CASE STUDY - MAURITIUS

by

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1. Historical background

Mauritius is a tropical island situated about 900 km east of Madagascar. It covers an area of approximately 787 square miles (460 800 acres - 186 483 ha) out of which 48 percent is under agriculture, mainly sugar cane.

The island was discovered in the early 16th century by Portuguese navigators, and eventually colonized in 1721 by the French. Mauritius remained a French colony until 1810 when it was conquered by the British, and the country finally acceded to independence in 1968.

The population of Mauritius and its dependency, Rodrigues, was estimated in 1983 at rough 1 million inhabitants, with over 65 percent of this population below the age of 30.

The climate is generally warm and humid, with temperatures ranging between 14°C on the high plateau in winter and 30°C on the coast in summer.

2. Farming systems in Mauritius

In Mauritius, both the industrial and the traditional farming systems thrive side by side, with a predominance of industrial farming in the poultry and pig sectors and traditional backyard farming in the ruminant sector.

Mauritius was and still is, to a lesser extent, heavily dependent upon imports for the supply of meat and milk to the population, but since the late 1960s the setting up of an integrated broiler industry has given a new impetus to large scale farming and the country has now been self-sufficient in poultry meat and eggs for a number of years.

There has, on the other hand, been a sharp decrease in the cattle population over the past 15 years: however, sustained efforts by the government to boost local meat and milk production are gradually giving

dividends and the national herd is now being built up.

Statistics relating to poultry and other livestock production, and to imports and local consumption of meat, milk and eggs are given in the tables.

3. Feedstuffs trade in Mauritius

3.1 Import of compound feeds

The rapid development of the poultry sector resulted in an increase in demand for poultry feed which in turn justified the setting up of a well-structured animal feed industry, thus achieving a step further in vertical integration. In 1977, Livestock Feed Ltd (LFL), a privately-owned feedmill with an installed capacity of over 50 000 tons per annum, came into operation and today this factory produces about 50 different rations for all classes and types of livestock.

It must be stressed that the need for an animal feed industry was felt not only on economic grounds, but also from a strategic standpoint. Indeed, the setting up of a feedmill created automatically a market for feed ingredients which could be produced locally with a view to achieving the maximum economic benefit by maximizing the local added value of the end product.

On the other hand, the stock management of imported feed was becoming more and more difficult in view of the large variety of formulae required and delays for delivery and transport; feed was often several months old when used and this affected efficiency because of resulting quality deterioration. The setting up of a feed industry with adequate stocking capacity for raw materials has made it possible, not only to provide for unforeseen circumstances such as cyclones, labour strikes etc., that used to upset the supply, but also to develop feeds adapted to the local conditions and environment, thus achieving better efficiency.

As a consequence, the pattern of supply of compound feeds changed completely in the years 1977-78, as illustrated by A and B below

A. Imports of compound animal feeds in Mauritius
(Metric tons and CIF Value in Rs)

Year	Metric tons	CIF Value (Rs)
1970	7 650.2	4 319 350
1972	11 763.1	7 378 480
1974	17 503 9	19 641 480
1976	20 902.1	27 154 939
1978	11 773.1	16 149 115
1980	3 583.3	11 471 374
1982	1 534.1	6 526 006
1984	492.1	3 600 619

Source: Customs and Excise Annual Reports

B. Animal feed production in Mauritius (metric tons)

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Poultry	641	3 465	16 148	23 895	24 104	23 262	24 487	26 083	26 087
Cattle	2 609	3 493	3 630	3 692	2 934	2 809	2 522	2 717	2 717
Pig	320	503	635	687	706	1 080	1 053	1 401	1 261
Horse	255	248	281	272	302	254	126	131	83
Others	19	18	59	95	97	255	256	321	452
	3 844	7 727	20 753	28 641	28 143	27 660	28 444	30 653	30 600

3.2 Imports of raw materials

The importation of raw materials has of necessity evolved in an opposite direction to the compound feed imports, thus showing a marked increase after 1977. These imports are listed hereunder.

Cereals:

Yellow maize
Oats

Oil cakes:

Soybean meal
Cottonseed cake
Groundnut cake

Meals of animal origin:

Fish meal
Meat meal
Blood meal

Cereal by-products/brans/fibres:

Rice bran
Wheat bran
Lucerne
Maize germ meal

Calcium/phosphorous supplements:

Monocalcium phosphate

Tubers/roots:

Tapioca

Others:

Vitamin/mineral supplements
Additives - including Coccidiostats, Coccidiocides,
Antibiotics, growth promoters, synthetic amino acids, antioxidants
Mould inhibitors, urea, sodium bicarbonate.

As explained above, the immediate objective in setting up a local feed industry was to improve the efficiency of the feed and achieve security of supply. Taking into account that, by far the

largest part of feed produced is for the poultry sector, it is not surprising to note that the raw materials imported are those traditionally used in poultry feeds. It is, however, worth mentioning that part of these raw materials is now produced locally.

