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CHANGING PERSPECTIVES IN GUYANA'S AGRICULTURE

by

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Introduction

The thrust of this paper is two-fold. Firstly, it looks at the changes that have taken place in agriculture in Guyana within recent times, and secondly, based upon this analysis, it assesses the possible directions that agricultural development in that country may take. Changes in agriculture over the years have indeed been few, in spite of attempts to break away from the dominance of sugar and rice, and from the heavy concentration of agricultural activity on the coastal belt of the country.

But a country bent on feeding and clothing itself and beset by serious balance of payments and foreign exchange problems, cannot afford to concentrate on two crops, one of which, sugarcane, has what appears to be far from sweet future. The search is, therefore, on for activities that not only will make Guyana more self-sufficient in food and fibre but that will also earn for the country the foreign exchange that it so badly needs, through either the exportation of fresh farm produce or of processed commodities. In addition there is, of course, urgent need to find gainful employment for its inhabitants.

That Guyana has the potential for agricultural development has been asserted by many observers from time to time. The country is vast in relation to the rest of the English-speaking Caribbean, with a hinterland that is for the most part both little explored and sparsely populated.

One wonders, then, why it is that in spite of its much vaunted agricultural potential no significant break-through has yet been made. The answer to this question is complex and is discussed below. Nevertheless, one can state here that the important point is that the agricultural sector, despite the absence of serious natural disasters such as hurricanes and earthquakes, faces firstly, problems of ecology that are expensive to modify, secondly, attitudinal fixations of farmers to modes of life, and thirdly, some institutional influences that are not easy to eradicate. It is, therefore, not just a simple process of putting people on land, and attempts at agricultural development must reject the misconception that agricultural development in Guyana is easy.

Background

Guyana - Its Topography, Soils and Climate:

Guyana, the land of waters, lying just north of the Equator, is the most southerly of the states of the Caribbean Community. Its area is 216,000 square kilometres (83,000 sq. miles) and this makes it by far the largest member state, but its population of about 850,000 is less than that of either Jamaica or Trinidad and Tobago. The country may be divided, roughly, from north to south, into three topographical zones: the flat coastal plain, which

for the most part lies below sea level; the hilly and undulating sand and clay belt, and the high mountain region which falls away to the south west to form the low, gently rolling Rupununi Savannahs.

Generally speaking, the soil types vary with the topography. The soils of the Coastal Plain are mainly heavy coastal silty or pegassy clays, difficult both to drain and to irrigate and often characterised by the low pH and high levels of toxic sodium chloride or sulphides and aluminium. Large areas on the coast, however, also comprise stretches of alluvial brown sand or sandy loam much easier to leach, to work and to drain than the clays. The sand and clay belt, as its name implies, contains thousands of square miles of white or brown sand with riverain silty and pegassy clays along the river levees. The mountain region comprises the bulk of the country and lies near to the coast in the north-west but moves progressively away from the coast from Punta Playa in the west to the Corentyne River in the east. The mountain ranges are old, hard, cristaline formations, reputedly rich in precious minerals, but generally unsuited to large scale agricultural development as much because of the steepness of the slopes as the shallowness of soil. There are, however, scattered among the hills and mountains throughout this mountainous territory, fertile valleys, which, though small in relation to the size of the country, can support considerable agricultural activity. In fact some of the most fertile soils in the country are found in some of these valleys and on some of the upland plateaus.

Guyana experiences a climate that is hot and wet. On the coast and sand and clay belt, the rainfall is bi-modal with the heaviest rains falling during May to August and November to February. It is true to say, however, that heavy showers may be experienced at any time during the year with September and October being the most reliable months for dry spells. Most places in the Mountain Region experience rain all the year round because of convectional currents, but rain in this region is also heaviest during May to August and November to February. The rain-shadow Rupununi Savannahs experience heavy rains for only four months, May to August. For the rest of the year only occasional showers may be expected.

Guyana - Its Historic Agricultural Pattern - Crops:

Cropping in Guyana is dominated by sugarcane and rice. An observer recently asked this question: *Why have sugarcane and rice survived on the coast while other crops have not?* Answering his own question, he asserted that they were the only two crops that could survive in the ecology of flatland and heavy clay soils at once difficult to work, and expensive to drain and irrigate. There may be some truth in the observation though three factors should be noted:

- (a) Even sugarcane is affected by the high water-table that results from the lowness of the coastal soils. The sugarcane grows well but sucrose content in the juice is low and the ratio of the tonnes cane/tonnes sugar is greater than that for any other Caribbean sugar producer. Water control works, including keeping out the Ocean, are very expensive to establish and maintain, and Guyanese sugar is produced at high cost.

- (b) The coastal sand reefs, which total hundreds of square kilometres, seem ideally suited to a wide range of crops. At present, however, only coconuts, some vegetables and cattle occupy these reefs which only need to be empoldered, to keep the sea out, and drained, to leach away heavy concentrations of salt, before they can be made to grow many crops other than rice and sugarcane, especially such crops as peanuts, onions, carrots and sweet potatoes, that thrive on sandy loams.
- (c) In the past, the coastal plain produced most of the plantains, bananas and root crops marketed locally or exported. The high incidence of praedial larceny has forced many coastal farmers to turn to sugarcane or, where possible, to rice.

Consequently, most provision crops such as plantains, cassava, eddoes and yams are grown mainly on the poorly drained soils in riverain areas. Expansion is restricted by lack of adequate water control, and farmers in some districts may lose one crop of ground provisions in three, depending on the rainfall pattern and especially on the intensity.

Guyana can be considered adequately supplied by a wide range of green vegetables, though since a lot of the cultivation is rain fed, there are seasonal flows. Despite the accent placed on grain legume production in recent years, production has not yet increased significantly. Corn production has not yet nearly regained the heights it reached in 1975, (see Table 1) and in fact production, concentrated mainly in riverain areas, still depends largely on the slash-and-burn system, rather than on systematic cropping, except for attempts by the CARICOM Project. Peanuts grow well on the brown sands of the north-west and the Intermediate Savannas, but production remains low.

Tree crops such as citrus, avocados and coffee are grown mainly in riverain districts such as the Pomeroon and Moruca and, to a lesser extent, along the Demerara and Berbice Rivers. These crops, especially avocados and citrus, also thrive along the hills slopes of the North-West Region, but there has been no significant increase in production over the years. The pineapple fruit that promised to do well on the white sands has, for many reasons, not lived up to expectations and the problem with this crop will be discussed below.

Guyana - Its Historic Agricultural Patterns - Livestock:

The significant breakthrough made by Guyana in livestock production over the last 30 years has been in the area of poultry production, with both meat and eggs being produced in large enough quantities to satisfy local demand. However, there is still total dependence on imported hatching eggs and protein concentrates for feed.

