LOT FEEDING OF CATTLE—WHY BOTHER?

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Summary

The history of lot feeding in Australia is briefly outlined, and current trends towards large scale feedlots is examined.

As with feedlots overseas, provision of nutrients is the major economic factor. Information is presented on formulation of rations and on the processing of grains, roughages, concentrates and minor nutrients. This knowledge is essential for sound management of large scale feedlots; in addition, the manager should be a capable cattle buyer, grain buyer and manager in financial and commercial matters. The need for University or College courses to train such managers is emphasized.

The increasing role of big business in lot feeding is outlined, showing the reasons for this upsurge in interest. The basic economics of lot feeding and its profitability relative to input/output prices are discussed.

The time lag in change of attitude of rural leadership, government and semi-government bodies, and the community in general is discussed, along with recommendations for the development of this new, decentralized, capital and labour-intensive industry.

I. INTRODUCTION

Prior to the early 1960s, lot feeding in Australia had a varied, but generally unfortunate, history. During the early 1960s, a resurgence of enthusiasm resulted in the development of a few feedlots in southern Queensland and north-western N.S.W. The dry years experienced from 1965 to 1973 provided the basic motivation for feedlot development.

Up until January, 1970, the following types of intensive feeding had emerged:

(a) A consolidation of feedlots in south east Queensland, operating for 12 months of the year, for specialty Australian markets.

(b) Opportunist, intermittent, low-cost feedlots which took advantage, in the dry years, of large positive margins in the price of stores compared to the price of the finished steer.

(c) "Backstop" feedlots, used as an aid to management.

Here, home bred cattle were fed largely home-grown grain in low-cost feedlots in an effort to guarantee annual turnover, regardless of seasonal shortcomings. This type of feedlot was most common, especially in N.S.W., up until the end of 1972.

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The use of grain self-feeders or paddock troughs to supplement cattle fattening on limited crop and/or pasture.

Until this time, lot feeding was intended to supply the local market; generally steers of 200 to 300 kg liveweight were fed for around 70 to 90 days.

F.J. Walker innovated the large scale feedlot concept in Australia with finance from overseas and local partners. Heavier cattle were fed for between 120 to 180 days to supply high quality, heavily finished beef specifically for the Japanese restaurant trade.

Since January, 1970, and following F.J. Walker's lead, large scale feedlots have developed all over Australia, aiming for this quality Japanese export trade.

It would appear that, on conservative estimate, over 38 feedlots are currently in existence in Australia, each having a one-time capacity in excess of 1,000 head. By early 1974 this figure should exceed 50, with 10 or more having a capacity greater than 5,000 head. It is difficult to generalize about our Australian lot feeding industry, as it is emerging as an industry split by region and size of operation. The small, cheaper feedlots and the large, highly capitalized feedlots must have different approaches to problems of labour usage, capital outlay, priorities in development and processing equipment, and outlets for their final product.

This review will be confined largely to considerations of the management of large feedlots. However, the principles involved are equally valid for the smaller "on-farm" venture and can be applied with suitable allowances for differences in the supply of animals, feed, and manpower.

II. NUTRITIONAL ASPECTS OF LOT FEEDING

All feedlot systems are based on the provision of energy in concentrated forms such as cereal grains. The type of grain chosen depends on location. Feedlots north of the Murrumbidgee Irrigation Area, where two cereal crops can be produced per year, generally use barley and sorghum grain, the latter increasing in importance to the north. South of the Irrigation Area, feedlots tend to be located in areas of winter cropping, with barley as the main grain. The type and availability of the major grain will influence attitudes to grain processing and capital expenditure.

(a) Grain processing

Australian feedlots are well up with the world trend towards high energy rations. Most feedlots provide rations with more than 80% grain. Many are experimenting with nil roughage rations.

American literature provides abundant details of research on the comparative values of the various grain processing methods. Reviews of the literature by Hale, Albin (1971) and Hatfield (1971) cover the research thoroughly, and cite the relevant references.
Their reviews cover the following categories of grain processing:

(i) Dry treatment: dry rolling, dry cracking, ground and pelleted.

