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**CARIBBEAN
FOOD
CROPS SOCIETY**

23

Twenty Third
Annual Meeting 1987

Antigua

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CARIBBEAN FOOD CROPS SOCIETY

Crop Diversification:
New Horizons for Agricultural Development

PROCEEDINGS

of the 23rd Annual Meeting

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and

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Presidentia l Welcome

Francis A. Henry

President, Caribbean Food Crops Society

Mr. Chairman, Your Excellencies, Honourable Minister, President of the Caribbean Agro-Economic Society, Our Guest Speaker, Members of the CFCS and CAES, Participants, Guests, Ladies and Gentlemen:

On behalf of the Caribbean Food Crops Society, it gives me great pleasure to welcome you to this, the Twenty-third Meeting of the Society, which is held jointly with the Nineteenth Meeting of the Caribbean Agro-Economic Society.

In welcoming you here this morning, I recognised three groups of people; those of you who are visiting for the first time, those of you who have visited us before and those who live here. To those of you who are here for the first time, let me warn you that a single visit is seldom adequate to give a fair idea of our weather at any one time in the year. You should come again. Do not conclude from the lush vegetation you see, that the island is usually green at this time. The main rainy season has not yet begun. Antigua is indeed an island of low and erratic rainfall; however, we had unusually heavy rains in May.

To those of you who have visited us before, do not be surprised if you are told that we have 366 beaches instead of 365. We claim to have as many beaches as days in the year. The fact that we are preparing for a leap year may be the reason for the adjustment. To all our visitors, you should disregard the numbers but take this opportunity to learn more about our country and appreciate some of the beauty that sometimes we Antiguans take for granted. A special welcome to 'All Visitors'.

To those of you who live here, I must inform you that this is the largest group of agricultural scientists, and practising farmers likely to be assembled in Antigua and Barbuda in this decade. This large group of knowledgeable people will discuss a wide range of important and interesting topics. Your participation in this meeting will be most rewarding. Do register and participate.

The CFCS was delighted to respond to the invitation by the Government of Antigua and Barbuda to host this meeting, especially as it is the first time that CFCS is meeting in Antigua. The CFCS responded positively to the idea of making this joint meeting with CAES, thus allowing the Caribbean Agro-Economic Society to return to Antigua for its second meeting here. This is the first joint meeting of CFCS and CAES. We hope it will mark the beginning of a closer working relationship between the two societies which have a common interest agricultural development activities.

The theme of this meeting "Crop Diversification: New Horizons for Agricultural Development" was chosen because of the importance attached to nontraditional crop production. There is increasing awareness that the region's agriculture is too dependent on a few crops. Export crop domination and monoculture have been features of our agricultural production systems for a long time. Most countries are pursuing agricultural development as a policy objective and have set out programmes to widen the agricultural base. Strategies have been developed to introduce new crops and to develop and expand production of minor crops already under production.

Widening the range of crops which can be produced economically and marketed successfully is a common objective in the region. However, increasing local food production and creation of economic linkages may also be pursued. In the case of Antigua - diversification efforts are not concerned with reduction in production of traditional export crops as there is little of these produced.

The application of science and technology to crop production, increases to possibilities of commercially viable enterprises. Successful results are more likely to be achieved through regional co-operation which allows for the sharing of experiences and the information exchange necessary to allow technology development and transfer. In this way it can contribute to the improvement in the standard of living of people engaged in agricultural production.

The programme which has been prepared around the theme will allow for discussion on a wide range of issues. The topics of more general interest include:

- Problems Facing Agricultural Diversification
- Diversification Issues
- Commercial Experiences in Diversification
- Role of Agro-Processing in Agriculture Diversification

Topics of more specific interest include:-

- Vegetable Production Technology
- Crop Protection
- Post Harvest and Processing Technology
- Forages
- Economics of Diversification
- Marketing, and Trade Issues in Diversification

We expect a high level of participation and expression of points of view, in keeping with the professionalism and friendly atmosphere which have become a part of these meetings.

The annual meetings of CFCS continue to be the main activity of the society. The attendance here is testimony to a high level of interest. The Newsletter is yet another feature. I wish to compliment the editor on the fine job he is doing and to urge members of the society to provide support by submitting articles for inclusion.