Cattle rearing has declined considerably because it has been adversely affected on the coast by competition from increasing urbanisation, by the expansion of rice and, to a lesser extent, sugarcane, as well as by rustling. Serious efforts since 1971 to stimulate beef cattle production have met with little success, while milk production has not reached anything near to the quantities that the country needs. It has been established that grass can grow well under the prevailing humid tropical conditions, but costs of pasture improvement are high, and scientific cattle rearing is not generally practised.

Over the years swine production has been affected by periods of glut when farmers suffer because they have fat hogs which they cannot dispose of profitably. The industry has been impeded mainly by high feed costs arising out of the need to import both protein concentrates and energy feeds and by generally inefficient management.

Goat and sheep rearing have never been important. Infestation from internal parasites and foot rot, especially affecting sheep grown on the wet lands of the coast, have been the major problems facing sheep and goat rearers. However, trials in the International Savannahs by the Ministry of Agriculture and by Guymine indicate that it is possible to make greater use of the drier areas for small stock development.

The Trend Towards Solving the Problems Leading to Self-sufficiency

The Need for Self-sufficiency:

On the one hand, Guyana's known oil deposits have yet to be evaluated and exploited, and on the other hand, the country is without the silver beaches and clear blue seas that entice tourists. In the result, therefore, Guyana must rely on agriculture to overcome its balance of payments and foreign exchange problems, to provide employment for its growing number of unemployed and to create a base for industrialisation beginning with agro-based industries. Thus it cannot afford to import the quantities of food it once did. In 1964, the import of foods comprised more than 30% of total imports. In 1981, it was just around 10%. Bold steps had been taken between the years to ban food items either that the country could do without or for which there were locally-produced alternatives. Farmers were challenged to produce the foods to fill the gap created by the bans. The historic review has indicated that the country is still nowhere near a state of self-sufficiency. It is necessary to remove the obstacles to production and to provide incentives to farmers. As will be noted in the discussion below, it is much easier to write about removing obstacles than actually to remove them.

The Land:

Guyana is an empty country with most of the land still owned by the State. Unfortunately, much land either still needs very expensive water control works, or lies in hinterland districts without reliable or cheap transportation facilities for either inputs or produce. At the same time there are several thousand hectares of accessible lands, reasonably well drained, which lie unused. This wasted resource should soon be more fully utilised as the recently emphasised 'Land-to-the-Tiller' policy is implemented. Under this policy, the Government will be in a position to distribute all lands, state or privately owned, not now usefully occupied, to persons who can use them beneficially. At the same time, three major water control schemes on the coast are being undertaken - the Mahaica-Mahaicony-Abary Agricultural Development Authority (MMA-ADA), the Tapakuma Irrigation Project (TIP), and the Black Bush Polder Extension Project (BBPEP).

A problem which has seriously affected cropping, especially since the increased accent on mechanisation, has been the inaccessibility of crop lands during the rainy seasons. Farm roads in Guyana are for the most part fair weather dams churned into almost impassable or completely impassable quagmires

during the height of the rainy season. This condition is worsened by the indiscriminate traversing by tractors and combine harvesters. The heavy toll on machines using or attempting to use such dams is surpassed in cost to the country's economy by hundreds of hectares of rice and sugarcane that remain unharvested each year simply because the machines either could not reach the fields or having reached the fields could not pull the harvested crops to the mills. The need for all-weather farm roads has been recognised, but building and maintaining reasonably good roads on poorly drained clays are extremely expensive exercises.

Settlement programmes have had only limited success in Guyana and even such present 'successes' like Black Bush Polder had a very slow start. The high cost of water control and other infrastructural works, makes it imperative that every family settled on such land should make maximum use of the land and optimal use of the resources put at its disposal. Writing in 1963, some three years after the start of the Black Bush Polder Settlement Scheme, Rene Dumont, an FAO agricultural development specialist on pages 19 to 20 of his *Report to the Government of British Guiana on Planning Agricultural Development* pointed out that:

"Mr. Kenneth Berrill, in his interesting 'Report on the British Guyana Development Programme 1960-64', page 33, notes; 'The cost per family settled, both in acreage (17 acres) and in money (about \$2,500.00) is very high ...' what would Mr. Berrill say, after criticizing a cost of \$2,500.00 if he were to learn that the total cost to the state treasury for installing a family in the Black Bush Polder amounted to \$17,000.00?"

"It is interesting to observe that this figure of \$17,000.00 is also currently reached in Israel. But for that price the settler receives pressure irrigation facilities operating by sprinkling, complete drainage, a house, a planted orchard, and working capital. His annual gross output very quickly reaches a rate much higher than the \$5,000.00 per year necessary to begin making the operation economically profitable to the country."

Dumont had previously shown that in contrast to the Israeli family, the average family settled at Black Bush Polder in the early years of the settlement programme earned less than one-quarter of the level which should have been reached as quickly as possible if the expenditure on the project was to be recovered.

Dumont noted obvious deficiencies in the efforts at optimising land use such as the reluctance of farmers really to farm the land (number of days actually spent on the rice plots according to Dumont totalled 38 per year; over reliance on mechanisation on 15 acre plots, areas much too small for the effective use of machines; waste of water; untimely application of fertilizers; lack of weed control. These observations deserve close consideration now especially by those who will be responsible for allocating lands and their use in the very expensive new land development schemes. Poor developing countries like Guyana will only drift backwards if they spend hundreds of millions of dollars to develop land and then because of lack of forward planning and of inputs, inadequate extension services, unreliable transportation facilities and generally ineffective land use allocations, the production levels do not even nearly reach the minimum necessary to make the projects pay for

the operating expenses much less for the development loans which have to be repaid with interest in scarce foreign currency.

Agricultural development in hinterland districts faces constraints other than those associated with draining the land or working it in the wet season. The problems here range from toxicity and droughtiness in the dry season and the need for some system of irrigation, if farming is not to become a mere gamble, to inadequate transportation facilities, lack of back-up services of any kind, shortage of labour for those periods when additional labour may be required and, as will be pointed out later, inadequate knowledge of what agricultural activities are best suited to the existing ecological conditions.

Dumont indicated that land allocation must be suited to the technique of operation to be used:

"If the purpose is the completely mechanised cultivation of rice, it seems illogical to distribute cultivation plots of 15 acres per family, since they are much too small for this technique.

If on the other hand, the aim is to create small family farms, only a gradually mechanised farming system would be worthwhile."

Unfortunately, it will be difficult if not impossible to turn back the clock over two decades. One of the problems that has plagued the local rice industry is mechanisation too far and too fast. This point will be developed later.