(ii) Wet treatments: steam rolling, steam flaking, pressure cooked and flaked, soaked, high moisture grain (immature harvested) and reconstituted high moisture grain.

(iii) Dry heat treatments: Popped

1. hot air expansion method
2. steam pressure popped
3. several infra-red or "micronized" methods
4. gas flame exposure method
5. exploded

Extruded, thermalized and roasted.

When sorghum is used, the various wet treatments (with the exception of soaking) and the dry heat processing treatments appear to give an advantage of nearly 12% in weight gain and/or efficiency of feed utilization over the dry rolled or ground systems.

Response to maize treated similarly appears smaller, at nearly 10% improvement, whilst barley and wheat appear marginal in advantage when treated by these systems. However, the reviewers noted, and my experience agrees, that with barley rations using steam flaking, the palatability of the ration is improved, digestive upsets are lessened, and cattle appear to get "on feed" easier. So there could be a practical case for the treatment of barley.

Obviously, in sorghum areas, large scale Australian feedlots will look to one of the processing systems if they are to achieve reasonable levels of efficiency. Quality control through the attainment of correct bushel weight (e.g. 10-11 kg per bushel for sorghum) after processing is essential if the processed grain is to be utilized effectively by the cattle, and the processing cost justified.

However, further research into varietal differences in sorghum could give us sorghum varieties that will require less processing. There is some indication already that white and waxy sorghums can be more efficiently utilized by cattle.

I believe that smaller lot feeders will continue to use dry processing methods because of their cheaper processing costs, reduced capital outlay, and lower labour demand. Efficiency losses will be accepted. Large scale feedlots will accept the higher cost of processing in an effort to guarantee improvements in efficiency.

(b) Roughages and their processing

Historically, Australians have tended to use hay in feedlot rations. More recently bi-products such as cottonseed hulls and sunflower hulls, and dried citrus pulp have been used when available. There is limited use of poultry litter by feedlots adjacent to poultry areas.

Lucerne hay has caused concern to lot feeders because of associated bloat problems and, except with initial rations, is rarely used at more than 5 to 10% of the ration. Low protein baled roughages such as cereal hays and straws and sorghum stubble have been popular.
because of their relative cheapness. However, baled material is labour demanding and costly to incorporate into rations. It is also dusty, difficult to work with, and expensive on power.

I believe we will see two trends emerge.

(a) More good quality, fertilized, fodder sorghum crops will be grown for feedlot silage. A close relationship should develop between lot feeders and local irrigator suppliers. Their land could well use the solid feedlot effluent. Some grain sorghum residue silage usage will also occur.

(b) More lot feeders with confidence in their feeding ability will provide finishing rations containing nil roughage.

(c) Concentrates, minerals and premix

A large scale feedlot cannot take chances with its ration and will tend to feed a "shotgun" premix containing those minerals and vitamins most likely to be limiting. Although foodstuff analysis will be a valuable tool in determining premix make-up, turnover of grain in a large scale feedlot is so rapid that a particular shipment of grain could be fed out before the results of the analysis are received. Obviously, improved analysis turnover will increase its value as a feedlot aid.

Despite the almost universal use of urea, I believe more vegetable and animal proteins will be used in feedlot rations. I would also like to see animal tallow (or even cottonseed soapstock) and molasses used in rations to help achieve high energy levels and keep down dust. Present prices tend to be too high to justify their place in the ration.

Legal barriers at present prevent the addition of growth stimulants such as resorcylic acid lactone (RAL) to feedlot rations in this country. I would like to see the benefits of such additives available to our feeders.

III, MANAGERIAL ASPECTS OF LOT FEEDING

The availability of relevant overseas research and experience should allow Australian feeders to reduce drastically the time taken to develop the feedlot industry here. The information is there if we want to use it. However, it is difficult to develop managerial "know-how" quickly in the feedlot industry.

A large scale feedlot is more of an industrial complex than a purely rural venture. For instance, in a 5,000 head capacity feedlot turning off 15,000 head per year, initial establishment cost would be between $375,000 and $500,000. The finance needed for feedstuffs and cattle would be approximately $2.25 million per annum, and running costs would approach a further $250,000 annually.

