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REMARKS OF DR. ALEJANDRO AYALA AT THE OPENING SESSION



Mr. Secretary of Agriculture of Puerto Rico, the Hon. Carlos J. López; Mr. Chancellor of the University of Puerto Rico, Mayaguez Campus, Prof. Salvador E. Alemañy, officers of the Interamerican Institute for Cooperation to Agriculture, members of the Board of Directors, fellow members of the Caribbean Food Crops Society, ladies and gentlemen: It is indeed a great pleasure to share with you all on this opening session of the Nineteenth

Annual Meeting of the Caribbean Food Crops Society. We are pleased to host a meeting of this Society for the third time on its 20 years of existence. We trust that this 1983 Puerto Rican based CFCS meeting will be as fruitful as the 1965 and the 1972 meetings. We also trust that our distinguished visitors will enjoy our hospitality.

It is always important for scientists and agriculturists from different nations to get together to interchange ideas and explore possible avenues of cooperation. The Caribbean Food Crops Society has been fostering this interchange year after year and has been extremely successful, in spite of obvious limitations, in achieving its goals. This year, on the eve of launching President's Reagan's Caribbean Basin Initiative, our meeting is particularly important. It is very fitting that the central theme of this annual meeting is directly related to technology transfer. There is a great deal of expectation concerning CBI and agricultural development. Technology

transfer is going to play a key role in fulfilling these expectations. In the Caribbean, we are largely dependent on agriculture. Thus, we all look forward to the forthcoming actions and their impact on agricultural development, including processing and marketing, in the Caribbean Basin.

We all face rather complex problems in developing agriculture in most, if not all, of our countries. Finding solutions to problems caused by technological change and development is of utmost concern to us in the Caribbean. The approach toward the solutions of most of these problems must combine research and education leading to the adoption of new and improved technologies. Research programs must emphasize the generation of new ideas, based on regional development experiences, with the ultimate objective of engendering internal changes through the introduction and adaptation of new technologies. I firmly believe that the creation, adaptation and adoption of technology is vital to rapidly unlock the potential of agriculture in the Caribbean Basin.

At this time, with no further comments, I hereby declare formally opened the Nineteenth Annual Meeting of the Caribbean Food Crops Society.

CHANCELLOR ALEMANY'S WELCOME ADDRESS  
CFCS OPENING SESSION, SEPTEMBER 12, 1983



Mr. President, Hon. Acting Secretary of Agriculture of Puerto Rico, members of the Caribbean Food Crops Society, ladies and gentlemen: It is indeed an honor and a great pleasure to host the Nineteenth Annual Meeting of the Caribbean Food Crops Society. We are all pleased at the University of Puerto Rico, Mayaguez Campus, that the Society accepted our invitation to meet here on this occasion. This meeting, as well as the other two held in 1965 and 1972, and others elsewhere during the past 20 years, provides an exceptional opportunity to interchange ideas and to strengthen working relationships between institutions, scientists and others concerned with the improvement of production levels and efficiency, with marketing and with processing of food crops.

The Caribbean Basin is a remarkable region. I have always been deeply impressed and fascinated by its striking diversity as to origin, history, population, ethnics, politics and socioeconomic conditions. In spite of this recognized diversity, there are many common features that we share.

Somewhere around 50 million human beings live in the Greater Caribbean, many in relatively small countries, some of which are densely populated; under financial stress, and in some cases, at extreme levels of poverty. Nevertheless, the Caribbean Basin is blessed with a tropical environment which allows for year round growing of crops and raising livestock in open pastures rather than within the constraints imposed by colder environments. This is a reality that constitutes a definite advantage. Modern science and technology clearly grant the Caribbean Basin a competitive advantage in agricultural production which, after all, is an energy transformation process. Geographical circumstances locate us in an area of the greatest potential for agricultural production.

The Caribbean Basin is also blessed with soils which produce excellent crops if properly cared for, although many times they must be limed, fertilized, drained and irrigated. It is further blessed with men and women with purposeful minds to improve their living standards. In the Caribbean

Basin, we have the strength and determination to share a common willingness to improve our present conditions through self effort.

The diversity of the Caribbean is surprising, but even more so is the sense of unity and the strength, perhaps derived in part from our own differences, that unite rather than divide. We have a common denominator: we are all Caribbeans with a purpose. We can sense and see in the signs at our time that the rich diversity of the Caribbean signals toward unity.