Ladies, and Gentlemen, I wish on behalf of the society to express appreciation to the Government of Antigua and Barbuda for their invitation to host the meeting and for their financial support. We in Antigua and Barbuda have grown accustomed to expressions of encouragement in agriculture pursuits. We are delighted when such expressions are accompanied by tangible support. We therefore record our gratitude to the many sponsors and wish to announce that we have found a section of the community which we can call friends of agriculture. We will call on our friends for assistance in practical implementation of Diversification in the form of support for the Farmers Annual Plot to Plot Competition. Your generous support will mark a New Horizon.

Finally, Ladies and Gentlemen, we view your presence here as a symbol of support for the Society. We look forward to a beneficial meeting. Thank you!

Formal Opening and Address

The Hon. Mr. Hilroy Humphries

*Minister of Agriculture, Lands, Fisheries and Housing
Antigua and Barbuda*

Mr. Chairman, Dr. Yankey, Members of CFCS and CAES, Ladies and Gentlemen:

I am indeed happy to be invited to address this joint meeting and to declare the discussions open. It cannot be gainsaid how prestigious this gathering is with most of the leading agricultural researchers, planners production and marketing specialists and economists from both within and outside of the region gathering in one conference to exchange ideas, knowledge and experiences with each other. There is no doubt that your exchange of experiences and knowledge, as well as the resultant actions from these discussions will benefit agricultural development in general and food production in particular throughout the region.

From your timetable of activities, I have noticed that this conference will not be all work, but that some time has been allocated for social events, and a tour of the country. I trust that you will enjoy your stay here, enjoying the full pleasures of all that this island has to offer.

This meeting is taking place at a time when the development theorists have begun to reject industrialization as the requisite path on which under-developed countries have to tread to become developed. The development theorists have instead turned their attention back to agriculture as the means by which development for Third World countries, including the Caribbean, is most likely to occur. This joint meeting is also taking place at a time when the call for immediate agriculture diversification has gained tremendous momentum. In fact, it has reached the point where most countries in the region have accepted the need for agricultural diversification as the only strategic alternative.

Today, the focus of attention, even in a heavily tourism based country such as ours, is on the integrative capacity of the agricultural sector, in terms of its ability to develop linkages with several other sectors, thereby increasing the local value added, while simultaneously reducing the foreign currency requirements and strengthening the internal resilience of the economy. Added to this, it is felt that only agriculture can meet the absolute requirements of increasing goods and services to the point at which a significant input is made on reducing the level of unemployed and raising the levels of income from a regional perspective.

The fact that today the structure of agriculture within the region is similar to what it was over a hundred years ago, with one or two crops dominating agricultural production and employment, makes the task of diversifying the sector an especially difficult one. This becomes even more complicated with the present trends, and structural changes occurring in the world commodity markets.

The problems of over production on the world market and contraction of traditional trading markets as deficit countries overnight become surplus producers, the tendency for trade protection, and the weakening of preferential trading arrangements are all known to us.

We also recognise the problems in our national economies, where unemployment, balance of payment difficulties and fiscal shortfalls, create the urgent need to realise the benefits of any new development thrust.

Agricultural diversification is this new thrust, and as such it must be successfully implemented within the context of the above conditions both locally and internationally and within a constrained time frame.

It is in this context, that this joint meeting takes on an added significance. Since, while the projected benefits of diversification are fairly well known, in terms of its beneficial impact on food security, foreign exchange savings and earnings, employment generation, creation of economic linkages and utilisation of underutilised resources, there are only a few concrete plans and programmes to operationalise the diversification strategy.

Members of both these bodies gathered here for this joint conference are ideally placed to come up with implementation plans and carry out the actual diversification work. For all studies on the diversification process have identified that economically viable, new or adjusted technologies and organizational arrangements within an appropriate macro-economic framework, will be the motor of any successful diversification efforts.

Examination of the three elements of this perceived motor of diversification will reveal that they lie within the specialities of this joint group.

In terms of the need for new organizational structure, it should be clear by now that our traditional small farmers cannot be expected to carry the weight of the diversification effort in the manner in which they are presently organised. Development of high-value nontraditional crops, requires penetration of markets which are highly competitive and therefore requires the highest standards in terms of consistency of supplies and product quality.

The necessity for highly technical, fully commercialized farms to produce the quality and consistency of supplies required, seems to indicate the need for a new type of farmer and for investment in the agriculture sector not yet seen.

