



Australian Nuffield Farming Scholars Association

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**Report of the Study Tour to the
United Kingdom and Europe**

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1992 Queensland Nuffield Farming Scholar**

**SUBJECT:
Feeding Dairy and Beef Cattle
The Role of Silage
Marketing and the Role of Government**

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ACKNOWLEDGEMENT

A Nuffield Scholarship provides a unique opportunity to visit other farming communities. It allows an appreciation of their culture, their farming techniques and the influence of Government policy and regulations on their business.

The whole concept would not be possible without the dedication and involvement of past Nuffield Scholars in the organising of the Scholarships.

I would like to thank my wife Carolyn, the others of my family and my Parents for allowing me to take advantage of the opportunity. The involvement of the staff, especially Gary Wernowski, at home who worked so capably in my absence is appreciated.

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IN THE UNITED KINGDOM

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Fellow Scholars:- Cam McKeller (N.S.W.) Tony Howey and Dennis Munro (New Zealand), Brian Crawford and Michael Doorman (Zimbabwe), Brent Wright (Canada), Marc Henault (France) and Sasha Songal (Russia - observer).

OBJECTIVES

- (1) To study agricultural techniques and feeding systems utilized by European Farmers. Particular emphasis was placed on the feeding of dairy and beef cattle.
- (2) To study the techniques of conserving silage and the methods and strategies employed in feeding it.
- (3) To examine the applicability of these techniques to the feeding of dairy and beef cattle in South East Queensland.
- (4) To increase my knowledge of the marketing and Government influences in this agriculture.
- (5) To gain an appreciation of the history and culture of the countries visited.

UK AND EUROPE

In the company of the 8 scholars, a five week tour of Brussels, France and Northern England provided an overview of Western European agriculture. One of the most important features of this trip was a realisation of the importance of the policies of the EC on agriculture.

The EC has 12 member communities: Belgium, Germany, France, Italy, Luxembourg, Netherlands, Denmark, Ireland, United Kingdom, Greece, Portugal and Spain - and the parliament has 518 members.

- 70% of the EC budgetary expenditure is on agriculture
- Tariffs on exports and a V.A.T of 0.5% paid by all member countries provide some of the revenue.

There are many peculiarities within the EC system and to be a successful farmer a knowledge of the system is as important as the knowledge of agriculture.

These anomalies may become even more apparent as the direction of subsidies changes from guaranteed minimum prices for end products to more direct payment to farmers. In the beef industry a 15% off intervention price will be replaced with breeding cow quota and headage payment aiming to control numbers and thus total production. The subsidies affect all agricultural pursuits. An Accounting firm has estimated that by 1995 a beef breeding farm will have an income comprised of 56% subsidies and 44% receipts from commodity sold.

In the grain industry, there are high subsidies in place to encourage the production of oil seeds. With canola and linseed, these payments are in acre payments. (175 to 200 respectively). The harvested product is sold in the market place with no guarantee price. However, the high price for cereal grain has kept the oilseed at quite attractive levels.

The dairy industry is still in an oversupply and a cut of 1% in Quota is inevitable for a number of years. To assist this situation, the EC has offered to buy existing private cheese factories in order to take this milk out of the system.

There seems little doubt that the level of protection will fall because of a number of factors.

1. Budget Costs
2. Dwindling farmer numbers resulting in a reduction of their political influence.
3. International Pressure

Our visit to Brussels allowed no visualisation of break through in the GATT negotiations. Protection is not likely to stop, but is going to be redirected allowing the farming community to adjust, expand and diversify.

The present situation of oversupply coupled with the expansion of East Germany agriculture, does not create a welcoming prospect for Australian produce seeking markets. It would seem more logical to aim for the close markets of Asia. However, it must be realised that there will be serious competition for these markets and to achieve success, Australian agriculture and marketing will have to match the competition.

FARM VISITS

After the initial tour, it became possible to concentrate very closely on my specific fields of interest.

DAIRY PRODUCTION

It was apparent that the difference in production yields between European and Australian cattle is related to the feed and methods of feeding. In my opinion, the genetic potential of Australian livestock is comparable to that of overseas.

