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**ST.KITTS/NEVIS COUNTRY PAPER**

Submission by the National Agricultural Corporation  
 St.Kitts/Nevis

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ST. KITTS/NEVIS COUNTRY PAPER  
SUBMISSION BY THE NATIONAL AGRICULTURAL CORPORATION  
ST. KITTS/NEVIS

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Introduction

That agricultural production is important to the St. Kitts/Nevis economy, there can be no question. Witness agriculture's significant contribution to the Gross Domestic Product (GDP) to the tune of US\$9.1 million in 1980, a figure which represents 24.6% of the total GDP. Moreover, agriculture accounted for 64.3% of exports valued at US\$14.8 million in 1980. Of the total work force, agriculture employs 38%. Sugar cane and cotton agriculture contribute most to these benefits.

Notwithstanding, agriculture production satisfies only 30% of the domestic food requirements, while it is felt that the potential exists for this figure to reach as high as 65%. In dollar value, St. Kitts/Nevis imported US\$9.7 million worth of food during 1980.

Against this background, the St. Kitts/Nevis Government has enunciated a developmental policy of diversification of agriculture giving the following broad objectives:

- a. maximization of economic use of existing arable land for increased food production, to meet local demand and to improve the nutritional status of the country at large;
- b. production of crops for export and the generation of foreign exchange earnings;
- c. promotion and encouragement of agro-based industries; and
- d. creation of employment opportunities in agriculture.

As part of this thrust, Government has continued to emphasize agricultural research and development as important components of the overall effort to bring these objectives to fruition.

## Agricultural Research Policy

In the past, the emphasis on local research was on the monocrops, sugar cane in St. Kitts and cotton in Nevis, with limited research effort in food crops and livestock. During the last decade, however, with the growing food import bill and the decline in the earnings from the export crops, more of Government's direct support has been to broadening the agricultural research effort to include food crops and livestock.

In fact, priority in financial contribution and human resource allocation has been given to food crop research locally, while livestock research of more Eastern Caribbean regional nature has been pursued by Government.

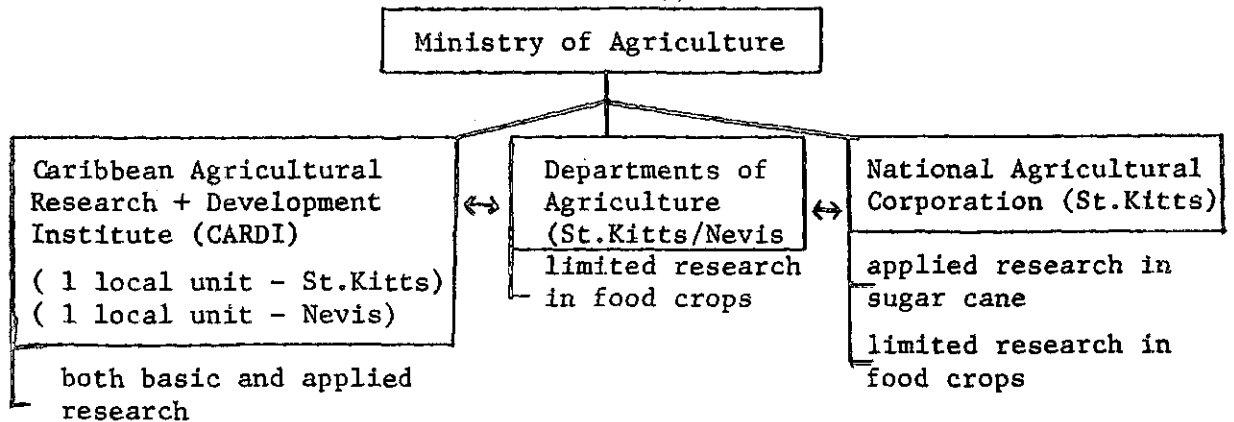
The criteria being used to determine priority for research include:

- i. import substitution and regional export possibilities considering both country's and farmers' resources;
- ii. identification of weak links in the production chain of selected commodities and possibilities for elimination;
- iii. availability, identification, training and placement of research personnel in the required discipline(s) based on (i) and (ii) above;
- iv. execution of specific projects with emphasis on short season crops where quick results can be determined; and
- v. identification of funds to finance specific research either problem-oriented or commodity wise.

