PD-ABL-805
96331

A.I.D. EVALUATION SUMMARY PART I

(BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS)

A. REPORTING A.I.D. UNIT: USAID/Costa Rica/OPED (Mission or AID/W Office)

(ES# 95-3)

B. WAS EVALUATION SCHEDULED IN CURRENT FY ANNUAL EVALUATION PLAN? yes ☒ slipped ☐ ad hoc ☐

Eval. Plan Submission Date: FY 95 Q 2nd

C. EVALUATION TIMING interim ☐ final ☒ ex post ☐ other ☐

D. ACTIVITY OR ACTIVITIES EVALUATED (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report)

IDENTIFICATION DATA

Project #	Project/Program Title (or title & date of evaluation report)	First PROAG or equivalent (FY)	Most recent PACD (mo/yr)	Planned LOP Cost ('000)	Amount Obligated to Date ('000)
515-0237.00G	Non-Traditional Agricultural Export Technical Support Project (NETS)	1987	9/95	$3,800	$3,800

ACTIONS

E. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR — Action(s) Required	Name of officer responsible for Action	Date Action to be Completed
None. Mission closing in 1996 and has no further direct contacts with CINDE.		

(Attach extra sheet if necessary)

APPROVALS

F. DATE OF MISSION OR AID/W OFFICE REVIEW OF EVALUATION: mo 5 day 17 yr 95

G. APPROVALS OF EVALUATION SUMMARY AND ACTION DECISIONS:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
Signature			Ginger Waddell	
Typed Name	John Holder	Julian Mateo	Ginger Waddell	Richard W. Whelden
Date:	7/21/95	7-21-95	7/21/95	7/27/95

H. EVALUATION ABSTRACT (do not exceed the space provided)

The goal of the NETS project was to promote the growth of Costa Rica's agricultural sector, resulting in an increase in employment levels and foreign exchange earnings. The purpose of the project was to boost non-traditional agricultural exports to U.S., European and Asian's markets. The project was implemented by CINDE, an AID sponsored NGO that has promoted trade and investment promotion since 1982. This final evaluation of the NETS project was made to: evaluate the results of the project in accomplishing its objective of increasing non-traditional exports, and CINDE's follow-up support to non-traditional agricultural exports. The major findings and conclusions are:

- The project reached its goals related to new non-traditional agricultural exports, technical assistance of croplands, generation of investment and non-traditional agricultural exports.
- Short-term assistance to growers was the project component that had the biggest impact.
- The quality certification program developed by CINDE benefited growers by assuring quality of exports.
- Self-sufficiency of NETS programs has not been attainable in the majority of cases due to producers unwillingness to pay TA fees. (Producer Associates lessened need for TA once they reached a level of maturity).
- Market development efforts are key to successful NTAE's.
- A "trickle-down of technology occurs for large-scale to smaller producers where a solid production package exists.

ABSTRACT

I. EVALUATION COSTS

1. Evaluation Team Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (US$)	Source of Funds
Marcos Cordero	Consultas Delta	250	$17,000	NETS Project 515-0237

2. Mission/Office Professional Staff Person-Days (estimate) 3

3. Borrower/Grantee Professional Staff Person-Days (estimate) 6

COSTS

C. Exports Generated

The established goal was US$77 million of foreign exchange generated by exports during the project period. The aggregate export value to September 1994 is US$96.8 million, or 126%.

D. Other Results

Cost recovery assistance was US$665,535 or 109% of the total goal established. The successful phytosanitary melon certification program continues being an important element in the exports of this product. This aspect will be strengthened with the operation of CINDE's Agricultural Testing Laboratory (to open in May 1995).

IV. CONCLUSIONS

A. Was the NETS program successful in promoting the growth of Costa Rican exports in the agricultural sector, the increase of employment levels, and the generation of new foreign exchange?

Yes. The project was successful in promoting Costa Rican exports since new export crops (not produced before the project) were developed. Such was the case of the asparagus, blackberries, pepper, and onions.

B. What has been the contribution of each of the three elements of the project: short-term assistance, long-term assistance ("permanent consultants") and promotion of investment and international trade?

1. Short-Term Assistance

Without doubt, the most important project contribution has derived from the short-term assistance component, although not all the expected results were achieved, particularly concerning policy reforms.

2. Long-Term Technical Assistance - Cocoa Advisor

The impact of this component was limited to coordination since production effectively ceased by 1989 due to disease problems.

3. Investment and Export Promotion

The project activities in this area included the promotion of resources for the establishment and operation of offices in the U.S. that would: a) attract foreign investors to Costa Rica and b) develop marketing of NTAE's in the U.S. The activities developed under this component (i.e. trade fairs, observation visits, and direct market promotion) have had a great impact in the placement of an increasing supply of new products abroad.

4. Have the production and marketing support actions and the attraction of investment been effective in promoting non-traditional exports?

This aspect is closely related with the fact that the NETS program was very successful in the achievement of its export goals, as mentioned before, and actions carried out by the program led to the identification and promotion of new export products. The yields and the quality of existing export products were improved, and activities related with market development for growing export supply were carried out through the Miami office.

A.I.D. EVALUATION SUMMARY PART II

J. SUMMARY OF EVALUATION FINDINGS, CONCLUSIONS AND RECOMMENDATIONS (Try not to exceed the 3 pages provided)
Address the following items:

- * Purpose of activity(ies) evaluated
- * Purpose of evaluation and Methodology used
- * Findings and conclusions (relate to questions)
- * Principal recommendations
- * Lessons learned

Mission or Office: OPED - USAID/Costa Rica Date this summary prepared: July 21, 1995

Title and Date of Full Evaluation Report: Non-Traditional Agricultural Export Technical Support Project (NETS) 515-0237 - February 1995

I. PROJECT GOAL AND PURPOSE

The goal of the Non-Traditional Agricultural Export Technical Support Project (NETS) was to promote the growth of Costa Rica's agricultural sector, resulting in an increase in employment levels and foreign exchange earnings. The purpose of the project was to boost non-traditional agricultural exports in the U.S., European, and Asian markets.

The project provided technical assistance to non-traditional agricultural export programs (NTAE) as well as resources for investment promotion in and trade development of these products in foreign markets. This assistance sought to identify potentially profitable export products and the obstacles to be encountered in viable export markets.

II. DESCRIPTION AND EVALUATION OF OBJECTIVES

The NETS program concluded in September of 1994. This evaluation is complementary to one made in 1989 and covers the period 1990 to 1994.

The objectives of the evaluation were:

1. To evaluate the results of the NETS program in accomplishing the objective of increasing Costa Rica's non-traditional agricultural and agroindustrial exports.
2. To evaluate the results reported by those departments of CINDE responsible for administrating NETS funds (1990-1994).
3. To assess CINDE's follow-up support to non-traditional agricultural exports.

III. RESULTS OF THE EVALUATION

The project reached the goals related to new non-traditional agricultural exports, technical assistance of croplands, generation of investment and non-traditional agricultural exports.

A. Assisted Areas of Production
The goal of the project was 5,750 has. To September 1995, a total of 5,961 has. were assisted with project activities (104% of the goal).

B. Generated Investment
The project goal was to generate US$31.5 million in investments during the established period 1988-1994). Investments to date generated by the project amount to US$31.9 million (101% of the goal).

SUMMARY

C. Are all or some of the NETS-funded programs self-sufficient at present?

Not all the programs developed with NETS funds are self-sufficient at present. The main reason for this is that not all the programs have achieved sufficiently high returns so as to justify production efforts that are intensive in technology and technical now-how. Programs have been able to continue where technical assistance costs are covered and in which there is a clear relationship between "technical assistance" input and yields.

CINDE's cost recovery in the last two years surpassed initial goals.

There were a group of stable, consolidated programs which were linked with large-scale export activities such as melon, pineapple, mango, and chayote squash. In these programs, the kind of service provided is different from the direct technical assistance to farms, but has had a significant impact on the expansion of those export products, and therefore, on the accomplishment of NETS objectives. CINDE has recently made the decision to discontinue almost all its technical assistance to growers for two reasons: (1) maturity of grower's associations and know-how and (2) lack of self-sufficiency in certain programs.

VI. RECOMMENDATIONS AND LESSONS LEARNED

A. The marketing component of a non-traditional agricultural diversification project must be adequate in scope to sufficiently support technological efforts made. A lack of clearly defined channels of distribution for new products result in an inability to successfully market them.

B. A country with limited technical resources must be flexible in designing technical assistance programs. Growers' needs are diverse, depending on their technical and economic capacity, and not only depend on climate and agroecological differences.

C. The goals of the programs must be well defined and must be closely related with growers' needs. There are different types of growers and not all of them react in the same way to technical assistance. Many Costa Rican government agricultural promotion programs (not to mention those related to land distribution, cooperative organization, support prices) have the sole intention of generating employment and income in depressed populations.

D. Once a market potential has been determined to exist, export promotion programs must start from an assessment of the potential of the growers that participate in them. They must also center a good deal of their efforts on providing effective support to those with the greatest business capacity.

E. The experience of traditional exports has shown that whenever there is a production package in a sufficiently profitable activity, a trickle-down occurs from the strongest producers to the smaller ones (except for those cases in which technology is very sophisticated).

F. Self-sufficiency is difficult to attain due to reluctance of growers to pay for the technical assistance provided.

ATTACHMENTS

K. ATTACHMENTS (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier)

Evaluation Report (5 copies)

MISSION COMMENTS ON FULL REPORT

L. COMMENTS BY MISSION, AID/W OFFICE AND BORROWER/GRANTEE

Mission Comments - The Evaluation Report met its objectives as outlined in the Terms of Reference. The quality of the report was not exceptional and would have to be rated as no better than average. The consultant experienced personal problems during the final stages of the evaluation wich caused delays in its submission and most likely had an impact on the quality of the report.

XD-ABL-805A
96332

NON-TRADITIONAL AGRICULTURAL EXPORT TECHNICAL SUPPORT PROJECT NETS, 515-0237

EVALUATION REPORT

FEBRUARY 1995

INDEX

LIST OF EXHIBITS

NON-TRADITIONAL AGRICULTURAL EXPORT TECHNICAL SUPPORT PROJECT NETS, 515-0237

EVALUATION REPORT

I. BACKGROUND

1.1 Description and purpose of the project

1.1.1 Goals

The goal of the *Non-Traditional Agricultural Export Technical Support Project (NETS)* was to promote the growth of Costa Rica's agricultural sector, which resulted in an increase in employment levels and foreign currency. The purpose of the project is to boost non-traditional agricultural exports in the U.S., European, and Asian markets.

To this end, the project has provided technical assistance to non-traditional agricultural export programs (NTAE) as well as resources for investment promotion and trade of such products in foreign markets. This assistance sought to identify potentially profitable export products and the obstacles that they could encounter in viable export markets.

The project emerged from a recent Agricultural Strategy of AID's Mission in Costa Rica, which --recognizing the importance of traditional agricultural exports-- seeks to promote NTAEs as a dynamic income source of foreign exchange for the country.

1.1.2 Make-up of the Project

The project consists of three elements: short-term technical assistance; long-term technical assistance through a project advisor and a cocoa advisor; investment and export promotion.

a. Short-term technical assistance

This package would be implemented in three areas:

- Policy reforms formulated to deal with existing restrictions in the effort to increase NTAEs at the product and sector levels.

- Production and marketing assistance focused on studies of a variety of topics that will help identify the comparative advantages of Costa Rican NTAEs in foreign markets and overcome production restrictions.

- Special studies

b. Long-term assistance through a project advisor and a cocoa advisor

Given the complex coordination required by the NETS Project, it has provided for a project advisor which will be hired with external funds. The same is true of the cocoa program. Since it was foreseen that cocoa would be the national crop with the greatest expansion potential, a cocoa advisor would also be hired in the long term.

c. Investment and export promotion

Project activities in this area include the provision of funds for the creation and operation of offices in the U.S. to: a) attract foreign investors to Costa Rica and b) market NTAEs in the U.S.

1.1.3 Project Funds

The NETS Project has been allotted a grant of US.$3.5 million of a total of US.$11.9 million (US.$8.4 million in local currency) to support promotion of Costa Rican NTAEs. The funds were given to CINDE to be used originally by CAAP and later by the Agricultural Division (until 1992). Being between the public sector that supported NTAEs and the private sector that invests in NTAEs, AGRIDI is in an ideal position to identify and tackle restrictions that hinder export growth, and to act as an effective agent of change in the agricultural sector.

1.2 Description and Evaluation of Objectives

In 1989, The firm Cheechi & Co. carried out an evaluation of the USAID/Costa Rica strategy to promote non-traditional agricultural exports, including the NETS program. A subsectoral evaluation was included to measure progress in the promotion of new agricultural exports.

The following conclusion resulted from the studies conducted at that time: *"The strategy of the USAID Mission in Costa Rica for non-traditional agricultural exports has been a success. It has accomplished the original export and employment goals, and the future outlook is realistic and bright."*

The NETS program is part and parcel of that strategy and should have concluded in September of 1994. For this reason, it was necessary to make an evaluation complementary to that of 1989 that would include from 1990 to 1994.

The objectives of the evaluation are:

1. To evaluate the results of the NETS program upon the accomplishment of the objective of increasing and making Costa Rica's agricultural and agroindustrial exports to third markets more competitive, taking the 1989 evaluation as the basis of comparison.

2. To evaluate the results reported by the department known until 1992 as the Agricultural Division, as well as those submitted by the Local Promotion and Development Plan, the Foreign Promotion Program in 1993, and the Project Management and the Sectoral Export Program in 1994, which are the areas of CINDE responsible for administrating NETS funds.

3. To assess CINDE's follow-up support to non-traditional exports as well as to other future alternatives.

1.3. Goals of the NETS Project

The *Project Document* begins by acknowledging that coffee and banana production are consolidated in Costa Rica and their success is due to the efficiency in production and marketing systems. The goal for non-traditional agricultural exports is to reach that same efficiency as soon as possible, although conditions that may affect the accomplishment of this goal vary from product to product.

At the time drafting this *Document* (1987), Costa Rica was well-known for three non-traditional export products: strawberries, flowers and foliage plants, ornamental plants -- each one with its one difficulties.

Furthermore, some studies revealed that the non-traditional agricultural sector had the greatest earning potential (Domestic Rate of Return [DDR] of about 32-38.5%), as long as productivity and quality were preserved, since both aspects were sensitive to technical assistance.

CINDE's Agricultural Program (originally CAAP that later became the Agricultural Division) made a selection of potential products that could be incorporated into a production promotion program for exports. Only 20 products were selected out of a variety of over 70 products. Of these, those with the least productive capability were eliminated, leaving only 12 products to be developed.

The AID Mission recognized that, although these products offered the best conditions, not all of them would survive as viable export industries and it forecast a 50% failure rate.

In other words, the original goal of the project was to consolidate as export industries at least 6 of the non-traditional products identified.

With these perspectives in mind, estimates of project results were made, foreseeing several alternative scenarios which would serve as the basis for the evaluation of those results.

a. Six successful products

The first and most realistic scenario supposes the successful development of only six products. This would lead to a constant increase in exports, which means that an annual export value of US.$28 million would be reached within a period of 8 years.

Considering a project investment of US.$11.9 million, a discount rate of 18%, and a period of 8 years, this constant increase in foreign exchange implies a high return, since the resulting domestic rate of return was 2.115 in the last year.

b. Nine successful products

The second and most optimistic scenario foresees the consolidation of 9 products as export industries within the NETS Project. In this setting, the export figures would grow steadily up to US.$42 million. A cost-benefit analysis of the program and the parameters mentioned before show that the return is high since the resulting DRR would be 3,773 after eight years.

c. Three successful products

The last and most pessimistic scenario foresees the consolidation of only 3 products after a period of eight years. With these conditions, the exports generated by project activities would yield US.$14 million. The benefit analysis assigns to the project a DRR of 0.725 in the last year.

