



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search  
<http://ageconsearch.umn.edu>  
[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

# A NOTE ON THE AGRICULTURAL MARKETING PROTOCOL AND VEGETABLE PRODUCTION IN BARBADOS SINCE 1968

Gloria E. Francis

*(Institute of Social & Economic Research (EC), University of the West Indies, Barbados, W.I.)*

## Introduction

Throughout the four years of the operation of the Carifta Agreement, there has been much discussion concerning whether or not its most integral part, the Agricultural Marketing Protocol (AMP), is, in its present form and content, succeeding in its main objectives, to wit, the encouragement of the agricultural development of the several units of the Association towards the ultimate goal of import replacement of the items listed in the Protocol.<sup>1</sup>

Most of the discussion has centred around the complex nature of the AMP and its apparent conflict with certain import and export regulations within member territories. It is claimed nevertheless, that the AMP, by creating greater marketing opportunities for agricultural commodities, has given a decided impetus to vegetable production within the Carifta region in general and within local economies in particular.

The Agreement, however, has as its main concern import replacement on a regional basis and to provide special opportunities for the Agricultural sectors of the Less Developed Countries (LDC's).

It should be useful, therefore, to examine at this point to what extent the agricultural sector in Barbados which is considered to be one of the more developed territories, has responded to the thrust of the Protocol, and the implications which certain conditions and limitations within the AMP may have for vegetable production in the country.

## The Position Before 1968

It should be useful to begin this discussion with a summary of the developments which took place within the agricultural sector in Barbados in the years preceding the signing of the Carifta Agreement.

By the end of World War II, it was clearly imperative that attention be paid to local food production. The post-war aftermath of acute economic depression acted as a further spur to greater efforts to promote economic development and to reduce the risks associated with a mono-crop economy. But as has been noted by other researchers,<sup>2</sup> the diversification policies then pursued in Barbados failed to accomplish their objectives. These policies, concerned as they were with diversification on an incremental basis, succeeded only in maintaining the then acreages under sugar cane instead of being geared towards a diversification programme for the economy, which would

---

<sup>1</sup> "Protocol Laying Down Agricultural Marketing Arrangements." Mentioned in Article 13 of *The Agreement for Establishment of the Caribbean Free Trade Association*. Annex, p.9.

<sup>2</sup> B. & L. Persaud "The Impact of Agricultural Diversification Policies in Barbados in the Post War Period." *Social & Economic Studies*. 17:3, 1968.

attempt to broaden and strengthen the economy by bringing in hitherto unused acreages for crops other than sugar, or by removing land from under sugar cane and using it for other agricultural purposes, or even for other non-agricultural enterprises.

It was not until 1964, when the Agricultural Diversification Programme was officially launched, that a change in attitudes was apparent. Policies began to take into account the importance of domestic agriculture. The Development Plan for 1965-68 reflected strategies whose basic objectives were to:

*... increase the yield of sugar per acre (while) increasing the output of food crops and fish to the extent where the local market can be satisfied and a surplus is available for export; to develop an export trade in food crops and in fish and reduce the dependence of the economy on a single export crop; to develop industries based on agriculture ...*<sup>1</sup>

To facilitate the implementation of these plans, much of the basic infrastructure had to be installed -- the necessary indigenous institutions were created, and those already in existence had to be improved. The Agricultural Credit Bank, the Barbados Marketing Corporation, the Farm Board, and the Cooperative Department were all agencies created or revived in the early 1960's to assist in the Diversification Programme. The task remained (and to some extent still does) to coordinate the operations of these agencies in order that they perform their several roles satisfactorily.

The overall policy pursued by Government at that time was geared towards total economic diversification. In keeping with this policy, a massive campaign for the development of the Tourist Industry was launched with the result that from 1964 onward, the Industry showed an annual growth rate of about 15 per cent (Table 2). It is fairly obvious that a rapidly expanding Tourist Industry would mean a proportionately rapid rise in total vegetable consumption within the economy, and this was reflected in the large increases in vegetable imports in subsequent years, since local supplies were inadequate to meet demand despite measures undertaken to expand vegetable production. It was the task of Government, therefore, to devise strategies which would bring closer to reality the dream of import substitution or replacement of most of the major food items on the annual food import bill.

The development of light industries to strengthen the Industrial sector created year-round employment for many of the working class previously unemployed and, together with the Tourist Industry, attracted labour away from Agriculture because of comparatively higher wages and more acceptable forms of employment for young adults. The higher wages thus generated made possible higher standards of living, which was reflected in the consumption patterns of the population who now increased the demand for vegetables and dairy products still further.

