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RESEARCH INTO LIVESTOCK PRODUCTION SYSTEMS IN THE CARIBBEAN

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ABSTRACT

Animal production is an important aspect of the lives and well-being of the Caribbean peoples but is accorded far less than adequate recognition. Technological advances in several areas of animal production have resulted from local research activities working against institutional, physical, financial and human constraints. Agricultural research in general and livestock research in particular enjoys a low priority for funding and staffing and at the moment research activities are at sub-optimal levels.

It is argued that research and development activities in livestock need to be supported through funding and staffing of regional and national research institutions; that while individual disciplines have been the main focus in the past, attention should turn to the building of multidisciplinary teams working together on common problems and utilising modern equipment.

Consolidating the achievements of the twentieth century and developing systems appropriate to the twenty-first century should now be a priority in the area of livestock research in the Caribbean.

INTRODUCTION

Historically, Caribbean agriculture has been dominated by a plantation economy focussing on crop production for export and for local consumption. These activities which utilize most of the more fertile lands have generated employment for a significant percentage of national populations. Technological advances have come through research and have benefited these enterprises to varying degrees - sugar, banana, coconuts, cacao have had organised commodity research programs for decades. Although inadequate in many respects, regional agricultural research has focussed heavily on crop production and while some national programs consider livestock the levels of support leave much to be desired.

In a study of animal production systems in the Eastern Caribbean, Archibald, Singh and Osuji (1981) noted that although animal production is an important part of the lives, well-being and cropping activities of the small farmer, traditionally the animal sector has been regarded as an appendage of crop production or as an independent activity that requires little or no official attention. These researchers were of the opinion that livestock can play a much greater role in farm income and family nutrition if various constraints are removed from animal farming. Some, but not all of these constraints are of a technological nature.

Recognising that research is the engine that drives the wheels of technology, the more advanced countries of the world allocate over 2 per cent of their Gross National Product to agricultural research;

developing countries on the other hand devote only 0.2 to 0.3 per cent (Arnon, 1975). The relatively low priority accorded to agricultural research in general and to livestock research in particular is one sure reason for the disjointed state of affairs in that industry. Thus, with all the untapped resources and potentials that have been identified by scores of experts, the nutritional requirements of the region are largely met through importation. Most of the food imports are products of animal origin which could be produced in the region if policies designed to encourage self-sufficiency are pursued.

SUPPORT FOR RESEARCH AND DEVELOPMENT

Research and development is a necessary and vital link in the technological chain which is needed to improve agricultural production. However, the regional governments in the Caribbean have been tardy in their support of the research and development programme of Caribbean Agricultural Research and Development Institute (CARDI) which is an institute of their own creation. National livestock research programmes are being pursued with less than adequate zeal and/or enthusiasm and are, in most cases, accorded low priority for finance and staffing. In Jamaica, for example, the activity in the livestock industry is minimal at this time and a higherto vibrant programme of livestock research which served the industry well is being de-emphasised.

It is well known that rates of return on investment on various types of agricultural research have been substantial. Decision-makers need to be aware of this fact and researchers themselves should ensure that economic benefits are projected where possible.

Because of the long term nature of most livestock research programmes and especially those involving cattle, it is difficult to obtain financial commitments for the life of the programme and unless the programme generates substantial income and aid its upkeep and maintenance financial problems are likely to be encountered.

It must be admitted that the economic fortunes of the Caribbean place many constraints on scarce resources. Insetting priorities, indigenisation ought to be stressed, research in animal production needs to be emphasised and the potential to convert grasslands, crop residues and waste products into valuable animal protein developed. Continued neglect of research and development in the livestock sector will be to the peril of the region.

CONSTRAINTS TO LIVESTOCK PRODUCTION IN THE CARIBBEAN

The constraints to livestock production in the Caribbean may be grouped into the following categories:

1. institutional
2. physical
3. financial
4. personnel.

Institutional

Policy constraints represent a major bottleneck and policy-makers need to be reminded that one cannot switch off and on a livestock production system as is the case with water, electricity or some chemical processes. The low priority usually given to livestock at the

planning level is not consistent with the great potential which the industry holds. Pricing policies represent a most important constraint and so too is the import policy. Security assumes great significance in the light of increased incidences of predation while marketing is perhaps the single most important constraint.

Physical

The tropical climate, while a great advantage in many respects, is a major constraining factor in terms of high temperature, solar radiation and rainfall. Agriculture is largely a rural based activity. Acceptability, suitability and availability of land for animal production are serious constraints in some areas. Availability of feed is a constraint in some islands and cost of imported feed ingredients places pigs and poultry, in particular, at a serious disadvantage. Although there are few infectious diseases in the region, ecto and endo parasites are prevalent and present a serious constraint to production. Mineral deficiencies are encountered and have to be corrected. Genetic potential of local stock is not well documented and high potential exotic stock are not adapted to local conditions.

Financial

Today, the cost of capital and the amount involved are major deterrents to investment in livestock. The financial returns to an investor are not spectacular. A low priority is given to providing funds for livestock research in the region. Productive agricultural research requires continuous and long term financial support, and timely release of funds for expenditure.

Personnel

Specially trained research scientists are needed to conduct research and each research organization needs to consist of a minimum critical mass of scientists.

Although there has been a wealth of local expertise in livestock production except for a few isolated cases, teams have not been developed and continuity has been lacking.

Livestock researchers in the region need to be confident and assertive. Unfortunately, as a group, they are demoralised and therefore lacking in motivation.