We are all aware of our many constraints and limitations. The path toward improving our economy and living conditions is not smoothly paved, but we can make it and we are devoted to do it. The Caribbean Basin could emerge as an important component in hemispheric and worldwide relations. We live in the tropical belt where most of the less developed nations are located, where agriculture is vital, and where, paradoxically, the need is greatest. The potential to improve agricultural productivity is challenging.

We are fully aware that the Caribbean Basin Initiative is on the verge of being launched. I hope it comes at the right time. It has been rightly said that there is no better idea than that whose time has come. We should appreciate the opportunity that we all will have strengthen ourselves through shared work.

Our efforts in Puerto Rico during the past 40 years were conducive to a fast economic growth of great magnitude. However, as it could be expected, we made many mistakes. On the eve of implementing the Caribbean Basin Initiative, we are most willing to share with you information that might led to achieve the highest levels of progress. We can also share information so that you avoid the same mistakes that we made. Most of our efforts were geared toward the development of industry, tourism, manufacturing and commerce, but we neglected to provide for the massive use of science and technology which is indispensable for agricultural development, and which in turn, becomes essential for economic development.

By 1970 we became overly concerned at the University of Puerto Rico, Mayaguez Campus, with the evident decline of our agriculture. As a result of this concern, our mission and goals have been reexamined, major problems identified and appropriate priorities set. New programs have been



launched geared towards the development of technological packages of agricultural practices leading to increase productive efficiency and to the creation of better paid agricultural jobs. Since then, we have developed technologies to produce heavier crops of coffee, plantains, pigeonpeas, pineapple, rice, sugarcane, vegetables and starchy food crops. We have developed the technology to produce high quality milk based largely on heavily-fertilized and well-managed pastures. We have obtained outstanding success in our food technology programs. These have been real breakthroughs in agricultural research. However, in spite of these achievements, we still lag behind on adoption at the farm level. We are actively engaged--through our Extension Service--in an effort to lead farmers to adopt innovative, new, science and technology. Sometimes we feel a certain frustration when a farmer rejects our recommendations or when he plants a new, high-yielding cultivar but does not manage it properly and thus, failure can be anticipated. Our efforts are being directed to convey to the farmer the idea that he must employ the complete package of new technology, fully, and not isolated practices. We are confident that the new technology will be adopted gradually. We are at work to gain the farmers confidence and trust. Without it, we cannot even hope to succeed.

You must agree with me that sometimes it is very difficult for research scientists to select technologies that can be used promptly on the farm. The role of Extension, therefore, becomes increasingly important because it is not only a matter of technology transfer from the experimental field to the farm. Extension work involves adapting and refining technologies, making them useful to the farmers, that is, making them relevant.

May this thinking be of interest to you. After all, I am not only a University administrator but I am also a farmer in my own right as Dean Ayala so correctly stated. I am proud to be an agricultural economist and a farmer. Many times, necessarily, I think, and probably behave like a farmer. As such, I oftentimes question the relevancy of a given scientific approach, of a given technology. I must be convinced, in spite of my respect and high regard for science and technology of its practical applications.

It is indeed fitting that technology transfer is the central theme of this meeting of the Caribbean Food Crops Society at this time and place. It is fitting because, in addition to developing advance technologies, methods of extending them to the farmers must make sense, not only to us, but more so, to them.

I am hopeful that this Nineteenth Annual Meeting of the Caribbean Food Crops Society will be fruitful. A glance through your program for the week reveals your interest and advances in science and technology development. It also reveals your interest in making them readily available to the farming community.

Without further comments, let me say that, on behalf of the University Administration, of the faculty and of the student body, I am really pleased to welcome you to our Campus. It is our privilege to have you here. You should feel at home. After all, this Campus have been, for some 20 years, the site of the Secretariat of the Caribbean Food Crops Society, that is to say, its home base. We expect to continue to provide this kind of service to the Society on a continued basis. We will be glad to continue our close working relationships with CFCS.

Mr. President, ladies and gentlemen: I expect to have the pleasure of your company tonight at 7:30 at the Chancellor's residence.

Thank you.

TECHNOLOGY TRANSFER : THE KEY TO UNLOCK THE  
AGRICULTURAL POTENTIAL OF THE CARIBBEAN

Alejandro Ayala <sup>1/</sup>

Agricultural development in the Caribbean must be based on the use of modern appropriate technology regarding the diverse crops and livestock enterprises. The University of Puerto Rico, Mayaguez Campus, is engaged in the creation of an adequate technological base to fully realize the potential of agriculture in Puerto Rico. This technology can be useful to other Caribbean countries. The University and other research, training and development centers throughout the Caribbean must develop a strategy and framework for the effective utilization of agrotechnology transference research that will combine national and international efforts and promote the application of its results to development work.