### Progress Since 1968

The most recent and comprehensive study done on *Vegetable Production in Barbados*<sup>2</sup> lists 92 estates (farms over 10 acres) as growing vegetables during the 1967-68 crop year, but because of limited time and personnel, the survey narrowed its sample to half that number out of which 42 estates responded.

---

<sup>1</sup> *Barbados Development Plan 1965-68*, Ch X, p.42.

<sup>2</sup> K.A. Ingersent, A.H. Brathwaite & J.O.J. Nurse, *Vegetable Production in Barbados - An Economic Survey*. Ministry of Agriculture Bulletin No.3, 1969.

Table 1. Land Distribution: Barbados, 1966

	<i>Acres</i>	<i>Acres</i>
<i>Total Area</i>		<i>106,238*</i>
<i>Estates (over 10 acres):</i>		
Estate Arable land	49,709	
Estate Tenants land	4,354	
Sour Grass Pasture	12,302	
Rab land, roads, etc.	9,392	
<i>Total Estate</i>		<i>75,757</i>
<i>Smallholdings:</i>		
Arable land (estimate)	14,500	
House spots, roads, etc.	3,882	
<i>Total</i>		<i>18,382</i>
<i>Miscellaneous:</i>		
Rab and coast lands, urban, roads, etc	12,000	
Ministry of Agriculture	159	
<i>Total</i>		<i>12,159</i>
<i>Total Arable Land</i>		<i>68,546</i>
<i>Total Planted to Cane</i>		<i>62,000</i>

Note: \* Approximate figure

The survey indicated that up till then relatively slow progress was made or even attention paid to the cultivation of green vegetables on a large scale. Table 3 demonstrates the details of vegetable cropping on the 42 estates surveyed. Tomatoes are grown on nearly all the estates in the sample and account for the highest acreage with cucumbers taking second place. Although the incidence of other vegetable lines is comparatively low, it is no less significant and indicative of the response to the Agricultural Diversification Programme, since estates previously cultivated no vegetables other than the traditional root crops -- yams, sweet potatoes and eddoes.

This response began to be reflected in the steady increase in the contribution to Gross Domestic Product by *Other Agriculture* -- an increase that is more than could be accounted for by price increases. By 1968 and the Carifta pact, quite a few plantations were involved in producing green vegetables, and at least two -- Oldbury in St. Philip and Fairy Valley in Christ Church (the latter under the aegis of the Agricultural Development Corporation) -- went out of sugar and into green vegetables and cotton. They each cultivate approximately 75-80 acres of green vegetables.

About this time too, special attention was being paid to two crops -- Irish potatoes and onions -- both of which were major items in the total food import bill. After some field tests and

Table 2. Visitor Arrivals and Receipts: Barbados, 1964-71

	1964	1965	1966	1967	1968	1969	1970	1971	1972
Visitors	57,625	68,418	79,104	91,565	115,697	137,632	156,417	189,075	210,349
Cruise Ship Passengers	41,871	52,664	51,593	45,451	75,981	80,565	79,635	79,159	100,086
Cruise Ship Calls	95	118	158	78	130	169	296	146	181
Tourist Accommoda- tion (beds)	2,750	3,250	3,850	4,795	5,420	6,290	7,000	7,446	7,773
Estimated Tourist Receipts (\$mEC)	23.9	26.1	29.1	34.8	53.9	57.0	69.5	77.0	94.2

Source: 1964-72 - Barbados Statistical Service.

G.V.Doxey & Associates. "The Tourist Industry in Barbados." A Socio-economic assessment, Dusco Graphics Ltd., Ontario, Canada, 1971, p.17.

Table 3. Details of Vegetable Cropping on  
42 Estates: Barbados, 1967-68

<i>Crop</i>	<i>No. of Estates Producing</i>	<i>Total Acres</i>
Beans	14	15
Cabbage	15	20
Carrot	13	14
Cucumber	20	22
Melon/Squash	8	6
Okra	5	4
Onion	4	3
Irish Potatoes	9	16
Pumpkin	7	9
Tomato	39	82
Other Vegetables	10	4
		195

Source: Ingersent, K.A. et al. *Op, cit.* 1969, p.13.

experimentation, they showed sufficient potential as viable enterprises to attract a few estates into cultivation. Two other crops, carrots and peanuts, gave promise of success as items which enjoyed a great demand within the Carifta market.