In addition, generated investment estimates were based on the assumption that there would be only 6 successful products, although considering expected investment in the 12 products selected by CINDE/CPAA. Following are the estimates.

INVESTMENT GENERATED BY THE PROJECT	
Foreign investment	
high technology, three large farms per crop	
6 crops x $750,000	$4,5000,000
Domestic investment	
high technology, 120 small farms per crop	
6 crops x $1,500,000	
9,000,000	
INVESTMENT ALLOCATED BY THE PROJECT	
Foreign investment	
high technology, 6 large farms per crop	
6 crops x $1.500.00	$9,000,000
Domestic investment	
high technology, 11 large farms per crop	
6 crops x $750.000	4,500,000
high technology, 30 small farms per crop	
6 crops x $375.000	2,250,000
low technology, 150 small farms per crop	
6 crops x $375.000	2,250,000
Total investment allocated by the project in 6 crops	$31,500,000

Goals were also established for the creation of employment based on the characteristics of the investments made, assuming there would be 2 persons per hectare employed in low technology activities, and 5 persons per hectare employed in high technology activities, as well as a direct/indirect employment ratio of 1/4 and a 1/10 administrative/field employment ratio. The result was an estimate of 9,450 jobs attributed to the actions of the project in 6 crops.

II. RESULTS OF THE EVALUATION

2.1 Fulfillment of program goals

2.1.1 Fulfillment of global goals

On the whole, the program reached the goals related to new non-traditional agricultural exports, technical assistance for croplands, generation of investment and non-traditional agricultural exports.

a. Assisted area

The general goal of the project was 5,750 Has. To September 1994, the information provided by CINDE's management shows that a total of 5,961 Has. were assisted with project activities, which corresponds to 104% achievement of the goal.

b. Generated investment

At first it was estimated that the project would generate a total of US.$31.5 million during the established period (1988-1994). According to the latest figures, accrued investment generated by the project amounts to US.$31.9 million, which represents 101% accomplishment of the established goal.

c. Generated exports

The established goal amounted to a total of US.$77 million of foreign exchange generated by exports during the relevant period. The last project adjustment shows an aggregate export value to September 1994 of US.$96.8 million, that is, 126% fulfillment of the goal. However, this variable that is so important for the achievement of the objectives, has been rather inconsistent. Instead of rising, figures have fallen steadily after the peak of US.$33.2 million reached in 1990.[1]

[1]The figures showing the goal fulfillment were obtained through the procedure of allocating to CINDE's programs a fixed share of the exports generated by export agricultural activities where those programs exist. This share was systematically modified based on the progress of the respective programs until it was eliminated in 1993, when a decision was made to allocate to CINDE only the exports that were effectively certified. The loss of files and a good deal of registry information of the Agricultural Division has precluded a subsequent verification of the figures recorded in the reports.

d. Other results

The cost recovery assistance mode reached US.$ 665,535; therefore, the goals established in this area were achieved in 109%.

The successful phytosanitary certification program of melon continues being an important revitalizing element in the exports of this product. During the period of 1994, phytosanitary efforts were made to cover 5.6 million boxes of Cantaloupe and Honeydew. Furthermore, this program was extended to other products such as mangoes, pineapple and chayote squash, and it is expected to include other products such as blackberry in the future. The pilot quality certification projects of mango and melon covered 250 thousand boxes of mango and 1.9 million boxes of melon. This aspect will be strengthened with the operation of the laboratory, which is already equipped with all the requirements.

2.1.2 Promotion of products

While the degree of goal achievement has been satisfactory, it is worth mentioning that they have been affected by CINDE's budget limitations which have caused a drastic personnel reduction and the closing of several projects, some of which are very important in the achievement of the institution's and the NETS Project's objectives.

Problems have also arisen with the products on which the NTAE support strategy was based. As suspected from the beginning, several factors affected their viability, especially situations related with the export markets that had been properly identified.

In this sense, the most clearly defined goal in the document of the project --to give a decisive and steady fillip to a series of non-traditional exports through the life of the project, starting with a basic number of six and possibly increasing it to nine or only three-- did not meet the original expectations.

The program started with **12 products** selected to implement activities that would boost production and subsequently foreign sales, namely:

Mangoes	Ornamental plants	Papaya
Cocoa	Asparagus	Flowers
Macadamia	Melons	Strawberries
Black pepper	Roots and tuber crops	Pineapples

Simultaneously, work was done on identifying potential products, which widened the gamut of alternatives for development. Among the products analyzed and identified as potential are:

Pumpkin	Eddoes	Cassava
Plantain	Exotic banana	Passion fruit
Heart of Palm	Broccoli	Yam
Garlic	Chayote Squash	Old coco-yam
Soursop	Ginger	New coco-yam
Chinese peas	Cassava	Seedless watermelon

By September 1994, activities had already been carried out for the development of the export potential, with or without success, of the following group of products:

Mangoes	Ornamental plants	Papaya
Cocoa	Asparagus	Macadamia
Melon	Strawberries	Black pepper
Pineapple	Vegetables	Hot pepper
Plantain	Industrial tomato	Onion
Blackberries and strawberries		

According to the last report of activities carried out with NETS funds, of all the mentioned products, only the direct technical assistance programs of four products survived. These products are the following and they are now somehow consolidated: ornamental plants, asparagus, macadamia, and blackberries.

Other programs that continue in their experimental stage --but which were implemented until recently-- are the Plantain Program (joint program with EARTH) and the Onion Program that started not long ago in the concluding stage of the NETS Project. Avocados are also a good possibility, but the efforts in this program are in their early stage.

However, it is worth pointing out that CINDE's participation with NETS funds has not been limited to direct technical assistance only, and that one of the most important and most consolidated contributions to the NTAE project are the phytosanitary certificates issued for melons, services that are beginning to be offered for other products already with a consolidated (and self-sufficient) business foundation such as mangoes, pineapples, and chayote squash.

...

The reasons why the expected success in the establishment of non-traditional agricultural export industries was not achieved (at least in relation with the efforts made) are diverse and have

affected the Programs in different ways, although in other cases the effects have been rather common and have taught many lessons.

Among other things, it is possible to say that the success of CINDE's programs in each of the selected products is related with the situation of the product at the moment of starting the program. The products may be classified into three groups:

a. The products with a strong record that have been promoted by other national or international organizations, but which lack technological homogeneity or an appropriate producer organization of producers, although an attractive return is maintained.

b. Those products that, in spite of having a strong record, they face difficulties related with technology, quality, markets or organization. For this reason, their return is below producer expectations.

c. The completely new products in which there is no experience (except for some isolated cases and very small or experimental production) no validated production technology, and no open trade channels.

In the first case, CINDE's programs applied to products with that condition had a very limited response from producers with respect to demand of technical assistance services, since they were generally producers with a big economic capacity that took possession of the know-how and techniques necessary to increase productivity and quality.

However, the opportunities to offer other services successfully, particularly those related with quality certification, market research and solutions to specific problems are extraordinarily good.

Products such as *melon, pineapple, chayote squash, and mango* fall within this group.

In the second case, the economic results of production do not offer the capacity to support a private technical assistance program or other services that imply cost recovery. In such cases, growers prefer public programs --either good or bad-- because they do not affect their weakened pattern of expenditure.

Cocoa is obviously in this group.

The situation of completely new products is very fragile. Growers act with great care due to the novel nature of the activity and they abandon production with the slightest sign of danger, especially in the case of small producers whose scant patrimony runs greater risks in tests with new products than in the case of medium-sized and large farmers.

Black pepper, hot pepper, raspberries, blackberries, vegetables, strawberries, asparagus, industrial tomatoes, and *onions* are in this group.

Besides this typology that tries to group with some criteria the conditions that determine the degree of success of a development program, factors with a particular effect on one or all of the implemented programs may be identified. The main problems that had a significant effect on the development plans were the following:

1. Fall in international prices, increase in world supply, decline in the demand or both.

2. Market losses due to changes in supply trends (closing or reduction of windows)

3. Lack of flexible credit sources for the development of new crops

4. High financial burden resulting from inadequate credit conditions for the development of new high risk export products

5. Lack of well-defined public policies to promote production and support the producer, and indecision of public institutions before short-term problems of agricultural activities

6. Poor control of pests and diseases by producers, and the consequent loss of international quality

7. Low quality of breeding stock used to establish plantations

8. Reorganization and budget restrictions at CINDE

Following is a breakdown of the most representative products in the execution of the NETS Project specifying the main characteristics of the actions taken by CINDE, the obtained results, and the factors that had a significant impact on its implementation.

COCOA

Cocoa was initially identified as a product of great importance and potential for the NETS Project, as this was one of the products included in the Northern Zone Infrastructure Development Project. However, situations related with international trade caused prices to fall and farmers therefore received very low prices for a kilo of dry cocoa delivered at the industrial or exporting plant in San José (between CR.¢80 and CR.¢90/Kg.)

This situation, together with the low yield hybrid seed distributed during the execution of the cocoa promotion plan in the 80s, plus the increasing effects of diseases --especially the monilia-- undermined cocoa's earning capacity and discouraged production.

This situation caused producers debt payment problems with the Banking System because their earnings were not sufficient to satisfy their financial needs, which led a significant and increasing number of them to abandon their plantations.

As a result, at the beginning of the decade, some 13.5 thousand Has. of production persisted, most of it with very low yield capacity; therefore, national production barely covered 50% of the industrial plant capacity.

In spite of these difficulties, the Cocoa Program continued its actions in three service areas, especially plant rehabilitation, where there was a good response from the farmers that were still interested in the activity and that believed in the technological option offered by CINDE.

In 1990, the program covered 1,402 Has. for rehabilitation and in 1991 it aimed to provide assistance to about 1,000 Has. Nevertheless, only 57% of the goal was reached, mainly because low returns kept producers from using the technical assistance under the cost recovery system. This situation became worse with the increasing influence of state institutions (MAG, IDA, INA) that offered free services to an impoverished sector.

To this we must add that CINDE's technical equipment was considerably reduced (by 50%) mainly for budgetary reasons.

STRAWBERRY

The strawberry program was one of the programs initiated by CINDE in 1986. During the first three years, most of the efforts were aimed at doing research that would create a reliable technological base that did not exist in the country up to that moment.

Simultaneously, a controlled expansion of the farm land began to occur so that by 1988 there were 80 Has. of cropland which increased to 120 the following year and to 160 Has. in 1990, thus reaching its maximum expansion in the country.

In spite of the positive outlook, at the end of 1989, the disease called Phytophtora cactorum (black tip) appeared. This disease was unknown in our country and caused losses of up to 80% of the crop.

In spite of the measures taken to control the disease, many producers did not understand its impact on exports, mainly because of loss of quality, which caused many complaints from importers. Besides the problems caused by the "black tip," there were also deficiencies in the quality of the breeding stock imported from California.

The most significant obstacle, however, was the reduction of the market window, which caused the loss of the country's competitive advantage and a reduction in the cropland with only 25 cultivated hectares in the entire country.

Before this situation, cropping as well as the AGIDI program lost importance since the remaining production was allotted to the domestic market and it therefore ceased being a NTAE. The program reduced its participation significantly in the sector and it only provided technical assistance under the cost recovery system to those producers that requested the service and who considered it to be essential for the development of the projects that were already underway.

ASPARAGUS

The asparagus program started in 1988 given the perspectives of the U.S. and European markets of that time. When the AGRIDI Asparagus Program was launched, there were already around 12 hectares cultivated with this product in the Central Valley.

With CINDE's participation, the number increased to 160 Has. two years after the program started. Only in 1990 78.5 Has. were cultivated with an investment of US.$244,571. In that year, there were 23 Has. in full production that yielded an export volume of 13,420 Kg. (approximately US.$53,680).

AGRIDI's activity was very intense that year. 628 visits were made to 24 producers during the year (26 visits per grower per year).

However, in the view of the program's technicians, expansion and large-scale production were limited due to the fact that most of the farms incorporated to the program were small and mainly devoted to coffee production.

Furthermore, it seems that the grower did not perceive the crop as a primary product, since there were always other activities of greater importance than the asparagus such as coffee, sugar cane, and pineapple. Consequently, crops did not receive the assistance and maintenance required for export purposes.

Another negative factor was the implementation of the cost recovery technical assistance program (which yielded CR.¢31,350 in 1990 and CR.¢216,000 the following year). This program, together with the little importance given to the product, ended up convincing several producers to settle their asparagus project.

As a result, in 1991 many producers abandoned their crops, thereby reducing the cropland to 45 Has. at that moment, that is, only 28% of the area estimated for the previous year. The visits were cut to 43 and they benefited only 11 producers (54% less).

Despite this technical explanation, some of the farmers interviewed in this evaluation expressed that the technical assistance provided by CINDE was particularly "deficient" in the case of asparagus.

They also said that the assistance was irregular and that many technical mistakes were made data used in the technical study. The believed that there was a lack of knowledge of the crop's agricultural "behavior" in the national setting, and that the varieties of asparagus used in the program were inadequate.

Given this situation, CINDE decided to take actions oriented to showing the crop's potential, particularly in areas such as the Dry Pacific, due to the great demand of perennial crop alternatives that would create jobs and promote the use of the farms' operating capacity throughout the entire year.

MACADAMIA

In contrast with other crops included on the list of products to be developed by CINDE (with the exception of cocoa), macadamia was a product on which Costa Rica had been working for many years and which had received significant assistance from USAID.

However, it was not until the mid 80s that the first significant exports took place. For example, in 1987 US.$1.6 million were exported, and the following year this amount increased by 12.5%.

The Macadamia Program was developed in 1989 and it was incorporated into an agreement signed by ICAFE - CINDE - MAG - CNAA - UCR with the purpose of increasing export output through greater production in the area and the enhancement of the technological base.

However, as of February of 1991, CINDE's Program began to offer the technical assistance service directly to macadamia producers in coordination with state institutions.

Thanks to this effort, the area cultivated with macadamia increased to 896 Has. in 1990 and reached the 7,281 Has. in the three selected development areas. The Macadamia Program assisted 138 producers that year and made an average of 9.5 visits of technical assistance visits per year to each one of them.

In spite of the good perspectives for this product, in 1991 a series of problems reduced the expansion of the crop. The number of cultivated hectares was estimated in 500 that year, compared to 896 of the previous year.

Among other factors, an increase in the product's world supply began to have its effects. The increase started to become evident the previous year, which came mainly from Australia (60%). There was a parallel decrease in the demand caused by the declining number of tourists that visited Hawaii (due to the War in the Persian Gulf).

The combination of these factors caused prices of our exports to fall 25% below those of 1990. This made the product less competitive for the national producer, who immediately felt the shrinking of his earnings as the phenomenon soon affected the prices offered by the processing and export plant "Macadamia of Costa Rica," the only buyer of nuts in the country at that time.

Financing for the establishment of new plantations was also restricted by the SBN because the banks offered credit only for the expansion of existent plants and not for the creation of new ones. This obviously repressed the dynamics of the product even further.

Notwithstanding, the activity of the Macadamia Program was not greatly affected because it was possible to provide technical assistance to 1,362 Has. which later increased to about 1,900 Has.

The Macadamia Program is one of the few programs that has survived in spite of the problems in NTAE target markets and the severe restrictions imposed by the budetary limitations that have led to the closing of CINDE's programs, particularly since 1992.