The University of Puerto Rico, Mayaguez Campus, is aware that there are excellent opportunities for agricultural growth in the Caribbean. This can be achieved mainly (1) through the training of highly competent professionals and paraprofessionals in Agricultural Sciences, (2) by developing and updating the technological basis, and (3) through programs geared to increase the rate of adoption of new technologies. When these three components are put to work on a harmonious basis and in full support of the government plans, it is very likely that opportunities will emerge for substantially increasing the production on agricultural commodities. This has been confirmed by experiences in Puerto Rico. These opportunities arise as the result of on-going research at the University of Puerto Rico, Mayaguez Campus. New and improved technological packages of practices including high-yielding, pest-resistant crop cultivars, improved pest control practices, close planting, intensive production and improved cultivation and management, have been developed through these programs. There is also a wealth of information available in the fields of food conservation, processing and distribution.

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<sup>1/</sup> Dean of the College of Agricultural Sciences, Director of the Agricultural Experiment Station and Director of the Agricultural Extension Service, University of Puerto Rico, Mayaguez Campus

Complete technological packages are essential since neglecting one practice in an intensive farming system can be disastrous. On the other hand, applying all the practices in a systems approach can result in a multiplier effect on yield and profits. For example, using improved cultivars can increase coffee yields by 20 per cent; proper pest can increase yields 40 per cent; growing coffee in full sunlight rather than under shade trees can increase yields 40 per cent; liming and fertilization can double yields; closer plantings can increase yields 50 per cent; and harvesting with plastic nets can decrease berry loss by as much as 30 per cent. When all these practices are combined, yields can increase tenfold over those obtained with traditional systems.

Plantains can be planted and harvested throughout the year to provide a steady supply of food, can produce several crops without replanting and can be grown with good soil protection even on steep slopes. Experiences in Puerto Rico reveal that 22,100/kg/ha of plantains can be obtained from sod planting and strip cultivation; 23,760 from complete land preparation and clean cultivation. The use of nitrogen, phosphorus, potassium and magnesium leads to yields of 20,700 kg/ha vs. 8,400 - 13,600 when one of the nutrients is omitted. The application of nematocide increase plantain yields over two successive crops. In the first year, the nematocid-treated plots produce 23,120 - 28,700 kg/ha while untreated plots produce 21,600 kg/ha. However, by the second year treated plots produce more than 22,000 kg/ha of fruit while nontreated plots produce none. Through the application of a package of intensive management practices, developed by the College of Agricultural Sciences, growing high-yielding cultivars (bunches with more than 40 fruits) at high population densities, under proper pest control and fertilization, yields have been increased from an average of 12,000 kg/ha when using traditional systems to 60,000 kg/ha containing 40,000 kg of edible pulp with the calorie equivalent of 15,000 kg of corn, a level attained in the U.S. corn belt. A system of intensive management practices for papayas, consisting of growing high-yielding cultivars close together with heavy fertilization, liming, periodic insecticide spraying and erosion control by contour grass strips and diversion ditches resulted in yields of more than 100 mt/ha on steep soils of Puerto Rico.

Pigeonpeas are an excellent source of protein. The rather tall bushes can be grown on steep slopes with no land preparation and with contour grass strips to further help control erosion.

They are drought-tolerant, have few important pests and can fix atmospheric nitrogen. An intensive management system developed in Puerto Rico has resulted in the production of 16,000 kg/ha in two successive crops producing during the winter season without replanting.

Research by the College of Agricultural Sciences in Puerto Rico has shown that well-fertilized, well-managed pastures on steep, deep soils can produce over 1,000 kg/ha of gain in weight or 7,000 liters of milk/ha/yr with no concentrate feed.

These are just some examples of the agricultural technologies developed in Puerto Rico that could be useful here and could be transferred to other countries in the Caribbean.

This wealth of information is available in publications and is being put to practice by leading farmers and will be made available to other countries in written form and also via visits to demonstration farms.

Puerto Rico can also provide pathogen-free propagation material of high-yielding cultivars of sugarcane, coffee, grasses, soybean, sweet potatoes, sorghum, beans, rice, pigeonpeas, and plantains.