Based on the above, it was early identified that emphasis should be given to crops such as hot season tomato, food legumes, cabbage, carrot, white potato, yam, onion and corn; to seed selection and multiplication and the development of an accompanying technological package to be later introduced to farmers to both initiate and improve production; to study farmers' cropping systems with the aim of eventually influencing cropping patterns tailored to marketability and increasing farmers' incomes; to investigate problem areas in the selected crops, carry out trials and make recommendations to rectify same; to continue on-going investigational research of export-oriented crops; to participate in regional livestock research projects which cater to local problems including pest and disease control, pasture improvement and nutritional studies; and to initiate tree-crop and fruit production projects.

Structural Organization

The national agricultural research system is best summarized in the chart below:



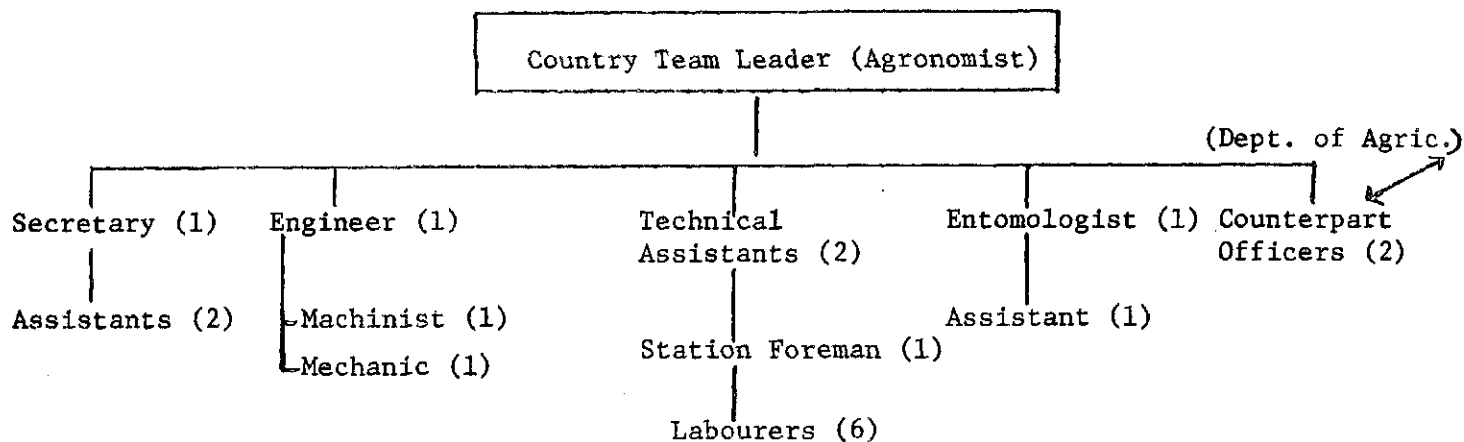
As evident, local agricultural research is currently being directly supported and organized only by Government. Funding for the core budget for the local CARDI unit with stations both in St. Kitts and Nevis, comes directly from local Government. Annually, for the last five years, Government's contribution has been above US\$40,000 with the 1982 contribution being US\$48,000. In addition, specific commodity projects for research and the small farmers multiple cropping systems together have been funded by USAID and EDF to the tunes of US\$80,000 during 1982. Table 1 lists the approximate CARDI and NACO budgets for the past five years.

