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CARIBBEAN FOOD CROPS SOCIETY

PROCEEDINGS



**ELEVENTH ANNUAL
MEETING**

AGRICULTURE AND THE GOVERNMENT AGRICULTURAL
DEVELOPMENT PROGRAMME LECTURE —
CAVE HILL CAMPUS

by

E. C. PILGRIM

The Role of Agriculture In Our Economy

Ever since the 17th century, agriculture has been of paramount importance to the economy of Barbados. The early Spanish explorers found no gold, silver or other precious metals or stones. Neither did the subsequent English explorers and settlers. From the early settlements, therefore, export agriculture in the form of cotton and tobacco became the mainstay of the economy; and, with the absence of bauxite or oil, remains the mainstay of our economy to this day. Tourism and light industry have grown considerably in importance over the past decade. However, the contribution of agriculture to the economy is still of paramount importance, especially when the very substantial contribution of the agricultural sub-sector which produces food for local consumption is added to the sub-sector of export agriculture.

2. In 1971, agriculture provided 13% of the Gross Domestic Product of Barbados, utilized 78% of its land resources, employed between 17 and 20% of the working population and accounted for 80% of the total domestic export. Further, when one considers the much higher proportion of the agriculture dollar which remains in Barbados when compared with the dollar from tourism or industry, and the considerably higher income

generating power of the agricultural dollar when compared with the dollar from tourism or industry, one can realize that agriculture is still of pre-eminent importance in our economy.

The Role of Sugar

For over 200 years, sugar has been, and still remains the most important agricultural crop in Barbados. There are many good reasons why this has been so. Barbados although a tropical island is very different in many respects from the mountainous island with deep soils and high rainfall which lie to the west in the main chain of Caribbean islands. Unlike those islands, Barbados is relatively flat, with thin soils of an average depth of about 2 over inert and agriculturally unproductive limestone. It has a relatively low annual rainfall, is subject to drying, salt-laden winds, especially in the dry season, and suffers from the occasional hurricane or near-hurricane.

For these reasons, Barbados is almost natural grass country. If I were to be brought into Barbados in the form of an overseas expert; given the facts concerning the topography, soils and climate of Barbados, and asked what type of crop I would recommend for this island without having to take into consideration anything other than the suitability of the island for the particular crop, I would unhesitatingly say: "A grass." Sugar cane is a grass. Furthermore it is a grass which has enabled each of our few and scarce acres to produce a relatively high *gross* income per acre (when the by-products of molasses and rum are included) which in 1972 amounted to approximately \$750 per acre. It is true that very little of this gross income may find its way into the pocket of the cane plantation owner or small farmer. Nevertheless, it is value which is being produced for Barbados from each acre of the very small acreage of land which Barbados owns. It is our main earner of the foreign currency needed to buy those things which we cannot ourselves produce, and it generates more income earning capacity within Barbados than the revenue obtained from any other sector of the economy.

From the points of view of both our economy and its suitability for covering the 60,000 acres of our agricultural land under our climatic conditions, sugar cane is therefore still the most suitable general crop for Barbados, and recent increases in the world price for sugar, caused by the present world shortage of sugar, have further increased the value of this crop to Barbados and made it even more difficult to find satisfactory substitutes.

The Case For Agricultural Diversification

This rest on:

- (1) The vulnerability of the sugar industry to excess world production in the future, with low-cost sugar possibly becoming in over-supply on the world market.
- (2) The possibility of the loss of the protected British market consequent on Britain's entry into the European Economic Community.
- (3) The need to reduce the cost of food imports into Barbados for feeding both our local population and our tourists.
- (4) The need for finding crops which will employ more people per acre (although this last need may largely be mythical in view of the ever increasing difficulty in finding labour which is willing to work in agriculture).

It should have been pointed out that, although sugar is vulnerable on the world market, and poses problems for its long-term production, it is still less vulnerable than many of the tropical export crops associated with the Caribbean and grown by many of our sister territories – crops such as cocoa, coffee, citrus and bananas. Over the years, sugar has proven to be more stable as a money earner than any of these crops just named.