Other areas of service and technical assistance are as follows:

1. Promote managerial and professional interchange.
  - a. Initially, groups of agricultural leaders and entrepreneurs can visit Puerto Rico for 1-2 weeks to observe our experiences and as well as our errors so that these will not be repeated.
  - b. Scientists specialized in crop and livestock management will attend seminars, workshops and short courses.
2. Provide assistance in the transfer of technological practices.
  - a. On-farm testing with a minimum of adaptive research and demonstrative aspects. Adaptive research is necessary for applying new technologies under other conditions.

- b. Technology delivery systems based on on-farm testing are vital to the extension process. Systems used in the U.S.A. are not necessarily transferable to tropical countries.
    - c. Methods for accelerated commodity development by ecological and socioeconomic zones are essential. Support activities needed by farmers such as retail outlets, collection points for marketing, credit, and technical assistance have been developed in Puerto Rico by zones and regions and the derived experience, with needed modifications, can be helpful to others. The goal is to increase total crop and livestock production in a given areas bringing all land into its most effective use.
3. Provide assistance in developing detailed land and water resource inventories essential in achieving agricultural development. The University and the U.S.D.A. Soil Conservation Service, Caribbean Office, could reinforce efforts underway in various Caribbean countries to complete soil inventories within a relatively short period.
4. Provide for upgrading human resources. The University of Puerto Rico has a long recognized tradition in training students from Caribbean countries at the Mayaguez Campus. Some of the options available are as follows:
  - a. Provide highly qualified personnel to reorganize and staff the schools of agriculture over a short period.
  - b. Formal studies leading to B.S. and M.S. degree in various fields of agriculture, economics, industrial engineering, agricultural engineering, management and a Ph.D. program in Marine Sciences.
  - c. Short courses seminars and workshops in areas such as crop production, soil management, pest control, planning and administration of agricultural programs, forage management for dairy and beef production, agricultural cooperatives, animal science and others.

- d. Special training programs in various fields on a one or two year basis.
  - e. On-site (at other countries) technical assistance on a short and long term basis.
5. Improve the dairy industry based on the Puerto Rican experiences over the past 30 years which has resulted in self sufficiency of high quality fresh milk.
- a. Industry organization and marketing channels.
  - b. Production of milk with a minimum of concentrates. Experiences in Puerto Rico show that 7,000 liters of milk/ha/yr can be obtained/cow on well-fertilized improved pasture land on steep hills.
6. Help establish plant and animal quarantine services to prevent the spread of diseases, insects and nematodes. A cooperative effort is needed to protect the Caribbean countries from such plagues as foot and mouth disease, coffee leaf rust, yellow disease of coconuts, "Hoja Blanca" of rice, and others.

Finding solutions to problems posed by rapid technological change and development is of utmost concern to most countries of the Caribbean. The search for improved technologies and the application of knowledge to problem solving is not limited to the so-called developing countries. The approach toward the solution of the complex problems of technological change and development must combine research, education and training programs. Multi-faceted activities must be designed to increase the knowledge and capabilities of scholars, students, and practitioners in the areas of science and technology, and development policy, planning and administration.

Research programs should emphasize the generation of new ideas, based on regional developmental experiences, with the ultimate objective of engendering internal change through the introduction and adaptation of new technologies in the countries of Central America and the Caribbean Basin.

Promising areas of scientific and technological research include "technological leapfrogging" and applied "appropriate" technology. "Technological leapfrogging" bypasses steps in the development process by introducing new ideas and new technologies. "Appropriate" technology modifies and adapts technological advances to meet specific needs of individual countries.

Under contracts with the U. S. Agency for International Development, the University of Puerto Rico has been involved in a major research program with the intent of demonstrating how soil management and crop production technology can be transferred among tropical countries on the basis of soil families as defined in the U.S. system of soil classification (Soil Taxonomy). The experience to date clearly indicated the general validity of the transfer hypothesis underlying the project.

A strategy and framework for the effective utilization of agrotechnology transference research that combines national and international efforts and promotes the application of its results to development work must be designed.

The role of the University of Puerto Rico in helping to unlock the agricultural potential of the Caribbean is envisioned as that of a catalyst and will mainly concern the establishment of a regional network of benchmark sites in Latin America and the Caribbean and the development of a scientific infrastructure conducive to effective knowledge exchanges and technology transfers. This can be done in close cooperation with other institutions.

The University of Puerto Rico is in a position to assist countries in the Caribbean in establishing national networks of Benchmark soils and provide guidance relative to the research needed for these soils.