The Black Bush Polder Rice Farmer was allocated six hectares (15 acres) of rice land plus one hectare (2 1/2 acres) homestead plot for a house and for planting other crops. Some ten years later settlers on the very poor white sands along the Soesdyke - Linden Highway were expected to earn a livelihood from four hectares (10 acre) plots while remigrants were encouraged to leave their jobs in the United Kingdom to go broke on eight hectares (20 acres) of similarly poor soils. When a very senior member of the present government was told that some of the plots on which people were asked to settle were veritable swamps he tensely remarked: *"You do not put people on land to have them damned forever."* It is hoped that this precept, thrown out in earnest by the then Minister of Agriculture will be taken into more serious account when new lands are distributed. The size, location and physical condition of allocated plots must give the plot holder a fair chance of making a decent living from the full-time occupation of farming. It should be noted that more and more attention is now being given to the level of the farm family's net income and this new perspective is both encouraging and deserving of encouragement.

The Farmers:

If lands are to be repossessed, and if the large new projects are to be fully developed, then there must be a corp of enlightened farmers to put on the land. The most important link in the agricultural chain is indeed the farmer, who, according to Mosher:

"takes control of this situation, learning to use the products of plant and animal life, modifying plants and animals and the nature of the soil to serve his purposes better."

The better the job of *modifying*, the more productive are his efforts. Unfortunately, agricultural production in Guyana outside of sugarcane and to some extent rice cultivation and poultry rearing, applies only low levels of technology, and recently the Ministry of Agriculture has moved to use the limited extension staff more effectively by emphasising group rather than individual methods of introducing farmers to new technology.

Mobilising farmers into groups is not easy. The mistake was made in the early days of the Co-operative Republic to push the co-operative idea from above - too hard. Many persons joined the co-op band-wagon, ignorant of the principles of co-operation and co-operativism, and unmindful of their responsibility towards self-help and mutual-help. Further, groups on many occasions, lacked any feeling of cohesion or common bond or sense of community, in as much as many of them comprised a motley assortment of individuals who were unaware of each other's existence before the groups were established and who were drawn from districts which were physically several miles apart. Moreover, the accent in the early days was placed upon the *collective* type of group activity, a type which was doomed to failure given the conflicting interests and motivating forces that impelled the members to join the groups. Some of these first abortive essays at establishing agricultural groups promoted at times by those who wanted to give the impression that they were *with the revolution* or even at worst by those who saw, through co-operatives, splendid opportunities of exploiting their fellow comrades, have unfortunately earned for agricultural co-operatives in the Co-operative Republic a bad name in spite of such outstanding successes as the Greater Georgetown Fishermen's Co-operative Society Ltd., the Wauna Peanut Growers' Marketing Society, several sugarcane marketing groups and agricultural thrift and credit societies. The new direction in Guyana is to concentrate on encouraging spontaneous group action through a greater sense of community, engendered through the operation of the Local Democratic Organs and the Regional System.

It is clear in any case, that a new breed of farmers will be required to take the place of the old if the considerable break-through in agriculture that is needed in the country is to be initiated and sustained. Far too often farming has been looked upon as mere drudgery, as an occupation of last resort for the ne'er-do-well and the retrenched. The success of the poultry rearers referred to earlier, was due, no doubt, to their entrepreneurship and their willingness to adapt advanced technology to their productive effort. In his address to this year's graduands of the Guyana School of Agriculture, the Vice President responsible for Agriculture intimated that the Certificate Course in Agriculture at the School would be reoriented to produce farmers rather than technicians for the Ministry of Agriculture and other agencies involved in agricultural development. This constituted official recognition of the fact that farming involves not just brawn, but also brain, and in fact restated the original intention of the School's Certificate Programme.

Para-military organisations like the Guyana National Service should also be used more effectively to produce the calibre of farmers needed by Guyana today. Such institutions can expose the cadres of young people whom they train, to improved agricultural technology and practices; but they must, of course, set for themselves the highest standards of technological perfection. Another word of caution here. Farming must be seen by these young people as an interesting and gainful occupation leading to a rewarding career. They will not benefit from their exposure if the farm and farm chores are used as means of punishment through unreasonable military directives imposed by army-

style drill sergeants who cannot distinguish one end of a hog from the other.

There has been a welcome re-emphasis in recent years on agricultural education at the levels of both the primary and secondary schools. This programme needs to be strengthened. A former chief of what was then called the programme of agricultural education in primary schools insisted that while the school farm at the primary level was not in itself aimed at producing farmers, it had to be at least three things:

1. A laboratory through which students learn to know, understand and appreciate living things -- the plants and animals for which they cared.
2. -A shining example of successful farming to which the whole community could point, and of which pupils, teachers and the community itself could be proud. A badly run school farm that produces little except hard work and weeds is worse than useless since it does more harm than good in its attempt to engender an appreciation of the importance of a scientific approach to agriculture.
3. In the light of 2 above, it must be a bridge between the school and the community. Practices learnt at school will be taken home by the pupils, and parents will develop the habit of visiting the school farm on open days and school exhibitions, not only to see what their children have achieved during the year but also to ask questions, to pick up new ideas or to purchase new varieties of plants or even breeds of livestock introduced by the School.

In 1962, the Rural Youth Programme introduced in 1956 was scrapped, and it has not yet been replaced even though in the mid '70s the Youth Division introduced what is called the FCH or Feed, Clothe and House clubs. This latter programme lacked both the thrust and indeed the full official support that was afforded the former programme, and soon petered out.

The 1956-62 Farm Youth Programme was based on the American type 4-H and the English Young Farmers Programmes, and placed a strong emphasis on leadership training. Its weakness lay in the fact that informal farm programmes which formed the pivot of the movement were not supported in Guyana as they were in the USA or Britain, by good farm practices carried on at home by the members' parents, which participants in the movement could copy. A revival of the Rural Youth Programme is strongly recommended, but any such programme should be more closely tailored to fit the needs of a developing country like Guyana which urgently wants to improve farm technology.

In 1956 the Farm Youth Programme and the Programme of Agricultural Education in Primary Schools began as parallel but separate programmes headed by different officers and run by different staffs. The two movements were later put under the general extension service, but the Farm Youth Programme remained separately co-ordinated from the Georgetown Head Office until 1962, when the movement was completely abandoned. A new Farm Youth Programme, especially at this time of economic stringency, will operate best if it is linked to the present schools programme but with greater emphasis on supervised home projects and on-farm training. The leadership training aspect that was one of the strong features of the Old Farm Youth Programme should also be an important part of any new programme.

Strategies for Accelerating Agricultural Development

In his recently published book (1981), *Three Ways to Spur Agricultural Growth*, A.F. Mosher prescribes the following:

- (a) *Commodity Production Programme* which he describes as that combination of activities aimed at making use of opportunities for agricultural growth arising as a result of:

"a research programmes that has developed improved technologies: one or more improved crop varieties, improved pest control or disease control measures, new cultivation practices or some combination of these."

- (b) *Farming - District Projects* the objective of which is:

"to exploit fully the total agricultural resources of a geographic area, while developing methods that could feasibly be applied much more widely."