The above information shows that, regardless of whether or not the institution maintains a relevant role parallel to the national producer's efforts, the impact of the Macadamia Program has been of great significance for the consolidation of the country's NTAEs.

MANGO

The Mango Program started in March of 1991. Initial actions focused on an assessment of the situation of the crop as a non-traditional export product. Among other things, the study sought to determine the existent and future production volumes, to start at least two research projects, to identify the existent and new varieties with export potential, and to expedite export of the product to the U.S.

During the first year of activity, the program focused its efforts on making observation visits to 14 farms (which together covered a cultivated area of 1.078 Has.). This was done due to the lack of a validated technological package that would serve as the basis for technical assistance activities.

In spite of the efforts, the Program did not find a sufficiently wide basis to establish a private technical assistance program. The activity had already made significant progress at the moment of initiating activities in that field. This, together with the budget problems at CINDE and program reductions, led to the premature closing of the Mango Program starting from the second quarter of 1992.

However, important steps have been taken recently to develop a mango certification program on large scale. The last semester of NETS activity, a total of 250,000 boxes of mango had been certified.

MELON

The Melon Program started in 1987 with the implementation of a pilot plan in which six producers of the Tempisque Valley participated.

At the beginning, CINDE's participation in this program consisted of technology transfer. For this purpose, the Program brought several advisors to the country through PROEXAG to train national technicians and to validate the technology used in other Central American countries.

This assistance plan was implemented for two consecutive years so that, by 1989, the enterprises involved in melon production had enough qualified technicians to boost melon production.

As an example of this impact, it is worth mentioning that in 1987 there were 245 Has.and 1,986 additional Has. were planted in 1990 alone. These yielded an export volume of 2.2 million boxes, which generated US.$14.5 million of foreign exchange, of which US.$3.8 million were a direct result of CINDE's Program. These figures soon increased to 2,600 Has. in 1991 harvest. On this occasion, exports amounted to 3 million boxes to the U.S. and Europe.

We should call the attention to the fact that the production of this crop is in the hands of very solid enterprises with a high managerial capacity. This has undoubtedly contributed to the success of the activity since such enterprises have technical departments and a highly qualified professional personnel who adopted the technologies transferred by the Program quickly and efficiently.

This led the program to focus on the solution of very specific problems such as research to discover treatments for diseases transmitted by aphids and white flies.

Besides, the concern to maintain the good image of the Costa Rican product was stressed, which was one of the main pillars of export growth, especially before the real threat of highly harmful bacteria such as the that of the cholera and the salmonella.

It was for this reason that in 1991 a phytosanitary certification plan was proposed to melon exporters. This plan was to cover 100% of the 1992 exports, an idea the was welcomed by the producers that were willing to finance most of the program.

Since 1992, the melon certification program has been one of the most relevant activities carried out by the institution as part of the actions carried out by the NETS Project.

BLACKBERRY AND RASPBERRY

Actions to develop the technified production of blackberry and raspberry have been taken since 1988. The program started with tests that used hybrid varieties of blackberry that could yield an average production of 10 MT/Ha. in comparison with the 1.5 MT/Ha. yielded by wild varieties that were being used by producers at that moment.

In addition to the tests with new varieties, studies on aspects such as response to density, pesticides and diseases, production and yield per Ha. were carried out. As a result of this, hybrid varieties such as Brazos, Rosborough, and Brison were identified and recommended.

A little later, the evaluation of raspberry cropping was made. For this purpose, six different varieties were imported, three of which seemed to offer the greatest potential.

In 1991, the activity was focused on research applied to farms in the areas of interest (those located in altitudes of more than 1,400 mts. above sea level). Such farms were selected to adapt and transfer an adequate technological package in accordance with market demands.

Other important activities of the Blackberry and Raspberry Program was the organization of producers to promote and simplify exports of a totally new product in the country.

In that year, there was a total extension of 30 Has. of blackberry, of which 12 were cultivated during the period of the program. Total export volumes reached 14 thousand Kg. with a FOB value of US.$135 thousand. The program had 14 active producers with a crop area of 26.25 Has.

PEPPER

The Pepper Program started in February of 1989 with the objective of transferring technology and providing other technical assistance services to farms in order to achieve high production and quality levels consistent with the demands of international markets.

During the first year, training was given to the personnel interested in providing assistance, and the first farms where the program would be applied were selected on the basis of an assessment that identified those with the best conditions for the development of the experience.

The technical assistance activities were carried out directly with the producers, and the research was done in conjunction with other institutions such as the Universidad Nacional and the Ministry of Agriculture and Livestock, as well as some commercial agencies.

According to estimates, by 1990 there were about 585 Has. cultivated with pepper, 80% of which were assisted during that period by the Program, that is, 468 Has.

The program began to face some difficulties from the outset as export prices began to show a downward trend since 1989. Consequently, even though the earnings per hectare generated during that initial and promotional moment allowed producers to obtain reasonable returns, mistrust arouse among producers.

That trend remained in 1991, which was catastrophic for the program. Only one enterprise grew new crops that year (50 Has.) and , in general, the activity was drastically reduced since more than 60% of the producers -- mainly small producers that had projects with this product-- abandoned their activities. In terms of the area, such exodus of small farmers meant a reduction of nearly 25% of Has. cultivated with pepper.

This is obviously linked with a relation between the extension of the crop land and the yields obtained from each project. For this reason, only those producers with medium-sized and large crops stayed, and this caused the crop land to remain in 446 Has.

However, price stagnation also affected medium-sized producers, mainly because the heavy financial burden laid on many plantations absorbed the scant return that was left for the medium-sized producer.

On that year, the Pepper Program had set the goal of assisting 546 Has., but only achieved 37% (202 Has.), since the number of producers in the activity had been limited to 17. However, CINDE's work covered the plantations of 13 of them.

In consequence, it was thought impossible to increase the technical assistance services since the demand was low. For this reason, the program would have no extensionists the following year; instead, it requested the International Trade Center (UNCTAD/GATT) to provide a food technician in order to determine the cropping opportunities in Costa Rica.

All the above, together with the budgetary limitations of the institution, encouraged the program to survive until the first quarter of 1992 and it was closed during the second quarter.

Ornamental Horticulture

The Plant and Flower Programs started separately in 1986 as a result of the demand of technical support in both sectors to increase the technological level and the export supply in an attempt to compete in the international market which was at full growth at that moment.

At the beginning of 1990, and in view of the problems that affected the flower sector and the budget cuts at CINDE, the two programs merged into one called the Ornamental Horticulture Program with the purpose of making most of the available resources.

SUMMARY OF GOAL ACHIEVEMENT

Following is a summary chart that analyzes the behavior of the main production assistance programs, as well as foreign exchange generated by exports and investment value. Cost recovery information is also shown.

The chart first verifies the efforts made around a considerable number of products and producers, but as the end of the project approached, the activity declined and few initiatives remained.

It can be seen that the asparagus, blackberry, macadamia, hot pepper, and ornamental plants programs lasted longer. Some had a very short life such as the industrial tomato, vegetables, pepper, and others such as onions are in their early stages. In the case of plantain there is a joint pilot plan with EARTH.

This situation is also evident in the export figures attributed to the program. As activities were reduced and some programs were closed or restructured, exports also declined.

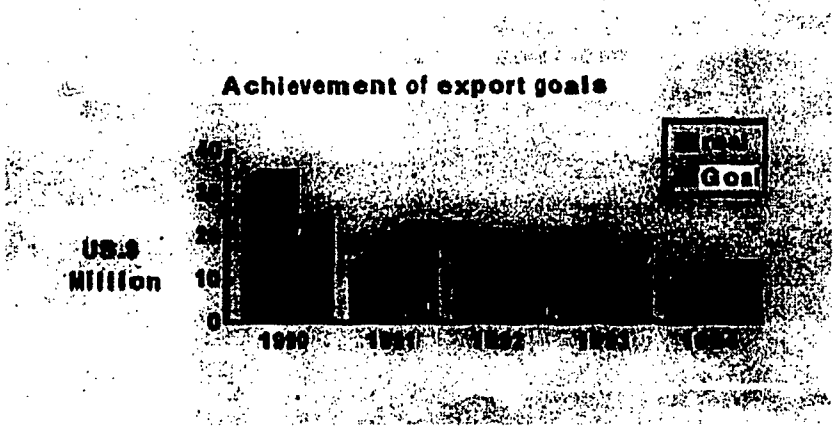
The same page shows a graph comparing export goals and achievements in that area. It can be seen how the export-generated foreign exchange goals were adjusted downward during the period of 1990-94 as a consequence of the discussed adjustments.

With regard to investment, the goals and the results also show a downward trend, reflecting the reduction in the activity scale developed at this level.

Achievement of program goals

PRODUCTS		1990		1991		1992		1993		1994
CONCEPTS	GOAL	REAL	GOAL	REAL	GOAL	REAL	GOAL	REAL	GOAL	REAL
	3586	3796	996	1717	3370	2591	235	194	52	--
HECTARES										
asparagus	70	79	--	--	55	68	25	28	--	--
blackberry and raspberry	--	--	--	8	38	38	--	26	32	
vegetables	--	97	250	320	600	--	--	--	--	--
industrial tomato	--	--	90	4	--	--	--	--	--	--
cocoa	1100	1402	--	--	--	--	--	--	--	--
macadamia	1100	896	--	1362	1800	1900	--	--	--	--
pepper	200	122	100	--	--	--	--	--	--	--
plantain	--	--	25	2	25	10				
ornamental plants	15	74	--	30	1440	541	10	10	--	--
hot pepper	50	22	120	135	150	34	200	130	--	--
onions	--	--	--	--	--	--	--	--	20	18
INVESTMENT (million $)	9.2	9.5	4.5	6.5	4.4	6.0	4.6	4.0	0.4	
EXPORTS	22.7	33.2	21.2	13.8	18.3	19.3	14.6	17.7	12.0	8.6
COST RECOVERY (million ¢)			26	24	29	24	26	33	20	29

Source: CINDE, Agricultural Division, Reports, several years.


Achievement of export goals
US$
Million
Goal

III. PERCEPTION OF SERVICES PROVIDED BY CINDE

3.1 The survey

To assess the services provided by CINDE and to measure directly the achievements and obstacles in the population assisted with the NETS project, a survey was carried out among the producers that participated in the activities developed by the project.

To that end, the sample framework was drafted, which was part of the terms of reference in itself and consisted of a list of natural and juridical persons that had participated in the project.[1]

96 juridical persons (enterprises) and 72 natural persons (independent producers) involved in some activity of the project in 10 different products were identified. The following chart summarizes the findings2:

PRODUCT	No. OF ENTERPRISES	No. OF INDEPENDENT GROWERS
Melon	10	-
Pineapple	23	-
Mango	4	5
Blackberry	5	14
Hot pepper	4	14
Roots and tuber crops	6	-
Asparagus	4	4
Macadamia	16	16
Pepper	13	5
Cocoa	11	14
TOTAL	**96**	**72**

[1] Exhibit No. 1 contains the complete results of this recompilation task. For this purpose, the activity reports available were revised and existent files were consulted in what remains of the documentation of the disappeared Agricultural Division.

2 Even though the Project included a larger variety of products, these are the ten products of which reliable data has been gathered from CINDE.

3.2 Selection of Interviewed Enterprises

At first, a random methodology was going to be used to obtain the sample that would be analyzed, so as to make valid inferences for all the population. However, the interviews with CINDE's workers that participated in the NETS project (particularly those with engineer Claudio Zumbado) suggested that a good deal of those included in the sample had had a limited participation in the project. Therefore, it was possible that field research efforts would not yield interesting results and that important lessons would not be learned from the experiences.

This led to the decision of substituting the random sampling methodology for a case study chosen judiciously based on the knowledge that CINDE workers possessed about the degree of the producers' involvement with the program.

Of the 168 projects assisted by NETS, a group of 30 was identified which were the ones that had a more consistent tie with the project. From that group 15 enterprises were chosen to carry out the case studies, and at the end only 9 accepted to respond the questions prepared for evaluation purposes.[3]

3.3 Results of the interviews

The interview focused on a series of aspects specific for evaluation. Particularly important were the questions about the quality of the services offered by CINDE, their willingness to pay for them, the areas with a greater need to develop product competitiveness, the areas in which CINDE must concentrate its efforts, and general comments about the project.

The answers gathered in each of these aspects are presented below[4].

3.3.1 Quality of services

The interviewees were asked about their perception of the quality of the services provided by CINDE as part of the execution of the NETS Project. They all said that the services are good in general, although some indicated some deficiencies. For example, in the case of asparagus, the work done by the program's technicians was highly criticized. Among other comments, these were the most relevant:

---

[3] Many enterprises had strong policies against providing information; others showed discontent with CINDE and refused to contribute with the study; and others did not find a convenient date for the interview.

[4] Exhibit No. 2 contains a wider version of the answers given by the representatives of each one of the interviewed enterprises.

"The initial services were deficient. The data of the technical study were incorrect and there was no local validation."

"And although the technician, Mr. Novoa, had some specialization, he did not know the performance of the crop in the country."

"The promoted varieties were not the most appropriate."

In other cases, the problem has been associated with the development of technologies characteristic of the enterprise (melon), thus invalidating the work of CINDE's technicians:

"The program has been very limited with regard to technical assistance. Due to competitiveness factors, producers have done their own tests and have developed their own technological packages, but this means that they have secrets to keep, and if they have a very close contact with the other technicians from CINDE, technology is easily disseminated. The enterprise will have to advance alone in this respect."

Other opinions are:

1. The talks have been of high quality, but more information on the cropping conditions in the country must be developed.

2. The information and the contacts were good.

3. The technical assistance provided for macadamia has been of good quality.

4. CINDE's support has been essential for the enterprise to start fresh exports of the product a month ago. We used to produce other crops in Peru, but we had never worked with blackberry. Today we have developed a productive alternative thanks to the good services provided by CINDE.

5. The quality of services in the area of ornamental plants has been very good.

6. The services are very good; unfortunately, they have been reduced over the last years, and this has deteriorated the competitiveness of the national producer. I believe that CINDE has been able to develop a good assistance package that is now eroded.

3.1.2 Willingness to pay for technical assistance services

Interviewees were asked about the cost of services and their willingness to pay for them. The majority remarked emphatically that they would be willing to pay if the quality is good and if this quality shows in the results.

The answers were the following:

1. Yes, of course, but they have in-depth knowledge of the crop's performance.

2. The national entrepreneur is not used to paying for this kind of services. The culture for paying doesn't exist. It works in some cases, but not in all. Besides, the extension provided by CINDE must be duly validated; otherwise, people would refuse to pay or they would soon stop to use it.

3. Yes, as long as it is of high quality.

4. CINDE's technicians would have to surpass the others in the market; that is, they must improve their reputation; otherwise, people would turn to other services.

5. Yes, as long as they are of good quality.

6. Yes, I also believe that the price is good for producers.

7. Yes, because the quality has been good so far.

8. Yes, because as long as assistance contributes to profitability, it is possible to recover those costs.

9. Any service that is offered and that complements quality development could be requested.

3.1.3 Opinion on the areas that require research or further support to increase the competitiveness of the product

The interviewees were asked about the areas that require research or further support to improve the competitiveness of the different products in the international markets. The answers varied greatly and almost all of them referred to specific aspects of each one of the crops.

However, it is important to point out that there is consensus in some areas such as the need to improve production technology and support services for the positioning of the product in the foreign markets. Some of the most relevant answers are the following:

1. We must develop our own technology adapted to the conditions of our soil, because the assistance that foreign experts may provide is very limited, and in most cases, the context in which production will take place is ignored.

