have been revealed by surveys. In an extensive survey of meat consumers in Australia (Kingston et al; 1987) it was found that consumers had a statistically significant preference for beef from young cattle (less than two years) electrical stimulation, little fat (only 2-3 mm of selvage) and particular muscle colour (bright red). These findings have been used as the basis for colour branding schemes. The colour brands are applied therefore, to superior quality carcasses and used to date as a communication tool (for ordering) between wholesalers and retailers. Ultimately it is intended (through promotion) that consumers will display a preference for colour branded beef. If this happens there will be a market induced demand for quality (or a particular product) that the industry should recognise and be able to react to.

Notwithstanding the link that can be forged between consumer surveys and colour branding, the implications lack credibility for producers if they bear little apparent relationship to livestock returns. In the case of export markets, the preferences of consumers are expressed through the importer's specifications. Despite these specifications being very precise, they too will frequently bear little relationship to saleyard price.

Processors, and to a lesser extent wholesalers, it would appear, have a fairly high tolerance to buying methods that only approximate quality. This is the case because they are relatively

large and typically supply many diverse markets and therefore can make good use of any animal purchased. However this flexibility (and the rough approach to livestock buying it affords) is completely unhelpful to producers since they (ie., producers) need very clear signs from the market place in order to finely tune their production systems. The point here is that producers required the market reforms outlined above more than do processors. Producers will therefore need to take the lead in adoption of new selling methods but the co-operation of processors will be vital. Depending on whether this co-operation is forthcoming, regulatory assistance may ultimately be required to make it compulsory.

Price paid at a particular time and place will obviously reflect much more than the quality of livestock traded. Analysis of data from the Toowoomba saleyards (Williams, per coms) indicates that weight and fat variations explain less than 70 per cent of variations in price. Accurate pricing will however, serve to raise the explanatory power of the quality variables. This is one of the major aims of market reform.

RELEVANCE OF SELLING METHOD TO PRICING ACCURACY

Traditional methods of buying and selling livestock have not exploited pricing mechanisms to generate meaningful economic messages. This shortcoming can be demonstrated with respect to liveweight selling. At a so-called liveweight auction, buyers bid in cents per kilogram liveweight for all animals in the lot. Apart from the influence of supply and demand on the day, the buyer will determine his bid by a visual estimate of criteria perceived to be relevant such as average dressed weight, fat cover, shape, etc. The translation from live animals to carcasses is necessarily subjective and therefore a potentially poor approximation of carcass meat yield and quality. The added inaccuracy due to averaging within and between lots means that superior stock tend to be undervalued (in terms of final market value) and inferior stock overvalued. Inaccurate pricing has the ultimate effect of isolating the producer from the consumer and slowing down his response time to changes in the market.

Assuming continuation of the existing structure of many independent sellers (producers) and few buyers (processors) the exchange method that provides the maximum potential for pricing accuracy is carcass specification on the abattoir slaughter floor. This specification may begin ante mortem and continue throughout the slaughtering process until completed at the scales (the actual point of exchange). The specifications are objective in the sense that they can give a reliable estimate of carcass meat yield and quality. It follows that if each carcass is priced relative to the collective specifications, the price itself will give an accurate reflection of what the particular carcass is worth as saleable meat. An example of specification or grid pricing is given in Table 1. An integral part of the grid pricing system is information feedback to the producer to show the individual carcass specifications and the corresponding price.

Table 1. Example of a price grid for steers suited to domestic carcass trade.

WEIGHT RANGE	FAT SCORE				
	1 (0-2mm)	2 (3-6mm)	3 (7-12mm)	4 (13-22mm)	5 (22+)
Hot Standard Carcass Weight					
0-150kg	c/kg 202	c/kg 218	c/kg 220	c/kg 215.5	c/kg 207
150-160kg	211.5	228	230	225	216
160-180kg	218.5	235	237.5	233	233
180-200kg	220	237.5	240	235	225
200-220kg	220	237.5	240	235	225
220 & Over	211.5	228	230	225	216

In Australia, 'direct-to-works' trading on an individually specified and priced carcass basis varies between livestock species and geographic area but in the overall context is an insignificant method of exchange. The problems for increasing the extent of individual carcass trading are dealt with later in the paper. Some suggestions are made also on how such problems may be overcome.