Here in Antigua, the Government has not been afraid of stimulating the tourism sector, with several bold Government investment projects, which assisted in the consolidation and advancement of the momentum of expansion in the sector. This confidence displayed by the Government, among other factors, has led to the rapid development of the tourism sector with the occurrence of attendant social benefits such as employment generation and increased income.

It is possible that similar stimulation can occur in the agricultural sector, if the pace and level of private investments are not sufficient or suitable. Your role in this process of designing and managing the new organizational structure will be pivotal, especially against the back ground of a history of part-time small farmers and mono-crop plantation systems.

The issue of technology is also critical, especially with the present conditions in the global commodity markets. In the context of declining prices, subsidization and over production, the identification of economically viable, new and adapted technologies becomes paramount in this situation of cost price squeeze.

The production of new crops alone gives rise to the need for adjusted technological packages. The pressure of the cost price squeeze will also require the development or adjustment of technologies which not only utilise an acre of land or annual unit more intensely, but also reduce costs as much as possible. If, as seems to be the case, product and input prices are by and large given, then technology along with organization and management of the farm, become some of the few controllable variables at the farmers' disposal and as such must be focused on in any successful diversification efforts.

Convincing macro-economic policy recommendations must be made, based not only on their perceived effect on the agricultural sector, but also on their expected impact on the economy as a whole. Here in Antigua this is a critical requirement of any proposed policy change since we must be mindful of avoiding, as much as possible, any policy options which would significantly damage the tourism sector. In this context, the assumptions on which policy is based must be carefully examined to ensure that they apply when making predictions about the impact of a policy instrument. Otherwise, planners might be faced with a credibility crisis if implemented policy options fail to bring the expected benefits.

I am looking forward to the outcome of this meeting, especially in terms of any new light and direction it can give to the diversification effort. During your field trip you will see the first effort of our Government to provide pump priming in our diversification effort when you visit the Antigua Sugar Industry Vegetable Farm. This is an indication of how serious the Antiguan Government is, even within its limited resources and present heavy investment programme, to start the ball rolling in the agriculture sector in some significant way. Governments throughout the region are looking towards this joint body for some significant outputs from your week long deliberation, and so I wish you a fruitful week of discussions, and it gives me great pleasure in declaring this conference open.

Keynote Address

Crop Diversification: *New Horizons for Agricultural Development*

Dr. Bernard Yankey

Caribbean Development Bank, Barbados

Mr. Chairman, Honourable Minister of Agriculture: Crop diversification as distinct from agricultural diversification is limited to a discussion of the combination of cropping possibilities which are available to a country in order to improve the performance of the agricultural sector and correspondingly, increase its contribution to national development. It creates demands on other sectors of the economy for support services and can also, both provide and strengthen vital linkages. In its broadest sense, crop diversification in the Caribbean runs closely to agricultural diversification. It involves a combination of sector activities which include product intensification/rehabilitation of export crops, commercialisation and increased production of existing non market crops, increased production of crops to satisfy local consumption and the tourist market and the introduction of new crops or new market varieties of existing crops.

Crop diversification has been widely discussed and proposed by a variety of professionals - many not directly involved in agriculture - ranging from public officials, agriculturalists, national organisations, regional institutions, and of course, the news media. The subject has also been studied a few times, without any concern for implementation of the recommendations. The subject is also very topical at this point in time as some major export crops appear in trouble, but crop diversification is itself as old as the emergence of the small farm system. The concern which undoubtedly has been growing over the need to harness both human resources and financial resources to sustain and strengthen crop diversification in any, or all of our agricultural economies, goes as far back as the early 1960s. It is a concern that spans over a quarter of a century. But where are we?

In all this, very seldom have we been hearing the voices of the farmers - the entrepreneurs who are daily at work in the agricultural sector - but they are constantly making decisions in a variety of ways; and are taking action to diversify their cropping systems in an almost unnoticed fashion.