It should be informative to look briefly at the developments with some of these commodities, since a few of them may have some significance for agricultural specialisation in any future programme of rationalisation of agriculture on a regional basis.

*Onions* - The first 30 acres of onions were planted in 1968, and at harvest time in early 1969, 400,000 pounds were produced out of which 58,950 pounds were exported to Carifta countries. Total production that year came to just under one-tenth of the quantity imported, while retained imports for that period were 3,443,183 pounds. There might be a seeming paradox in the fact that onions were exported at all, at a time when total demand far exceeded total domestic production; but local production is still seasonal and the problem at that time was the storage life of the locally produced onion. A long storage life depends on the degree of drying or curing to which the onion is subjected. Local climatic conditions at time of reaping precluded or limited the natural drying process. Supplies, therefore, have to be marketed at the earliest opportunities. Some success has since been obtained with artificial drying and plans have been formulated for the establishment of central drying facilities to service all producers.

Acreages under onions have since increased from the first 30 planted in 1969 to approximately 250 in 1972. Production and export figures have also shown impressive increases as illustrated in Table 6. This year's (1973) production is not expected to exceed that of 1972 because of certain marketing and agronomic difficulties. However, another important step to be taken is the establishment of grading facilities to complement the curing equipment to be installed in the near future. This step should go far to strengthen the position of Barbados with regard to increases in production of this vegetable to capture a greater share of the Carifta market.

Table 4. Contribution of Agriculture to Gross Domestic Product  
at Factor Cost: Barbados, 1964-71

	<i>\$m.EC</i>							
	1964	1965	1966	1967	1968	1969	1970	1971
Sugar	29.7	31.5	32.0	35.1	28.8	24.0	27.1	24.0
Other Agriculture	9.4	9.9	11.4	12.7	13.1	13.3	13.2	14.0
Total Agriculture	39.1	41.4	43.4	47.8	41.9	37.3	40.3	38.0
Total GDP	150.2	158.2	168.6	189.2	216.7	235.3	273.5	298.4

Source: Economic Survey, Barbados, 1971.

Table 5. Acreages Planted to Food Crops on Plantations:  
Barbados, 1961-71

Year	Yams	Sweet Potatoes	Corn	Eddoes	Pulses	Cassava	Other Crops*	Total Food Crops
Av. for								
1961-1966	2,637	2,510	814	472	281	65	225	7,004
1966/67	2,512	1,847	812	334	337	65	229	6,136
1967/68	2,668	1,730	1,067	394	312	38	286	6,495
1968/69	2,674	1,739	1,246	369	336	45	285	6,694
1969/70	2,686	818	1,548	331	427	n.a.	263	6,073
1970/71	2,260	941	1,229	342	340	n.a.	266	5,377

Source: Ministry of Agriculture Extension Service, Barbados.

Note: \* Includes Green Vegetables.

Table 6. Developments in Onion Production: Barbados, 1969-72

<i>Year</i>	<i>Acreage Planted</i>	<i>Production (pounds)</i>	<i>Export (pounds)</i>
1969	30	400,000	58,950
1970		1,980,000	179,910
1971	153	2,000,000	850,000
1972	250	2,500,000	2,000,000

Source: Ministry of Agriculture, Barbados

*Carrots* - Both estates and small farmers seem to have surmounted most of the problems associated with carrot cultivation, and crop failure is now an extremely rare occurrence. Production increases each year and there has been a significant reduction in imports from 1970.

Success with carrots in Barbados has been marked by the allocation of an export quota to Carifta territories with contracts to supply St. Lucia, Trinidad, and Guyana collectively with 563,200 pounds of carrots for the period January to March 1973. This success can be attributed to the years of research and experimentation with this vegetable since its potential for import replacement had been early recognised. Table 7 gives an indication of the progress achieved so far.

Table 7. Carrot Production: Barbados, 1969-72\*

<i>Year</i>	<i>Acreage Planted</i>	<i>Production (pounds)</i>
1969	181	1,629,986
1970	246	2,219,171
1971	338	3,045,168
1972	460	4,141,428

Notes: \* Based on BMC Purchases with the following assumptions:

- (1) that production increases at approximately 36 per cent per year;
- (2) that BMC handles approximately 7 per cent of all carrots produced; and
- (3) that yield of carrots is approximately 9,000 pounds per acre.