The influence of sub optimal dairy cow nutrition in South East Queensland conditions is evidenced by relatively flat lactation curves. The autumn feed gaps created by the asynchrony of summer and winter pasture species is a major factor in this lower productivity.

The examination of the feeding systems showed a number of key differences between European and Queensland practices.

- (1) Greater emphasis in quality of supplement.
The quality of conserved grass silage was very high. It was of a much higher quality than the grassy lucerne hay commonly used as a supplement in Queensland.

(2) Knowledge of the fodder composition was regarded as very important. Feeds are commonly tested for metabolizable energy, protein, fibre and mineral levels.

(3) Balancing of the ration with specific supplements is possible after this nutrient analysis. This is commonly done by a privately employed nutritionist. Specific diets were evolved for cows in different stages of lactation. Rumen buffers were widely used to minimize digestive upsets.

(4) Least cost ration formulation and optimum ration formulation technology was widely used by these nutritionists. I anticipate that this improved nutrient analysis and use of specialist advice will become more common in Queensland dairying.

(5) The herds are managed on a seasonal basis which allows a greater degree of nutritional control than is possible with Queensland herds which are pasture fed all year round.

(6) Maize is becoming a more important feed source. Work by seed companies in France and UK has resulted in shorter maturing species that suit the short UK growing season. This crop has many advantages. It has the potential to produce a high yielding, palatable, high energy forage. Yields of 10.6t of DM/acre are being achieved.

Since maize silage is high in energy and low in protein, there is a need to balance it with protein feeds. Some farms purchase protein meals and layer them into the silage clamp during silage making.

(7) A number of different feeding systems were used.

(a) Flat rate feeding - with this all cows are fed the same amount. This is probably the most popular system. The simplicity of the system is an advantage and once the yield level has been determined and the level of concentrate adjusted accordingly, it is relatively simple to monitor and operate.

(b) Complete diet feeding - This is a specialised system of feeding with emphasis on correct facilities and reliance on expensive machinery. This is without a doubt the nutritionally correct way to feed dairy cattle. Cheap by-products can be utilised with a considerable saving to the farmer.

(c) Buffer Feeding - This is a system of providing the cow with a varied and adequate supply of quality roughage all year round. This results in lighter

stocking rates, constant milk yield throughout the season, thus higher margins.

(d) Feeding to yield - This system has been successfully used for many years, but requires close monitoring (milk recording) and high levels of management.

BEEF PRODUCTION - UK

The UK beef herd is in the state of change, due to consumer demand and changing direction of subsidies.

The UK beef herd was traditionally sourced from the dairy herds, a large number are still produced this way, but here is an increasing number of calves now being produced from Beef Breeding Cows. This change is for 2 reasons, (1) the Friesian dairy cow is changing in conformation and style towards the USA and Canadian Holstein which does not lend itself towards producing well muscled beef, (2) the consumer demand which is similar to here in Australia, where they are demanding leaner and brighter beef.

The majority of cattle that I saw were from a Friesian dam crossed with European Sires, (Charolais, Simmental, Limousin, Belgian Blue). This cross produced a well muscled steer with a good growth rate, particularly if the dam's breeding was still towards the UK dual purpose Friesian.

The breeding cows found on the more marginal lands in the north of England and especially in Scotland, tended towards Friesian, Simmental or Angus Cross with a Belgian Blue as a terminal Sire.

The confinement of beef cattle during the winter has led to an intensively fed, confined beef machine. It is in this situation where bull beef is proving very popular, especially after the hormone implant ban. The usual feeds for these cattle would include a high concentrate input usually barley with some form of protein supplement. There would be at least 10% fibre in this feed which would normally be straw.

Cattle produced on a silage based ration would be 70 - 80% forage and 20% concentrate and during the finishing stages this 20% would be increased.

In Scotland, there is a large number of cattle silage fed during the winter and finished on well fertilized spring and summer pastures.