2. Certification programs of the product must be developed. Due to the characteristics of melon, this product should be promoted among small and not large growers as it was done. Also, collection centers could be established to obtain volumes that would allow exports to Europe.

3. The marketing of the products. Delivery of the product in the target market is very difficult at present. Traders play a lot with producers. This must be controlled somehow.

4. Pests, nutrition, quality control, and a quality certification program.

5. Marketing is the most important issue. More internal as well as external follow-up is required in this area.

6. More work is needed in the agroindustrialization of production. This would allow us to compete and obtain better advantages in the market. Besides, this would help small producers to streamline the marketing processes.

7. More importance must be given to the demand. It is important to know the opinion and the situation of producers before designing the work strategy.

8. Marketing must be developed to keep the different agents that participate in the process from affecting the quality of the product or the final business results. Offices must be established in the different target areas in order to support delivery and to avoid interference of brokers.

9. Development of markets, quality control, and quality certification programs.

10. An effort to identify the most promising export-generating sectors and encourage leading enterprises in these sectors to improve their productive efforts to ensure a greater dynamism in foreign sales.

11. Analysis of the different factors that take part in production, from soil to quality

3.1.4 Activities on which CINDE should focus

Complementary to the above questions, interviewees were inquired about the role that CINDE should take during the coming years in the support considered to be necessary to maximize the export capacity. The most relevant answers were:

1. To promote new crops and make a commitment with producers until a significant number of them get to control the activity.

2. The marketing of products could be a serious problem for CINDE.

3. Raw material producers must be consolidated by providing support with credit systems consistent with the plant yields.

4. Efforts should be oriented mainly to marketing and the improvement all the factors that take part in marketing: foreign regulations, better quality levels, better information, etc.

5. A support process toward agroindustrialization must be initiated.

6. Actually, the diseases of the different products must be seriously considered before starting a program.

7. To define a strategy that will reach all producers or entrepreneurs.

8. To identify potential sectors and to focus on providing technical support to the leading enterprises, which take full advantage of the services provided to them, mainly with regard to direct assistance.

9. An analysis with entrepreneurs, producers, and other institutions must be made in order to know more aspects and determine those that deserve more attention.

e. Final comments

Participants of the case studies made a series of final comments on the issues that were discussed. The majority are recommendations for improving the support services that CINDE offers to the producers that attempt to enter new markets.

Given the variety of comments, it was necessary to systematize some of the most sensible opinions:

- To gain deeper knowledge of the nature of the product and the kind of entrepreneur that may go into that activity. In this way, abandonment of the promoted activities by producers could be reduced.

- To obtain more information on farm and wholesale prices, complemented with cost prices.

- Feedback must be given between producers and CINDE's staff in order to increase the level and quality of the services.

- CINDE's resources must be allocated to priority areas. This could be done through feedback between producers and CINDE's staff.

- CINDE is a concern for many because it must be reorganized so as to focus on more concrete aspects with a more clearly defined strategy.

- In general, whatever happens in the rest of Central America is not seriously considered, maybe because of the lack of information.

- CINDE does not have a long-term strategy. It just considers the present performance of he activity for making decisions.

- CINDE's workers must have a closer relationship with producers.

- With regard to promotion activities abroad, CINDE has not been able to solve present problems and the search for new markets has been limited.

- In the past, many efforts did not yield good results because no priorities were established and attempts have been made to strengthen enterprises that frequently fail to consolidate because they lack the necessary managerial capacity.

  In contrast, if intensive work is done to support enterprises that have shown a greater capacity and are therefore in the forefront of the activity, results will be seen more directly, and the necessary inverted effort will be proportionally smaller.

- The technicians that provide the phytosanitary service change every year because the program cannot keep them in their position. This implies a training cost and significant losses of qualified human resources.

- Through agreements with other institutions (universities, Ministry of Agriculture, research institutions, etc., program teams could stay longer, more experiences could be provided, and human resources could be used more effectively.

VI. CONCLUSIONS AND RECOMMENDATIONS

1. Was the NETS program successful in promoting the growth of Costa Rican exports in the agricultural sector, the increase of employment levels, and the generation of new foreign exchange?

As discussed in previous pages, the answer to this question is definitely yes. In other words, the project was successful in promoting Costa Rican exports since new export crops that were not produced before the project were developed. Such was the case of the asparagus, blackberries, pepper, and onions.

Furthermore, there was an improvement in the yields and the quality of already existing export products such as cocoa, macadamia, vegetables, and onions.

Important activities concerning market search for the increasing export supply were also developed through the office in Miami. There were other activities that have made expansion more efficient in important products such as melon, pineapple, chayote squash, and mango by means of certification programs.

Although many selected products faced serious and in some cases insurmountable obstacles for their expansion as export products, foreign exchange earnings more than offset failures, since accrued export earnings at September 1994 reached U.$96.8 million, that is, a 126% achievement of the expected goals (US.$77 million)

However, the annual trend of this important variable for the achievement of the project objectives was rather inconsistent since the amount began to fall steadily instead of rising after the highest peak of US.$33.2 million reached in 1990.

In spite of this, a total cost-benefit analysis of the project (following the methodology suggested in the main Document) reveals that the goals were also met at the cost/benefit ratio level as shown in the table below:

Year	Benefit	Cost	Disc.	Benefit	Return	Investment	DRR
1988	0	-2,500	1.18	-2,118.6	-2,118.6	2,500	
1989	4.2	-3,200	1.39	719.4	-1,399.2	5,700	
1990	33.2	-3,100	1.64	18,353.7	16,954.5	8,800	1,926
1991	13.8	-3,100	1.94	5,515.5	22,470.0	11,900	1,888
1992	19.3	0	2.29	8,427.9	30,897.9	12,200	2,533

1993	17.7	0	2,70	6,555.6	37,453.5	12,200	3,070
1994	8.6	0	3,18	2,704.4	40,157.9	12,200	3,292

The significant export activity achieved since the first years of the project caused the Domestic Return Rate to increase to a considerable level starting from the third year. When the export goal was surpassed by September of 1994, the cost-benefit ratio of the project reached a very similar level to that of the most optimistic scenario described in the Document of the Project.

2. **Since most non-traditional agricultural products are exported through transnational companies (for instance melon, pineapple, mango, etc.), which has been the impact of the role played by the program in the development of the export potential of those products?**

It was precisely stated in this document that the enormous capacity of big enterprises that controlled export products and the capital of which was totally or partially foreign was one of the reasons that limited CINDE's direct action in the technical assistance programs of those products. This fact invalidated the program, at least in the long term as it actually happened.

However, this does not mean that CINDE had nothing to do to support exports of this products. On the contrary, although transnational companies are in a better position with regard to technological assistance, positioning of products abroad and other activities, the certification program has contributed significantly to the introduction of national products in the demanding foreign markets.

Furthermore, in the case of melon, pineapple, mango and chayote squash, the last efforts funded by NETS are precisely aimed at expediting the quality certification of the product. This has allowed melon and these other three products to enter the American market with less difficulty while saving time, manipulation , and losses of the product. This has resulted in increasing earnings and a greater capacity for export expansion.

3. **In relation to the above, which has been the contribution of each of the three elements of the project: short-term assistance, long-term assistance ("permanent consultants") and promotion of investment and international trade?**

a. Short-term assistance

This component was divided into three areas:

- Policy reforms designed to deal with existing restrictions in order to increase NTAEs at the product and sector levels.

- Production and marketing assistance oriented to studies on a variety of topics that would help to identify the competitive advantages of Costa Rican NTAEs in the foreign markets and to overcome production restrictions.

- Special studies

Without doubt, the most important contribution has derived from the short-term assistance component, although not all the expected results were achieved, particularly concerning policy reforms. This failure was due to the lack of effort from official agencies in the coordination of actions aimed at eliminating restrictions of non-traditional exports that resulted from implicit actions or omissions in the national promotion policies.

The greatest achievements are in production assistance. Here the most relevant steps have been taken to promote exports of new products and to improve those of existing products.

Special studies have had particular importance as they have helped to develop the technological packages or to improve the existing ones; besides, viable solutions have been identified in the areas of nutrition, pests, post-harvest treatment. All this has contributed to creating the suitable conditions to attain the productivity and quality required to compete in international markets.

Results have not been so evident in the marketing area. Important failures were detected at the time of forecasting the world supply performance or the demand in target markets.

It is true that many factors such as the War in the Persian Gulf were impossible to foresee, but these were temporary. The factors that have long-term effects are the ones that deserve analysis. For instance, attention must be paid to the production expected from major world producers, which has always affected coffee earnings and has recently affected the macadamia and cocoa activities.

Likewise, if the competitive advantage depends on conditions such as a window that opens in a particular period of time, the factors that create that window must be kept under control. Otherwise, the same that happened with the strawberry will occur. Finally, the varieties with the greatest demand are the ones that must be promoted among growers that are beginning to deal with new crops.

b. Long-term technical assistance through a project and a cocoa advisor

The NETS Project contemplated the recruitment of a project and a cocoa advisor with the use of external funds.

Given the situation that affected the cocoa program, the impact of this component has been limited to coordination, which is also important due to the complexity of the joint essential for the execution of the project.

c. Investment and export promotion

The project activities in this area included the provision of resources for the establishment and operation of offices in the U.S. that would: a) attract foreign investors to Costa Rica and b) develop marketing of NTAEs in the U.S. This last component was also very important, although it had a lesser impact on the achievement of goals than that of the short-term technical assistance.

However, the activities developed under this component, including trade fairs, observation visits, and direct market promotion have had great relevance in the placement of an increasing supply of new products abroad.

Likewise, investment promotion in non-traditional agricultural exports played a key role in the achievement of the investment goals outlined by the project.

4. Have the production and marketing support actions and the attraction of investment effective in promoting non-traditional exports?

This aspect is closely related with the fact that the NETS program was very successful in the achievement of its export goals, and as it was mentioned before, the actions carried out by the program led to the identification and promotion of new export products that were not grown before the project. In addition, the yields and the quality of already existing export products were improved, and important activities related with market search for the growing export supply were carried out through the office in Miami.

Other actions contributed to the expansion of important export products such as melon, pineapple, chayote squash, and mango through the certification programs.

5. How effectively have CINDE's actions been complemented [illegible] those of the

Costa Rican government in the promotion non-traditional agricultural exports?

Are there at present concrete or potential actions that aim to maintain a coordinated relationship in the support of non-traditional agricultural exports?

6. Which are the "lessons" learned that may be applied to similar future programs?

One of the most important lessons learned from the program is that Costa Rican promotion programs normally share the same characteristics regardless of whether they belong to the public sector or the private initiative that is supported by foreign agencies.

These characteristics have to do with the great importance attached to the production component and the grower's needs. In contrast, although there is a marketing component and resources are allocated to it, it always shows significant weaknesses that lead to the waste of resources.

In Costa Rica's agricultural history, frequent reference is made to blatant failures of agricultural diversification initiatives (oriented to the domestic or export markets) in which, after several years and millions of colones invested in the development of a technological package, it is found that there are no channels or clearly defined markets to send out the new products (recent cases are those of citrics, cassava, and tilapia). These end up being disadvantaged activities.

In the case of export promotion, market studies frequently remain at a very superficial level with conclusions based on insufficient data. Rarely is in-depth research done on the potential changes in the supply of the most important countries, on the technological changes in other competing countries that may affect the periods during which such countries offer the product, or on consumer tastes and preferences.

It is true that there are unforeseeable factors: wars, natural disasters, casual discoveries of new products or of new supply sources in consumer countries, etc., but there are also important and decisive changes that may be foreseen.

In other words, our marketing strategists mishandle the risk concept and the ways in which information may be used to minimize risks related to time and money investments in activities that seem to be attractive at first, but in which only the strongest are able to survive in the end.

Closely linked with this point is the existing gap between the field technician's and the marketing technician's knowledge. Normally the agricultural technician handles enough market information of the products that he is assisting.

There is an anecdote about a mango variety that was promoted by technicians as the variety with the biggest demand in the international market. However, at the time of placing the product among target consumers, they discovered that it was not the right variety and it was therefore more difficult to place than expected.

From this situation we learn that marketing efforts should be carefully planned from the beginning with a good identification of opportunities and associated risks. It is also necessary to identify the specific characteristics demanded in the product. Extensionists must be well aware of this since they will be responsible for promoting the product later among growers.

Failures at this level frequently cause mistrust, especially among small growers, toward the technicians that promote diversification alternatives for their farms.

Another lesson is that a country with limited technical resources must be flexible in designing technical assistance programs considering that growers' needs are diverse depending on their technical and economic capacity, and not only on climate and agroecological differences.

The goals of the programs must be well defined and must be closely related with the growers' needs. Besides, the first thing to consider must be the fact that there are different types of growers and that not all of them react in the same way to technical assistance.

Just as there are products with greater potential than others, some of the economic agents that promote them have more possibilities than others. In this sense, a clear distinction must be made between social policy and economic growth promotion policy.

Both things have always been mixed in the case of Costa Rican agriculture. Many agricultural promotion programs (not to mention those related with land distribution, cooperative organization, support prices) have the sole intention of generating employment and income in depressed populations. However, it is very unusual to see the creation of real enterprises capable of withstanding competition in international markets.

Export promotion programs must start from a suitable assessment of the potential of the growers that participate in them. They must also center a good deal of their efforts on providing effective support to those with the greatest business capacity, however unfair this may sound to smaller producers.

Nevertheless, the experience of traditional exports has shown that whenever there is a production package in a sufficiently profitable activity, a "spilling" phenomenon occurs from the strongest productions to the smallest ones, except for those cases in which technology is very sophisticated for the capacity of the smaller ones.

7. Are all or some of the NETS-funded programs self-sufficient at present? Why?

Not all the funds developed with NETS funds are self-sufficient at present for different reasons, the most important being that not all the programs achieved sufficient high returns so as to justify a productive effort that is intensive in technology and technical know-how.

With regard to the direct assistance provided to growers who cannot cover technical assistance costs is an area in which a program cannot be maintained, unless it comes from a government agency.

However, programs have been able to continue in the cases of activities where technical assistance costs are covered and in which there is a clear relationship between "technical assistance" input and yields.

A proof of this is that cost recovery of the last two years surpassed the initial goals. However, this recovery has not covered 100% of service costs, although this is clearly feasible.

Finally, there is a group of more stable and consolidated programs which are linked with big export activities such as melon, pineapple, mango, and chayote squash. In these programs, the kind of service provided is different from the direct technical assistance on farms, but it also has a significant impact on the expansion of those export products, and therefore, on the accomplishment of the objectives proposed for NETS.

