SOME IMPORTANT PRECONDITIONS FOR THE DEVELOPMENT OF A VIABLE BEEF AND DAIRY INDUSTRY IN THE CARIBBEAN

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INTRODUCTION

In 1982, the food import bill of the English speaking Caribbean was approximately EC$2,220m. Of this amount, the importation of beef and milk products accounted for EC$348m, while feed for livestock accounted for over EC$500m.[1] When these figures are examined within the regional scenario of high unemployment, underutilised or idle lands, worsening balance of payment situations and significant deficiency in dietary protein levels, a case can be made for the utilisation of more local resources in the production of our food needs, particularly those related to beef and dairy production. The proper development of the beef and dairy industry therefore, can serve among other things, to counter the unemployment problem, generate income and help to reduce the balance of payment problem which plagues the Region.

The Sugarcane Feeds Centre (SFC), a project of the Government of Trinidad and Tobago, was initiated in 1976. Since that time, it has been primarily concerned with the utilisation of sugarcane and its by-products and other locally produced feedstuffs in the diets of ruminants. The principal objective of the Centre has been to develop and demonstrate the feasibility of using a sugarcane based feeding system for the production of beef and milk. The Centre now maintains a population of over 750 head of animals. This includes a small ruminant unit with over 100 head, a 40 cow dairy herd, a water buffalo (Bubalus bubalis) and grade Holstein beef fattening section with a population of about 400 head and about 150 heifers which when bred, are returned to the national dairy industry.

The demonstration programme of the Centre brings it in close contact with farmers and local and regional research personnel on a continuous basis. In addition to all this activity, the Centre is exposed to the full forces of the livestock market in which it successfully operates. Utilising several thousand tonnes of locally produced feed ingredients, purchasing about 300 calves, disposing of approximately 275 beef animals, 50 pregnant heifers and 75,000 kg of milk annually, provides the Centre with farmer-related experiences to which the average research and development institution will not be exposed. These experiences have brought about the realisation that much more than lip-service is required for the development of a viable beef and dairy industry in the Caribbean.

The areas focused on in this paper are some which are traditionally under-exposed, but which are believed based on

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[1] Unpublished data. Dept. of Agric. Econ., UWI, St. Augustine.

accumulated experience, to be crucial to the successful development of the beef and dairy industry in the region.

A dairy and beef industry must be financially and economically viable, for its continued success. Financial viability is of primary importance in the short term, if private or public capital participation is expected to be attracted. Economic viability however, can be achieved in the more long term period. In the short term, although the industry may not be economically viable, it should show economic improvements over the existing condition prevailaing in the industry of the territory concerned.

In order to achieve either financial or economic viability, certain preconditions have to be met. In this presentation, the preconditions which are discussed are not necessarily stated in order of importance, nor are they the only important aspects which need to be in place before successful development is achieved.

PRECONDITION I: Selection of a Suitable Production System

The several different production systems which can be employed in the production of beef and milk can be categorised broadly under three major feeding systems: (i) grazing, (ii) feedlotting or zero-grazing, and (iii) a combination of grazing and zero grazing.

Grazing

This system is one in which the animals graze pasture for feed, little or no supplementary feeding being undertaken. Where pastures are improved, it is possible to rear two mature animals/hectare of pasture lands. In the unimproved range pasture system, animals may require several hectares each.

Feedlotting or Zero Grazing

In this system, the animals are not allowed to graze pasture but are kept in pens and all their feed brought to them. The feed utilised may be grass, grains, commercial pre-mixed ration, by-products of the food processing industry, or a combination of any or all of the feeds mentioned. Feeds may be farm grown or purchased.

Grazing/Zero Grazing

Animals on such a system would be kept in pens and have feed brought to them and would be allowed to graze pasture periodically. The system may also have a selected part of the herd being kept on the zero-grazing system (e.g. growing animals being readied for market), while the larger section of the population (e.g. breeding stock) graze pasture.

Where herds are kept commercially for milk production any of the above-mentioned three feeding systems may be employed. The unwanted calves are traditionally sold at about 3 days old to be reared for veal or beef.

Commercial herds kept primarily for beef production are not milked. The calves are allowed to suckle their dams for up to eight or nine months, after which they are weaned and put into one of the above-mentioned feeding systems. Traditionally, large beef herds are kept on a grazing type feeding system.

On the national level, a suitable production system should be one which can operate successfully within the socio-economic and other

environemntal constraints of the society/country. In countries with large arable land area (Europe, Australia and New Zealand), the predominant production systems are those utilising grazing of pasture for milk and beef production. This system is the cheapest but it requires large extensive grazing lands. In the USA a combination of zero-grazing systems are utilised in both beef and milk production. For beef production, specialised beef herds are reared on pasture, with their offspring weaned at about 8-9 months, placed on feedlot and fed grains and forage in a zero-grazing system. Dairy farmers in the USA also use a very high percentage of grain in their rations against the relatively low usage by New Zealand dairy farmers. High grain usage has developed because in the USA there is an abundance of arable land which is sufficient to supply grain for both direct human consumption and use of animal feeds.

The Caribbean region is typified by countries with very small land masses and an even smaller arable land area. With the exception of Belize, Guyana and possibly Jamaica, the limitations of land size and availability, preclude the successful development of a beef and dairy industry based only on extensive pasture production. The growing of grain for livestock feeds would also be competing with the growing of crops for direct human consumption, the latter being more efficient in providing food for the population. The system to be selected then, should be such that it satisfies the land constraint criteria.

PRECONDITON II:

Availability of experienced and/or adequately trained personnel. The successful operation of a beef and dairy industry involves aspects relating to on-farm and off-farm activities. The personnel required must have a sound knowledge of their respective responsibilities. Such knowledge would have been acquired by formal training and/or prior experience.