All beef cattle destined for slaughter are turned off at 12 - 13 months or 18 - 20 months (they are not housed twice). The importance of this is that the Japanese and Koreans are demanding this young animal from us hence the current 35c/kg carcass difference between 2 year 4 teeth steer to a full mouth 4 year bullock. The carcass description

at the slaughter houses is very similar to ours without electronic aids e.g. fat probe, and there appears to be no interest in the concept of chiller assessment and eye muscle evaluation.

UNITED STATES OF AMERICA

I spent 4 weeks in America and Canada visiting Michigan, Iowa, Nevada, Colorado, Florida and Manitoba in Canada.

This time spent in America was done without the aid of past Nuffield Scholars. This meant that the general day to day running of farms and the "hands on" experience could not be fully appreciated. However, I was able to gain a valuable insight into the American beef and dairy industries through contacts in the Universities, the Extension Service, Australia Meat Holdings and private contacts.

BEEF INDUSTRY

The beef industry in America is very stable due to the huge domestic market and being a net importer of beef. Eighty percent of the market cattle are feed lot finished. This gives the American people and exporters a constant supply of quality young beef.

The Breeding cow herds of America are found on the more marginal country in Nebraska, Wyoming and Colorado. These beef cows produce 80% of the calves for the US beef production, the remainder coming from the dairy herds. This sourcing of calves was the first major difference to the UK beef herds, but is more in line with our industry here in Australia. These calves are weaned at around 250-300kg and sold to feed lots in the north where they are grown and finished. In Michigan I saw several small 500 - 2000 head private lots. The other option is to sell to growing properties in the mid south such as Oklahoma, Texas and Louisiana where they are grown until they reach 450kg. This is the required weight to enter the large feed lots. I visited several feed lots in Colorado which fed up to 100,000 head for 90 to 140 days. The basis of the diets for these cattle is Maize and Barlet and Cotton Seed and Maize Silage or Lucerne Hay plus the relevant minerals and buffers. They aim at achieving 1.7kg weight gain/day.

It was of interest to me to see the cattle in Michigan being fed Maize silage and minerals for growth, with high moisture grain added to the ration for finishing. This achieved growth rates of 1.3kg/day over a period of 240 days. This feed source plus additional grain could be a simple solution to the negative growth rates we experience in winter in south east Queensland from our native pastures. If we are to achieve the desired weight of a 300kg carcass at 2 years of age, the cattle can not afford to have any set backs.

Maize is the main crop grown in America and it is easy to see why when looking into animal feed systems. It is used in several different forms such as - whole grain fed with a maximum of 15% roughage; high moisture grain stored in towers; earlage stored in pits and whole crop silage.

Whole grain feeding was introduced on many of the smaller feed lots after Dr E R Orskov, Rowett Research Institute, discovered that rolling and milling corn did not necessarily improve its digestibility. While visiting Aberdene University, I was fortunate to meet with Dr Orskov.

Another source of feed widely used in feed lots and dairies is lucerne haylage. Lucerne is an excellent source of protein and compliments the maize silage well. Most of the dairy farms and private feed lots I visited (some twenty farms) had lucerne haylage stored side by side with their maize silage.

THE PROCESSING INDUSTRY

My contact with the processing industry was Monforts which is owned by the same parent company as Australian Meat Holdings. The processing industry appeared to be limited to a few major players with throughput far in excess of any processing plant here in Australia. I visited two Monforts packing plants, one in Des Moines, Iowa and the other in Grearly, Colorado. The Grearly plant processed up to 6000 head of adult cattle each day. All carcasses are totally boned out at this plant. Their boning system was quite different to the Australian system allowing for the much higher throughput.

BREEDS OF CATTLE

The dominant breeds of cattle on properties varied from north to south as the climate changes. In the North (Michigan and Iowa) Angus and Hereford are the dominant breeds. However, there is a strong swing to introduce the well muscled lean European breeds. Bos indicus and Bos indicus cross cattle become dominant further south and in the desert areas such as Nevada.