3.3 Export of compound feeds

Mauritius is in a very weak situation with regard to export of traditional animal feed. In fact, not only most of the raw materials have still to be imported, and this affects competitiveness with large scale producers, but often it is also difficult to secure adequate shipping facilities to the neighbouring countries. LFL has, however, succeeded in exporting poultry and pig concentrates to the neighbouring islands in 1982-83 but this trade has been temporarily suspended due to lack of transport facilities.

3.4 Export of raw materials

The development of the local feed industry has stimulated the production of substitutes to imported raw materials. The supporting sectors are now developing fast and self-sufficiency has been reached in some cases, for example in the production of limestone powder which is also exported to neighbouring countries.

It is expected that, with the exception of additives and a few raw materials, the feed industry will be supplied with local raw materials to the extent of 80 percent of its requirements within the next 5 to 6 years. This most important aspect is explained in detail in Section 5, which is entitled: "Local raw materials for feed production".

4. The Mauritius feed industry

4.1 Installed capacity

There are at present 3 animal feedmills in Mauritius:

- A Government-owned factory created in the post-war years, whose production goes mainly to the state experimental farms.

- Mauritius Farms Limited, a privately-owned factory created in 1979 and catering almost exclusively for its own broiler operation.

- Livestock Feed Limited (LFL), a privately-owned factory, operational since 1977. This factory is the largest of the island and supplies feeds to Food and Allied Industries Ltd., the largest broiler producer of the island, and to the farming community at large. LFL is the only feedmill on the island equipped with a pellet mill.

It is estimated that the total installed milling capacity at national level, based on one shift per day, is around 65 000 metric tons per annum, out of which about 50 000 metric tons goes to LFL.

It is also worth mentioning that, apart from the output of these feedmills, there is hardly any animal feed per se produced on the island, the practice of home-made feeds being virtually inexistent.

4.2 Actual output

The actual output is well below the installed capacity of the local feedmilling industry which was voluntarily over-sized, in view, on the one hand, of the relatively low investment for additional capacity of a feedmill. This long term view has already proved itself right in view of the unprecedented inflation which resulted, not only from the international recession, but also from two consecutive devaluations of the Mauritian currency.

It must, however, be pointed out that the output achieved is well below that forecast, mainly because of the economic recession which affected the trend in demand for poultry, eggs and pork meat.

The demand for animal feed has stagnated around 31 000 metric tons since 1978 but imported feed has gradually been replaced by local production which today meets the entire requirements.

On the basis of the average of the years 1981 to 1984, the market mix for animal feed is as follows:

Type of feed	Mean yearly output	% share of market
Poultry	24 980	85.1
Cattle	2 691	9.2
Pig	1 199	4.1
Horse	149	0.5
Others	321	1.1
	29 340	

4.3 Management of the animal feed industry

The Government feed factory is part of the assets of the Ministry of Agriculture and is managed by officers within the Ministry.

The other two feedmills are owned by the private sector and operate freely in all respects, except for price control by the Government which has been removed only recently.

4.4 Marketing channels

Each of the three feed factories has its own marketing organization and structure.

The feed from the Government factory goes mainly to the state farms, as mentioned above, and a limited quantity of feed is channelled through the extension service of the Ministry of Agriculture.

Mauritius Farms Ltd., catering mostly for its own needs, has a very limited marketing structure for feed, while LFL covers the whole island and supplies the bulk of the farming community.

It is worth mentioning that, since its conception, the philosophy of LFL was not to disturb the existing marketing structure and the traditional importers were therefore invited, not only to subscribe to the share capital of the Company, but also to handle all the sales and marketing of the Company's products, thus ensuring continuity of their operation and maintaining the traditional distribution network.

4.5 Government policy

Government approach has gradually evolved towards a policy of "laissez-faire" within a mixed economy and one of the effects of this policy has been the removal of Government control over prices and the liberalization of imports. However, Government policy, being also geared towards self-reliance, a certain measure of control over imports is inevitable in order to protect local production from dumping and competition from imported products which are subsidized in their country of origin.

Until very recently, most of the raw materials imported for animal feed were subject to customs duties and import levies, and the feed itself was subject to Sales Tax; this had a very adverse effect on cost of production which could not be passed on to the consumers of the end-products (poultry, eggs, milk, etc.) in view of the elasticity of demand for these products which are themselves exposed to competition from imported substitutes..

Most of these anomalies have now disappeared and, with a few exceptions, the raw materials are now imported free of customs duty and import levy, whereas the Sales Tax on animal feed has been removed.

Pursuing its policy of encouragement to milk and meat production, the Government has also recently introduced incentives, including subsidies to cattle and pig feed, which are definitely receiving the interest of farmers in these sectors.

4.6 Range of feeds now available in Mauritius

At the very start the local feed industry confined its production to types of feed traditionally imported. Gradually, however, not only was the range of feeds offered to farmers enlarged but the formulae for feed production were reviewed and tailor-made for the local conditions. LFL itself produces some 50 different feeds for all classes and types of livestock from chickens to pigs, from horses to fish and prawns, from cattle to cage birds etc.