Mosher points out the distinction between the Commodity Production Programmes and the Farming - District Projects:

"Unlike a commodity production programme, a farming - district project does not limit its attention to just one commodity. Instead, it seeks to increase total crop and livestock production in the area, no matter how few or how many crop or livestock enterprises may be involved. It must, therefore, be concerned with all farming systems in the district and experiment with improving them and sometimes with introducing new ones."

- (c) *Improving the Efficiency of Regular Agricultural Agencies* to deal, more effectively than the transient Commodity Production Programmes or the Farming - District Projects can:

"with a number of factors bearing on agricultural growth that require decisions and actions at the national level ensuring adequate wholesale supplies of fertilizers and other farm inputs, determining policies regarding farm input and product prices, adopting tax policies, executing land reform programmes, and allocating public investment funds among agricultural and other sectors of the economy, etc."

Mosher warns that without this third activity -- improving the efficiency of regular agricultural agencies --

"a government is condemned to pursuing important objectives with inappropriate policies, cumbersome procedures, and inefficient personnel. And until the performance of agricultural agencies is improved, resources will be squandered and agricultural growth will be retarded."

Commodity Production Programmes are not new to Guyana. In fact the two major crops, sugarcane and rice, have been successful so far mainly because they have been pushed as special commodities emphasizing the four core activities named by Mosher:

- (a) On-farm testing
- (b) Technical assistance to farmers by production specialists.
- (c) Adaptive research, and
- (d) Integrated research and extension.

Other Commodity Production Programmes were, for example, the cabbage programme of the '60s and much later, in the '70s, the Berbice River Corn Project, and the Grain-Legume Programme started in 1977. None of these programmes, with the possible exception of cabbage, reached the level or standard of production that was projected. All of them lacked one or more of Mosher's Core activities. In fact, it may be truer to say that all of them with the exception of cabbage, lacked (a), (c) and (d). Even the technical assistance by production specialists depended on a single *specialist* like *Cabbage Benn* or the *Berbice River Corn Pusher* or the *Grain-Legume Coordinator*. The success of the cabbage programme though limited, was due mainly to the intensive nature of the crop and the fact that on-farm testing and result demonstrations using only one or two farmers at a time, were the main methods used to introduce the programme. The limitation lay in the closure of the programme too early. Farmers learned to grow cabbages, but they have remained satisfied with low yields. The cabbage is a notoriously heavy feeder but crop rotation is hardly ever practised. Pest control would also have been more successful if the beneficial effects of a rotation system had been demonstrated.

The on-going (1979-1982) Food Crop Production and Marketing Programme cannot be described as a *Commodity Production Programme* in the sense of the term as used by Mosher. It was aimed at encouraging small farmers to produce traditional food crops except sugarcane, rice, coffee and bananas and concentrated on providing credit to the farmers and on the institutional strengthening of the credit, extension and marketing agencies involved in the programme. The credit part of the programme has so far not been successful for several reasons, among which is the unavailability of inputs to farmers as well as inadequate marketing arrangements. But on any analysis, this would have been difficult to introduce for, firstly, the target farmers do not normally apply chemical inputs; secondly, they do not like to borrow in order to produce traditional provision crops, and thirdly, the supportive on-farm testing, adaptive research, integrated research, extension and technical assistance to farmers' programmes which would have induced the farmers to adopt new technologies and to use credit for this purpose, were lacking.

The designers of the proposed second Food Crop Programme, as well as of the Agricultural Commodities Programme, both of which were prepared earlier this year, have drawn important lessons from the defects of previous programmes. In both programmes, for instance, it has been decided that there should be concentration on the few selected commodities which can best help the country ease itself as quickly as possible out of its present economic straits.

The Agricultural Commodities Programmes identified the following 14 commodities for accelerated production:

(a) *Crops:*

- | | |
|------------------|------------------|
| 1. Grain legumes | 6. Palm oil |
| 2. Peanuts | 7. Chilli pepper |
| 3. Corn | 8. Pineapple |
| 4. Sorghum | 9. Carambola |
| 5. Coconut | |

(b) *Livestock:*

- | | |
|-----------------|---------|
| 1. Milk | 4. Beef |
| 2. Poultry meat | 5. Pork |
| 3. Table eggs | |

The designers of the Second Food Crop Programme have accentuated more or less the same crops, except that they have included industrial cassava, grouped onions with chilli peppers as condiments, excluded the oil palm, and included citrus as the main tree crop instead of carambola. What is now required is to get the programmes moving, by ensuring that a proper programme along lines suggested by Mosher is worked out for each commodity.

One of the problems facing production in Guyana is the shortage and sometimes ineffective use of technical personnel, despite the fact that never in the history of the country have so many persons at all levels, been trained in agriculture as were trained over the past ten years. It is true that some of those sent on scholarships especially to North America have decided to swap their birthrights for the pottage which is so readily available in the developed countries in which they were trained, rather than return home to face the prospects of penury and privations, forgetful of the fact that the rationale behind their being sent abroad was that they might return and help to relieve the poverty and scarcity at home. Nevertheless, many have returned home and now serve the country. More careful planning to receive the newly trained personnel as well as better placement and deployment will ensure that the best use is made of the skills acquired. More frustrations can be created through bad handling by supervisors of potentially good young material than by the relatively low salaries, and poor working conditions that are inevitable in a non-oil producing country depending on three export commodities, the two most important of which face difficult overseas marketing situations.

Some decision-makers in third world countries do not like the word *research*. For them research means years and years before the results of a research programme can bear fruit. What they need is immediate action to relieve the acute economic problems currently facing their citizens. The research components comprising on-farm testing, adaptive research, integrated research and extension, do not normally include the kind of basic research that would take years to discover that what was researched was not feasible after all. Most Guyanese decision-makers today assert that there is no point in trying to re-invent the wheel. The problem remains, however, that adequate use is not made of available technology. One good farmer in a district may consistently attain good yields, but the mechanism is not set up to help his neighbours to reach nearly the same levels.

In *The Income and Production of Guyana Rural Farm Households* - an analysis based on the 1979 Guyana Rural Farm Household Survey by Robert R. Nathan Associates Inc., it was pointed out that:

"Further research into the factors allowing some farms to produce higher net incomes is a starting point for program development to improve the lot of Guyanese farmers and the rural sector in general."

What is badly needed now is, that the improvement should take place as quickly as possible.

At present Guyana seems to have what can prove to be a powerful accelerator of the success of farming -- district projects. The country has been divided into ten regions, and the Regional Democratic Organs are responsible for the full development of their respective regions. In other words, the emphasis on community development is placed more firmly in the hands of those who stand most to benefit from such development -- the people who live in the communities. Under the system, agricultural extension falls directly under the control of the Regional Councils, with the Extension Division of the Ministry of Agriculture supplying technical guidance to the Regions. All good horses have first to be saddled - broken before they can be of much use, and it is too early to say how well the new system will actually live up to expectations. Early mistakes will be made, and indeed, some of these have already been made. But with this form of institutional arrangement, needs at the district level can better be identified and solutions found for their satisfaction. Closer coordination of the agencies at the district level can also be achieved.