Nevertheless, Barbados would like to find agricultural enterprises which will provide higher returns per acre than sugar, on a continuing basis; which will reduce the volume and value of agricultural imports, and some of which would be capable of occupying the more than 50,000 acres of land now occupied by sugar cane if, for some reason, it became necessary to abandon sugar as our main crop at short notice.

Substitutes for Sugar Production

In the search for substitutes for sugar, the Barbados Ministry of Agriculture with very limited staff has examined, in the past 6 years, some 600 varieties of 40 different crops, as well as many breeds of livestock, with a view to finding adequate enterprises for our Agriculture. We have in this time found some crops which could be regarded as substitutes for sugar on limited areas of land and we have found certain other agricultural enterprises which give promise as replacements for some of our food imports. The main enterprises on which we are now concentrating are:

- Substitutes for sugar:—
- Grass (for livestock) Comfith
 - Cane (for livestock feeding)
 - Cotton (the drier and shallower sugar cane lands)
 - Coconuts with grass (Scotland area only)
 - Fruit Trees

Crops mainly for local consumption:—

Livestock:—

Root Crops (with dehydration for storage)

Vegetables

Fruit

Milk

Beef (on a limited scale unless comfith and other such innovations prove successful)

Pork

Chicken and Eggs

Mutton

In the light of our present knowledge – and let me say here that new ideas, new techniques and new kinds of production may yet revolutionize not only non-sugar agriculture but the use of the sugar cane crop as well – we would like to see, over the next 5 years, a gradual reduction in acreage under sugar cane, without necessarily a decrease in sugar production, and the use of some of the land for other purposes somewhat along the following lines:

Sugar Cane	50,000 acres (down from 64,000 acres)
Grass	4,000 acres
Cotton/Sorghum	4,500 "
Coconuts and)	2,000 "
Fruit Trees)	2,000 "
Vegetables	2,000 " (Continous cropping)
Root Crops	2,000 "

Let us examine some of these crops in more detail.

Sugar

This crop still provides the most certain market, as I have already pointed out. It is still the only crop now available to Barbados which will return as much as \$750.00 gross per acre over 50,000 acres. Further, recent research work on alternate uses for the sugar cane give fair promise

that the production of sugar may eventually become the least important of the uses to which sugar cane will be put. The new diffusion process for extracting sugar from the cane gives promise for the production of hardboard from the sugar cane, in addition to the normal products of sugar, rum molasses for livestock feed. Further, it is now quite feasible to feed the raw sugar cane pith with the juice still in it – or Comfith as it is called – to beef and milch cattle as well as other ruminants and even, it seems, to pigs and poultry. The use of raw sugar cane for livestock feed may well become one of the more important uses of the sugar cane in the near future.

The production of sugar, of course, has its problems, the main ones being associated with the present need to burn most of the crop in order to harvest it mechanically, the problems associated with the introduction and large-scale use of mechanical harvesting, and the problems of soil erosion and loss of soil structure, which at the moment seem to accompany the burning and mechanical harvesting. However, Barbados still has its greatest agricultural expertise in the growing of sugar cane and the production of sugar, including its sugar cane breeding and variety testing stations of world wide fame.

We cannot therefore afford to allow the sugar industry to run down unless and until we have a satisfactory substitute or group of substitutes. To date we have no satisfactory substitutes. We would therefore like to intensify sugar production on the lands most suited to that crop. We would also like to see a trial made of developing the 70 to 80 acre family sugar cane farm of the type which has been so successfully developed in Australia, on which a man with his family and adequate machinery can make a satisfactory living from growing a relatively small acreage of sugar cane. We further hope to utilise some Government owned lands to embark, on a trial basis, on a system for spreading the benefits of large scale plantations operation more fully to the present plantation labour force through cooperative ownership of the plantation.

Starchy Rootcrops

These crops have been overproduced in Barbados in recent years.

Under the 1942 Food Production (Defence) Control Order, all plantations were required to plant 12% of their arable acreage in the starchy rootcrops such as yams, sweet potatoes, cassava and eddoes each year. Because of the over production of these crops permission has been granted in recent years for the growing of vegetable crops and corn in place of the starchy rootcrops on these lands. Further, the Minister of Agriculture has recently agreed to a reduction of the compulsory minimum acreage to be planted in such crops each year to be reduced from 12% to 5% of arable acreage.