DAIRY CATTLE

Dairy cow production in America and Canada varied from an average of 6000 litres to more than 11000 litres per cow. Production was generally higher in Canada where protective policies have resulted in higher milk prices. In America the industry is largely Deregulated with each State having its own pricing policy. Production seemed to be related to the economics of the industry in each State.

My tour to America and Canada introduced me to a new image of cow comfort. Cows on many of the farms I visited

were shedded. In Manitoba, Canada, buildings were fully enclosed and fitted with fans for temperature in excess of 27 degrees and doors which were closed when temperatures fell below 18 degrees. In Florida which has a similar climate to south east Queensland, all the dairies I visited had some form of cooling system for the cows. Trials conducted by Dr David Beede, Gainesville University, Florida, indicated that cooling the cows in the high humidity could result in a increase of one litre per cow per day.

Dr Beede was one of my main contacts in the dairying industry. His understanding of the dairy industry and its feeding systems provided a valuable insight into the farm management and current changes. An interesting aspect of the industry and one relevant to us is the relocation of dairy farms as a result of urban sprawl. This changing land usage is something that is being realised here in our area of south east Queensland.

The relocation of these dairy units has resulted in the installation of state of the art dairies including climate controlled feed sheds for the cows. Some of these dairies are milking up to 3000 cows, three times per day.

Effluent control is also a major consideration when relocating these dairies. By law all dirty water must be sprayed onto growing crops. This has resulted in the use of winter grasses such as rye grass and corn in summer to utilise the waste water. Previously no crops were grown on these dairies with all feed being bought in. Consequently a new feed source has been developed for these farms. This was of particular interest to me having seen what can be achieved with rye grass silage being fed in conjunction with maize silage in the United Kingdom. On three of the large relocated dairies I visited, it appears that the rye-grass silage will take the place of the bought in lucerne hay. The hay was freighted from Central America up to 888 kilometres away.

SINGAPORE AND MALAYSIA

I had contacts in Singapore and Malaysia with three prominent dairy businessmen. They introduced me to a marketing concept we could well follow in Australia. Market options which may become available should be actively sought and the feasibility of development examined, even if legislation presently precludes current market access. In choosing the market options it is important to be receptive to changing consumer preferences and spending patterns.

CONCLUSION

My impression at the end of 5 months was that the genetic capability of the European, American and Canadian cattle is similar to that in progressive Queensland dairies. The level of production achieved in each country is largely a

matter of economics and the key to governing factors of feed costs and milk price.

On the farms visited there was an increased emphasis on quality of supplement and balancing of rations and the use of specialist advisory staff compared to Queensland farms. I feel this technology can be applied to advantage under our conditions.

The similarities between the European beef industry and our own were more distinct. This is related to the differences in economics, climate and areas available for beef production. The Australian cattle tend to be older when sold and the majority are pasture fattened. Due to increasing pressure from the EC and America on our Asian markets there will be increasing emphasis on the need to produce beef of equal quality to our competitors but there is a need for greater co-operation and focused, cost effective marketing.

Apart from the knowledge gained in the fields of agriculture, farm management and nutrition, I also gained an appreciation of the culture, politics and history of the countries visited. To me, this made the scholarship far more than a study of farming. I have a far greater appreciation of Australia's relative importance in world affairs. Until recently our agricultural trade has been largely immune from world political interference. We are in reality a country with a relatively small domestic demand and hence export orientated. Since our ability to influence world agricultural policy is limited, to be successful our exports must be well marketed, of high quality and dependable supply. If this challenge is accepted I believe our rural industries do have a bright future.

INTRODUCED CHANGES IN FARM MANAGEMENT

Management practices I have put in place as a result of my experience on the Nuffield Scholarship have resulted in milk production increases of 3 to 4 litres per cow per day. The main changes have included the introduction of maize silage, hominy and cotton seed in the cows diet. I am also using a nutritionist to advise on the most efficient use of these supplements within a diet which is still mainly pasture based.

The maize silage was grown on the property. Harvesting the crop for silage rather than taking it onto grain has also allowed double cropping of these areas. These additional winter pastures will be used to finish beef cattle at a younger age.

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