One of the disappointments of the existing IDB Food Crop Production and Marketing Programme referred to earlier, has been its failure in the first two years to develop the very close relationships among the agencies involved in the programme so necessary if the programme is to succeed. Recent steps have been taken to promote a closer team spirit, and the planners of the proposed second food crop programme have sought to build more cohesion into the whole programme by stressing the team approach. Each agency must be appreciative of its role as a member of the team and of the role of the other members.

The suggested new approach aims at tying together Mosher's three ways to spur agricultural growth. While the Commodity Production Programmes will be pushed from the National Level through the Ministry of Agriculture, each district of each region will select, with the help of adaptive research, those activities which seem best suited to the ecological conditions. The supportive agencies co-ordinated both at the regional and district levels will then work as a team to see the programme achieve the desired targets and goals.

The relatively disappointing performance of co-operatives in the agricultural sector has already been alluded to.

A few weeks ago a National Cooperative Union was launched as a tertiary body drawing its members from the secondary cooperative federations of the primary societies. Meanwhile, the Ministry for Cooperative Development has, like the agricultural extension services, been regionalised giving at once more responsibility and more clout to the regional councils to effect co-operative development at the district level. It is hoped that farmers will see the wisdom of solving cooperatively such serious problems that now face them as marketing, transportation, internal water control systems, the provision and use of access dams and the acquisition and distribution of machinery, tools and farm inputs. It will be some considerable time before the farmers will be able to solve all or even most of these problems, but a start can be made with the most pressing problem or the strongest felt need in each district. The training programme in cooperatives at the district level will have, of course, to be stepped up and the members' appreciation of communal responsibility must be heightened through meaningful and rewarding community programmes.

Specific Agricultural Activities

It will be useful to close a paper like this with a closer if a quick look at some of the more important agricultural activities already mentioned as well as at a few areas affecting agricultural development that have not been given much attention thus far, namely praedial larceny, credit, marketing and processing.

The Commodities:

Table 2 shows the volume and value of seven important imported food items during the period 1978-81. Earlier this year, the Government imposed restrictions on the importation of edible oil and split peas, while lack of foreign exchange has forced restrictions on the importation of wheat and milk and of corn and protein concentrates for the production of livestock feed. With the reduced volume of feed available to farmers, the hatcheries have also cut back on the importation of hatching eggs. Peanuts are imported only from CARICOM Member States. Many commodities had previously been banned, and the choice of commodities in the Agricultural Commodities Programme, as well as of the crops in the proposed second Food Crop Programme, has been instructed by the need to fill the Guyanese pots and stomachs with home-grown food.

Sugar:

A visiting consultant once said that if there was a country not suited to the production of sugar it was Guyana. He was, of course, referring to problems alluded to earlier in this paper -- the problems associated with a bimodal rainfall pattern which in more ways than one affects both the sucrose content and the ability to burn, cut and transport the canes to the mills. Costs of production are rising while the price of sugar, facing competition from beet sugar and high fructose sweeteners, will continue to be unreliable unless some new uses are found for sugar and for its by-products. Some by-products are quite promising, for example, gasohol.

Gasohol is not new really. During the last world war owners of motor vehicles in Guyana mixed *alkalin*, a form of power alcohol, with gasoline in order to keep their vehicles on the roads. Unfortunately, the war ended, things returned to normal and now some 35 years later most Guyanese do not even know that power alcohol was in fact once in use in our normal gasoline engines. But apart from alcohol, and the country seems to be doing well in the area of beverage alcohol, there are greater uses to which the other by-products can and should be put. Rene Dumont felt that cattle-fattening, using mainly either cane tops or bagasse and molasses, could profitably be undertaken; (the work in Cuba on molasses and urea had not yet been publicised). It is now known that bagasse can be used for making commodities like paper and particle-board. But in Guyana it is used mainly as fuel for the boilers of sugar factories. Can it not be put to a use that will make it more valuable?

Rice:

Many Guyanese will be surprised by the comment made by Robert R. Nathan Associates in *The Income and Production of Guyana Rural Farm Households*:

"Rice farming, on the average, appeared to provide net returns which were among the lowest of returns among farm enterprises."

But the observation is true, and increasing the efficiency of rice production must be given greater attention. Rice occupies more *hectarage* (acreage) than sugarcane and uses up more foreign exchange for each hectare of crop under cultivation. Rice, as indicated earlier, is highly mechanised and is a high user of foreign exchange. The fields are ploughed by imported tractors using imported fuel, lubricants and spare parts. Irrigation and drainage are effected by pumping. The crop is sprayed with imported chemicals through imported spraying equipment using imported fuel if motorized. Imported fertilizers are applied and the harvest is garnered by expensive imported combine harvesters. If such a crop is to contribute adequately to the common weal then it must be very efficient. Farmers should set their sights at 5,000 kilograms per hectare or rather better than the present average of just about 3,000 kilograms. In addition, greater and more effective use should be made of rice by-products.

Grain Legumes:

The cultivation of this crop was pushed in earnest from 1977 when targets like 4,500 tonnes (10,000,000 lb.) per year were set. The variety of blackeye peas grown extensively in Guyana is California No. 5, producing average yields of around 800 kilograms per hectare. This can be considered a low yield, but the main production problem lies in the fact that one day of rainfall during the harvesting period can completely ruin or severely reduce the quantity and quality of grains reaped. Farmers caught once or twice in this way can hardly be expected to gamble with such a crop again. The result has been that production on any significant scale has been left mainly to the Guyana Rice Board, the Other Crops Division of the Guyana Sugar Corporation and the Guyana National Service, all three of which are Government-run enterprises. The case of mung and urid is similar, except that here the problem is aggravated by the use of varieties that are very low-yielding and that do not permit mechanical harvesting because the varieties shatter easily. Work done with the International Institute for Co-operation on Agriculture (IICA) has indicated a few other cowpea varieties that are at once higher yielding, less finicky about getting wet and, at least in one case, more determinate than blackeye. It will be necessary to mount a strong commodity production programme as soon as the present kinks, such as availability of seed, on-farm testing and farmer acceptance of the new varieties, are ironed out. No serious consumer objection is anticipated.

Peanuts:

This crop can be grown successfully in several areas in Guyana. The main limitations are variety testing for suitability to different ecological conditions, seed build-up and the procurement of soil amendments and fertilizers such as gypsum and limestone. At present, yields are low (about 800 kg. per ha.), but in 1974 farmers in the Wauna area were averaging 1500 kg per ha. There seems to be no reason why yields of up to 2000 kg. per ha. cannot be achieved, if Mosher's quartet of core activities is consistently applied.