The ultimate purpose of this is to enable countries in Central America and the Caribbean to capitalize on the results of agronomic research conducted under similar environmental and edaphic conditions elsewhere. For example, much of the soil management and crop production knowledge generated during more than 50 years of agricultural research in Puerto Rico is applicable in many other areas of the humid and seasonally dry tropics of America. The key to successful transfer of agrotechnology is the appropriate stratification of this knowledge by soil and climatic conditions. It is now becoming evident that soil taxonomy provides a mechanism for



knowledge transfers. We should aim at bringing the vast array of accumulated knowledge of economic and social development to bear on the solution of developmental problems.

The University of Puerto Rico concern with specific regional problems will be particularly reflected in the Caribbean. There, the unique character of the region comprising many independent states, dependencies, and territories necessitates a special approach to technological and developmental problem-solving. Priority should be given to cooperative programs involving development problems and technical and administrative leadership in the region.

The University of Puerto Rico, Mayaguez Campus, has always been actively involved in Caribbean affairs. More recently, the University has demonstrated a definite commitment to a long-term international involvement. This is reflected in the appointment of new staff members and their assignment to various international projects.

The University's involvement in mission-oriented research and training programs is bound to create a long lasting commitment to international development. Its ability to collaborate with other countries in Central America and the Caribbean, will increase as the ongoing and proposed research and training activities progresses.

In the area of tropical soils management research, the University of Puerto Rico, Mayaguez Campus, has been involved in a major project with Cornell University, with U.S.D.A. cooperating, under the auspices of AID for the solution of soil fertility problems of the humid tropics. It maintains linkages and working relationships with IICA with headquarters at San José, Costa Rica.

The role of the University can not be confined to narrow geographical limits. There is an immense potential in our very close neighborhood. We are committed to help ourselves and to help others. We firmly believe that technology transfer is really the key to rapidly unlock the potential for agricultural development in the Caribbean.

MESSAGE OF THE HONORABLE SECRETARY OF STATE  
CARLOS S. QUIROS



Mr. President, members of the head table, members of the Caribbean Food Crops Society, ladies and gentlemen:

I am honored to represent the Governor of Puerto Rico, the Hon. Carlos Romero-Barceló, at these closing ceremonies of the 19th Annual Conference of the Caribbean Food Crops Society. Since the foundation of the Society, it has been our privilege to host this important annual event for the third time. After looking over the program, I am very pleased with the nature of the subjects discussed at the Scientific Sessions, the study schedules and, particularly, with the workshop on Technology Transfer in the field of Agriculture. We are all concerned with agricultural development throughout the Caribbean Region, while we

are also fully aware that scientific development and technology transfer are the keys to unlock the region's agricultural potential.

In Puerto Rico, and probably so in other countries, we are beginning to recognize the importance of the application of science and technology to agriculture as a major means of achieving economic and social progress. Since 1970, agricultural science has become a powerful productive force in Puerto Rico. Major research projects have been carried out at the University of Puerto Rico's Mayaguez Campus, making real breakthroughs. Looking at your program I realize that the same awareness seems to prevail in other Caribbean nations. Research organizations throughout the English, French and Spanish-speaking Caribbean are doing their best to adapt and/or develop high-yielding, highly pest-resistant food crops varieties, as well as appropriate soil and crop management practices capable of maximizing their potential.

The demand for agricultural and agroindustrial research in Puerto Rico has grown enormously because of the country's relatively high rates of economic growth, rapid urbanization and increasing opportunities to sell agricultural products both locally and in the United States mainland. These factors have also affected the nature of the demand for research, so that now, more than ever, increasingly sophisticated skills and equipment are required. Puerto Rico, therefore, needs well-trained agricultural scientists capable of taking hold

of innovations from abroad and adapting them to our circumstances. The great advantage of this approach is that a substantial part of the cost of the original research does not have to be incurred by Puerto Rico. On the other hand, in view of Puerto Rico's diverse environmental conditions, which differ from those of the developed countries in many ways, generating the appropriate knowledge that transcend mere adaptation is a component of prime importance in agricultural research programs. The situation is likely to be the same in other Caribbean countries.

The agricultural research strategy in Puerto Rico and, apparently, in most of the Caribbean countries with the needed capability, has been the adaptation, development and updating of complete technological practice packages for specific crops that can be produced and marketed economically and/or that offer the potential to do so. As you are all aware, the use of these practice packages is essential, since neglecting a single practice in an intensive farming system could be disastrous. On the other hand, applying all the practice in a system approach can result in a synergistic effect and in multiplying yields and profits.