In this whole debate, what seems to me to be a relatively weak area is the involvement of professionals and technicians in actively designing and implementing, either collectively as groups, or as individuals in positions of employment, both research activities and projects/programmes geared to facilitate crop diversification. As professionals present here today, you belong to this group that I am referring to and it is very important that you enter the forefront of this debate - not for the purpose of talking but to ensure that only realistic and practical alternatives are put forward to decision-makers in the national system, and that careful consideration is given to implementation. Remember, in agriculture, we are dealing with people who must be persuaded and convinced to act, before things can happen. Very often, it is this process that frustrates decision-makers, planners and implementation agencies. But this will remain so

until the relatively high degree of risk in agriculture is progressively reduced. Since our agricultural professionals and technicians have the knowledge, experience and the gut feelings over what can work and what will not work; and because they have a wealth of insights into the working of the agricultural sector and both understand and appreciate the nuances of the farmer and farm family, it is my view that they should take some leadership role and should be strongly influential as we look for new horizons for agricultural developments.

Agriculture is a major economic sector for many CARICOM countries. Where it is not the dominant sector, it is significant in terms of employment, contribution to foreign earnings and its stimulative linkage effect on other economic sectors. However, the performance of this sector, which so many countries depend upon, has from time to time, been mixed and shows increasing weakness. This situation emerges from the over dominance of the major export crop on which the economy relies heavily. The problem is the susceptibility of that major export crop - be it sugar, bananas, cocoa, nutmeg, citrus, arrowroot - to a variety of market conditions i.e., strict quality requirements, slow growth in demand, supply allocations and depressed world prices. The collapse of any dominant export crop which fuels an economy, can mean negative economic growth, unbearable levels of unemployment, low foreign earnings with its effect on limiting import capacity and debt repayment, poor fiscal performance of the public sector with its effect on limiting public sector investment programmes and so on. Crop diversification, or better yet, agricultural diversification, is a means to eliminate the prospects of such a situation. The objectives of crop diversification are varied, but essentially, they are to minimise the adverse impact of the world market place on an economy; to improve the living standards of the rural population, in particular, farm families; to improve the level of foreign savings from import reduction of foods which are locally in demand and can be produced at comparable costs at home and in the region; and to provide a component of food security for the population against natural and international crises.

Crop Diversification: some essential features

Before we examine the scope and potential for crop diversification, a discussion of some leading facts of importance on the subject is necessary. These will help us to appreciate how far and how fast we can move in this direction.

The first fact is that the logical and financially sound way to pursue a programme of crop diversification is to adopt a market-led diversification approach. In other words, let the real market opportunities dictate what crops must be emphasised and in what form in the production systems.

The second fact is that crop diversification must be a cautious and programmed activity, supported extensively by both technical and market research. It must follow a pattern of adjustment within the farming system - one that is flexible and adaptable to the perception and capabilities of the farmer. The farmer or the farm corporation, if this is feasible, must undertake the pivotal role.

The third fact is that crop diversification does not necessarily mean the cutting back of a crop with market difficulties to move completely into something new - how would the farmer live? It is a shift in crop relationships, with expansion of productivity, or improvements in an existing crop or new variety through a reallocation of farmland or use of higher levels of cultural practices.

The fourth fact is that the relatively limited good quality land resources of most CARICOM countries mitigate against crop diversification through expansion. However, in many countries, underutilized lands are generally those which have limited alternative uses and these could therefore be properly cultivated in a suitable crop with good market prospects.

The fifth fact is that relatively good quality lands which are generally scarce should not be completely tied up with a permanent crop - for example, tree crops like coconuts, cocoa, nutmeg - in a programme of crop diversification. If a permanent crop provides a useful source of permanent income then an appropriate ratio of crop to land should be developed to accommodate the production of arable crops. Since market conditions vary in time, the more long-term the tree crop, the more risky the proposed change. Demand and price forecasts are not useful beyond three to four years. Hence, the market condition for a long-term tree crop that will come into full economic production by year six to eight will be anybody's guess. This can be a high risk gamble.

The sixth fact is that crop diversification should hardly be supported by input subsidies unless the crop has a wider economic role to play - preservation of hillsides for control of soil erosion, first source supply of raw material for agro-industry or for strategic reasons, e.g. food security. In any case, how many subsidies can the relatively weak Caribbean economies provide to agriculture, given their unstable fiscal situations? In recent time, subsidy packages have been going through the dismantling process.

The seventh fact is that crop diversification should be carefully planned to time implementation when the prospective market crop is in the trough of market performance, particularly biennials and tree crops, so that output comes into full production when the cycle is projected to be on the upswing.

