AUSTRALIAN BEEF CATTLE PRODUCTION TO THE YEAR 2000 IN THE WORLD CONTEXT

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Summary

Both human population growth and improved living standards on a global scale, could be expected to result in increased demands for beef in the years to come. At present Australia exports about half the beef produced, but if our population growth and eating habits were to remain at their present level, then unless beef production were increased, Australia would cease to be a beef exporting country within 35 years. Beef production could be boosted by pasture improvement and/or improvement in production efficiency by genetic means. Reasons why the latter course is favoured are discussed. Attention is drawn to the desirability of slowing human population growth and encouraging a more equitable global distribution of animal protein.

I. PROBLEM OF THE UNDERDEVELOPED COUNTRIES

It has been estimated that 1,500 to 2,500 million people in the developing countries are undernourished (Ehrlich and Ehrlich 1970). About 88% of the world's expected population increase of 3,500 million people by the year 2000 will live in these countries, thus further aggravating the situation.

Protein requirements fell short of the supposed optimum of 61 to 64 g/d by some 15 g/d in Nigeria (Adegbola 1973), and in Sri Lanka (Appadurai 1973), while in the poorest countries intake of animal protein may be as low as 5 g/d (Jasiorowski 1973). It should be stressed, however, that revised FAO standards (Abbott 1973) cite protein requirements ranging from 36.6-45.5 g/d. The finding of Leaf (1973) that longevity in Ecuador was associated with a low protein-low calorie diet should be noted, particularly as only 12 g of the daily 35-38 g protein intake was of animal origin. It is possible that some diets which are at present considered deficient could become adequate, if the protein were supplemented with certain essential amino acids; these could be prepared synthetically or microbiologically.

II. POSITION OF THE DEVELOPED COUNTRIES

The United States per capita beef and veal consumption has been predicted to increase from the 1971 value of 140 g/d to 162 in 1980 (Krider 1973), while the human population will also increase. It is unlikely that local U.S. red meat production can keep up with demand (Krider 1973).

Australian exports of beef to Japan, as a percentage of total production, rose from 2.9% in 1967 to 11.2% in 1971/72 (Australian Meat Board 1972). Most of the beef and veal imported into Japan is supplied by Australia. Further substantial increases in exports are likely as the Japanese living standards and demand for animal protein rise. This increase in demand is being accelerated by reduction in fish catches, due to both pollution and overfishing.
A recent survey (Claudian and Serville 1968) showed that the majority of Frenchmen would increase their meat intake if their financial status were improved. Anticipated greater prosperity of the E.E.C. countries is therefore likely to create an additional market for beef.

The daily per capita beef consumption in Australia decreased steadily from 178 g in 1939 to 153 g in 1962, and finally to 110 g in 1971 (Alexander and Carrail1 1973). However, total red meat consumption during the 30 year period only declined from 304 g to 285 g/caput/d. Thus it is the proportion of beef in the meat consumed that has dropped from 56% in 1939 to 38% in 1971. Even so, Australians consumed 0.5 million tonnes of beef and veal (Bureau of Census and Statistics 1972), which represented nearly half the production derived from a population of some 20 million head of beef cattle.

III. FUTURE OUTLOOK

In the foreseeable future it appears certain that there will be a steadily increasing demand for beef in the developed countries due to increases in population and per capita G.N.P. The richer segments of the population in these countries will be able to afford high priced beef and be willing to purchase it within certain limits. Consumption will be as much for its luxury appeal as for its nutritive value. On the other hand, we are faced with a moral issue concerning the rapidly expanding protein-starved population of the underdeveloped nations, and the poor in developed countries (Pearson 1972) who do not have the ability to pay for beef.

It would seem unlikely that developed countries will be able to increase their own beef production without resorting to feed-lotting. It would appear desirable if developed countries were not to embark on such a course, as this would involve utilization of feed grain, which could be more effectively used for human consumption. It is proposed that as a strategy it would perhaps be better for underdeveloped countries to supply beef to developed countries; and to use the money so earned to purchase cheaper, and thus larger, supplies of plant protein from developed countries to feed their starving populations.