Table 1

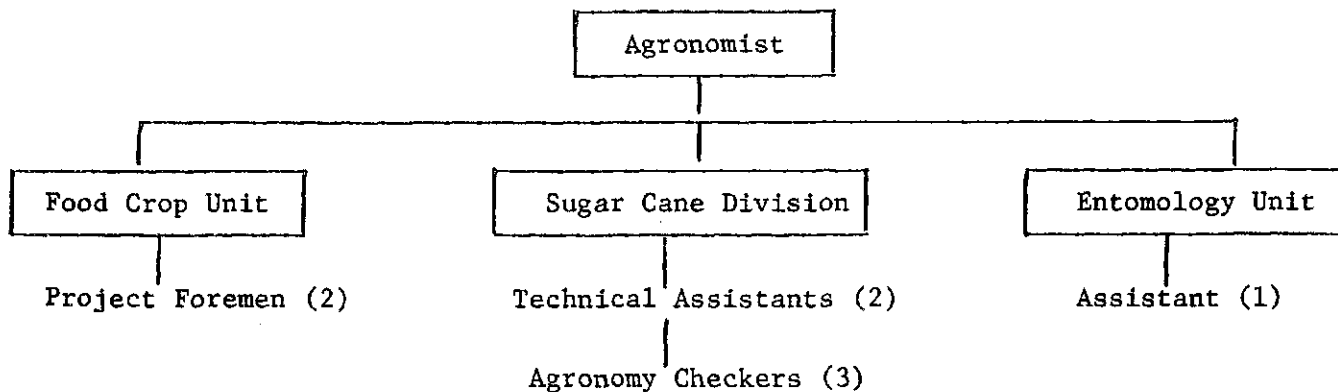
CARDI and NACO Annual Research Budgets (US\$) for Last Five Years

Year	CARDI	NACO	TOTAL
1978	109,260	46,300	155,560
1979	118,500	48,540	167,040
1980	124,000	63,040	187,040
1981	127,000	71,520	198,520
1982	129,000	60,630	189,630

CARDI's current staff position is given in the chart below:



NACO's Current Staff List is Given Below:



Collaborative research is done between CARDI and NACO in specific areas including intercropping studies with sugar cane; seed multiplication and new variety testing; peanut research and biological pest control. Indeed the CARDI entomologist is stationed at the NACO Agronomy Research Unit with his assistants, one each supplied by CARDI and NACO, and work of emphasis covering sugar cane and food crops.

The Department of Agriculture has over the years carried out limited research work especially in testing new varieties and livestock feeds studies. The amount of funds allocated per annum is limited and seldom

exceed US\$2,000. Efforts of the past covered crops like sweet potato, tomato (canning varieties), sola papaya, inter-cropping and limited pesticide trials in cotton.

#### Management of Research Programmes and Projects

CARDI being a regional organization operates within the context of its own mandate with input from professional regional staff in planning all research project funded externally. All such projects (e.g. EDF Peanut Project and the USAID Small Farmer Cropping Systems Project) tend to be regional in approach and are normally under the specific supervision of one or more professionals depending on the discipline(s) involved. Otherwise the resident agronomist plans and executes trials in food crops.

There is an existing local CARDI Advisory Committee under the Chairmanship of the Chief Agricultural Officer with representation from CARDI, NACO and Department of Agriculture, Nevis. Farmers priority for research is decided at this level.

NACO functions independently with the Research Agronomist, under the guidance of a Research Committee for Sugar cane, planning and executing research projects. Priority is always given to the immediate needs of the sugar industry and to peanuts, the main crop planted by NACO after sugar cane.

The major agricultural research projects underway in St. Kitts/ Nevis by CARDI, NACO and Department of Agriculture are summarized below:

1. Project Title: EDF Peanut Project.  
Objective: To develop a technological package which can maximize the yield of peanut by small and large scale farmers, and reduce cost of production.  
Institution: CARDI.  
Countries: St. Kitts/Nevis, Antigua, Belize, St. Vincent.  
Aspects of Research: Agronomy-Engineering covering production - protection-processing.

Time Frame: Three years.