The eighth fact is that crop diversification should be a dynamic process. Once an additional crop is given predominance in the agricultural system, it should be subject to regular market surveillance through aggressive market salesmanship which focuses on important quality characteristics of Caribbean agricultural products. For example, if Caribbean grapefruit have permanent marks but have sweeter and juicier characteristics, we should relate both features in a positive way in advertising. In other words, we should not be apologetic about the permanent marks which are merely physiological in nature. In addition, both production and marketing technology should be modernised and continuously improved to ensure cost effectiveness and high quality standards. Crop diversification therefore should be supported by appropriate institutional mechanisms and the support services required to provide the necessary reliable and accurate information on which decisions can be effectively made. The role of the public sector in crop diversification is very crucial and important, but it does not have to bear the overriding burden. It has a well defined position in terms of scope and design implementation but at the same time, it should be far from the sole actor on this stage. The conceptualisation, preparation, implementation and management of any crop diversification programme should be the function of research, credit and market institutions, commodity associations and farmer organisations, with the public sector providing the initiatives, incentives, the support services where necessary, and the appropriate legislation.

The ninth fact is that for crop diversification to be effective and self-sustaining - which is the sensible and economic approach - it

must be backed up by some measure of market diversity. By this, I mean access of output to local, regional and extra-regional markets should be both initiated and strengthened to achieve optimum income to the sector. At the same time, diversification programmes through this approach, should enable agro-processing to obtain independent supplies of raw material to operate above break-even levels. This scenario obviously envisages an agricultural sector with large volumes of production. Whereas experiences do not support this type of development, it is useful to add that herein lies the opportunity for fostering joint production and marketing activities, with selective areas for agro-processing within the framework of CARICOM or the OECS countries.

The tenth fact which we should appreciate is that any crop diversification programme that focuses on the introduction of new crops, or even new varieties of crops is very expensive both in terms of financial resources and the human resources required at the technical and management levels. Who can meet that bill? Are there historical experiences which can serve as a guide? Yes, small farmers have been doing this over a considerable period of time.

The eleventh fact is that crop diversification is not synonymous with the re-introduction of the 'plantation' or 'estate' large-scale agricultural systems of the past. Small and medium scale farming is the dominant agricultural systems in many CARICOM countries and has developed for many sensible reasons over time. It is therefore here to stay. It is more efficient in the use of land, labour and credit. Also, it generates more economic activities for rural people who constitute the majority of the population in many of the countries. It therefore ensures greater distribution of wealth and employment. For these reasons, crop diversification should pursue a path with small and medium-scale farming; with a cadre of special focus farms which could set the leadership role in being the 'innovators'.

The twelfth fact is that, if we are to seriously engage in crop diversification to improve the marketable range of crops, research will have to focus seriously on the development of cost effective technology packages for the farmer, with continuing operational research on the farm to determine the best crop combinations to achieve a level of income to the farmer that will provide him with the 'real incentive' to sustain any national programme of crop diversification on his farm. The totality of this commitment by farmers is what will make any crop diversification programme succeed. Research programmes therefore will have to be developed on a priority basis and tailored to meet specifically defined objectives. If crop diversification is a serious component of national agricultural policy and is subject to annual budgetary evaluations.

The final and thirteenth fact is that crop diversification has been going on for a considerable period of time and mainly in the small and medium-scale family farms. These farmers, historically part of the lower income sectors of society, have been adjusting their production systems against many risks. This they have been doing with the support of extension services and availability of new technology (particularly in its quantitative forms). Currently, they have advanced the level of crop diversification in a number of CARICOM countries. Their perceptions and experiences could provide planners with some of the unwritten considerations which should be taken into account as we attempt, in our very modern times, to develop investment projects in crop diversification.

But should crop diversification always mean the addition of new crops to the agricultural production system? No - it need not. For cost reasons as outlined, it is better if it does not.

I would argue seriously that the most economical solution to the problem of a dominant export crop agricultural sector which requires adjustment through crop diversification, is a process of undertaking serious market investigations, with aggressive salesmanship in the market place, to obtain reliable, medium-term and reasonably remunerative market orders for some of the commercial crops already in production but which are currently confined to small local markets, sometimes going to waste and with unnecessarily high levels of on-farm consumption. What then are the horizons for agricultural development for the period 1990 onwards, through the process of crop diversification?