EXHIBIT 1

LIST OF ENTERPRISES AND PROJECTS THAT PARTICIPATED IN ACTIVITIES PROMOTED WITH NETS FUNDS

LIST OF PROJECTS THAT PARTICIPATED IN PRODUCTION ACTIVITIES

Farms with melon experiments

Monteclaro	Carrillo
Agrofruit	Carrillo
El Pelón	Liberia
El Viejo	Carrillo
La Zopilota	Liberia
La Piragua	Santa Cruz
El Porvenir	Carrillo
La Maruca	Caldera
La Bandera	Parrita

Melon packaging companies and/or exporters

Melones de Costa Rica	Liberia y Filadelfia
EXPORPACK	Sardinal
Melones del Pacífico	Salinas
Frutas de Parrita	La Ligia de Parrita
Agrofruit	Salinas, Paquera, Jicaral y Parrita
Agroexpo (Chiquita)	Parrita
Montelimar	Quebrada Honda de Nicoya
Protusa	Playa Hermosa

Sample parcels, Cocoa

Gerardo Méndez	San Buenaventura
Enrique Soto	Barrio San José
Santiago Arias	Km. 41 Golfito
COOPEMARTI	Puerto Jiménez
COOPEGUAYCARA	Río Claro
COOPALSUR	Palmar Sur
COOPROSUR	Coto 63
Olivio Trejos	Km. 20 Golfito
Gerardo Murillo-Montoya	Los Angeles, La Fortuna
Rigoberto Vega-Vargas	Zona Fluca, La Fortuna
Miguel Calvo-Herrera	Abanico, Peñas Blancas
Reiner Jiménez-Campos	San Isidro, Peñas Blancas

Juan Fernández-Ramírez	Chachagua
Ernesto Loría-Zamora	El Tigre Sur, Sarapiquí
Marcos Alvarado-Porta	Santa Clara, Upala
Célimo Vargas	Guácimo
Efrén Guzmán	Bananito, Limón
APPTA	Talamanca

Farms that received technical assistance in cocoa production

Hacienda La Flor	Pital de San Carlos
Heriberto Rojas	Santa Rosa de Pocosol
Edwin Rojas	Santa Clara
Rolando Barrantes	Pital
Jimmy Liberwood	Santa Teresita de San Carlos
Fernando Salazar	Pital
Felipe López	Aguas Zarcas
Benjamín Solórzano	Cooper - Muelle
Arnoldo Martinelli	San Josecito - Muelle
Rigoberto Vega	Zona Fluca, La Fortuna
Manuel Salas	Upala
Sociedad Gan. Rodríguez	Bijagua
Olga Vílchez	Km. 20, Golfito
Erick Pray	Ciudad Neilly
Jorge Pérez	Escuadra Laurel
Felipe Martínez	Ciudad Cortés
Ejériko Rivera	Aduana Laurel
Hda. Doña Victoria	Palmar Sur
COOPROSUR	Coto 63
Gerardo Méndez	San Buenaventura
Osa-Golfito Project	Gamba
COOPEGUAYCARA	Río Claro
UNCASUR	Río Claro
Rolando Chávez	Guápiles
Leslie Anderson	Germania, Siquirres
Finca Dulce - E	El Humo, Jiménez

Farms that received technical assistance in macadamia production

Miguel Rojas-Castillo

Misael Hidalgo	Chachagua
Franklin Jarquín	El Burrito
Norman Cháves	Aguas Zarcas
Francisco Blanco	La Tigra
Roberto Quesada	Los Angeles
Danilo Villalobos	Florencia
Angel Cháves	Los Angeles
Fabio Retana	La Tigra
Odilio Retana	La Tigra
Carlos Retana	La Tigra
Víctor Blanco	Valle Azúl
Erney Monge	Valle Azúl
Walter Vega	Los Angeles
Marco Rojas	La Fortuna
Olger Valenciano	Tesalías
Jorge Araya	Santa Rosa
Franklin Cubero	Muelle San Carlos
Félix Morales	La Tigra
Rolando Valerio	Florencia
Marcial Naranjo	San Pedro
Asdrúbal Araya	Monterrey
Alberto Vásquez	Cuestillas
Henry Zúñiga	Jabillos
Carlos Herrera	Río Frío
CINDE	Caldera and Zona Norte
Minor Rojas	El Burrito
Norman Jarquín	El Burrito
Pedro Probts	Florencia
Víctor Rojas	Florencia
Edgar Arrieta	Los Angeles
Olman Soto	La Tigra
Rigo Soto	La Tigra
Gerardo Soto	La Tigra
Roberto Quesada	Los Angeles
German Campos	La Tigra
Juan Piedra	La Tigra
José Méndez	La Tigra
Juanito Vásquez	La Tigra
Nicolás Herrera	Valle Azúl
Reiner Rodríguez	La Tigra
Rodolfo Delgado	Bataan

Farms that received technical assistance in blackberry production

Sociedad Figueroa-Fernández	LLano Grande de Cartago
Durman Esquivel	Orosí de Cartago
Miraflor	Fraijanes de Alajuela
Claudio Ortíz	San Isidro de Heredia
Guillermo Sancho	San Luis, Santo Domingo
APROCAM	Empalme del Guarco
José Carlos González	Cartago
Padre Solano	Paraíso de Cartago
Charles Baldwing	La Cangreja del Guarco
Kenneth Johnson	Paraíso
Agroexport. LLano Grande	LLano Grande de Cartago
José Miguel Pérez	Sabanilla de Alajuela
Río de La Hoja	San José de la Montaña
Dr. Castro Domínguez	Santa Cruz de Turrialba
Enrique Sterloff	San Rafael de Oreamuno
Quirós Van Brokling	N.D.
Alvaro Figueroa	LLano Grande de Cartago

Farms that received technical assistance in ornamental plant production

Inversiones Palmeto	Ojo de Agua
Alcides Fuentes	Turrialba
Hacienda Cuatro Amigos	Turrialba
Vivero Tizate	Turrubares
OREXCO	La Guácima
PLANTEXPO	San Ramón
Manuel Vásquez	Palmares
YUEL S.A.	Acosta
Ecuatica	San Carlos
Viveros Sol del Este	Guácimo
Vivero Bonaire	La Garita
Horticultores Unidos	La Guácima
Agrop. Hnos. Pacheco	Palmares
Ricardo Vargas	Palmares
HERPEVO	San Carlos
Plantas Vivas S.A.	Turrúcares
Las Lomas	Cacique

Julio Aguilar	Guápiles
Agroexp del Este	Valle de la Estrella
Industrias Lizano	Aguas Zarcas

MINTICA S.A.
Marvin Rojas
Santa Fe S.A.
Ganadería La Flor S.A.

Edificaciones Aguilar
Rafael Ramírez
Agroforestales El Ensayo
Hacienda Río Frío
Alvaro Ruiz
Ganadería Alfaro
Carlos Román
Mauricio Martínez-Medina
Juan Cedeño-Guerra
Inversionista Bernina-Cocorisa
Enrique Montero-Rudín
COOPEAGRI
Jim Pocter (Macadamia Costa Norte)
John Thomas-Cabezas (American Flower)
Martín Raine-Weiss
Joseph Lassiter (MacNut)
Antonio Missoten
Tomás Guardia
Eduardo Pacheco
Wilbert Martínez
Hacienda Atirro (experiments)
Irwin White (TIERRICA)
Hernán Mora
José Miguel García
Lan Max
Joseph Soster (Finca Nueces Doradas)
Agroindustrial La Foresta
Alvaro Jiménez, Finca El Yune
Edgar Hidalgo

Farms that received technical assistance in hot pepper production

Olman Arrieta	San Pedro and Javillos
Luis Villegas	Monterrey
Odilón Campos	El Tanque
Juan Rodríguez	Los Angeles

Danilo González	San Carlos
Agrícola Poco Sol	San Carlos
Follajes Tropicales	Germania
Plantas del Caribe	San Carlos
Francisco Román	Guápiles
COOPEBOTANICA	Santa Bárbara
JUVISA	La Garita
COOPEINDIA	Palmares
Dracaenas del Caribe	La Garita
Víctor Manuel Rojas	San Ramón
COMPLEXTRO	San Carlos
Vivero San Rafael	Ojo de Agua
Santa Eduviges	El Coyol
Ochenta y Siete	Puntarenas
Follajes de Umanilla	Esparza

Farms that received technical assistance in pepper production

Marker Inc.	Muelle San Carlos
El Zorro	La Unión de Guápiles
El Aguila de Orosi	Cachí
Hermanos Pacheco	Los Chiles de Alajuela
La Tigra	La Tirimbina, Sarapiquí
Los Gavilanes	La Virgen de Sarapiquí
Guido Miranda	San Vicente, Río C., Grecia
PIMECA S.A.	Pital de San Carlos
PIPERI	Veracruz, Pital
Rancho Círculo	Brasilia, Upala
Río Peje	La Tirimbina, Sarapiquí
Rodalhen S.A.	La Fortuna
Wegner Wagnover	Upala

EXHIBIT 2

SELECTION OF A SET OF ANSWERS COLLECTED DURING THE INTERVIEWS WITH ENTERPRISE STAFF INVOLVED IN ACTIVITIES OF THE NETS PROJECT

ENTERPRISE: Fruta Parrita
INTERVIEWEE: José Urgelles
PRODUCT OR ACTIVITY DEVELOPED: Melon

1. ESTABLISHMENT OF CONTACT

Relations with CINDE started about six years ago in several programs when the following crops were introduced: pepper, watermelon, and melon.

2. SERVICES RECEIVED

The creation of the Melon Grower Association in which CINDE had great importance and the establishment of a certification program in coordination with the Plant Protection Department.

The objective of the program is to improve the entrance of our products in the U.S. For this reason, they are not sprayed at customs and enter the market faster.

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Meetings and activities for the organization of the program

4. QUALITY OF SERVICES

At the beginning a study on the White Fly was conducted.

The program has been very limited regarding technical assistance. Due to competitive factors, the growers have conducted their own tests and have developed technological packages. This means that they have secrets to keep and if they keep a very close relationship with other technicians from CINDE, technology is rapidly disseminated. The enterprise will have to advance on its own.

5. PERIOD OF SERVICE

In the certification system, CINDE makes advance outlays to hire agronomists and the cost is later reimbursed.

6. WILLINGNESS TO PAY FOR SERVICES

Well, that is a problem because the national entrepreneur is not used to paying for this kind of services. There is no culture for paying. It sometimes works, but not always. Besides, the extension provided must be duly validated; otherwise, it would not be paid or people would stop using it.

7. KNOWLEDGE OF THE TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

We do not have major problems with the available varieties, but in general, it is very difficult to consider all the factors that affect or take part in production. The marketing company has become a production partner, and this makes business better.

We believe that the activity is well developed; in spite of this, today's prices are not so good.

8. AREAS IN WHICH RESEARCH OR SUPPORT TO IMPROVE COMPETITIVENESS OF THE PRODUCT ARE REQUIRED

CINDE must concentrate on the marketing of products. That is its real task. Delivery of the product in target markets is very difficult nowadays. Traders play a lot with growers. This must be somehow controlled.

In general, today there are no research systems to support growers. Those who will design such systems must be carefully chosen. (5 companies control the purchasing of melon). The marketing and production of this product are highly concentrated.

CINDE's programs must make a stronger commitment with the grower, and must stay with him until the end.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Yes, but it does not have a major effect. On one hand, there is a technological lag, especially because there are no cooling nets to handle products as they are handled here. Besides, the market is big.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

In technology, there are technicians that adapt easily to support the activity.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

Although I have few arguments, I believe that marketing of the products could pose difficult problems for CINDE.

12. FINAL COMMENTS

- Melon is an activity that requires an optimal flow system, which may be accomplished only with highly planned systems and large volumes.

- This activity depends on the transportation system developed in Costa Rica (cooling net) for banana production. Therefore, if the banana business goes bankrupt, the same can immediately happen to melon.

- There must be feedback between growers and CINDE's staff in order to raise the level and the quality of the services offered.

ENTERPRISE: Macadamia de Costa Rica
INTERVIEWEE: Diego Pérez
PRODUCT OR ACTIVITY DEVELOPED: Macadamia

1. ESTABLISHMENT OF CONTACT

The enterprise started production since 1978 and a research program was established with CINDE in 1988. The objective of the program was to improve local technological packages. CINDE supported the program with funds for inputs and technicians.

The program started with the creation of greenhouses; then, critical levels of fertility were established in 1992-93.

During the last year, efforts centered on gathering information on yields.

The program has allowed the enterprise to transfer technology to the small growers that sell the raw material (nuts in the shell).

2. SERVICES RECEIVED

Development of a technological package on the farm to be disseminated among the small raw material producers.

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Courses, seminars, and field trips

4. OPINION ON THE QUALITY OF SERVICES

The talks have been of high quality, but more information on the crop's conditions in the country must be developed.

5. PERIOD OF SERVICE

From 1988 to 1983

6. WILLINGNESS TO PAY FOR SERVICES

Yes, as long as they are of high quality.

7. KNOWLEDGE OF TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

Yes, but a lot of information on some technical aspects such as pests, nutrition, and development of quality culture is still lacking.

8. OPINION ON AREAS THAT REQUIRE RESEARCH OR SUPPORT TO IMPROVE COMPETITIVENESS OF THE PRODUCT

Pests, nutrition, quality control, and a quality certification program

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Yes, but the strategy lies in strengthening the development of the agribusiness and improving the sale conditions of the product.

In Guatemala, the activity reached its limits. For the moment, the most remarkable aspect is the participation of Brazil in the product supply.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

Technological development and good technicians

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

The raw material producer must be consolidated by supporting him with credit systems consistent with the yields. Real data must be used and not data from other countries.

12. FINAL COMMENTS

- The enterprise is engaged in the process of the nut and 80% of the production is exported to the U.S.

- The situation for the local grower has improved with the introduction of other processing plants as prices are growing. In addition, prices are also rising in the international market.

- CINDE's resources must be allocated to the priority areas. This could be done by encouraging feedback between growers and CINDE's specialists.

- 50% of the activity is in the hands of small growers.

- The enterprise has a marketing system which is coordinated from its office in Connecticut, U.S. The partners there established the system from the beginning.

ENTERPRISE: CAYSA
INTERVIEWEE: Juan Carlos Soto
PRODUCT OR ACTIVITY DEVELOPED: asparagus

1. ESTABLISHMENT OF CONTACT

In 1991, the search of alternatives for coffee production was initiated, and after getting limited information from CENPRO, we went to CINDE where we learned about some alternatives, the asparagus being the most important to us. We also signed a contract for the implementation of a technical transference program.

The activity was started after knowing the results of some feasibility studies.

2. SERVICES RECEIVED

Transference of the technological package and technical assistance, and a trip to California to learn about the product.

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Exchange of knowledge with the few growers that remain at the national level

4. OPINION ON THE QUALITY OF SERVICES

The initial services were deficient, the data of the studies were incorrect, and there was no local validation.

Even though Mr. Novoa had some specialization, he did not know the crop's performance in the country.

The promoted varieties were not the most appropriate.

5. PERIOD OF SERVICE

From 1991 to 1994. It is declining at present.

6. WILLINGNESS TO PAY FOR SERVICES

Yes, of course, but confidence must be created as to the knowledge of the crop's performance.

7. KNOWLEDGE OF THE TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

Actually, some production and marketing details that one never gets to know, but as a producer, I believe I know enough about the activity to continue with it. Marketing is more difficult because it is important to bear in mind that prices must not be lower than $ 20 per box of 5 Kg. It is also important to look for good buyers abroad.

8. OPINION ON THE AREAS THAT REQUIRE RESEARCH OR SUPPORT TO IMPROVE COMPETITIVENESS OF THE PRODUCT

We must develop our own technology adapted to the conditions of our soil. The technology provided by foreign experts is very limited and in most cases disregard the production context.

Product certification programs must be developed. Given the characteristics of the product, it should be promoted among small growers and not large growers as it was done. Then collection centers could be created to obtain volumes that would allow us to take the product to Europe.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Yes, asparagus is only produced in Guatemala, but this country does not have the adequate technology and technicians to develop the product. Our quality is superior.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

A technological package suitable for our conditions has been developed by growers, there are qualified technicians, and we are part of the Caribbean Basin Initiative.

The disadvantages are expensive labor and the high prices of land. Until now the strategy has consisted in increasing yields to 6,000 Kg. per ha. In Guatemala, production is around 3,000 kg. per ha.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

CINDE's role is difficult, but it could focus on the promotion of new crops and should make a commitment with growers until a representative group get to control the activity.