At this moment, in spite of the remarkable achievements in science and technology development, Puerto Rico's agriculture hardly reflects such advances. There is still a rather wide gap between the technology that has been adapted and developed and whose beneficial effects have been duly proved, and its adoption at the farm level. We fully recognize this anomaly; therefore, we are searching for solutions in order to bridge the gap. I trust that we may achieve our goal through adequate joint efforts of the Department of Agriculture and other government agencies, the College of Agricultural Sciences of the University of Puerto Rico, Mayaguez Campus, and the private sector. This can be achieved if we all work together. A similar situation probably prevails throughout the Caribbean, thus similar solutions could be worked out. It is indeed very fitting that during this 19th Annual Conference, the Caribbean Food Crops Society has dealt with the issues concerning technology transfer, since this appears to be, at the moment, the most acute and urgent need. It is also the most promising action that we can envision. We have the technology, at least an important and significant share of it, and we must find ways and means to put it to work. We can do it, and I am sure that we are going to do it. The process of reversing the trend of using traditional agricultural practices--in some cases centuries old and even obsolete--to adopt modern and sophisticated technologies, is unavoidable. It might take several years, but with adequate

educational approaches at the farm level, with massive government support, and with the involvement of private entrepreneurs, we are most likely to achieve it. We are doing it in Puerto Rico. Some of you might have seen the new rice industry being developed in northern Puerto Rico. It is a joint governmental and private sector effort based on modern technologies developed at the Mayaguez Campus of the University of Puerto Rico. We have the land, in spite of what others might say to the contrary; also the water resources and capability. We can produce a good share of the rice consumed locally and imported now to the tune of over one hundred million dollars per year. This is a recent development; it was only in 1970 that the University began the required scientific research. In a relatively short period, through a crash research program, high-yielding rice varieties were tested and selected and appropriate production practices developed. Currently, several thousand acres are under cultivation and a modern rice mill is in operation. This is a real breakthrough in terms of producing a significant portion of the food we need and of retaining the dollars we also need. Some of you might have seen the progress of the Southern Coast Vegetable Production Project being developed by private enterprises, and which integrates technologies adapted from abroad with technologies developed at the University. The on-going commercial projects on tropical fruit production are also based on locally developed technologies. We expect a great deal from this program since we have the natural tropical environment where we can grow crops on a year-round basis, the soils, the water, the know-how and, more important, large markets which are readily accessible.

I was perusing over some of the published proceedings of the Caribbean Food Crops Society and I was really pleased to discover that 20 years ago there were people in the Caribbean who had the vision to attempt to provide a mechanism to foster exchange among scientists and others concerned with food crops production, processing and marketing. In my judgement, 20 years ago these people were really looking ahead into the future. They envisioned a need to bring together the talent and efforts of all those interested and concerned with Caribbean agriculture. We should pay tribute to them. They were pioneers, paving the way which we now follow.

The survival of the Caribbean Food Crops Society through these past 20 years is in itself an amazing achievement. Almost without any external support--except until recent years when the Inter American Institute for Cooperation to Agriculture has provided much needed economic help--the Caribbean Food Crops Society has grown substantially in membership and strength, and is fully recognized throughout the Caribbean as a valuable pool of talent and an agent of change. The

potential for the future cannot be fully assessed. I figure that in the years to come the Caribbean Food Crops Society will be further strengthened and that it will provide valuable services to the region in terms of enhancing the exchange of plant material, supplying expertise through advisory services, and further planning, developing, and testing efficient systems of technology transfer from the experimental plots to the farm, and from one country to another. In this way it can help to achieve the adoption of technologies and thus overcome the major constraints to increased food production and improved quality of life in the Caribbean Basin.

We are aware of the real and complex challenges that we face in the Caribbean. The main components are perhaps hunger and malnutrition, aside from inadequate housing, health care and education. New drives and concepts are needed to face the challenges. We must combine the efforts of the numerous higher learning and research institutions throughout the Caribbean in order to jointly focus on the most critical problems. The Caribbean Food Crops Society has the manpower requirements to help in this effort. Your example during your 20 years of existence deserves to be considered by other organizations, and even by the governments.

Mr. President, members of the Caribbean Food Crops Society, ladies and gentlemen: It has been a privilege to host this Annual Conference. Sharing with you has been rewarding. You will always be welcome to this Caribbean island.