Further, Government is developing systems for processing and storing these bulky and fairly perishable root crops. The dehydrated "Instant Yam" is now available in supermarkets and shops in both Britain and Barbados, and further work is being done on making similar products from sweet potatoes and some vegetables.

Cotton

The Sea Island Cotton, on which much research and development work has been done by the Ministry of Agriculture in Barbados recently, is one of the few crops which seems capable of replacing relatively large acreages of sugar cane in Barbados. Substantial promotion of Sea Island Cotton garments in Britain and Europe in the past three years has resulted in an immediate demand for over 3.3 million pounds of cotton lint, which would need at least 7,000 acres for its production, and a projected demand in the future for over 7.0 million pounds of cotton lint which would require from 15,000 to 20,000 acres for its production.

Quite apart from the production of cotton lint for garment manufacture, a large cotton crop would provide Barbados with valuable cotton seed oil, as well as cotton seed meal for use as a concentrate livestock feed. The crop is therefore of considerable potential value.

Large scale production of cotton is at the moment hindered by the need to develop a satisfactory system of harvesting and cleaning the cotton lint mechanically. If, as we expect, the problems of mechanical harvesting and cleaning are overcome in the 1972/73 cotton season, then it is expected that several of the sugar plantations in the drier and more margin sugar areas in the south and north of Barbados will switch to cotton production, enabling our acreage under this crop to climb from its present 200 acres, almost all of which is grown by the Agricultural Development Corporation, to 500 acres in the following year and to 4,000 acres or more within 5 years.

Sea Island Cotton poses much more serious problems of pests and disease control, and of soil erosion, than does sugar cane. In addition, the gross returns per acre are lower than with sugar cane. Nevertheless it is expected that growing this cotton in a rotation with crops such as sorghum will provide a satisfactory annual income per acre, and that measures now being tested for pest, disease and erosion control will enable the permanent cultivation of this crop as a foreign exchange earner and a local food producer for Barbados.

Coconuts and Fruit Trees

These crops are very well suited to the hilly areas of Barbados, and especially to the steep slopes of the Scotland Area. Returns per acre from Coconuts are low, and returns from fruit trees, although somewhat better, are very seasonal. For these reasons these crops are being developed in combination with a grass cover under the trees for a combined tree crop/livestock type of farming. We would wish to see at least 2,000 acres planted to these crops within the next 5 years, and, with processing facilities becoming available, and eventual expansion to not less than 7,000 acres.

Vegetables (Including Peanuts)

Because of the high level of returns per acre from these crops, and their value both as import substitutes and potential earners of foreign

exchange, the Ministry of Agriculture has concentrated much of its recent research and development programme on the production of vegetables and peanuts; and our most notable recent successes have been with these crops.

Milk and Meat

The concentration here, under the agricultural development programme, is on Dairying, and on pig and poultry production.

Barbados at the moment consumes some 5.0 million gallons of milk per annum, and produces 1.5 million gallons of this milk. We are at the moment concentrating on the expansion of the fluid milk trade using locally produced fresh milk for this purpose, with imported milk ingredients being used for the manufacture of condensed and evaporated milk. The milk industry is still a low-return-per-acre industry, and with irrigable land for pasture in short supply and with the ever increasing cost of importing concentrated feeds, it is not envisaged that the fresh milk industry will expand rapidly unless and until new systems of feeding such as the COMFITH system improve the economics of local milk production.

Barbados at the moment also produces all of the fresh pork which it consumes, to an amount of some 1.3 million lbs. of pork per annum from a herd of about 21,000 animals. However, Barbados is also importing some 4.5 million lbs. of pork products per annum, including salted pork, trotters, ears, sausages, hams and bacon, to a total value of some \$3.8 million, E.C.

We aim to step up our local production to 5.0 million lbs. in the next 5 years. However, the move out of the present production for the fresh pork market only will not take place until the proposed pork processing plant is in operation. We expect to begin construction on this plant during this year.

Barbados already has the capacity for self-sufficiency in the production of poultry meat and eggs, except for certain periodic shortages.

such as at Christmas time and for certain of the cheaper cuts such as chicken backs and necks which are unwanted in some of the more developed countries and are therefore available to Barbados from the very large poultry industries of those countries.