Long-term follow-up is very important and it can be provided, since technologies vary constantly.

12. FINAL COMMENTS

- To gain deeper insight on the nature of the product and the kind of entrepreneur that may get involved in the activity. In this way, abandonment of the promoted activities by growers could be reduced.

- To obtain more information on producer and wholesale prices, complemented with cost prices.

ENTERPRISE: Exporpack S.A.
INTERVIEWEE: Roberto Kooper
PRODUCT OR ACTIVITY DEVELOPED: Melon
An investment in jalapeño hot pepper is under way.

1. ESTABLISHMENT OF CONTACT

CINDE has experimented with several products since 1990 such as asparagus, jalapeño hot pepper, and melon.

2. SERVICES RECEIVED

Information and the creation of the Melon Grower Association, and contacts for selling the product.

3. OTHER TYPES OF DEVELOPED ACTIVITIES

The other support services are limited.

4. OPINION ON THE QUALITY OF SERVICES

The information and the contacts have been good.

5. PERIOD OF SERVICE

1990-1994. First with asparagus and melon, and then with hot pepper.

6. WILINESS TO PAY FOR SERVICES

This is a serious problem because CINDE's technicians would have to be better than the others in the market; that is, they must enhance their image. Otherwise, people would resort to other services.

7. KNOWLEDGE OF TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

These aspects are discussed, but as always, there are many gaps.

8. OPINION ON THE AREAS THAT REQUIRE RESEARCH OF SUPPORT TO IMPROVE THE COMPETITIVENESS OF THE PRODUCT

Marketing is the most important issue. This area requires more internal as well as external follow-up.

Also, more work is required in the agroindustrialization of the product in order to compete and obtain greater advantages in the market. Besides, small growers would be able to streamline their marketing processes.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Yes, but the main issue is to organize processes with more reliable contracts than the present ones which would assist producers with clear marketing channels.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

Better technology and technicians. However, freights and transportation costs are lower in the rest of Central America. In addition, we are more distant from the most important points.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

CINDE should give priority to marketing and the improvement of all the factors that take part in marketing: foreign regulations, higher levels of quality, better information, etc.

In addition, a support process toward agroindustrialization must be initiated, but it is not clear whether it should be taken on by CINDE or another institution.

12. FINAL COMMENTS

CINDE is a concern for many people because it must be reorganized in such a way that it will focus on more concrete aspects within a more clearly defined strategy.

ENTERPRISE: Ganadera La Flor
INTERVIEWEE: Luis Rodríguez
PRODUCT OR ACTIVITY DEVELOPED: Macadamia since 1985
Pineapple since 1991

1. ESTABLISHMENT OF CONTACT

In 1990, an agreement to provide technical assistance in macadamia production was signed. One of CINDE's engineers visits the plantation and drafts a report with special recommendations on a monthly basis.

2. SERVICES RECEIVED

Technical assistance in macadamia production
Research in pineapple production to improve quality control

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Seminars and visits to other countries to increase knowledge of developed activities.

4. OPINION ON THE QUALITY OF SERVICES

The quality of the technical support has been good in the case of macadamia.

5. PERIOD OF SERVICE

Macadamia from 1990 to 1994
Pineapple from 1993 to date (research is still being done)

6. WILLINGNESS TO PAY FOR SERVICES

Yes, as long as the quality is good.

7. KNOWLEDGE OF TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

It is not easy to develop a production/marketing process. Usually the first step is to learn about the product and the production problems to proceed later with brokerage problems. But, in general, we have the basic knowledge.

8. OPINION ON AREAS WHICH REQUIRE RESEARCH OR SUPPORT TO IMPROVE COMPETITIVENESS OF THE PRODUCT

CINDE must give top priority to the demand, it must come closer to growers, know their opinion, and become familiar with their situation before designing the work strategy.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

There is some knowledge in the case of pineapple, but more information is required to find out about the evolution that show other production regions of other countries.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

The advantages are

- Development of a technological package specific to the company which is somehow a modification of Pindeco's.
- Guaranteed democracy for investment
- Greater confidence for investment
- Accessible markets

The disadvantages are:

- More expensive labor
- High transportation costs
- Problems and high costs at ports

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

Actually, it is important to first consider the different diseases of the products before starting a program. They all pose different problems, which must be studied in depth in advance.

In addition, the potential of the institution is totally unknown, since we have little information on what it does and how it operates.

12. FINAL COMMENTS

- In general, the events in the rest of Central America are not seriously considered maybe because of the lack of information.

- There is no long-term strategy. Only the present performance is considered to make decisions.

- Most of the growers made contracts with Banacol and this has resulted in a growth of production areas. Soon we will reach the importance of the Pindeco area.

- We must acknowledge CINDE's multiple efforts to develop phytosanitary programs and support the Pineapple Grower Association, but things are not that efficient until now. Something is missing.

- I insist on the fact that CINDE's technicians must get closer to growers.

ENTERPRISE: Orticultores Unidos
INTERVIEWEE: Arnoldo Avila, Follajes Tropicales
PRODUCT OR ACTIVITY DEVELOPED: five varieties of ornamental plants

1. ESTABLISHMENT OF CONTACT

The contact was made about two years ago, when we had some production problems and the design of fertilization programs was offered to us.

2. SERVICES RECEIVED

Design of fertilization programs

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Promotion of the product in Europe was attempted without positive results. It seems that more attention was required.

4. OPINION ON THE QUALITY OF SERVICES

The quality of services is very good in the area of ornamental plants.

5. PERIOD OF SERVICE

The service was provided since 1992.

6. WILLINGNESS TO PAY FOR SERVICES

Yes, and I also believe that the price is very good for growers. I even think that it is subsidized.

7. KNOWLEDGE OF THE TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

There is a lack of information and development of new varieties in the production area. The needs in markets and marketing are many.

For example, a service to verify receipt of the product abroad should be developed.

There are problems in product handling, but it is difficult to find solutions in packaging, quality control, post-harvest handling, etc.

8. OPINION ON THE AREAS THAT REQUIRE RESEARCH OR SUPPORT TO IMPROVE THE COMPETITIVENESS OF THE PRODUCT

CINDE should concentrate on marketing in order to keep the different agents that take part in the process from affecting quality or the business outcome. Offices must be established in the different target markets to support product delivery and to avoid the middlemen's influence.

9. KNOWLEDGE ON THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Little information about the rest of Central America is known, but it is expected that many years will pass until actual competition occurs due to the lack of knowledge.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

In ornamental plant production, growers have been able to adapt new technologies and to capture markets by offering better products. We may say that our competitiveness lies in the access to technology and the political conditions.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

CINDE should define a strategy that would reach all producers and business people. More information to guide the grower and help him discriminate among other alternatives is needed. This world belongs to risk diversification.

12. FINAL COMMENTS

- I believe that foreign promotion efforts made by CINDE have not been able to solve existing problems and that the search for new markets has been limited.

ENTERPRISE: Melones de Costa Rica
Melones del Pacífico
INTERVIEWEE: Marco Tulio Bonilla

PRODUCT OF ACTIVITY DEVELOPED: Melon

1. ESTABLISHMENT OF CONTACT

Background of enterprises: both companies have a wide experience in melon production. They account for approximately 50% of the national production area (2,000 ha.)

The services provided by CINDE to this enterprise are related to the development of the National Melon Grower Association, which has undertaken a joint phytosanitary program with CINDE for pest and disease control in melon production. The program has led Costa Rican melon exports to show protection levels higher than 75% or contamination levels lower than 25%. This has made the introduction of melon easier in the American market as it has not undergone the tests and treatments applied by Department of Agriculture of the United States, which arrest and spray all shipments. In Central America, only Costa Rica has been able to develop the prevention system.

Production has been exported with levels between 2-5%, which assure almost a complete health level.

2. SERVICES RECEIVED

Organization of the Association and Phytosanitary Program

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Meetings and coordination activities

CINDE has also given support in the dissemination of information on other agricultural products that allow a diversification of the productive structure of the farms. This is done through talks, courses, and some demonstrations.

4. OPINION ON THE QUALITY OF SERVICES

It could be better.

5. PERIOD OF SERVICE

As a result of the coordination efforts between producers and exporters, seven harvest technicians visit and control pests and diseases on melon plantations. CINDE makes advance outlays and then the entrepreneurs reimburse the cost to the institution.

6. WILLINGNESS TO PAY FOR SERVICES

Any service offered and complementary to quality could be requested.

7. KNOWLEDGE OF THE TECHNICAL AND MARKETING ASPECTS OF THE PRODUCT

There are no major problems in this respect since we have full confidence in our information.

They have been producing melons since 1987 and have been able to introduce the drip irrigation technology.

With regard to promotion, no experiences are known with melon, for all exporters have procured their own contracts.

8. OPINION ON AREAS THAT REQUIRE RESEARCH OR SUPPORT TO IMPROVE THE COMPETITIVENESS OF THE PRODUCT

Research is needed on the different factors that take part in the production process, from soil to quality control.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Yes, limitations for the development of the product are known, but right now the most important thing is to profit from market windows.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

In the case of melon, competitiveness depends a greater technological development, which has resulted in higher yields per hectare.

The disadvantages are the higher port and transportation costs in comparison with the rest of the Central American countries.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

More aspects should be analyzed with producing entrepreneurs and other institutions in order to identify those that deserve more attention.

12. FINAL COMMENTS

- The problem with this service is that the technicians that provide the phytosanitary service change every year because the institution cannot keep them permanently in the program. It would be interesting to have the same technicians every year. These changes imply a learning cost and a significant loss of qualified human resources.

- Through agreements with other institutions (universities, Ministry of Agriculture, research institutions, etc.), the program teams could stay longer, more experiences could be provided, and a more efficient use of human resources could be made.

ENTERPRISE: Chimok S.A.
INTERVIEWEE: Carlos Ferrand
PRODUCT OR ACTIVITY DEVELOPED: Blackberry

1. ESTABLISHMENT OF CONTACT

The contact was established in Miami through Minor Briceño, who gave us advice and put us in contact with the CINDE' s Blackberry and Raspberry Program.

2. SERVICES RECEIVED

A complete assistance package was provided including advice for the purchase of the farm, which was finally made 1993. However, even more important was the technical assistance needed for the establishment of a blackberry plantation of 5 Has. of 8 thousand plants.

This includes transference activities of the technological package, solution to specific problems of the crop, cultural practices, and later post-harvest treatment including collection methods, packaging, and exportation of the product.

3. OTHER TYPES OF DEVELOPED ACTIVITIES

Courses and seminars

4. OPINION ON THE QUALITY OF SERVICES

CINDE's support was essential for the enterprise in its efforts to initiate fresh exports of the product a month ago. We used to grow other crops in Peru, but we had never worked with blackberry. Today we have been able to develop a productive alternative thanks to the good services provided by CINDE.

5. PERIOD OF SERVICE

From 1983 to date.

6. WILLINGNESS TO PAY FOR SERVICES

Yes, because they have been of good quality so far.

7. KNOWLEDGE OF THE TECHNICAL AND MARKETING ASPECTS OF THE PRODUCTS

65

We didn't know anything about the product we turned to CINDE for support. Today, we have total control of the most important aspects of the package and we are beginning with marketing.

8. OPINION ON THE AREAS THAT REQUIRE RESEARCH OR SUPPORT TO IMPROVE THE COMPETITIVENESS OF THE PRODUCT

Market development, quality control, and quality certification programs.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

I don't have much information about the events of the other countries of the area. For now, we have a small production and prices remain at profitable levels.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

Technological package and good technicians.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

It seems to me that the work they are doing is appropriate, and I have no opinion about it at this moment.

12. FINAL COMMENTS

Our enterprise has become viable with the support received through the technical services.

ENTERPRISE: Fresas y Moras del Llano
INTERVIEWEE: Alvaro Figueroa
PRODUCT OR ACTIVITY DEVELOPED: strawberries and blackberries

1. ESTABLISHMENT OF CONTACT

The contact was made six years ago.

2. SERVICES RECEIVED

At the present time, a technician visits the farm once a month, although the service used to be wider.

3. OTHER TYPES OF DEVELOPED ACTIVITIES

We used to participate in fairs, observation visits were made, and a more complete assistance package for production was provided.

4. OPINION ON THE QUALITY OF SERVICES

The services are good but, unfortunately, they have been reduced over the last years, and this has deteriorated the competitiveness of the national grower. I believe that CINDE had been able to create a good assistance package that is now eroded.

5. PERIOD OF SERVICE

From 1989 to date.

6. WILLINGNESS TO PAY FOR SERVICES

Yes, because it is always possible to return the costs of those services as long as the assistance contributes to greater earnings.

7. KNOWLEDGE OF THE TECHNICAL AND MARKETING ASPECTS OF THE PRODUCTS

There are always aspects that require the assistance of experts that may provide appropriate answers to the multiple specific problems that arise in the productive systems.

In general terms, we have learned to handle the technological package for export production that CINDE transferred to us; however, there are always that can be controlled with external technical assistance.

8. OPINION ON THE AREAS THAT REQUIRE RESEARCH OR SUPPORT TO IMPROVE THE COMPETITIVENESS OF THE PRODUCT

An effort must be made to identify the most promising sectors in terms of exports as well as those leading enterprises willing to improve their productive efforts and ensure growth in foreign sales.

9. KNOWLEDGE OF THE COMPETITION DEVELOPED IN CENTRAL AMERICA

Yes, Guatemala has a significant production, although this country does not have the appropriate level of technology and technicians capable of developing the product.

10. ASPECTS WITH COMPETITIVE ADVANTAGE

Technological package and availability of good technicians that may provide support for the solution of specific problems.

11. ACTIVITIES ON WHICH CINDE SHOULD FOCUS

Identification of potential sectors and provision of technical support to leading enterprises, which are the ones that take full advantage of the services offered to them, particularly direct assistance.

12. FINAL COMMENTS

In the past, many efforts have not yielded good results because priorities have not been established and support has been given to unconsolidated enterprises because they lack the necessary business capacity.

If, instead, an intensive effort is made to support enterprises that have shown a greater capacity and are therefore at the forefront of the activity, the results will be more tangible and the necessary inverted effort will be proportionally smaller.

EXHIBIT 3

ACTIVITIES IMPLEMENTED BY THE MIAMI OFFICE

THE MIAMI OFFICE

The Miami office is restructured in the month of March with the objective of satisfying the specific needs of the Agricultural Division. The Director of the Miami Office works directly with the Department of New Crops. The main functions of this office are:

1. Satisfy information needs regarding international market analysis with emphasis on the United States. The Departments of Project Analysis, Information and Communication analyze all the information sent from Miami and refer it internally to the Agricultural Division.

   a) Main information - statistics

   - Import volumes
   - CIF/FOB prices - whole
   - Market trends at the macro level
   - Consumer behavior
   - Government regulations
   - Basic mechanisms of distribution

   b) Identify new competitive agricultural products

   c) Identify priority areas to improve the quality of agricultural products

2. Monitor exports via Miami. This is done through a close link with USDA/FDA/ U.S. CUSTOMS and importers.

3. Design price bulletins with the objective of broadening horizons to extend the evolution of the industry.

It is important to stress that starting from March 1990, this office did not adopt the role of promoting export products, since the Marketing Department opened a position in agricultural promotion to undertake these responsibilities.

Participation in Agricultural Conferences

In July, the office participated in the Annual Produce Conference in Fresno, California, together with supermarket chains and producer associations, mostly at the managerial level.