There could be difficulties in store for the United States because of her anticipated large fuel import bills. Already the United States has a balance of payments problem, so that the projected eightfold increase in the fuel import bill between now and the year 2000 (McLennan 1973), may set a limit to other possible imports. Similar problems could also be in store for Japan and the E.E.C. countries.

The least that perhaps could be expected of developed countries is for them to reduce, rather than increase, their per capita consumption of meat. This might be of considerable public health value in view of the fact that over-eating is increasingly suspect as a contributor to heart disease. In developed countries such as Australia, this group of diseases, resulting as it does in 30% of all deaths (Bureau of Census and Statistics 1972), represents the single biggest killer.

Morley (1968) pointed out that proteins from domestic animals are unlikely to contribute substantially to the alleviation of hunger. Beef can therefore be expected to be consumed more for its contribution to the quality of life than for sustaining life.

Australia's capacity and ability to produce beef in the light of the anticipated global energy and food crisis must now be examined.
It has been estimated that the upper limit for cattle numbers in Australia under the most favourable conditions possible, could reach the 150 million mark (Springell 1973), assuming sheep raising were abandoned. However, this figure included some 93 million head which could be accommodated only following pasture improvement (Davies and Eyles 1965), and a further 12 million which could possibly be accommodated by energy consuming irrigation of desert regions. A more realistic upper figure for Australia’s cattle numbers, particularly in view of a recent reassessment of suitable land (Begg 1972), might therefore, in the long run, be about 45 million. It is recognized, however, that this value could be exceeded for limited periods.

McClymont (1973) pointed out that agricultural practices requiring large energy inputs may become uneconomic unless viable alternatives to the rapidly depleting stocks of oil are developed. Cultivation, fertilization, pest control, and transport all require energy, and in any case our phosphate deposits are also subject to serious depletion within 25 years (Pacific Islands Year Book 1968). In this context, range-fed animals would be favoured over crop-fed animals or synthetic meats, during the next few decades. Reid (1970) similarly concludes that no concentrates will be available for ruminant consumption by the year 2000, if human population growth continues unchecked. In light of these arguments, Seifert (1973) forecasts an increasing role for cattle in areas unsuitable for urban or other agricultural pursuits, because of climate or topography. Recreational and ecological factors (Ferguson 1973) will of course also need to be taken into account in future land use considerations.

If our future beef supplies were to be restricted to that turned-off unimproved pasture, then because of limited carrying capacities, the production of beef would need to be maximized by careful genetic selection, to ensure that the most desirable traits are improved. In tropical areas high priority would need to be given to reproductive performance and growth rate (Seifert 1973). This would include as components heat and parasite tolerance, as well as increased fertility.

IV. CONCLUSION

A human population of about 25 million would consume all the beef produced in this country now, at the current Australian consumption of 110 g/d. If we assume a future doubling of Australia’s cattle population, together with a halving of our present consumption, then Australian beef could theoretically supply about 60 g protein/d to perhaps 100 million people. If the lower FAO figure of 40 g/d (Abbott 1973) is accepted as the minimal protein requirement, then the beef would extend to perhaps 150 million people.

By the turn of the century, when the human population could be around the 7,000 million mark, we could therefore theoretically supply the total protein needs with beef alone to less than 3% of the world’s population. Naturally, protein needs will be supplied from other sources too, so that a potentially larger percentage of the population could receive submaintenance amounts of beef from Australia.

It is uncertain to what extent other countries can increase their cattle numbers. Furthermore, prospects of India utilizing her 20% share of the world’s cattle for alleviation of the world protein shortage, are probably no better than those for an equitable world protein distribution.
Not only, therefore, are prospects for the developing world in the year 2000 not bright, but if the human population is not stabilized soon, then the position can hardly be expected to improve in the 21st century, particularly as serious shortages of agricultural lands can be anticipated by then (Meadows et al. 1972). The contribution of beef to the overall quality of life can also be expected to diminish.

v. REFERENCES


354