The operation of a beef and dairy farm as a commercial enterprise requires complex decision-making at the managerial level, such that the timely procurement of farm inputs and their organised utilisation result in a desired level of output which must then be sold. There is therefore the need for competent project managers, knowledgeable in the technical aspects of livestock production, labour and equipment management, and the procurement of farm inputs and the marketing on-farm produced milk or beef. The manager must be supported by adequately trained on-farm labour in order that production goals are met. Other competent support personnel would be required in the areas of animal health and nutrition, agricultural engineering and farm management, to name a few. Skilled personnel would also be required for the marketing of farm input supplies and the related processing subsector - beef and milk.

The utilisation of personnel who are lacking in the knowledge and/or accumulated experience of their respective areas of specialisation will result in inefficiency which would be to the detriment of the farming operations and the industry as a whole. Thus the attainment of satisfactory production levels and profitability will be a more difficult task.

PRECONDITION III: The Existence of a Proper Marketing System

The existence of an efficient marketing system which will facilitate the smooth and timely movement of farm inputs to the farm

and beef and milk products from farm to ultimate consumer is necessary. By thoroughly working out and implementing all aspects, a functional system has to be achieved with all the participants along the chain deriving satisfactory benefits. The movement of market information into and out of the farm must also be facilitated by the marketing system since this is a requirement for sound planning by all the participants in the industry. Much has been said about marketing in the past and there is a general awareness of the complexity of a proper marketing system. Two areas of particular importance to the profitability of beef and to a lesser extent dairy production - as identified through the Centre's work in Trinidad and Tobago, are abattoirs and processing facilities.

(a) Abattoir Facilities: Properly designed and constructed abattoir, strategically located, apart from providing for the sanitary slaughter and disposal of animals, must also provide a facility for the disposal of inedible offal and the removal and temporary storage of hides. Such facilities should allow for the collection and subsequent use of the hides and offal in the manufacture of leather and animal feeds respectively. Where hides and offal cannot be utilised, about 40 per cent of the slaughtered animal goes to waste. It must be remembered that only about 60 per cent of an animal (i.e. the carcass and edible offal) is utilised for human consumption. Facilities which aid in the recovery and utilisaton of more of the carcass would not only assist in increasing the income of the farmer, but would also assist in creating greater linkages within the economy, increasing employment and income while reducing imports, etc.

(b) Processing Facilities: Locally produced beef has traditionally been marketed by butchers, in the fresh undifferentiated state. The involvement of meat processors/packers however, would be beneficial since they would have the ability to:

(i) improve the product by better post slaughter handling
(ii) extend the product life by freezing/chilling
(iii) diversify the product by marketing fresh/frozen beef in special cuts, sausages, patties, etc.

The above benefits would assist the beef industry by stabilising farm income fluctuation by reducing the effects of gluts and scarcity, make beef available to all the population at an affordable price and generally increase the demand for beef and thus the income to be derived from beef production.

The processing of milk would benefit in a similar manner.

PRECONDITION IV: The Development of a Vibrant Food Processing Industry

Apart from being part of the marketing chain of beef and milk production, the food processing industry also has another very important role to play in the development of a successful beef and dairy industry - the provision of by-products for use as animal feeds.

At the Centre, approximately 90 per cent of the feed utilised is locally produced. Of this, between 30-40 per cent is derived from crops grown for use as animal feeds, and the remaining 70-60 per cent is in the form of by-products of the food processing industry (citrus pulp, sorrel waste, coconut meal, molasses, wet brewers' grain, poultry rendered combination meal, rice by-products, wheat middlings etc.). Five years ago, the feeding system was based mainly on corn and soyabean meal, both imported products and the change has been as a

result of a deliberate policy after evaluating the Centre's and the nation's circumstances.

The substitution of local by-product feed ingredients for imported feed ingredients has had the effect of reducing the overall feed cost. This is because the locally available by-product feed ingredients utilised provide the required nutrients at a generally lower cost than the improted ingredients.

The Centre in its operation demonstrates that there can be a beneficial linkage between the food processing industry and the beef and dairy industry and that by-products can be utilised in reminant feeding systems to produce food for human consumption. Such use of by-products reduces the need for land to be utilised specifically for growing animal feed and the need for imports of costly feed ingredients.

There is however, one serious drawback. The supplies of these by-products are generally limited. This is due to two major reasons: (i) the food processing industry is relatively small, and (ii) only in a small way are existing plants geared to utilise locally producted agricultural raw materials. It is recognised that there is a need to change this situation for the food processing industry and the regional economies' sake.

For the beef and dairy industy and the regional economies to mature and provide the potential benefit, there is the need for integration and expansion of the domestic food production and processing capabilities nationally and regionally. Such a move would benefit the whole sector, providing jobs and increasing national and regional income. Without the food processing facilities, increrase in food production would have very little effect on the beef and dairy industry since the waste products would not be available as by-products.

For the full benefits of by-product feeding to be realised however, it has to be utilised in its raw state as much as possible, since the conventional processing methods, although providing for stability and easier handling of product, makes them also more costly. More effort needs to be applied to the development of cheap storage systems, which prolong the life and use of the by-products (similar to the large scale ensilage of sugarcane now done at the Centre to have sugarcane readily available all through the year).

SUMMARY

Based on the operations of the Sugarcane Feeds Centre, especially over the last five years of its operations, a few of the major preconditions for the development of a viable beef and dairy industry in the Caribbean are discussed. These are the choice of relevant production systems, the availability of skilled and trained personnel at all levels, proper marketing facilities and greater emphasis on local food production and agro-processing. It is thought that available resources can be better utilised within territories and between the territories of the region to begin to promote the desired level of growth necessary in the production of meat and milk specifically and the agricultural sector generally.

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