This conference dealt with topics related with consumer trends for the year 2000 such as marketing in the year 2000, packaging and the future, alternatives for present and future agriculture, future and present demography. Likewise, some trips were organized to peach, "durazno" (a tropical variety of peach), melon, plum farms, and vineyards.
California has a pest pre-certification system that guarantees the consumer a product of higher quality. Plans already exist to develop a similar system. California has a certification system of an organic nature, derived from laws created in that city for organic products. The market of organic products apparently has some limitations: consumer cost is high and the cost for supermarket chains is very high because of the product's sensitivity to damage.

The future is clear:

- Less pesticides with a greater use of biological combinations
- Recyclable package with more information
- Information of the agricultural product in supermarkets, nutrition aspects, etc.
- The American consumer of the year 2040 will be an Aglosaxon minority. The remaining 60% will be Asians and Hispanics. Ethnic producers will experience significant growth.
- Consumers between 35-40 years of age increase purchasing power by 20 billion dollars per year.
- Quality vs. quantity

In August of 1990, office staff participated in the Southeastern Aquaculture Trade Show and Conference in Miami, Florida in which most participants were aquaculture producers. A technical package with the latest developments was presented.

The conferences dealt with the following points:

- Processed products
- Quality control
- Economic aspects
- Markets
- Nutrition
- Tropical aquaculture in Florida and the Caribbean
- Inspection, quality, protection to consumer

Also, visits were made to tropical fish importers in Miami, producers of different fish species, and food shrimp producers.

The Florida producer is going through a very difficult crisis. The main problem is the number of state and federal agencies that regulate the activity. With regard to Florida, discussions were conducted about only eight different groups that create a set of norms to regulate aquaculture

operations for health reasons. These norms were created without preliminary impact research of pesticides, impact on ecosystems, etc. This implies a serious bottleneck. Producers are tired of waiting to produce or expand production areas. For this reason, they are reticent to move operations to Costa Rica. This is an important area to be developed in Costa Rica. CINDE's responsibility is to identify potential areas and to create clear black and white package of laws and regulations that control the activity.

Summary of Activities

At the request of Plantas del Caribe S.A., research was conducted in June on the presence of weevil in ornamental plant shipments. The conclusion led the Broker to take early fumigation actions. This research has yielded an entire set of norms to be followed in the future.

On July 17, engineer Arturo Villalobos from the Rural Development Division of A.I.D./Costa Rica visited the office. The objective of his visit was to assess the progress achieved by the office, review financial reports, etc. He requested a summary of the functions of the Miami Office, which was drawn and immediately sent to him.

On July 19 followed Mr. Giovanni Dadafito's visit, Senior Trade Information Advisor for the UNCTAD/GATT, who wished to review the market and the price information of cassava.

Also during the month of July, technical assistance was provided with the aid of USDA to the AGROMARK enterprise based in Costa Rica. This business had quarantine problems, which produced several analysis and research.

At the end of July, meetings were held with Eladio Madriz from COOPECHAYOTE to discuss quality and standard problems of chayote squash. Information on the state and federal markets was requested and received in our offices.

Several meetings were held in August with Vladimir Arroyo in conjunction with the Agricultural Promotion Agent of the Marketing Division to discuss the conditions of the market of pineapple and ethnic products. Several cases of companies in Miami were studied and a list was presented.

Information on fish prices

At the request of the Central Bank of Costa Rica and the National Chamber of Fish Exporters, a price report was drawn in March to help set off the big differences that existed between both institutions as a result of a lack of information.

The projected date to send the reports was May 15. For this purpose, relations were established with the fishing industry in Miami and Costa Rica's fish importers were identified. For this

reasons, a visit was made to those enterprises. The response was negative at first. A practical and real report containing the main fish varieties was drawn.

In fact, on May 15 the first Miami CIF price report was made with discretion and issued.

A new goal was set on August 8: to add a section of Miami F.O.B. prices of fresh Central American fish and to create a data base with information on fresh fish import volumes to Miami.

On August 10, a visit was made to the Miami Department of Commerce, South East Fisheries Office & Economics and Statistics, and a mechanism is established to publish all Central and South American imports on a weekly basis.

The first F.O.B. price report was published on August 13. The price information is valuable as it also contains clear supply data. the South East Fisheries office showed interest in our price information and would like to start a clear investigation to explain with direct correlation the dramatic changes in fresh fish import volumes - Miami.

The fish report was approved by the Central Bank and the Chamber of Exporters and it was tested for three months.

The 1991 goals emphasize on cost recovery. This report has a great return potential over costs.

A recommendation is made to establish a subscription system for Costa Rica and the Miami Office since several producers, exporters, and importers have shown interest in receiving this report.

The Miami CIF price report must be considered the first but not last report. This concept may be expanded to some areas such as mini-vegetables, frozen products, etc. If these areas continue to expand in an effort to streamline information processes, the Miami Office will have to look for other alternatives and subcontract labor.

Organization of a product monitoring service

Given the need for a product monitoring service shown by many agricultural exporters, the characteristics and conditions necessary for establishing this type of service.

To this end, an analysis was made of how such services operate in other organizations, and a study is currently under way of the variables that will be considered in the final design of a system with those purposes.

This design will be submitted to the General Management for its consideration, probably at the end of the first quarter of 1991.

Review of information sources

In 1990, the information sources used by the Miami Office had not been reviewed. The same was true of the products and markets for which these sources provide information.

The review started in November, the objective of which is to have information sources totally suitable for the needs of the Agricultural Division concerning products and markets.

Re-establishment of relations with private and government representatives

Every time the Office Director is change, it is necessary to reestablish relations with representatives from private and government organizations that have had greater interaction with the Agricultural Division in order to obtain more support for our actions.

Gathering of information on product prices

A brief study on price changes of fresh pineapple in the Miami market was carried out.

Prices of peas in this market were also gathered in order to use them as input in the analysis of this product as a potential project of the Agricultural Division.

Other activities include collaborating with the persons in charge of promoting exports and agricultural investment in the Marketing Division in order to contribute to the achievement of common objectives.

Likewise, advisory assistance has been given to people who have requested information on the Division and its projects, either privately or as representatives of international agencies.

C. TRANSPORTATION PROGRAM

- The Master Plan of the Juan Santamaría Airport was examined; the results were communicated and concrete actions are expected for the first months of 1991.

- Works at the Tomás Guardia Airport were resumed. The BEL INGENIERIA company was hired to supervise the works on the runway and it is expected

to finish them by March of 1991.

- The process for the entrance of a new passenger and freight carrier (ZIMEX AVIATION) was initiated. The airline is expected to start operations in March 1991 with the route COLONIA - STO. DOMINGO - SAN JOSE and viceversa.

- The JAPDEVA Board of Directors approved the port tariff project in the ports of Moín and Limón.

THE MIAMI OFFICE

The Miami Office of CINDE's Agricultural Division complied with the assigned functions in 1991. They were divided into two main areas: support and search for information for the different departments of the Division; services provided to growers, exporters and/or investors in the area of non-traditional products.

Among the most important information and support given to the Agricultural Division it is worth mentioning the search for prices of different products, consultations to clarify doubts about quarantine restrictions, search fro specific components used in the research of some programs, visits to fairs with the deliberate object of carrying out market intelligence actions, etc.

The services offered to producers and other elements of the national agricultural exporting sector included: search for information on import restrictions in the United States, price search, structuring and advisory assistance on marketing schedules in the U.S., buyer trade reference studies, etc.

The budget restrictions and the need for increasing cost recovery efficiency called for a staff reorganization in this Office at the end of the year. However, the main services that this unit offers internally to the Division and externally will continue in the future.

At the end of 1991, the collection mode for services to third parties was introduced, and a new operation strategy was clearly defined. This strategy redefines the action areas that will be given attention in the future. It seeks to satisfy in a more direct fashion the needs of Costa Rica's agricultural sector, especially those of entrepreneurs dedicated to agricultural and agroindustrial exports.

The main objectives of reorganizing the work plan derive from the need and convenience of having a strategy that will not only satisfy the needs of Costa Rican entrepreneurs but also allow CINDE to recover, at least partially at first, the operating costs of the Office.

At the same time, it delimits more efficiently the services that CINDE may offer to potential users, not only in terms of their scope but also the responsibilities that they imply.

The designed strategy is part of the conception that this Office was created to provide technical assistance. It encompasses all aspects, for it not only defines the services to be offered but also the charges and regulations that may affect the services (scope, responsibilities, geographical location where services will be offered, etc.), including the corresponding promotion plan.

In sum, the services offered by the Technical Service Office (TSO) include among others:

a) inspection of shipments upon their arrival at the importers' facilities.

b) creation of visit programs for Costa Rican exporters when they need to establish contacts with U.S. entrepreneurs.

c) Search for importer trade references.

d) services of a general nature such as information on product prices, markets, support in searching for alternative means of transportation, new markets, market indicators, and all those services that may be provided according to the possibilities and availability of this office.

Parallel to this, the promotion to these services to Costa Rican users was initiated as a means to maximize the efforts of the Miami Office.

EXHIBIT 4

REPORTS ON THE ANALYSES OF SOME PRODUCTS WITH EXPORT POTENTIAL

ACTIONS TAKEN

Following is a description of the main actions taken by the Department. A chart showing the goals and their achievement during 1991 is included.

PROJECT ANALYSIS SECTION

The objectives set by this section are the following:

- To identify new crops for the Agricultural Division with the purpose of widening the scope of the Institution.

- To provide support with the section's actions to consolidate CINDE/Agricultural Division as a fundamental entity in the development of the country's agricultural activity.

- To consolidate the methodology applied in the analysis and evaluation of the section's projects.

These objectives were clearly achieved during 1990. A detailed description of the functions of this section is provided below.

INTRODUCTION

During this first year of operations, and as an integral part of the Department of New Crops, the Project Analysis Section had the goal of identifying viable 8 crops that were potential future development sources within the country's agricultural sector. These are:

Plantain
Papaya
Mango
Palm fruit
Heart of palm
Garlic
Pineapple
Chinese peas
Soursop

In fulfilling this objective, we had to establish a methodology that would gather the required information. There were three areas of action:

- Identification and collection of information sources for crop analysis
- Information analysis and assessment
- Drafting of the crop analysis document

This methodology produced the diagnoses of 4 of the proposed crops: heart of palm, plantain, mango, and pineapple. At the same time, the assessment of the information available led to the establishment of a Papaya Research Pilot Project as well as the identification in agroecological aspects of production costs and economic feasibility of 3 crops: Chinese pea, garlic, and soursop.

DEVELOPED ACTIVITIES

Heart of Palm

The initial step was to identify organizations, institutions, producers, analysts, secondary sources, etc., that had direct or indirect participation in the crop.

This identification, done by the Section basically at the domestic level, also had to absorb the identification of external sources for this and the rest of analyzed crops.

The Information and Communication Section was to provide support in this effort, which it did only partially and therefore did not submit the international information necessary for the study of the proposed crops.

After this identification came the collection of data. This process was based on actions such as discussions and analyses with persons related with the crop by means of interviews that would provide thorough information on technology, crop handling, research, production costs, marketing, organization, etc.

In addition, field trips were taken and statistics, bibliography and studies were gathered for the analysis of the market.

The next step was to tabulate and analyze this information to make a diagnosis comprising agroecological aspects, production costs, market and economic feasibility.

As a final step, the document was sent to the management of the Department (see exhibit: heart of palm diagnosis). Considering the conditions of the crop at the agronomic and market level, this Department sent it to the Expansion and Support Department to incorporate it into its annual work plan and therefore promote its expansion.

Plantain

For the study of this crop, a series of activities were carried out to obtain the required information. These were:

- Analysis and discussion with producers and researchers related with the crop. This was done through personal interviews to deal with aspects such as technology, handling of the product, costs, research, marketing, organization, etc.

- Application and analysis of a survey among plantain importers (Miami) and exporters (Costa Rica).

- Validation of the Technological and Financial Profile drawn by the C.N.A.A. through interviews with producers and technicians that work or have worked in the activity.

- Definition of a plantain profile and financial analysis based on research results.

- Search, collection, and analysis of information gathered in statistics and studies for the analysis of the market.

Besides making a diagnosis comprising the agroecological aspects, production costs, economic and market feasibility, a final document supporting the creation of a Program for the Agricultural Division was drafted after submitting the results of the diagnosis to the Management and considering the data resulting from the evaluation (exhibit: Plantain Project).

After being revised and approved by the General Management of the Division, the program was transferred to the Production Department, where it has been structured so as to include it in the Work Plan of 1991.

Mango

Similar to the previous crop, the following activities were planned for this crop in order to gather the information required for the evaluation of the activity:

- Analysis and discussions with national and international producers and researchers related with the activity by means of personal interviews and visits to the country to deal with issues such as technology, crop handling, costs, research, marketing, organization, etc.

- Field evaluation of used technology.

- Definition of a mango profile and financial analysis based on research results.

- Search, collection, and analysis of information gathered in statistics and studies for the analysis of the market.

The final result was a diagnosis which, together with the data provided by the Management and the members of the Section, led to the drafting of a final document supporting the creation of a Mango Program (see Mango Project).

After being considered and approved by the General Management of the Division, the document was sent to the Production Department for its incorporation into the Work Plan for 1991.

Pineapple

The methodology used in this crop varied.

The study "Analysis of the Present State of the Fresh Pineapple Industry in Costa Rica and its Export Potential" made by David J. Anderson for the CAAP (Agricultural Division) in 1988. The study was updated through interviews with producers, specialists, researchers, and by making the corresponding agroecological analysis of the crop, including a production cost and economic feasibility study.

With respect to the market study, the same method used for the other products was used here to determine its potential. The corresponding diagnosis was made based on this information and sent to the Management of the Department which, given the conditions revealed by the evaluation, decided that this crop met the requirements to be moved to the Expansion and Support Department (see diagnosis of the Pineapple, 1990).

Papaya

The study made for the old CAAP (Agricultural Division) by Mr. Dennis Lesnick entitled "Manual of Recommendations for Growing the Costa Rican 'Solo' and native varieties of Papaya," which was evaluated by specialists in terms of agronomic conditions and economic feasibility, led to the creation of a mechanism to validate Mr. Lesnick's statements.

An agreement between PINDECO and CINDE/AGRICULTURAL DIVISION was signed to develop a project in the South Zone. The objective of the project was to conduct the required research to determine more directly the technology that must be used for that crop as well as its economic feasibility.

Chinese Peas

This was one of the last crops identified during the period of 1990.

In the analysis of the Chinese peas, another evaluation mechanism was established due to the experience generated by the Agricultural Division in the project of 1986. However, the information gathered in that project was updated.

Contact with engineer Rigoberto Matamoros was established. He was the technician that implemented the projects and helped update the information with his observations. Based on this information, the agroecological study was conducted and sent to the Management of the Department.

As a result of this experience, it is considered that the agroecological viability has been established for the implementation of this crop in the country. However, weaknesses such as the use of technology and the pattern of expenditures remain as weaknesses.

The market study has not been concluded due to the fact that the required international information has not been provided on time. In spite of this, we may say that the Chinese peas has great popularity in the U.S. market and that its demand is on the rise (see Diagnosis of Chinese Peas, 1990).

One of the disadvantages will be the competitiveness of the product generated in Costa Rica before compared with those of other competitors (specific case of Guatemala), given the low production costs in those countries where protection margins against eventual price declines are higher.

Garlic

Due to the need of substituting imports with the consequent savings in foreign exchange and a potentially attractive market, new expectations have been created to consider the development of garlic in our country.

The work done focused on searching for possible information sources at the personal and institutional level.