For our local chicken industry to reach its full potential, there is need for certain purchasing, processing, storage and distribution facilities, and the provision of these facilities is now being planned. There is also need for local poultry feeds of a consistent higher quality at reasonable prices. Government plans to overcome this latter problem with the erection of its livestock food plant this year. Permission has also been granted for the establishment of a Central poultry processing plant.

Beef production, because of its extremely low returns per acre per annum, has always been a relatively small sideline operation in Barbados. The use of new feeding systems such as Comfith feeding are expected, however, to cause a substantial increase in beef production in the near future by increasing the number of animals which can be reared off the produce of 1 acre of land and thus increasing the value per acre to be obtained from beef production. The industry will probably depend for some time on the use of culls from the dairy industry – bull calves and poor milking animals – with a gradual introduction of beef breeds of cattle and the use of the buffalo for meat production.

Land Tenure

In all of these new developments, the overall aim is to develop *family farms of medium size*, on which the farm family can, with adequate mechanisation, provide for itself an income which can compare favourably with the incomes being made in other sectors of the economy. The Sugar Cane farm will, for mechanical production and harvesting purposes, have to remain relatively large by our standards, although small by world standards. Here, it may well be possible for us to develop the medium-sized 60 to 80 acre fully mechanized family farm for sugar cane along the Australian pattern. Attempts must also be made to group many of our very small farms together for the application of modern agricultural

techniques through cooperative effort. Government is also now busily engaged in preparing, for International funding in part, two projects for utilizing certain marginal sugar plantations for medium and small farmers settlement, involving the production of vegetables, milk, fruit, pork poultry products and Comfith beef.

MAJOR CONSTRAINTS TO THE DIVERSIFICATION PROGRAMME

1. Marketing Facilities

This is by far the greatest deterrent to the diversification of our agriculture. Sugar is still the only crop which has a reasonably long-term market guaranteed by contract, and it is the only crop on which the farmer knows the selling price of his product before the crop is planted. If Barbados is to move more swiftly into the production of crops such as vegetables and pulses for local consumption, import substitution and export, the situation *must* be created in which the farmer has a guaranteed minimum price for his crop prior to the planting of that crop.

Hand in hand with the guaranteed minimum price must go the facilities for selecting, grading, packaging, storage and utilization of the various commercial products based on these crops. The Agricultural Development Corporation, with its new facilities for producing dehydrated yam and for grading and drying onions, is embarking on providing some of the required facilities. The Barbados Marketing Corporation has for some years been trying, under very difficult circumstances, to assist in purchasing and selling local produce. To perform this task adequately, this organization needs more equipment, more trained staff, and a monetary arrangement whereby losses sustained in the initial years of developing the marketing system for a new crop or group of crops can be recovered through some type of Government subvention.

2. Research and Extension Staff

Given adequate marketing at guaranteed and remunerative prices, farmers would, I am sure, increase their production of non-sugar crops

very substantially in a relatively short period of time. Much of the initial research work needed to provide farmers with the best varieties of these crops and the best techniques for growing them in Barbados has already been done. However, facilities for passing this information over to the large number of small and large farmers who would now become interested in growing these crops and passing this information on in such a way that all of these farmers would be fully conversant with all of the most modern practices, are at the moment very inadequate. The Ministry of Agriculture has no agricultural information service, and the number of field extension officers now in post would be far too few to provide the kind of almost personal service which each farmer would need.

Further, the sustained production of present crops, and the development of new crops and cropping systems, is highly dependent on having a strong research unit with adequate staff to do the experimental work which is necessary and which must continue as long as production of the crop continues. It does not matter whether the acreage involved is 500 or 5 million acres.

The amount of research work which must be done to develop the crop and keep its production competitive is approximately the same. The perennial lack of adequate numbers of trained technicians in research and extension is one of the major reasons why tropical agriculture in the lesser developed countries tends to compete so unfavourably with agriculture in the more developed countries.

Steps are however being taken in the Ministry of Agriculture in Barbados to provide at least the minimum number of posts needed to these fields at present. The filling of these posts with adequately trained and motivated personnel presents another problem, as agriculture still suffers from a stigma which, in the context of our development, is wholly unjustified.