Source: Ministry of Agriculture, Barbados.

Seasonality seems to be the major constraint against the ability of local farmers to produce carrots in sufficient quantities to satisfy local demand on a year-round basis. The deeper implications of the Carifta Agreement -- which has as its foremost concern the development of the Less Developed Countries -- could also prove to be a constraint on vegetable production in Barbados. To take a case in point. St. Vincent has also been successful in the cultivation and production of carrots in sufficient quantities for export to other Carifta territories. But last year, St. Vincent, in declaring its surplus for export, asked for a price increase of six cents per pound as it would



have been unprofitable for Vincentian producers to accept the current price fixed at 30 cents per pound. Barbados on the other hand was prepared to declare its exportable surplus at 5 cents less than the stipulated price. Since the AMP must function primarily to the advantage of the LDC's, Barbados had perforce to refrain from declaring its price cut. As a result Barbadian farmers were forced to plough back into the land about 62 acres of their carrots, since local demand for the period was fully satisfied, and no processing facilities existed for surplus production of perishable commodities.

Barbados was able to offer at this lower price because of a decided comparative advantage in respect of:

- (i) expertise; mention was already made of the research carried out with this vegetable resulting in a store of expert knowledge of its cultivation;
- (ii) irrigation systems; some of the plantations involved with carrot cultivation already possessed an adequate water supply for cane-milling, which could have been utilised for irrigation; and
- (iii) mechanization; Barbados' soil and general topographic features are more conducive to the implementation of mechanization of this crop, while St. Vincent is hilly and its soil heavily strewn with stones.

*Peanuts* - In keeping with the objective of import replacement of certain commodities, local farmers were encouraged to increase acreages under peanut cultivation. Research has shown that there is sufficient potential for the development of this line for export to Carifta territories. Indeed, the Carifta market alone is thought to be large enough to absorb any surplus production which Barbados could supply, in addition to the quantities supplied by prior producers such as St. Vincent. Despite initial difficulties encountered with regard to establishment of the crop, a few farmers have gone into peanut production on a relatively large scale. The main problem here seems to be a paucity of areas of sandy soil extensive enough for really large scale peanut cultivation. The progress made on one particular estate is demonstrated by the statistics in Table 8.

Table 8. Peanut Production, Oldbury Plantation, 1970-72

<i>Year</i>	<i>Acreage</i>	<i>Yield (lb./acre)</i>
1970	25	1,400
1971	45	1,500
1972	150	1,700

Source: Information provided by Mr. Richard Williams of Oldbury Plantation.

On an islandwide basis, progress has also been significant. In 1963 the acreage under peanuts was but 100 which increased to 250 by 1972. Yield also increased from 1,500 pounds per acre in 1969 to 2,000 pounds per acre in 1972. Imports dropped from 626,365 pounds in 1969 to 461,997 pounds in 1971. In 1972 Barbados was self-sufficient in peanut production for 10 months and only required a two-months supply from overseas producers. The regional demand for peanuts is said to be in the

vicinity of ECS19 m. and Barbados is expected to meet a part of the extra local demand in 1973 from the acreage presently under cultivation.

*Irish Potatoes* - Field trials with Irish potatoes proved discouraging. Good results could only be obtained with planting on the higher altitudes (such as at Ridgeway and Lion Castle in St. Thomas) and in the cooler months of the year between October and January. The humidity experienced during the rest of the year proved highly detrimental to crop yields. For this reason local farmers were never encouraged to venture into cultivation of this crop since it was apparent that the vegetable could never be profitably produced on a commercial scale.

*Other Crops* - In addition to the vegetables discussed above, research is currently being carried out with regard to tomatoes, beets, cabbage, cauliflower, eggplant, radishes, stringbeans, cucumbers and melons. All these vegetables can be profitably produced in Barbados given the requisite expertise with regard to pest control and varieties with high resistance to disease. The chief factors inhibiting the continuous production of these vegetables are (i) the build-up of vegetable pests and diseases, especially soil diseases; and (ii) a build-up of weeds in any area kept under vegetable cultivation for more than two consecutive years. This has been the regrettable experience of at least one large scale producer in St. Philip, who has had to abandon vegetable production in 1972 and replace his entire acreage (approximately 70) with cane.

Another serious restriction is the lack of market intelligence and marketing facilities, which should enable producers to sell their produce profitably and quickly. In one instance the farmer had to give away most of his harvested cabbages for use as animal feed and plough back the remaining acreage into the ground. These frustrations tend to lose for Barbados farmers the essential capital and entrepreneurship which are so vitally needed within the economy.