5. Substitution of imported feeds: local production of raw materials

The Mauritian economy was fully centred on the monoculture of sugar for nearly two centuries and it was only in the 1970s that an impetus was given to the new economic activities, namely tourism and industrialization.

The local sugar industry, which has a worldwide reputation for its efficiency, still forms the basis of the island's economy and occupies most of the agricultural land.

It is therefore difficult to convince the farmers to change from their traditional cultivation, which is sugar cane, to less known crops such as maize, soya etc. It must also be noted that Mauritius is in a cyclonic region, which adds to the difficulty; in fact, due to the resistance of sugar cane to cyclonic conditions, the farmers are even more reluctant to shift to alternative crops.

However, the need for diversification has now been clearly identified and the government is constantly monitoring a vast national food production programme through a high powered committee chaired by the Minister of Agriculture personally, and various incentives, including support prices, are given to stimulate production.

It is encouraging and rewarding to note that the local production of raw materials for the animal feed industry is gradually and steadily increasing; already in 1985 30 percent of the country's maize requirements will be supplied from local production and it is expected that self-sufficiency will be reached within the next 3 to 4 years. (Statistics of local maize production are given in Table 4.) On the other hand, a limestone powder plant has been built which caters entirely for local requirements, while by-products of other industries, including sugar cane molasses, brewer's yeast, pea meal, fish meal etc., also represent valuable raw materials which are being used in the feed formulation.

It is expected that within the next five to six years 80 percent of the raw materials required will be available from local sources and this without taking into account the potential production of protein sources including oil seed cakes.

6. Conclusion

As explained above, the Mauritian animal feed industry in its present state is a fairly young one which has over the years replaced traditional importation of animal feed. It is now gradually fulfilling the second phase of its objectives by substituting local raw materials for imported raw materials, thus achieving complete vertical integration with obvious consequential benefits to the national economy.

Taking into account the relatively low consumption of eggs and poultry meat in Mauritius when compared to other countries (see Table 2), and considering the present trend in the country's economic development, it is expected that the consumption of these products will gradually increase over the coming years, and the feed industry is already prepared to meet the increased demand that will result therefrom.

The acquired technology and experience in a tropical environment represents today a valuable asset to the country and it is expected that an important step forward, abandoning traditional feed formulations will be achieved.

Indeed, as mentioned above, the Mauritius feed industry was, so far, geared essentially towards poultry and pig feed except for a limited quantity of concentrates for cattle. However, taking into account the unlimited availability of sugar cane tops and other by-products, a project based on the commercial utilization of organic waste and sugar cane by-products is being finalized. This project is expected to bring about a fundamental change in the substitution of imported ingredients and a major breakthrough in the milk and beef production sector.

Table 1: Production and sales of chicken meat

	1980	1981	1982	1983	1984
Production (M. tons)	3 714	4 018	3 882	4 285	4 559
Sales (M. tons)	3 361	3 347	4 252	3 894	4 409
Value of sales (Million Rs)	57*	73.8	90.7	91.1	109.2

*Approx

Source: Mauritius Chamber of Agriculture - President's Report

Table 2: Comparative per capita egg and poultry meat consumption (Year 1983)

	Egg (Units)	Poultry meat (Kg)
Israel	407.1	41.4
France	242.8	17.3
USA	223.0	29.8
United Kingdom	204.7	14.8
Mexico	126.2	6.7
South Africa	76.3	12.9
Egypt	49.2	5.1
Mauritius (estimated)	30.0	4.7

Source: Poultry International 1984 (except for Mauritius)

Table 3: Value of imports of meat and meat preparations, milk (Million rupees)

Year	1978	1979	1980	1981	1982	1983	1984
Meat and meat preparations	88.4	104.6	104.7	99.8	119.6	115.8	117.3
Dairy products	89.1	124.8	143.3	184.6	228.1	200.4	169.3

Source: Customs & Excise Annual Reports (adapted)

Table 4: Local maize production (Metric tons)

(Maize dried at 12% moisture)

Year	Production	
1980	732	
1981	1 081	
1982	1 375	
1983	1 195	
1984	3 265	
1985	5 000	(estimated)

Table 5: Mauritius livestock census (1983)

	Small breeders	Large breeders	Livestock breeding stations	TOTAL
Cattle				
Male	4 179	2 150	266	6 595
Female	11 741	6 105	1 044	18 890
TOTAL	15 920	8 255	1 310	25 485
Goats				
Male	25 339	25	113	25 537
Female	46 879	51	229	47 159
TOTAL	72 218	76	342	72 696
Sheep				
Male	211	265	27	503
Female	378	1 094	62	1 534
TOTAL	589	1 359	89	2 037

Source: Mauritius Chamber of Agriculture - President's Report 1983/84.