OBJECTIVE SPECIFICATION OF THE CARCASS

The usefulness of carcass measurements such as age, sex, weight and fat cover has been recognised for many years. Taken together, these attributes provide a guide to the potential worth of a given carcass. Other attributes that relate to carcass value include bruising, marbling, loin depth and colour (of both fat and muscle).

Whilst both the relevance (to value) and the techniques (by which these attributes can be measured) are now well understood, the quintessential step of putting all this into commercial practice, is proving relatively difficult. Experience has shown that technical know-how is not, on its own, enough to induce implementation of desirable change. A whole system is required and the changes implied can only be brought about by an integrated techno-political process.

Indeed, the introduction and operation of AUS-MEAT and CALM provide numerous examples of how economic and technical rationality must sometimes be compromised to produce an outcome which is politically acceptable.

Examples:

(a) Development of a standard carcass

Weight is an essential carcass specification. The AUS-MEAT concept required that Australia have a single carcass definition in terms of the trim allowed during and after the slaughtering/dressing process and before recording the carcass weight. Leading up to the decision on the trim required to produce a standard beef carcass, there were two areas of contention as described by Whan (1987).

Firstly, it was argued by some producer groups that the AUS-MEAT beef carcass should not be trimmed at all. Compliance with this definition would have meant relocation of the abattoir scales to a point directly following evisceration and before removal from the carcass of any hygiene or fat trims. Secondly, it was argued by some State representatives that two carcass definitions should be adopted: one for the domestic market and one for the export market.

Support for a 'no-trim' carcass was based on two propositions:

- that the producer should be paid for everything he produces: and
- that trimming before the scales cannot be adequately controlled.

An important difference between a so-called no-trim carcass and the definition adopted by AUS-MEAT was inclusion in the former of kidney and cod fat depots. Investigations by the Livestock and Meat Authority of Queensland showed however, that across all cattle types there was no meaningful relationship between the quantity of fat in these depots and objective measures of carcass quality such as subcutaneous fat depth and carcass weight. Therefore, inclusion of the fat depots in the carcass definition would restrict the carcass buyers' ability to price the carcass accurately.

Apart from the internal fat being unrelated to predictors of carcass quality, it has a relatively low economic value and can be easily removed before weighing. (The fact that the internal fats need not be removed before weighing a carcass is the only feature distinguishing them from the hide and intestines which have a much greater economic value).

Finally, the obvious point should be noted that after an initial settling down period, competitive forces will induce the processor to adjust price per unit weight in accordance with

degree of trim before the scales. So adjustment period excepted, an untrimmed carcass cannot return the producer more money just because it is heavier than if it were trimmed.

The case for two carcass definitions was based on protection of the status quo; it was felt AUS-MEAT should have a carcass definition which approximated 'existing practice' in the local trade. The basic fault with the proposed local trade definition was not in terms of detail but rather that a second standard should be contemplated at all. One of the aims of AUS-MEAT is to reduce confusion in the market place: the argument for a second carcass definition reflected a failure on the part of its advocates to understand or appreciate the AUS-MEAT philosophy.

Given two carcass definitions, there would be confusion over equivalent price quotations. The weight difference between the two definitions would be due to relatively low value fat, so the price quotation differences would not reflect weight difference per se. On the abattoir floor, trimmers would also be confused over which standard they should be working to. Even more fundamentally, a particular carcass may not be designated 'export' or 'local trade' until it has reached the scales or cuts from a single carcass may go to both export and local markets.

Another problem with the proposed 'local trade' carcass is that excess fat is transported to the butcher's shop only to be thrown away or transported back to the abattoir where it can be processed economically. From a national point of view, it would be more efficient for carcass parts not required by the end consumer not to leave the abattoir in the first place.

The proponents of a no-trim standard carcass and/or two standard carcasses never capitulated to the rationality as explained above. They simply went down fighting, out-voted by the processors and a few rationalists (who could appreciate the above arguments). In the end however, there was general acceptance of the proposed standard because a fair and reasonable political process had been followed. The industry had determined its own fate.

(b) Measurement of subcutaneous fat depth

Subcutaneous fat depth is an accepted and reliable predictor of variations in carcass meat yield so it is obviously another essential part of carcass specification. The argument that AUS-MEAT had to resolve was: at what site on the carcass should fat depth be measured? No-one, on this occasion, argued for more than one measurement site but there was a strong division of opinion between the traditional rib site and the (new) rump site.

