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#### IV. Report on Developing the Region's Grain Legume and Other Protein Sources

This report sets out the major issues raised in the papers and discussions on protein from grain legume sources. (Other sources of protein were not discussed.) The major issues are here classified under:

- (a) inputs;
- (b) agronomic practices;
- (c) environmental factors;
- (d) cost of production;
- (e) marketing, including processing and storage; and
- (f) utilization for three categories of legumes; namely, soya peanuts and other grain legumes.

##### Soyabean

##### Inputs:

1. The necessity for ready availability of seed (planting material), the need for rhizobial inoculation and the difficulties related to storage and maintaining viability of such seed were emphasized.
2. The importance of availability and suitability of land and the need for amelioration of unsuitable land was stressed; the latter need possibly involving high cost inputs such as land clearing, drainage, irrigation and high fertilizer application.
3. There was much discussion on the problem of mechanisation in relation to:
  - (i) the necessity for its use on small and large scale holdings;
  - (ii) the difficulties involved in servicing and maintaining equipment;
  - (iii) the provision of spare parts; and
  - (iv) the need for training in equipment and machinery use.

Agronomic practices: From the discussions there appeared to be no major unsurmountable problems. However, the need for developing suitable cropping systems, especially for small farms, was brought out, particularly in relation to soyabean for direct human consumption.

Environmental factors: The need for suitably adapted varieties with respect to temperature and photoperiod has led to the establishment of three breeding programmes in the Region. The group was conscious of the need to rationalise these programmes.

Cost of production: Interesting comparisons were made of production costs in Guyana, Jamaica and Trinidad and Tobago. Costs were comparable in the first and last (23-27 cents per pound) whereas in Jamaica the cost of production was approximately 33 cents per pound (\$EC). There was also discussion on the relative merits of large scale vs. small scale production and their efforts in costs.

Marketing: A major consideration appeared to be the location of processing plants in relation to location of production and consumption.

There appeared to be no technical difficulties in the shipping of grain or oil and meal so that the considerations would be in the realm of economics and politics. There should be early decision on the question of plant location and, if the decision is already taken, the technicians should be so informed.

There was the important market consideration of the relatively low profit margin in soya, which made its choice by farmers a low priority and therefore necessitates special programmes for increasing regional supplies.

Utilization: There was no problem in utilizing soya for animal feed. However, in the case of direct human consumption, acceptability in the Caribbean could be a crucial factor. Nevertheless, the production of food products consisting partly of soya could solve this problem.

### Peanuts

#### Inputs:

- (1) The questions were raised as to whether the currently available seeds were of the most suitable varieties, and the supply of seed to the industry in areas where rapid expansion was taking place could be a bottleneck.
- (2) Availability of land in the smaller islands appear to be a problem which might be solved by Government intervention.
- (3) The particular problem of false nut, though not a major one might necessitate the high application of fertilizer.

Agronomic practices: There appeared to be no major difficulties in discussing suitable agronomic practices. However, mechanical harvesting might be an area of study to devise suitable small scale machinery locally and to overcome the difficulty of high losses through nuts remaining in the field during mechanical harvesting.

Environmental factors: The need for proper soil conservation measures was stressed.

Production costs: Production cost though relatively high did not seem to constitute a major constraint in view of the high price currently paid for peanuts.

Marketing: Some consideration was given to the establishment of processing facilities in certain areas. It was suggested that though the price was good, the marketing needed improvement.

### Other Legumes

Inputs: Again, the question of the availability of suitable varieties and of seed presented serious limitations to the development of these crops.

Agronomic practices: In the case of red beans - Belize and Jamaica and cow peas (blackeye) in Guyana - relatively large acreages are already in utilization. The same holds for pigeon pea in Trinidad. The need for the development of production systems for large and small scale units and for adaptation of these practices to difficult terrain was emphasized. The overall low yield potential particularly in relation to low prices presented a

problem. In view of this it was felt that large scale operation, whether through cooperatives or other means, which would allow mechanization was desirable. However, the high price paid for vegetable legumes could allow this type of crop to be cultivated profitably even in small units. Pest and disease control was of major importance in some of these legumes.

Environmental factors: Time of planting was important in relation to moisture stress in most of these legumes. Further, dry conditions are essential at harvest times. In the case of pigeon peas photoperiod is also of major importance.

Marketing: In the case of Belize the pricing structure was a major limiting factor to production.

Utilization: Consumer preference for certain types due to seed colour might be a difficulty.

#### General Comments

There seems to be a major need to satisfy the requirements of large volume of production while providing the opportunity for small farmers to participate in any expanded grain legume enterprises. On the suggestion of relative profit margins there was need for information on cost of production, prices, and the development of models for production regulation and pricing. As with all other agricultural enterprises in the Region the problem of land reform cannot be overlooked.

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