Corn, Maize and Sorghum:

These three crops are taken together not only because they belong to the same graminaceae family, but also because of their importance as ingredients for animal feed production. Corn has been imported in large quantities

(Table 2) while attempts at stimulating local production have not been very successful (Table 1). Local farmers are assured of a price of around \$0.70 per kilogram, but yields are low (about 800 kilograms per hectare among the better farmers) mainly because the old slash-and-burn method still prevails. GUYSUCO is the only agency that uses commercial methods of production but mechanisation on the heavy coastal soils has not always been practicable during rains. Sorghum was tried with promising results at Kibilibiri in 1969 and the early 1970s, but smut disease and the subsequent closure of the project for other reasons brought an end to commercial production. Generally it is easier and less costly to produce than corn, and does not attract praedial larcenists as readily. It seems to be the fodder grain crop of the future. Corn will be needed in larger quantities as human food, and greater attention should be paid to increasing efficiency.

Industrial Cassava:

Production of this crop has so far failed to attract a good response from farmers who argue that the price paid (\$0.24 per kg.) is too low. The truth is that farmers close to the Georgetown markets can get much higher prices for cassava to be used as fresh food and naturally, do not take cassava to the mills set up for the purpose of processing roots mainly into flour for mixing with wheaten flour. Paradoxically but logically, our temporary inability to import wheat has aggravated the situation considerably by forcing up the demand and the price of cassava, the latter sometimes reaching the level of \$4.00 per kilogram. But cassava grows well and easily on many types of soils in Guyana and yields of 40 tonnes per hectare ought not to be uncommon, given the use of higher yielding varieties and good husbandry practices under suitable ecological conditions. Apart from its use for human food, the potential for cassava as an energy food for livestock has been established in Europe and other parts of the world, and there seems to be no reason why some cassava should not be grown exclusively for this purpose in Guyana. To this end a local entrepreneur plans to set up such a production centre in the Intermediate Savannahs up the Berbice River.

Edible Oil:

The importation of edible oil has been a drain on foreign exchange for some time now, and hopes that the CARICOM corn and soyabean project in the Intermediate Savannah would have solved the problem having so far proven vain. Since 1970 proposals were made to set up a solvent extraction plant that would have the ability to extract oil from rice bran, and it seems that we shall soon see such a plant in operation, provided that the problem of controlling the fatty acids is solved.

Recently a drive has been started to rehabilitate our coconut groves which normally are for the most part given little attention by their owners. Better water control and the control of weeds and pests, the regular application of fertilizers and more systematic collection of nuts are together expected to increase considerably the production of nuts, and consequently oil, from existing groves. In the meantime, the development of the oil palm under GUYSUCO, so promising in the early '70s is now again being given extra attention. There are known indigenous but wild oil producing seed plants and an attempt is now being made to extract oil from this source. The problem here lies in the remoteness of the areas in which these wild seeds are found, the difficulty in collecting them and whether the price offered for the nuts can induce nut collectors to make the collections on the one hand and the

processors to process the oil profitably on the other.

Curry Powder:

West Indians on the whole like strongly flavoured foods. The manufacture of curry powder has developed in Guyana over the years, at first relying mainly on imported raw materials. The chilli peppers and turmeric have always grown well in this country, but in the case of peppers, some manufacturers complained that the local varieties were not suitable and insisted that only the imported varieties could be used. It has been discovered that the varieties previously imported can also be grown here successfully and a pepper production programme has been launched. Onions were grown successfully in Guyana for more than 50 years but the production was never seriously pursued no doubt because the commodity could have been imported rather cheaply. The ban on the importation of onions has stimulated the production of eschallots more than onions, but when a proper commodity production programme can be launched there seems to be little doubt that onion production is going to become much more efficient, popular and rewarding than it now is. Turmeric processing, rather than production in the fields, has been our problem. More exposure and experience will help to overcome this problem in time.

Fruit Production:

The development of fruit production in Guyana has been disappointing. Recently, carambola production was encouraged and the response was so good that excess production had to be dumped until a local soft drink bottling firm began using the concentrated syrup to produce a completely local carbonated soft drink. The history of pineapple production has not been happy even though pineapples thrive on many different soil types in Guyana. Perhaps because it is known to be a crop that can do well, its production has been taken for granted by the Ministry of Agriculture. By contrast, the Fomento Programme in Puerto Rico had in the '60s paid great attention to pineapple production from planting to weed control to the inducement of fruiting out of season and ultimately to processing. The same local indifference has affected the development of the citrus industry. Development has not been systematically encouraged and today the manufacture of even Guyana *Limacol* has to rely on imported lime oil. There seems to be no reason either why avocados cannot become more important, or pawpaws for that matter.

Livestock:

Guyana has been self-sufficient in poultry, meat, eggs, pork and pork products for a number of years. The country has on the other hand, been relatively short of beef, and the local self-sufficiency in this commodity has been more apparent than real, keeping the present equilibrium price at around \$12.00 per kilogram. Fresh milk has never been adequate and the estimated cost of importing milk this year using the quantities imported in 1981 was more than G\$30,000,000. Naturally also, dairy products such as cheese and butter have had to be imported and have been a constant drain on foreign exchange. The problems facing the livestock industry today are discussed below.

Poultry:

The accent here has been to import hatching eggs and produce baby chicks for sale to local poultry rearers. Two local producers held franchises from

Hi-Line and Shaver, respectively, to operate breeder farms here in order to produce hatching eggs.

In the first case, the Hi-Line franchise was withdrawn because the local producer failed to maintain the high standards demanded by the principals. In the second case the response by local producers to purchasing their baby chicks from the Shaver franchise holder was not encouraging. Since then there have been discussions about setting up broiler breeding centres, but so far nothing tangible has materialised. Another area discussed since the mid-'60s has been the setting up of a central poultry processing plant. Nothing had so far been done even though the advantages are obvious. The manufacture of feeds for poultry and swine has relied heavily on imported raw materials. The CARICOM corn-soya programme did not produce the protein concentrates expected, the fish processing plant produces no fish meal, the central poultry processing plant has not been set up and there is little recovery of blood meal, bone meal or other slaughterhouse wastes to put into animal feeds. A more determined effort will have to be made to use what is now thrown away, and the current economic stringency will hopefully force us to take positive steps to make fuller use of these important wasted resources, steps so necessary if our poultry and swine industries are to survive.

Swine:

Swine production has fluctuated over the years, experiencing not surprisingly its cycles of good years and bad. Production has been traditionally in the hands of small producers characterised by poor housing, low weaned-litter rates, high boar-sow ratios and poor feed conversion rates. An attempt was made in 1974 to alleviate some of the problems by setting up a cooperative swine-breeding enterprise at Hopetown-Belair on the west coast of Berbice, from which members could purchase stock for fattening. The idea was to place the more difficult part of swine production, that is, breeding, under good management supervised by the Ministry of Agriculture, encourage small farmers in the area to use their limited resources better by concentrating on fattening rather than breeding, and so, generally to improve the efficiency of the industry. But the Hopetown-Belair experiment did not work. Members found it difficult to breakaway from the traditional habit of breeding their own hogs. In 1979 the Alliance Pig and Poultry Enterprise using parents and grandparents from the British firm, Walls, was set up as the first really million dollar swine breeding enterprise in Guyana. GUYMINE, the bauxite company, also keeps hogs on a large scale and the two enterprises can satisfy the present local needs for top quality breeding stock. Guyana should be the main supplier of pork products to the Eastern Caribbean, but efficiency in swine production and in processing will have to improve.