In line with overseas research, Australian fat measurements were originally taken over the eye muscle between the 12th and 13th ribs (Murphey et al., 1960). With the introduction of mechanical hide pullers however, the rib site was found to be too vulnerable to damage so could not give reliable measurements in the commercial situation. An alternative site was needed which was easy to locate, not naturally vulnerable to damage and had at least equal predictive value (to the rib site). The most satisfactory site proved to be the rump site (ie., the intersection of a line from the dorsal tuberosity of the tripartite tuber ischii parallel with the chine and a line perpendicular with the chine from the crest of the third sacral vertebra) as found by Moon (1980).

The rump site had in fact been adopted commercially in Queensland abattoirs prior to the development of the AUS-MEAT language and this closed out all bargaining on the issue when it came up for discussion at an early AUS-MEAT meeting. After two years and confirmation regarding the suitability of the rump site by an independent study (see Johnson, 1987) there are still groups agitating for a return to the rib measurement site. In the technical sense this agitation is linked to fat depth estimation in the live animal and as such overlooks the fact that the thrust of market reform should be

carcass specification. Seen in this light, the agitation is a sad reflection on the occasional wastefulness of the political process.

(c) Butt profile

Apart from implementing a uniform language, AUS-MEAT has taken a direct hand in marketing through implementing colour branding schemes. These schemes use the AUS-MEAT language to select superior quality carcasses which are strip branded as a communication tool between wholesalers, retailers and consumers. The colour branding eligibility criteria originally included age, fat cover and colour and electrical stimulation. Recently butt profile was added to the list. This latter criterion - otherwise known as muscle score or conformation - is yet another AUS-MEAT carcass specification to cause controversy. With the AUS-MEAT language, carcasses are ranked A to E depending upon the shape of the butt. For carcasses to qualify for a colour brand (to indicate superior quality) they must have a butt profile of C or better.

Unlike weight and fat depth, inclusion of butt profile in the AUS-MEAT language is not underpinned by a strong scientific base. Indeed the literature that would support the usefulness of the butt profile is sparse and if anything suggests that the attribute loosely known as conformation or muscling, is negatively related to yield (because superior conformation is frequently related to excessive fat cover and lower yield see Johnson (1988) in these proceedings). Except in the case of emaciated animals, neither does butt profile bear any relationship to meat quality. Rather, the support for butt profile lies in its ability to pre-select carcasses that have eye appeal to the purchaser of carcasses (essentially butchers). The approach may be paraphrased thus: '...lets give them (some butchers) what they want (namely a grading system that matches their preconceptions about quality) even though the system is based on popular myth rather than scientific proof'. From this perspective, the approach is overtly pragmatic and political expedient.

Notwithstanding the unconventional pathway by which butt profile found its way into the AUS-MEAT language, there would be no great problem providing butt profile did not cause otherwise suitable carcasses to be rejected from colour branding. In fact the butt profile discriminates against certain breeds of cattle. Thus in Queensland, where cross-bred brahman cattle predominate, there can be a high rejection rate among carcasses presented for branding. Areas that produce cross-bred dairy cattle have been similarly disadvantaged. The butt profile imbroglio provides a classical example of the problem of trading-off political and technical realities to produce a working scheme. Too much of either influence can be terminal.

Many more examples could be given of the tortuous path down which AUS-MEAT development has had to struggle. It will be more instructive however, if we now focus attention on usage of the language.

QUALITY SENSITIVE MARKETING

Earlier in the paper, exchange between the producer and processor on the basis of individual carcass specifications was suggested as the ideal toward which market reform should aim. Thus, ideally, processors should offer to pay x cents per kilogram hot standard carcass weight depending on pre-specified carcass attributes (see Table 1) and producers should deliver their slaughter cattle according to the offer prices. If this method of exchange has merit, why hasn't it developed naturally? At least within the current time-frame, the obstacle could, it seems, be a quirk of the competitive environment facing abattoirs.

When, in the past, an abattoir has openly offered producers a carcass grid, it has eventually lost supplies to competing abattoirs offering a simple weight and grade price. With the latter

system, carcasses that 'grade' attract one (high) price and carcasses that do not 'grade' attract another (lower) price. The relatively tight range in prices with this system appeals to producers as it offers downside risk protection. Also it has the virtue of simplicity.

Implicit, however, in this simplicity is a general lack of price information relative to individual carcass specifications. Moreover, in the case of good quality cattle, weight and grade pricing will return less on average (in c/kg) than will grid pricing. This is partly because the top grid price is typically higher than the grade price but also because the abattoir will exercise discretion over which carcasses in fact 'grade'. In this situation, whether a carcass 'grades' may depend more on the circumstances of supply and demand surrounding that carcass than on its objective quality specifications.