The possibility of producing fruit in the Scotland district is being investigated. Fruit trees with a root system such as citrus, mangoes, avocados and others should serve the double purpose of enhancing the soil conservation project in that area and supplying the home market with these scarce commodities which are still high cost imports. There are good prospects for lines such as paw-paw, melons and cantaloupe if the tourist market, including cruise ships, is exploited. These lines can also earn foreign exchange if exportable varieties (with regard to size) could be developed.

About 100 acres of dwarf pigeon peas were planted on one estate on an experimental basis. This vegetable is in high demand locally all the year round, but particularly around the Christmas season. The proprietors thought that the high demand at that time would take up the entire supply, but they were disappointed since labour for harvesting was not forthcoming. Significant losses in yields were also experienced because of pollution from spray-drift from a neighbouring sugar plantation. Although this variety of pigeon pea is admirably suited to mechanisation which would solve the labour problem, cost-benefit studies must be first undertaken to investigate the viability of such improvisation.

## Conclusion

The foregoing is by no means the complete picture. Reliable data with regard to smallholdings (which still remain a major source of vegetables for the local market) are difficult to obtain, but the increases in the sales of vegetable seeds by the Feed Store of the Ministry of Agriculture and the

significant increases in purchases from local farmers by the Barbados Marketing Corporation, indicate that there is some expansion in acreages and production in that area (Table 9).

**Table 9. Sales of Vegetable Seeds, Feed Store,  
Ministry of Agriculture: Barbados, 1964-68**

<i>Year</i>	<i>Quantity (pounds)</i>	<i>Year</i>	<i>Quantity (pounds)</i>
1964	36,000	1969	4,888*
1965	36,900	1970	49,138
1966	39,400	1971	53,129
1967	42,100	1972	54,098
1968	47,500		

Note: \*Shipping strike in US cut supplies in first quarter of 1969.

Source: Ministry of Agriculture, Barbados.

**Table 10. BMC Purchases of Green Vegetables\* from Local Producers:  
Barbados, 1969-72**

<i>Year</i>	<i>Quantity (pounds)</i>
1969	897,580
1970	919,713
1971	1,238,129
1972 (Jan.-Mar.)	958,382

Note: \* Excludes root crops and breadfruit.

Source: Barbados Marketing Corporation.

The evidence shows that considerable progress has been made in recent years towards increased diversification and rationalisation of the domestic agricultural sector, and that a marked degree of import substitution in certain food items has taken place. These successes are in some measure traceable to opportunities created by the AMP, which was designed to restrict imports from extra-regional sources of those agricultural commodities that could be produced within the region, in sufficient quantities to meet regional demand; the intention being to create opportunities for accelerating regional specialisation in production of these commodities.

For instance, onion and carrot production in Barbados have been given a definite chance to develop, because of these marketing arrangements, which made it possible for these highly perishable commodities to be quickly absorbed within the regional market.

But these successes are in a larger measure attributable to the efforts taken in previous years to promote the diversification of domestic agriculture. Proper planning and implementation of agricultural diversification policies with persistent research and experimentation to discover which commodities were most suited to the soil types and climate, brought about significant changes in land use and production patterns; changes which could now fit in with the broader Carifta concept of specialisation and rationalisation of agriculture.

Just as it was recognised that free trade per se, would not suffice to increase intra-Caribbean agricultural trade, so must it be realised that regional marketing arrangements are not in themselves sufficient to remove the many structural bottle-necks to increased agricultural output within the several units.

With similar goals, similar climatic conditions and similar products within the same seasons, there is likely to be occasions of seasonal glut within the region. This should be argument enough that extra-regional markets be made accessible to Carifta producers to take care of such occurrences in the short run, but also highlights the necessity for the establishment of processing and/or canning facilities in the long run. Such developments should give a real stimulus to domestic food production and serve to enhance the overall economic development of the less developed Carifta countries.

*Acknowledgements:*

*I should like to indicate my appreciation to the assistance given by various persons with regard to statistical and general information. I am particularly indebted to Mr. DeCoursey Jeffers, Mr. J. Nurse and Mr. H. Clarke of the Ministry of Agriculture; Mr. Edwin F. Hurley and Mr. Sylvanus Broome of the Barbados Marketing Corporation and Mr. Richard Williams of Oldbury Plantation.*