Cattle:

In 1971 the Livestock Development Project was launched with a view to promoting through supervised credit, properly run commercial ranches especially on the coast. The project did not success, however, mainly because the cooperative principle as well as on-ranch development was not attractive to coastal beef cattle rearers for whom such infra-structural developments as improved pastures, fencing and water control facilities were strange terms and ones for which finances should not be expended. Their rejection was understandable, exposed as they were to generations of free grazing on open playing fields, access dams and abandoned or even cropped rice fields. The project was salvaged to some extent, by the formation of the Livestock Development Company -- a private company in which the Government of Guyana

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holds the majority of shares. The company concentrated at first on beef production but later started the Moblissa Dairy Project using imported Holstein cattle which unfortunately did not perform on the hot sandy pastures of Moblissa. The decision to *harden-up* the animals by using hardier breeds and creole crosses should produce the type of animal better suited to the environment. The experience of the Bel Air Dairy which was, before the establishment of Moblissa, the only large commercial dairy enterprise in the country, has pointed to the wisdom of upgrading dairy cattle using imported semen on creole stock. Rene Dumont suggested that the keeping of dairy cattle by farmers at Black Bush Polder should be encouraged. The truth is that no satisfactory answer has yet been found to the dairy problem.

It had been hoped that Moblissa could be replicated, but it now seems clear that the country is not yet ready for the original Moblissa model based on a large well run company-farm surrounded by small individual farms drawing technical support from the larger unit. The Livestock Development Company has grown very rapidly over its short life, and it will take some time before it can overcome its own problems. The pre-occupation of farmers who produce both rice and cattle with rice during the two planting and harvesting sessions each year, may make them unreliable suppliers of milk. It may be necessary to create special dairy/vegetable combinations but care must be taken in the selection of the farmers and the locations.

Beef production seems to be responding somewhat to the better prices paid for beef arising from the short supply. The high incidence of rustling across the border to Brazil and the increase in the cost of air freight to the coast have more than outbreaks of foot-and-mouth disease, affected Rupununi cattle producers who formerly provided rather less than 25% of the beef marketed in Guyana. There seems to be no real answer to rustling when prices across the border are high and there are lots of unpoliced points at which stolen cattle can cross the rivers to the other side. More attention should be given to beef cattle production in the Intermediate Savannahs where the only substantial ranch is the one now run by the Livestock Development Company at Ebini.

In 1976 water buffaloes were introduced in the Livestock Development Company's ranches at Ebini and Mara and at the Government Research Station at Mon Repos. The performance at Mon Repos and Mara is good; but they have not done well at Ebini. Buffalo production should be given greater attention than at present.

Marketing, Credit and Processing and Praedial Larceny have All Affected Agricultural Development

The Guyana Marketing Corporation (GMC) never really achieved the aim of stimulating agricultural production. A recent report on the institution has suggested that the GMC should be phased out as a retailer of all types of farm produce, since it is only used as a dump for surplus farm produce that the hucksters do not buy. Rather, the report felt, it should be the catalyst to stimulate, through carefully fixed incentive prices and an assured market, the production of a few selected commodities identified under such programmes as the Commodities Programme, and it should investigate overseas markets for local farm produce, feed the available information to the productive sector and market the produce as it comes on stream.

The Guyana Cooperative Agricultural and Industrial Development Bank (GAIBANK) has expanded considerably since it was established nine years ago, It provides credit at a relatively low rate of interest to farmers, especially small farmers, and to industry, including, of course, agri-based industry. The GAIBANK, however, needs to work within the framework of an agricultural development programme which does not exist at present. Credit should never be given in a vacuum and the strengthening of the extension services referred to earlier should obviate the need for GAIBANK's staff to operate as regular extension personnel. One other point that should be noted is that credit is expensive, especially small farmer credit, and there has been a wrong idea expressed in some quarters that GAIBANK's lending rates are too high. The truth is that they may not be high enough to ensure that the institution does not continue to carry a large subvention from the Central Government. Too cheap credit also may not encourage among farmers the productive efficiency for which we must continue to strive.

Processing outside of sugar, rice, pig and pig products has been on a small scale mainly because the projects were either planned on too small a scale, or, where they were planned on a large scale, as in the case of the cassava mills, they were not supported by production in the field. It is felt that processing should be part of a production package on the lines of the Puerto Rican Fomento Program referred to earlier.

One of the factors seriously affecting production, especially of food crops on the coast is praedial larceny. Many provision farmers have turned to sugarcane farming because they lose a lot of the other food crops which they grow. Many bunches of plantains are reaped before they attain full size because the farmers fear that the longer they keep the bunches on the plants the greater are the chances of loss. The matter will have to be solved by the communities themselves. Possibly each district or community must discover for itself and implement measures and systems that will actually work against the thieves.

Conclusion

Guyana is the only country in the CARICOM group that is a net exporter of food. True, the food we export comprises mainly sugar and rice, but not many territories in the group could have taken the bold but necessary step to ban the importation of several food items which we were brought up to think we *needed* without starving to death. Our present economic stringency has further underscored how far we still are from feeding ourselves, much less our Caribbean sister states. We have been faced with serious shortages of what have, through several generations, been basic imported food items - wheaten flour and milk and milk products.

At a conference of this very Caribbean Agro-Economic Society held in Georgetown, Guyana, just over seven years ago we discussed at length the importance to those of us who do not produce wheat, of the use of composite flours. Guyana is so far, the only country in the group that has seriously attempted, albeit not anywhere near to the 10% scale originally planned, to combine a home-grown ingredient, cassava flour, and to a much less extent rice flour, with imported wheaten flour.

Things are going to get a lot rougher for those of us who do not produce oil. Even our beautiful silver beaches and cool blue waters may not attract as many tourists' dollars as formerly, simply because the tourists' are also affected by the present world situation and do not have as many dollars to bring. In Guyana, we know that we have to strive to feed ourselves or starve,

and we had signalled our intention to feed, clothe and house ourselves by 1976 before we knew about the oil crisis.

Although this paper has concentrated on the production of food rather than fibre, it cannot close without reference to the fact that some of the cotton used by our textile mill is grown by the Guyana National Service at Kimbia even though here again we have a long way to go before we can be even nearly self-sufficient.