The corollary (to stem from discretionary grading) is that weight and grade pricing will mask from producers underlying movements in the market. Grid pricing would not do likewise because there is minimal discretion over how carcasses are specified and because all prices in the grid would tend to move up and down (together) with fluctuations in supply and demand. Thus feedback through time from grid sales would allow the producer to clearly determine the causes of price changes. Any price change will be readily attributable to either changes in carcass quality or changes in the strength of the market.

What is needed to overcome the free market imperfection that hinders operation of a (desirable) grid pricing system is a widely used electronic auction (like that offered by CALM). A central electronic auction would allow individual processors to offer a grid without the details quickly becoming known to other processors. The vulnerability that sometimes goes with being an innovator would be eliminated. The competitiveness of the grid could be altered week to week by actual bidding; for a particular abattoir the relativities within the grid would remain fixed through time.

Whilst confidentiality would solve one of the processors' major problems, the producer problems of selling costs and simplicity would still have to be overcome. Selling costs can be minimised if the producer assesses the cattle and submits the objective information to the auction centre himself. This task requires some skill but is not beyond professional cattlemen. Cost can also be kept down and the selling system simplified, if the auction agency does no more than link seller and buyer with a competitive price. The business of organising transport and payment would then be left up to the selling and buying parties. The central auction would pay its way by charging users a 'connect time'.

The simplicity of a producer dealing directly with one abattoir cannot be rivalled but this form of direct selling will neither ensure a competitively determined price nor offer grid pricing. Grid pricing via an electronic auction is likely to have most appeal to cattlemen familiar with market specifications and confident of their ability to deliver livestock which will meet those specifications (as carcasses). Implicit in grid pricing are severe penalties for inferior product. This factor will interact with attitudes towards risk and initially affect popularity of the system. But overall, the receptiveness of producers to an electronic carcass specification auction, provided the procedures are kept simple, is not seen as a barrier to its widespread adoption.

In the meantime, however, grid selling faces opposition from self interests linked to the status quo. Cattle buyers and commission agents, whether they operate through saleyards or direct from paddock to abattoir, see grid selling as competition and therefore a threat to their livelihoods. Their reaction is to work hard to keep in place the traditional selling systems that serve their special interests. Thus, the investment presently being made by the industry in grid selling recognises there is a collective benefit to be had (albeit at the expense of some groups) by introducing new selling systems but these systems will not develop without deliberate intervention. The immediate future of

and selling is therefore partly tied to the level of political patronage it can attract and sustain.

For grid selling to become a permanent and meaningful feature of the Australian cattle market it will have to achieve a critical volume of sales. This (breakthrough) will only happen if large numbers of producers commit themselves to the method - even processors will be forced to make a concomitant commitment. Producer organisations have a role to play in securing the mass commitment needed. Given the social benefits that would stem from reform of the cattle market, the Government too may consider active involvement; its special powers can give a word such as 'co-operation', a whole new meaning. The rationale for this effort will be commercial adoption of a selling system that would allow the Australian cattle industry to compete in the 21st century.

CONCLUDING COMMENTS

This paper has reviewed the background and problems associated with market reforms currently being attempted in the Australian cattle industry. Reference was made to the interdependence required among economic, technical and political factors to bring about meaningful reform.

Regardless of whether reform is introduced by market or political forces, it must first exhibit the hallmarks of economic rationality (at least this is a prerequisite in Australia where primary industries have to be self-reliant before they can be anything else). Consequently, the economic rationality of any politically-induced reforms needs to be carefully and regularly scrutinized to ensure they satisfy various economic and practical tests and have not become merely the playthings of administrators and agri-politicians.

Technical feasibility is also a critical prerequisite of reform. AUS-MEAT and CALM, as they exist today, could not have succeeded with the (relatively poor) computer technology that existed just a few years ago. Our knowledge of market/consumer

preferences and of the carcass itself, falls into a similar category. This knowledge stems from basic and applied research.

At the end of the day, successful market reform requires a careful mix of political and market-driven influences, directed by people who combine administrative, commercial, political and practical common sense with a positive idea of where we are going. No judgement will be made here on whether the New Direction being pursued by meat marketing in this country is still on the right track but hopefully this paper has provided the means by which individuals can, for themselves, form an intelligent opinion.

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