Control of such a venture requires first of all a manager capable in the financial and commercial sense. He should also be a top cattleman, veterinarian, cattle buyer and grain buyer who has a thoroughly sound working knowledge of lot feeding in all its ramifications, and is scientific enough to be up-to-date on industry trends and research.
Few Australians obviously have any formal training of this type. We have plenty of qualified management men, and plenty of sound cattlemen, yet rarely do we find the two in combination, and even more rarely do they have feedlot experience.

If lot feeding is to develop in Australia on a sound basis, without being forced to draw heavily on American personnel, it is essential that University or College courses in Feedlot Management become available to Australians, in Australia. Such courses should be given immediate priority, so that potential managers with a sound basis of feedlot education are made available to the industry as the industry develops.

In the meantime I would like to see Australian feedlots develop the attitude that is so common in North America, of keeping "open house" to other feeders, exchanging ideas, and if possible, helping each other in management training. Furthermore, frequent field days sponsored by bodies such as Departments of Agriculture or tertiary institutions would permit feedlot operators to keep abreast with the latest advances in their industry.

Larger feedlots are generally accepting the need to institute close control over inputs, costs, and performance in the feedlot. This is particularly necessary in custom feedlots where accurate accounting of the ration used by each customer's cattle is essential. Hence truck weighbridges, feeder truck scales, and cattle weighing scales are regarded as necessary equipment. To keep track of all this, a complex set of record sheets, control cards and reporting forms are used.

In a small feedlot, the owner/manager does most of the work with perhaps one man to help. As the feedlot becomes bigger it is necessary to specialize much of the labour. For instance, in a large scale feedlot the general manager becomes preoccupied with decision making, planning, contracts, public relations and customer liaison, purchasing and ordering etc., and does little physical feedlot work. He has under him section managers in the mill, feedyard and office, each responsible for the smooth running of his section.

Hence, in large feedlots, the individual animal concept becomes impractical. Incoming cattle are pre-treated against as many common ailments as possible. Feeding methods aim at delivering to the feed trough a standard, balanced ration, at all times. The more often cattle have to be handled for sickness or otherwise, the greater is the labour involvement per head. Yet supervision must remain intensive enough to detect a sick beast early enough to cure the condition with minimum treatment.

IV. BIG BUSINESS INVOLVEMENT IN LOT FEEDING

The opportunist and backstop feedlots are likely to play a continuing part in the developing feedlot industry, but I feel sure that big business will play an increasing role in this development. This is due to several reasons.

Firstly, establishment cost is high, especially as a 2,000 head feedlot is the minimum size likely to show economies due to scale in establishment cost. Running costs are also high, and the cost of inputs
is high and likely to get higher. Farmer feeders are not geared financially to accept this type of overhead.

Secondly, unlike a big business organization, a farmer-feeder cannot achieve savings through industry integration. If his financial backing is limited, he must rely more on prevailing markets for grain and cattle due to his inability to purchase either commodity ahead in reasonable quantities. His ability to achieve integration on the meat marketing side is limited, and he will tend to have little control of the selling price.

Large scale feedlots are tending to look for integration at one or both ends of the feedlot process. Some have large scale grain properties which can guarantee at least a proportion of their grain needs, whilst others have properties for the purpose of carrying cattle purchased cheaply at lighter weights, or in advance of their immediate needs. This allows them to hold and grow cattle for the feedlot, buying them when available rather than when needed. Hence they tend to buy more advantageously over the year.

Many of the large scale lot feeders are involved in, or allied to, a slaughter house and packing plant. They can select and vacuum pack cuts according to market needs, and ship the selected cuts to their own retail or export outlets. In these cases they are eliminating a progressive number of marketing and handling costs, thus building in an extra profit margin with each saving. Abattoir and packing plant throughput can be guaranteed, levelling out supply and labour needs, with a greater resultant efficiency of production.

I am not saying that there is no place for the farmer or cattleman, but in general his involvement in large scale lot feeding will be either as a supplier of cattle and feed, or as part of a consortium supplying working capital and/or market integration.

V. ECONOMICS OF LOT FEEDING

Lot feeders may make their profit by increasing the value of each kg liveweight of the animal as well as by increasing the liveweight during the period of feeding.