3. Lack of Farmer Organizations

The teaching of new techniques to farmers, the providing of common services for agriculture and the establishment of close and

meaningful liaison between farmers and Government, depend to a large extent on those farmers being grouped in organisations through which they can speak and be spoken to. The sugar industry in Barbados is the only agricultural enterprise which is fully organized in this manner.

In the planning and implementation of a diversification programme for agriculture, therefore, there is great need for one or more organisations which will embrace all farmers in the non-sugar agricultural enterprises such as vegetable production, pig production, poultry meat and egg production, and dairying, and which would be able to appoint farmer representatives to the National Boards and Committees which cater to their interests.

The Barbados Agricultural Society is aware of this need, and, I understand, is preparing itself to provide the type of service which is needed. It is to be hoped that the Agricultural Society will be able to perform these functions in the near future, with Government assistance if necessary. Time and money spent in assisting the Society, especially in the early stages of reorganization, to perform these functions fully and well would, in my opinion, be time and money well spent.

4. Indiscriminate Importation of Substitute Products

One of the lesser realized but nonetheless very important deterrents to increase local food production is the relatively free importation of food supplies of all kinds, many of which are direct or indirect substitutes for food items which are or could be locally produced. It may well be necessary to provide protection for locally produced foodstuffs against the open competition – including “dumping” – from similar or substitute foodstuffs produced in large quantity in the larger and more developed countries of the world. Certainly at least one of our sister territories has taken steps to stimulate local production by banning the importation of a large number of food items, and present indications are that this bold step is achieving its purpose. Steps have already been taken in Barbados to protect certain food items (e.g. poultry, eggs, onions,

carrots) from direct competition from imports of those products during periods of high local production. It may be necessary, in the near future to considerably expand on this form of protection if our drive to grow our own foods is to be successful. Indeed it is the intention of Government to employ more effective control over the importation of food items into Barbados.

5. Credit

If the constraints to agricultural diversification already discussed are removed, then the demand for medium and long term credit for agriculture, which is even now substantial, is expected to increase considerably. Here local lending institutions such as the Sugar Industry Agricultural Bank, the Agricultural Credit Bank and the Barbados Development Bank, if given adequate funds and staff, should be able to provide all of the credit facilities needed for a rapidly developing agricultural sector.

6. The CARIFTA Export Market

One of the aims of the Caribbean Free Trade Association has been the development of trade in agricultural products within the area. This is achieved in theory by ensuring that any of the countries within the Association must purchase the surplus of any agricultural product which is available for export from any of the other countries within the Association before the importing countries go to markets outside of the Association for its supplies.

Barbados, like some of the other territories such as Jamaica and Trinidad which have comparatively better developed agricultural sectors, has benefited in the past from being able to export produce under the conditions of the agricultural protocol.

Barbados is however regarded as one of the M.D.C's or More Developed Countries, although in fact it has far more in common with the smaller, highly agricultural island of the L.D.C's (Less Developed Countries) than it has with the much larger territories of Jamaica, Trinidad

and Guyana with their much larger land resources and their strong mining sectors based on bauxite, oil and other minerals.

The L.D.C's have managed, by dint of much forceful argument, to get the M.D.C's to accept the proposition that the latter must curb production of such crops as the L.D.C's can grow for export to the M.D.C's. This is to counterbalance the substantial inflow of manufactured articles and produce for their own development to the Lesser Developed Countries from the More Developed Countries. However, Barbados, in this thinking, is already being expected as an M.D.C. to curb its production of certain crops which it has spent much time, money and effort in developing, such as onions and carrots, in order to enable the L.D.C.'s to develop and export trade in these same products. This approach may well prove to be a considerable constraint to the development of non-sugar agriculture in Barbados; which should really be grouped with the L.D.C.'s with respect to its agriculture.

Finally, and in summary, Barbados in recent years has made substantial progress in pursuing its policy of diversifying its agriculture. However, if much additional progress is now to be made, Barbados will have to take some bold steps to remove or at least to greatly minimize the present constraints to such progress and will have to spend a much larger portion of its earnings on the development of its agriculture.