Progress: Appropriate small farm equipment to minimize hand labour is major thrust at present. Yield data to be correlated with rainfall, soil fertility and plant population. Integrated pest control programme being studied. Variety Tennessee red and NC<sup>2</sup> being studied. Inter-cropping with cotton and sugar cane being tried. Notable increase in number of small farmers planting peanuts.

Constraints: Absence of peanut agronomist on local CARDI staff and cash flow problems.

2. Project Title: Small Farmer Cropping Systems Project.

Objective: To collect detailed data on selected farmers from which computer analysis will be used to determine how to best improve farmer's income by best combination of crops with existing resources and available technology.

Institution: CARDI.

Crop: Multiple Cropping (food crops).

Countries: LDC's, MDC's and Belize, but local project specific to St. Kitts and Nevis.

Aspects: Production/Protection/Marketing.

Time Frame: Three Phases (Three years).

Progress: Phase I completed Phase II in progress i.e. collection of data completed; data being analyzed by computer.

3. Project Title: Variety Evaluation.

Objective: To select new varieties to be grown commercially in St. Kitts.

Institution: NACO.

Crop: Sugar cane.

Country: St. Kitts/Nevis.

Aspects: Production/Protection/Processing.



- Time Frame: On-going.
- Constraints: Main limitation being the number of varieties in trial that are otherwise promising but susceptible to smut.
- Progress: A number of selections made during 1983 crop for further evaluation. Two very promising varieties emerging with relative resistance to smut.
4. Project Title: Variety Evaluation.
- Objective: To select new varieties to be grown commercially in St. Kitts by small farmers.
- Institution: Department of Agriculture, St. Kitts.
- Crops: Tomato - Sweet Pepper - Cucumber.
- Country: St. Kitts/Nevis.
- Aspects: Production/Protection/Processing.
- Time Frame: Three tomato seasons (Three years).
- Progress: Several selections made from 1982 for further evaluation in 1983.
- Constraints: Equipment for diagnosing diseases.

Other current research projects are listed in Table 2 naming the institution responsible.

Table 2

Current Agricultural Research Projects and  
Institution Responsible

<u>Title of Project</u>	<u>Local Institution Responsible</u>
1. Evaluation of nutritional status of sugar cane in St. Kitts.	NACO
2. Evaluation of furadan on sugar cane.	NACO

Table 2 (Cont'd)

Title of Project	Local Institution Responsible
3. Weed control in sugar cane.	NACO
4. Yam seed selection (with emphasis on resistance to anthracnose).	NACO/CARDI
5. Irrigation Studies (Nevis) (Food Crops).	CARDI
6. Inter-cropping Studies.	CARDI
7. Evaluation of Pesticides.	NACO
8. Study of Thrips on sugar cane.	NACO
9. Biological Pest Control in major crops.	CARDI/NACO/Dept. of Agriculture

Human Resource Development

In the National Agricultural Research System of St. Kitts/Nevis there are currently five (5) professional research personnel and at least twenty-seven (27) support staff. Among the five professionals, there is one engineer (M.Sc), two agronomists (B.Sc and M.Sc), one entomologist (B.Sc) and one general graduate (B.Sc). These are supported by at least six (6) agricultural assistants trained at the diploma level that are directly involved in research work. Until recently there were three (3) other B.Sc graduate research agronomists on staff.

Presently, in training are four (4) local agricultural students pursuing post-graduate studies in agronomy and livestock, and two either pursuing B.Sc (general agriculture) or B.Sc (agricultural engineering). It is envisaged that these will all be involved in research and development on return to service. The main limitations are in the disciplines plant pathology and

entomology (there are limited facilities and trained personnel). Staff turnover at CARDI and NACO has been high with positions being filled by Peace Corps or Expatriates.

#### External Relationships

The main link to external research organizations has been through CARDI where for unusual problems, especially with diseases and nematodes, technical assistance is sought. Contact is maintained directly with UWI, North Carolina State, AVRDC, CARDATS and CDB. The National Agricultural Corporation operates through the Sugar Association of the Caribbean (SAC) where direct links are maintained and research results are annually exchanged at cane breeding workshops and technologist meetings and conferences. In fact, regional research strategies are planned at SAC level, from which international contacts are made.