A major consideration in crop diversification is the need to pay particular attention to the minimisation of risks to individuals or groups of farmers. Secondly, organisation and management structures and capabilities, whilst avoiding any duplication and overlap, need to be put in place to achieve the desired cost/benefit results from the diversification process.

Initiating and implementing sustained crop diversification

The objectives tend to be very national and economy centered, but any failure bears heavily on the farm family. This particular dilemma therefore, should sensitise our approach to the development strategy. I wish to propose that three methods of initiating and implementing sustained crop diversification which I will outline, have some merit and could be pursued in the future.

Firstly, priority should be given to a detailed examination of the crops which are grown on farms and determination made of how any or all of these respond to market tests (local, regional and extra-regional), and to what extent, commercialisation can progress within existing market time frames.

Secondly, based on historical evidence of the previous cropping systems which existed in the country, which are for medium-term crops with reasonably good market prospects and can be securely re-introduced?

Thirdly, which crops already being grown by farmers - even on a piecemeal basis - can be expanded satisfactorily on lands with very limited alternative use, to an above break-even volume of output for the principal purpose of agro-processing. The design for agro-processing in most CARICOM countries should involve the utilisation of efficient small/medium-scale plant - given each country's relatively low volume potential. The production objective should be to satisfy demand for products which can effectively compete within local and regional markets. But more important, such products should start with an appropriate capital structure for financing the operation as well as experienced project management and plant operation technicians. The HIAMP project of USAID with its venture capital component could pay considerable attention to addressing this particular urgent need. I have deliberately excluded extra-regional markets because we have consistently seen measures introduced to limit entry of our products.

Areas with diversification potential

I see our horizons, therefore, in three categories of crops:

- fruits;
- food crops; and
- spices, condiments and essential oils.

The market potential for flowers and ornamentals exists but because of world-wide competitiveness, particularly from our Latin American neighbours, I would give this category of crops only moderate priority rating.

Fruits

Caribbean countries presently produce a large variety of fruits, some of which go to waste. Through appropriate varietal selection of those which can be processed into fruit chunks, segments and juices, we could harness available supplies, and through a judicious process of expansion - particularly on underutilized lands which have limited alternative use - produce the raw material for small to medium-scale agro-processing. This does not exclude the fresh fruit market which is always a prime target area. However, significant spoilage rate in marketing, high per unit transportation costs and seasonality which produce gluts, favour an emphasis on agro-processing.

Undoubtedly, this would require a package of extension and research in varietal selection, plant propagation and crop expansion, as well as expertise in the selection, management and operation of plant and processing technology. But in addition to this, and very important too, will be the need for selection of appropriate packaging geared to consumer acceptance, as well as market programmes to improve and sustain demand.

The potential for production and marketing of processed fruit products from the wide variety of Caribbean grown fruits presents a challenge for Caribbean agriculture. A carefully designed fruit crop diversification programme should include, among other things, varietal selection for processing.

Food Crops

What about our food crops? With the present and projected growth of tourism in the Caribbean, food crops should have a guaranteed local and regional market. But this is not generally the case. Why then is it so difficult for our farmers to tap this potential demand, which would, at the same time, progressively reduce the large food import bill? It seems to me that this market will not come to the farming community, unless we are determined to penetrate it.

When confronted, the hotel industry stresses the problems of poor presentation, handling difficulties because of variable sizes and striking varietal differences, among others. In addition, there is the issue of price competitiveness. Are these problems too difficult to tackle in terms of our research and organisational capabilities? There is no doubt, that additional resources will be required to make the necessary breakthrough, but it is an investment in which the benefits should far outweigh costs.

Linkages with Tourism Sector: Those of us who stay at hotels know fully well that there are a range of food items which we could comfortably produce and/or process for the hotel table. Concerted national efforts could therefore be undertaken, along the following lines, to increase the tourist consumption of food crops and fruits:

- Detailed consultation with the management of hotels on the types and quality of food crops and fruits which can be served to tourists and how they should be presented for sale:
- Designing and implementing a package of research, based on the selection of crops arrived at through consultation, to deal with:
 - (a) appropriate varietal selection and adoption;
 - (b) the development of improved technology to increase productivity and to facilitate efficient harvesting;
 - (c) standardisation, processing, packaging and pricing for fresh marketing; and
 - (d) the development of a range of differentiated consumer products for wider utilisation of the foods selected.
- Wide-scale education of the population by the National Home Economics and Nutrition Institution on the choice, preparation and nutritional value of foods produced, including demonstration of the preparation of various recipes to hotel kitchens;
- Addition to the fiscal incentive package normally available to hotels of a provision for eligibility that would require a significant utilisation of local food crops and fruits in feeding tourists.