NOTABLE ACHIEVEMENTS

Livestock researchers in the Caribbean played a supporting rather than a lead role in the advances made in the poultry industry during the 1960's and 1970's. The tremendous boom resulted from imported day old chicks or hatching eggs produced through hybridization, imported feeds and medication and technology acquired mainly through training on the North American continent. Significant as these developments are, the almost total reliance on imported inputs render the industry rather vulnerable. Turkeys, ducks and other birds have been reared in the region but have not benefited from any significant local research inputs. Gluts and shortages have characterised the swine industry and cost of production is sensitive to the price of imported feed ingredients.

Small ruminants, sheep and goats in particular, are popular in the region. The breeding of these animals has been aided casually and

infrequently by man. Sparse attention is paid to their nutrition and health, while systems of husbandry have evolved through tradition rather than through the application of research findings. There is no doubt that appropriate development of small ruminants in the Caribbean is desirable. Availability of suitable lands, the fecundity of the species, the existence of adapted stock and the food value of these animals are factors in favour of developing their full potential. Work with sheep includes the Barbados Black Belly, St. Elizabeth and White Virgin Island breeds, while goats are being investigated for both meat and milk production.

In some isolated cases, sustained work has been done with cattle both for beef and milk production but even in these areas, the extent of research into systems of production is quite limited. Some success in animal production in the Caribbean that are worth highlighting are:

- (a) the development of the Jamaica Hope breed of dairy cattle;
- (b) the development of the Jamaica Red Poll breed of beef cattle;
- (c) the development of the Jamaica Brahman breed of beef cattle;
- (d) the development of the Jamaica black breed of beef cattle;
- (e) the development of the Senepol breed of beef cattle;
- (f) the development of the Buffalypso in Trinidad;
- (g) the development of the Barbados Black Belly sheep;
- (h) the Cuban experience in dairy cattle production;
- (i) the use of artificial insemination in cattle.

Through sustained research which began in 1910, the Jamaican cattle breeds were developed. These breeds are adapted to the tropical conditions that prevail in the region and are resistant to tropical animal diseases (Ministry of Agriculture, Jamaica, 1972, 1979, 1983). The Senepol, developed in the Virgin Islands, combined the tropical adaptability of the N'Dama cattle with the productivity of the Red Poll (Merck & Co., 1985) through breeding and selection within the Buffalo population of Trinidad, the Buffalypso has evolved as a productive beef animal (Caroni Ltd., 1971). The tropical wool-less Barbados Black Belly sheep is a prolific breed which is adapted to local conditions and is in great demand (Fitzhugh and Bradford, 1983). The work in Cuba involves the use of Canadian Holsteins on *Bos indicus* cattle and upgrading the progeny which are used for dairy production with beef as a spin-off. The results are very encouraging (Prada, 1978). Artificial insemination as a tool in livestock improvement is being used but needs wider application.

These innovative achievements in technology have created a fund of knowledge and expertise that ought not to be despised, admittedly far more is needed but for the moment activities appear to have plateaued and motivation is required.

A CASE FOR IMPROVED METHODOLOGY IN LIVESTOCK RESEARCH

The traditional method of defining livestock research activities in term of breeding, nutrition, health, husbandry, processing and marketing has yielded results and there is good reason for these disciplines to maintain their identity. Isolated work, within a discipline, however, may be sterile because it may not be compatible within a system. Work in systems involves team work. The work of an interdisciplinary team is geared at synthesising the things that have been studied individually in order to study the whole.

Given the complexity of livestock production systems, it is necessary to define the areas to be researched and have the appropriate specialists on the teams. If, indeed, mathematical models can be used to describe the system, quick calculation methods can be used and here the computer is a valuable asset. This approach in no way replaces quality research, good administrators or creative minds; on the contrary, it requires them.

The building of multidisciplinary teams is one sure way to stimulating interest, ensuring continuity and improving quality of work. The region has been fortunate to have had individuals who were motivated to pursue certain lines of research, at times working against great odds.

Today, we are less than fourteen years away from the year 2000. It is an appropriate time for stocktaking. We must review the methods used in the twentieth century and develop systems appropriate for the 21st century. Already scientists are engaged in bio-technology and genetic engineering. It is necessary to consolidate our achievements and build upon them rather than encouraging stagnation and drift.

REFERENCES

- ARCHIBALD, K., SINGH, R. and P.O. OSUJI (1981): "Animal production system in the Eastern Caribbean". Consultant Report No.7. Trinidad: Caribbean Agricultural Research and Development Institute. 219 pp.
- ARNON, I. (1975): "The planning and programming of agricultural research". Rome: FAO, 122 pp.
- CARONI LIMITED (1971): Birth of the Buffalypso. Trinidad.
- FITZHUGH, H.A. and G.E. BRADFORD (eds.) (1983): Hair Sheep of Western Africa and the Americas - Genetic Resources for the Tropics. A Winrock International Study, 319 pp.
- MERCK & CO. (1985): Cattle Breeds of the World. 234 pp.
- MINISTRY OF AGRICULTURE, JAMAICA, (1972): "The development of the Jamaica Hope breed", Animal Husbandry Bulletin No.2.
- _____. (1979): "The development of the Jamaica Red Poll breed", Animal Husbandry Bulletin No.3.
- _____. (1983): "The development of the Jamaica Brahman breed", Animal Husbandry Bulletin No.4.
- PRADA, N. (1978): "Selection programme for dairy and been production through artificial insemination in Cuba". FAO/SIDA Seminar on Breeding and A.I., Habana, Cuba.