Through the Ministry of Agriculture benefits are derived from links with regional and international organizations from whom both technical assistance and funding for specific projects have been derived. Direct communication is maintained with IITA, CIMMYT, CIAT and IDRC.

#### Transmission of Information and Technology

Each of the two CARDI stations in the State has one liaison officer whose function is to provide the link between the CARDI research results and the extension service. Extension officers thus transmit the necessary information from research institution to farmers and vice versa. This way new techniques are passed on to farmers while researchers are kept abreast as to problem areas of specific commodities that need to be studied.

Otherwise, CARDI has an information department where bulletins are prepared and channelled to the various departments of Agriculture. In addition, CARDI, through its systems approach, carries out direct on farm demonstration research work as well as on farm trials. Equipment, for example, has been made available by CARDI to some farmers in exchange for valuable information used to study cost savings and suitability of equipment for certain operations.

Other methods of transmission of information that have been used locally include field days, agricultural exhibition, direct farm visits by researchers, and occasional radio focus programmes.

The USAID small farmers systems study is done entirely on selected farms. Part of the EDF Peanut Study is being conducted on NACO lands (large scale) and on small farmers lands. This approach has resulted in quick adoption of new techniques by farmers.

There have been complaints by farmers that they have not been impacted to any great extent by the research effort of CARDI. Much work has been completed in the last five years on tomato, cabbage, onions, carrots and legumes but the benefits of the results have not been readily available in a usable form for farmers who farm under rainfed conditions in the hills. There is a sense in which more on-farm trials under rainfed conditions need to be followed, and it is felt that quicker adoption by farmers would be more likely.

#### Evaluation

The area of evaluation of research progress is perhaps one of the weaknesses of the system. While it is true that CARDI regionally meets annually to evaluate its research programmes, local evaluation falls short of expectations. Staff turn-over for example, has affected the continuity of research projects, yet no trained national at B.Sc level or above has been employed by CARDI. Again, the public is aware by news release of the commencing of research projects but is not normally kept abreast of successes or failures of implementing and completing such projects.

The research done by NACO is applied, located on estates and feed-back is directly felt from managers. Results are published in monthly reports which are circulated to managers. The Agricultural Manager and Area Managers within NACO form part of a Research Committee who evaluate the research projects annually. Recommendations are made and quickly adopted. Decisions as to appropriate areas for further investigational study are also made involving estate managers in the planning stage. Yield of sugar cane has therefore been kept at a consistently high level over the years. Peanut research in both agronomic and engineering disciplines has resulted in

uniform plant stands, weed, insect and disease control, and precision operations. Cost saving techniques are now being studied.

#### Summary and Future Considerations

From the foregoing, it is obvious that the primary research institutions of the State are CARDI and NACO. These institutions are concentrating on agronomic and field engineering research in sugar cane, cotton and food crops. Annually US\$190,000 are being spent on agricultural research in St. Kitts/Nevis. Whereas, the export crops received more emphasis in the past, the bulk of Government's current financial contribution to research is concentrated on food crops covering the broad groups like legume, vegetable, fruit and root crops.

The recent formation of a Science and Technology Council will lend support to research in other disciplines of the food and agricultural system particularly with emphasis on food technology. The current training of locals to B.Sc, M.Sc. and PhD. levels especially in livestock pathology and entomology will be a plus for the national research system of St. Kitts/Nevis for the future.

Given an improved impact-evaluation system for the limited but costly research projects, and given Government's thrust in agricultural diversification, the future of agricultural research can be more meaningful in impacting on the food production effort for the better. There is little doubt, however, that research is an important part of the national development. Witness the present good and competitive yields being achieved in peanuts, sugar cane and cotton as a result of past research and farmer adoption of the recommendations.