Promotion of local foods to the indigenous population: The increasing consumption of local food crops and fruits by tourists would undoubtedly have a positive demonstration effect on the local population. This could be strengthened by a local foods consumption education campaign, improved standardisation and promotion of variable pricing of food items at local markets, and an appropriate school meals programme among others.

This approach to generate increased consumption of local food crops and fruits could be tied up with a national food consumption policy which sets targets for reducing certain imports for which there are good substitutes. These targets could be related to certain criteria such as the quality of the substitutes, price competitiveness and the growth of local food production. This by itself, is a tall order for implementation. There is no doubt that for achievement of this aspect of crop diversification, appropriate existing institutions will have to be identified and strengthened to undertake the various tasks. This will require sound and effective organisation and management and could put a serious strain on both human and financial resources. Time constraints will also be a limiting factor and in the final analysis, decisions will have to be taken on the basis of priority.

Spices, condiments and essential oils

Any serious attempt at crop diversification, must of necessity examine areas in which CARICOM countries have certain comparative and competitive advantages for expanding production. The sub-sector of spices, condiments and essential oils provides the raw materials for both local and regional agro-based industries.

Ecological conditions are generally suitable in many countries for the production of a range of spices and condiments. However, the technology, research and extension support, as well as the infrastructural requirements (nursery and propagation facilities) are only available to a limited extent in a few countries. The same may be said of the essential oils such as bay and lime oil. However, except for nutmeg, lime and bay, these are mainly minor crops which have not been subjected to serious market promotion tests.

What seems feasible for this sub-sector is the identification and development of joint ventures among local, regional and extra-regional entrepreneurs in the processing of spices, condiments and essential oils into a variety of consumer products for extra-regional export. This could be pursued through national policies which provide specific incentives for the development of this sub-sector by the private sector, where the potential exists. The incentives could be based on the hoped for export provided by such trade initiatives as the Caribbean Basin Initiative (CBI). This is the only significant area in the CBI that, in my view, Caribbean agriculture can take advantage of without the frustrations of marketing primary products such as mangoes or processed commodities such as grapefruit juice.

There are marketing opportunities provided by international trade arrangements such as the Home Convention, the CBI, and others, of which greater advantage could be taken. However, to do so, we will have to invest heavily in the development of marketing infrastructure to provide the products which meet the phytosanitary, standardization and quality tests of these variable markets.

Transportation links will have to be carefully worked out and synchronized to limit, as much as possible, transit times and undue handling.

This is not an easy task for the relatively small economies within CARICOM. This is undoubtedly an area for tourist marketing initiatives which will become a necessity for the OECS Countries if they are to make any significant break-through in extra-regional exports. In addition to this, we will need a firm and permanent presence in the market place to provide the vital, reliable, market intelligence promptly to the domestic agricultural sector, as well as to monitor the products on entry and their performance in the market.

The investment required in this area may be merely marginal, since, in my view, we may only have to request the various High Commissions and Embassies of individual CARICOM countries to undertake trade specific functions for their respective countries.

Summary

The prospect exists for crop diversification which can broaden the horizon for agricultural development, improve the income position of the farming community and of investors in agricultural enterprises, and contribute to national development. To achieve any measurable

gains in this direction will require a combination of purposeful national policies, specific identification and appropriate strengthening of organisational structure and capabilities to undertake these many tasks.

The supply of adequate human and financial resources to plan and implement a market-led crop diversification programme will limit what can be done and must force each country to seriously select what is financially and economically feasible on a priority basis. The process will require, among other things, the undertaking of essential research as promptly as possible; the assessment, selection and application of adaptable technology and the provision of appropriate credit, extension and marketing services which are geared to the particular stage of development.

Above all, any crop diversification programme must be subject to constant monitoring and evaluation and, based on cost/benefit impacts as assessed at regular intervals, adjustments to the programme.

Thank you.