From 1965 to the spring of 1972, lot feeding has generally been an economic proposition. Because of the dry years, positive margins between store and fat prices per liveweight kg have existed. Lot feeders who were capable, tended to make between $6 and $30 net profit per head, depending on their ability to buy cheaply and sell dearly.

A 2c to 6c per kg liveweight margin between store and fat prices was needed to make a profit. The value of the extra weight tended to be less than its cost of production, so a part of the profit from appreciation was eroded because of the cost of production.

From spring, 1972, until September, 1973, the picture has become a shade more confused as values of "store" animals, costs of grains and proteins, and values of the finished animal have all increased dramatically. However, these commodities have tended to retain their relativity.
At September, 1973, prices, a slight positive margin between store and fat cattle remained. Cost of weight gain had risen with increases in ingredient prices but, on average, not as much as the value of the meat. Hence the cost of gain roughly equalled the value of that gain, and in some cases was less. Lot feeders were thus reaping profit from both appreciation and increased meat value.

I forecast that the cost of gain will drop a little as more plentiful supplies of grain become available, and that store cattle will become dearer per pound than the fat cattle. When this happens, our economic make-up in feedlots will parallel that of North American feedlots where profit comes purely from the value of the extra meat.

I strongly doubt that feedlot profits will ever average out over 12 months at better than $12 per head for the straight operator. Integrated operators will obviously make more, but this $12 profit could be the combination of some lots netting a profit of $35 per head, and others netting a loss of $10 per head. Hence one-time feeders, or single lot customers of feedlots, could find themselves in a lottery-like situation, where the only way to make a consistent profit is to have cattle on feed all the time so that the ups and downs of the profit situation can be averaged.

VI. CONCLUSIONS

The national significance of a lot feeding industry has been largely ignored by Government, semi-government and academic sectors of the community. These policy makers have looked rather myopically at lot feeding, rather than noting the national advantages in terms of rural development, decentralization and profit that the industry offers.

It is my firm conviction that we must see a tremendous change in attitude from within these ultra-conservative ranks, for the following reasons:

(a) Over one million cattle will be lot fed in 1975.

(b) They will consume around 1.25 to 1.5 million tonnes of grain, as well as huge quantities of roughages, by-products, protein meals and mineral premix. This must ensure the future of the grain grower. Hence grain marketing boards should be actively encouraging liaison and negotiation based on their long-term relationship with the lot feeding industry, and striving to remove iniquities of freight rates, contractual restrictions, etc.

(c) The future of the cattle breeder is assured, giving him encouragement to expand his breeding numbers to meet the increasing demand for feeder cattle.

(d) Abattoirs and packing plants are developing rapidly with the feedlot industry. These are both labour and capital intensive, and comprise one of the few good, viable decentralized industries. Their value to their surrounding district is tremendous.

(e) The feedlots themselves are capital intensive and relatively labour intensive, capable of enriching their surrounding district. These reasons alone should be enough to gain the
wholehearted backing of the various Departments of Decentralization, Primary Industries, and Agriculture, the Australian Industrial Development Corporation, and the banks.

(f) The world is short of beef and demand is likely to keep prices high. If the consumer is expected to pay high prices we must supply a worthy article - one that is at least juicy and tender. Lot feeding does give a consistently strong guarantee of tenderness and quality in beef. This factor alone will cause an increased consumer demand for the grain-fed article. I predict that within 8 years over 80% of table beef consumed in Australia will come from feedlots.

(g) Every acre of good quality pasture given to a fattening steer is being denied to an extra cow. In terms of the National Gross Product, steers would be more economically placed in feedlots.

(h) The beef industry is no longer the Cinderella industry, so cattle breeders, growers and feeders should unite to give the industry a single voice in its affairs. The formation of a National Cattleman's Association is long overdue.

(i) Similarly, an effective grading system for beef is absolutely essential. Such a system should recognize the increasingly important role of the lot-fed beef.

(j) Government bodies should review their general attitudes, research priorities, and existing laws, a number of which hinder or restrict the lot-feeding industry in its potential to develop.

VII. SELECTED BIBLIOGRAPHY


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