In our quest for self-sufficiency we have, inevitably, made some wrong decisions. A few years ago, for example, we diverted time and resources to the growing of white potatoes. Perhaps we should have concentrated on improving our production of yams which we were already growing and which are neither less tasty, versatile nor nutritious than white potatoes. It is easy to be wise after the fact and some decisions are not at all simple. Should we, for another example, have concentrated our limited local resources on the improvement of existing infrastructure such as farm roads or of our supportive services such as extension and marketing before embarking on expensive new schemes such as the Mahaica-Mahaicony-Abary Project financed by loans from abroad?

There will always be more problems than successful solutions, but many questions will remain unresolved if there is not much closer coordination among the agencies involved in agriculture. This paper indicates recent trends towards better integration and proposals for coordination. But these must not remain proposals. Mosher remarks that:

"the performance of agricultural agencies can frequently be improved by encouraging new styles of administration - styles that rely more on leadership and less on authority."

This question of leadership also points to the leadership role of the Ministry of Agriculture. In Guyana we have a situation in which important agencies engaged in agricultural development are not directly under the control of the Minister of Agriculture who is responsible ultimately for agricultural policy and agricultural development but does not control the agencies which are to ensure that policy decisions are translated into effective programmes. Closer coordination would be practically achieved with more direct control.

Mosher's introduction to his book so frequently referred to in this paper takes the form of a letter from an outgoing Minister of Agriculture to his successor. The letter is too long to be quoted in full but what he says about appropriate organisational style is reflected in some of what we are trying to do in Guyana:

"Much of the way in which our government is organised is a legacy of our colonial past. During the colonial period, the primary concerns were maintaining law and order, collecting revenues, and promoting the production of certain commodities for export to the metropolitan country. A governmental structure appropriate to those objectives was devised and installed.

"Since gaining independence we have made certain changes, usually copying organisational patterns from agriculturally more advanced countries where the geographic structure of agriculture is already well developed. As a result we do not now have a pattern of

organisation within the Ministry of Agriculture that is well designed for our most important current task - promoting agricultural growth.

"Moreover, day-to-day governmental operations still reflect our colonial history. In that period a pattern of operations was devised that made it possible for a few foreign top administrators to make all policy decisions, with an intricate set of rules and procedures to keep day-to-day operations in line with those decisions. We now need a pattern of governmental operations geared to a rapidly changing society and providing for the efficient operation of a wide variety of developmental activities, including a productive set of agricultural support activities. We need styles of administration and operating procedures that emphasize creative innovation rather than maintaining the status quo.

"We have tried to by-pass the inadequacies of operational procedures by setting up a number of independent agencies outside the regular agencies of the Ministry. But the time has come when we should thoroughly revise the organisation and operations of our regular agencies in ways that will increase their capacity to meet our current needs."

Table 1: Guyana: Crop, Livestock and Fishery Production, 1972-1981

Commodity	Unit (Million)	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
<i>Crop:</i>											
Sugar	Ton*	315	266	341	300	332	242	325	298	270	301
Rice	Ton*	94	97	164	186	102	211	182	142	166	163
Coconut	Nut	28.5	27.1	26.4	31.3	32.4	25.2	25.0	35.3	42.2	43.0
Citrus	lb.	23	24	22	-	22.5	26.0	24.0	22.8	23.5	24.0
Ground provision	"	44.6	46.8	49.0	51.5	47.1	54.0	62.1	40.0	40.0	40.0
Plantain	"	27.8	24.8	22.0	32.5	30.0	43.0	47.0	25.0	25.0	25.0
Banana	"	10.6	10.4	10.2	10.0	11.0	11.0	14.3	11.0	11.0	11.0
Corn	"	6.2	6.6	6.0	12.8	9.5	7.2	4.6	3.7	3.7	1.5
Blackeye peas	"	0.4	0.5	1.8	2.2	1.6	2.4	3.2	2.9	2.9	1.8
Pineapple	"	4.5	4.9	3.0	3.0	3.9	4.2	3.6	4.0	4.1	4.1
Tomato	"	3.5	3.6	3.7	3.7	4.1	5.5	6.3	6.0	6.2	6.5
Peanut	"	n.a.	0.2	0.3	0.4	0.6	1.0	1.2	1.5	1.5	1.5
Cabbage	"	1.6	1.7	2.0	2.5	2.6	3.1	2.0	1.8	1.9	2.0
<i>Livestock:</i>											
Beef	"	9.6	9.6	8.3	8.5	8.8	6.9	4.1	3.9	3.6	4.6
Pork	"	3.4	3.1	2.5	3.5	4.9	5.1	3.7	4.0	3.1	3.0
Poultry meat	"	10.8	12.5	12.5	17.0	20.9	16.3	22.9	23.3	23.0	23.0
Table egg	No.	n.a.	28.2	34.9	36.5	56.3	52.9	32.5	52.0	55.9	51.0
<i>Fishery:</i>											
Fish	lb.	27.0	29.0	36.0	35.0	40.0	41.0	32.0	43.2	39.5	41.1
Shrimp	"	11.6	12.0	11.5	9.6	11.5	7.0	7.0	8.0	8.1	6.7

Notes: *The unit for Tons is thousand.
n.a. denotes not available

Source: Ministry of Agriculture

Table 2: Imports of Selected Commodities, Guyana, 1978-1981

Commodities	Unit	1978		1979		1980		Jan. - Nov. 1981	
		Quantity	Value (\$'000)	Quantity	Value (\$'000)	Quantity	Value (\$'000)	Quantity	Value (\$'000)
Corn	'000 t	882.7	431.0	5,813.1	4,172.4	13.7	8,588.2	2.8	3,974.5
Soya bean oil	kg.	5,000.1	9,780.7	6,727.7	10,899.2	1,633.5	3,389.2	1,726.0	6,535.5
Milk	'000 t	15,620.6	29,420.4	11,312.3	26,234.9	7,885.8	25,669.3	4,383.6	28,824.4
Other edible oil	kl.	243.4	497.3	216.1	672.1	109.9	228.5	176.5	475.0
Split peas	'000 t	2,822.4	4,031.9	2,800.0	3,499.8	3,161.2	3,866.9	3,609.0	6,516.4
Hatching eggs	'000 doz.	879.8	4,456.8	974.6	5,535.2	913.8	5,452.3	810.0	6,750.5
Peanut	'000 t	283.5	491.0	112.2	371.1	20.6	68.0	58.0	168.6
Meat	'000 t	41,084.2	17,452.1	47,391.8	24,110.9	5,721.8	22,575.0	18,947.0	30,310.7

- Notes: (i) Milk - includes powdered, evaporated, sweetened, etc.
(ii) Edible oil - includes groundnut oil and crude refined copra oil.
(iii) Wheat - includes meslin.

Source: Revised Draft - Agricultural Commodities Programme, Ministry of Agriculture.

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Editor's Note: This paper was received without detailed footnotes. The editor apologises for any inconvenience caused.