It must be pointed out that since the crop is virtually abandoned at present from the production to the institutional level, information is very scant.

However, it was possible to determine the most important aspects related with agroecological needs. This closed a stage of the diagnosis giving way to an agroecological study, an estimated cost analysis, an estimated economic feasibility study and the factors that have hindered the development of the crop in the country.

The market study has not been completed due to the lack of information as in the case of Chinese peas.

Interviews and statistics have helped to determine that consumption of fresh and processed garlic (powdered garlic) is significant in the country. Growth is expected to continue, influenced by population growth and the increase in per capita consumption.

According to the last complete set of import data of 1988, the volume of imported fresh garlic rose to 934.13 tons, while the consumption of powdered garlic in 13 industries consulted in November of 1990 reached 65 tons.

It still remains to be seen whether it is feasible to proceed with the first stage of the development of the product as a substitute for imports, given the production costs and the prices of the imported product offered by the competition. (see Garlic diagnosis, 1990)

Soursop

The current profitability of this product was analyzed at the request of and in conjunction with the Association of Soursop Growers of Costa Rica.

The evaluation of this crop has attempted to determine whether present growing conditions make it an attractive source of investment and whether it is possible to incorporate it to the assistance and technology transference programs of the Agricultural Division.

OTHER ACTIVITIES

In addition to the crop analysis established as goals, there were other activities in which Section staff participated, either to support other Departments of the Division or at the request of third parties. Such activities were:

Support to third parties

- Assistance to private persons and representatives of institutions that request information with emphasis on product that could receive the support of the Agricultural Division (mango, papaya, pineapple, plantain, etc.)

- Participation in the Seminar on Tropical Fruit Drying offered by the CITA-UCR, particularly at the presentation on the availability of mango raw material for the dehydrated fruit industry.

- Participation in a meeting organized by the Association of Mango Growers of Liberia.

- Support to people that have done their thesis on products of interest to the Agricultural Division and contacted the Institution for that purpose, for instance, Lil Soto, Study on Blackberry Production

PROJECT ANALYSIS SECTION

INTRODUCTION

Evaluation studies of 16 products were identified and completed during 1991. For this purpose, the Section used the methodology applied the previous year, which was based on three aspects:

- Agroecological diagnosis
- Market assessment
- Economic assessment

Starting this year, the evaluation methodology established homogeneous selection criteria that made data processing and presentation easier. The rating process was based on four main evaluation aspects, namely:

- Market assessment
- Agroecological assessment
- Impact on national economy
- Impact of the private sector

Based on this uniform methodology, the information gathered about the following products was summarized, weighted, and classified:

Garlic	Ginger
Chinese pea	Passion fruit
Pumpkin	Honey
Exotic banana	Broccoli
Chayote squash	Seedless watermelon
Eddoes	New coco-yam
Yam	Soursop
Cassava	Old coco-yam

Besides the products mentioned above, a preliminary market analysis of 8 products was made, some of which were on the list above, and market information on cucumber, cauliflower, cashews and aromatic herbs was also included.

The following documents derived from this process of analysis:

a) Selection and appraisal criteria

b) Economic and financial appraisal of the evaluated products, which contains detailed information on production cost analysis, investment, imported component, and identification of the different indicators that have an impact on the national economy and the private sector.

RESULTS 1991

The comparative analysis of the identified products helped to determine the best potential alternatives to be developed with new programs by CINDE/Agricultural Division in 1992.

The selection process has considered not only the results of merely quantitative but also qualitative variables. As mentioned elsewhere, the economic and financial indicators are excellent tools for the evaluation and appraisal of a particular product, but they do not evaluate the product completely since it does not consider all the environmental conditions, particularly its situation, problems, and opportunities offered by the product in accordance with the general objectives that regulate CINDE's functions.

After examining the conclusions of each product, this Section proposed the following products to be developed into programs next year, which in order of importance are:

a) Chayote Squash
b) Passion Fruit
c) Broccoli
d) Pumpkin
e) Garlic
f) Seedless watermelon
g) Exotic banana
h) Chinese Pea
i) Roots and tuber crops

CHAYOTE SQUASH

This is a product with certain competitive advantages for Costa Rica. From the early 80s, the country has maintained an predominant position in the marketing of squash in the U.S. market until capturing 97% of the market share in 1982 and 1983. Since then, the country has been losing ground as evidenced in the ups and downs of Costa Rica's market share since 1985. During this period, Mexico --our strongest competitor-- reached higher levels, and it captured a 36% share of the market in 1987-89.

Mexico has solved its technological problems progressively and therefore improved its quality. In addition, they have the advantage of begin closer to the market.

Besides Mexico's competition, there are two reasons that affect the growth of exports mainly from our country to the U.S. market. First, production has been limited to the Ujarrás Valley and surrounding areas over the Last 6-7 years, which has hindered its expansion. Under these conditions, the production area is estimated in only 400 hectares. Second, the crop has not received any institutional help to solve the serious technological and organizational problems, among which are degeneration of breeding material, deficient use and handling of pesticides, and serious quality problems. This has originated continuous interceptions by FDA authorities. Both factors combined (quality and pest residues), together with domestic unfair competition, have had such a strong impact on the activity that we are losing our market share.

For these reasons, this Section believes that CINDE/Agricultural Division could contribute to the improvement, expansion and conservation of this important source of foreign exchange. Two large areas of action have been defined for this purpose:

a) Implementation of a breeding material improvement program guided by specialists in the field.

b) Identification and assessment of new agroecologically viable areas for crop expansion.

The chayote squash market has grown at a rate of 16% in volume and 26% in value over the last 8 years. This demonstrates the present opportunity to expand this market if Costa Rica implements an organized production and marketing strategy. The development of new crop areas could generate in the short term foreign exchange of around 8$ million compared to $4 million exported in 1990. This goal could be achieved by duplicating the production area and/or through an integral program of technological development to increase the yield-capacity and the quality of the Costa Rican product.

PASSION FRUIT

This activity is visualized as an attractive market opportunity, although with a rather unstable demand that makes it difficult to foresee the performance of demand in the medium term. This irregular demand and production practices in producing countries cause areas to increase or decrease in the short term. This has an immediate effect on prices, making them rise and fall and affecting in turn the demand of the product.

There is a large operating capacity at the moment, especially in the North Huetar region where there are at least four processing plants. Only TICOFRUIT has the capacity to process 2,500 hectares, but there is no production to supply the plant. The problem in this case is not the reduction of crop areas caused by low international prices. The dramatic decrease in production areas is due instead to production problems and depletion of breeding material.

TICOFRUIT, a leading enterprise in this field, justifies the promotion of production areas because it considers that the present demand of juices and concentrates is good and is growing. However, expansion is not possible with the present technological problems; for this reason, they consider it is necessary to establish a national research program. According to this same enterprise, the international price levels recorded during the last year are excellent. The metric ton of concentrated juice is above $5,000 (even today the ton is quoted in $5,000 FOB/ton). This has made it possible to make medium-term estimates of foreign exchange of about $18 million, which seems extraordinary if compared with other agricultural and livestock activities.

Even under these conditions it is still counterproductive to promote the crop without having a guarantee of the real and direct demand as price fluctuations could spoil the activity. If the demand is favorable, there is the possibility of implementing a program that would develop the product according to real needs. The search for new areas with less problems than the North Zone is one of the most important tasks to do.

BROCCOLI

Broccoli is one of the fastest-growing products in the fresh vegetable market. The import volumes in the U.S. have experienced a steady growth as shown in the market assessment made by this Section. Although Mexico has 90% share of frozen and fresh broccoli and that other countries such as Guatemala have entered the market successfully, it is possible to enter the market in spite of the strong competition due to its growth.

It has been proven, although not on a large scale, that the country can compete well in production costs, productivity and quality of the product. The consolidation of the technological package and the expansion of crop areas are left for future consideration.

Another aspect that deserves attention is to attract other companies to participate not only in the marketing process but also in the production phase in order to expand the crop areas which are only 200 today, all of them marketed only by one company.

If this situation prevails, the impact on foreign exchange is very low and only $600,000 would be generated from 200 hectares that would yield an average of 1,000 boxes per hectare. This economic goal suggests that we should not stay with only one marketing company and that we must expand the market and the marketing channels in order for the activity to have a significant impact and to create new alternatives for other fresh and processed vegetables.

CHAYOTE SQUASH

Costa Rica has become one of the main sources of squash in the United States as this product has been able to enter the international market with some success. This is a competitive advantage for the country because the product is well-known in the market. In the future, suitable conditions must be provided to ensure a profitable production, and good productivity and quality conditions must exist to increase the export supply. Besides, prices must contribute to the competitiveness of our country.

As mentioned in the product analysis, there is an opportunity to increase the market share and the productivity, which are the main problems that affect the activity. This will be accomplished only with the implementation of a research and technology transference program with an emphasis on breeding resources. Without this element, it is very difficult to compete successfully in the market in times when prices are low.

Preliminary estimates show that there are 500 cultivated hectares, 60% of which are used for exports. With this situation and an average yield of 20 tons/hectare, the country receives approximately $390,000 in foreign exchange ($2.50 - $3.00 per bag of 23 Kg. FOB, Limón).

Having the potential to expand production in different regions of the country, it would be feasible to have a minimum of 1,500 hectares with average yields of 20 tons/hectare that would generate net foreign exchange of approximately $4 million.

GARLIC

This product offers two alternatives of development: import substitution and the search of foreign markets. Prices in the U.S. market have increased to attractive levels that would allow this product to compete in that market.

The U.S. market is controlled by three major suppliers: Mexico, Argentina and Taiwan with 49%, 16% and 13% of market share respectively. In spite of this situation, the Caribbean Basin countries enjoy a temporary comparative advantage of not being exempt of taxes which the competition has to pay.

Besides fresh garlic, a good opportunity for peeled garlic is identified. Today the market for this product is small but has a constant growth. The product presented in this form raises added value and increases the price twice or three times as much as those of fresh garlic. From this perspective, importers believe that it is possible to triple annual sales. Another important segment is peeled and frozen garlic for the food industry.

The Canadian market represents another good alternative. The main suppliers are still Mexico and Argentina and their prices are higher than those of the U.S. market. While in the United States the 30 pound COLOSAL and JUMBO box from Mexico costs between $22 and $27, this same box costs between $43 - $47 in the Canadian market. In addition, large sizes may cost up to $63 per box.

Europe, France, Spain, and Italy are the main garlic producers and at the same time the largest consumers and exporters of that product. France has become the main importer, followed by Germany, Italy and the United Kingdom. Even though domestic production is high, the market trend continues to decline, which translates into an opportunity for the developing countries to increase their sales, especially in the period from January to June.

One of the limitations that require evaluation in order to determine our competitiveness is the payment of taxes (12% ad valorem) on imports coming from countries outside the Economic European Community. In spite of this temporary situation, an elimination of taxes levied on Central American products is foreseen in the short term, which also favors competition.

In short, local market conditions, the possibility of import substitution, and the expectation of entering the foreign market in the medium term makes this an apparently viable alternative to diversify and export new products.

It is important to bear in mind that the present competitiveness of the Costa Rican producer is in sale price and not in production costs. This is because the price of imported garlic (including tariffs) is similar to the local production cost of 135 colones per kilogram. If those tariffs are eliminated in the short term as foreseen, the production costs would be way above the import price and the local producer would lose its competitiveness.

If this turns into a program, the crop would satisfy the domestic demand first during the period required to generate technology, and if results are good, the supply would be expanded to the major import markets.

SEEDLESS WATERMELON

Seedless watermelon production could be developed extensively if some of the major technical problems outlined in the particular analysis are solved and if sales are negotiated under the same conditions of melon.

It seems that technological problems could be easily solved with the current production knowledge as long as areas and resources are allocated to research and the development of marketing channels just as it has been done by the melon sector. This sector is well organized and its support would be essential in the development of watermelon production.

The total watermelon market is very large (more than 123,000 MT during 1989 in the United States). It is estimated that seedless watermelon may displace 50% of the volume of traditional watermelon in the short term. Since the supply is limited by the problems mentioned before, the country must accumulate experience and try to capture a significant share of this new market in a near future.

EXOTIC BANANA

The situation of exotic banana is very similar to that of the watermelon. It is an activity promoted by transnational companies that profit from their infrastructure and positioning in the market. At present, it seems to be a growing profitable activity; however, the increase in export volumes could depend on the market performance and the interest shown by transnational companies in this type of banana.

CHINESE PEAS

This product shows excellent economic-financial indicators with a strong impact on the national economy and the private sector. However, the development of extensive areas is hindered by competitive reasons, which will reduce sales during a window season** (January-April). This means that artificial irrigation systems would have to be used and this is another limitation for high altitude zones during that period.

Labor shortage and costs must be considered seriously since production concentrates in vegetable-producing regions where competition for labor is high. Some of them are Llano Grande, Tierra Blanca, Cot, etc. in Cartago; Poasito and Fraijanes in Alajuela.

ROOTS AND TUBER CROPS

Although this sector brings together a large quantity of products, interest is focused on only three of them:

- Cassava
- New coco-yam
- Old coco-yam

Although they could be considered as one sector, there are environmental reasons that force us to analyze them as separate crops; however, they share similar performance characteristics both individually and collectively. As a whole, both the market and the sector are growing. This growth was more evident in the case of cassava and yam. During the evaluation period (7 years) imports of these products increased by 16% and 19% respectively in the United States. Costa Rica holds a leading position in the case of cassava. Other countries have better advantages in the other products.

While exports have had an accelerated growth, future success depends on importers' needs and the quality of the product. This is why quality has been stressed if the country does not want to lose the market share. This justifies the implementation of the quality certification program as one of the most instruments to maintain our presence in the market and as a previous condition to execute any project designed to expand the industry.

NEW PROGRAMS

A presentation was prepared with the available information to submit the previous results to the Technical Advisory Council of the Agricultural Division. The first five crops were presented in the first session: squash, passion fruit, broccoli, pumpkin, and garlic. After making the comparative analysis of the above products, the decision was made to approve squash production as the first program to be developed starting the second semester of 1992.

The other four products (passion fruit, broccoli, pumpkin, and garlic) were not initially approved for the following reasons.

In the case of passion fruit, the fluctuating situation of prices in the major international markets demands a careful analysis of crop expansion. For this reason, it is more convenient that the industry develop the product.

In the case of broccoli, it is not convenient to hold only one enterprise responsible for the promotion and marketing of the product. The eventual withdrawal of that enterprise from the activity would spoil the continuity of any program that might want to be established. This situation together with a series of agroecological limitations do not show a good opportunity to develop an activity with a significant economic impact.

Although pumpkin production is indeed a good alternative for export growth, there are limitations with regard to breeding material. These difficulties could be overcome with a small research project supplementary to the technical assistance service provided by the Production Department to the growers of the Peninsula of Nicoya.

Finally, the eminent elimination of tariffs would void the tax rates levied on imports and this would undermine the competitiveness of Costa Rican producers.

The case of exotic banana was analyzed at a second meeting of the C.A.T. Since it represents a new alternative in international markets, the product was approved to become one of the programs, the other being squash, to be implemented in 1992.

OTHER ACTIVITIES:

In support of the activities carried out by the Department or the Division, the institution participated in the following areas:

- Participation in the contact group between the Bank of Agricultural Promotion and CINDE/Agricultural Division with the purpose of establishing a frame of reference of the services that CINDE could offer to the Bank.

- Participation in the assistance provided to the PROEXANT group of Ecuador.

- Market value of 13 crops required by the National Bank of Costa Rica as part of the INFORAGRO Project.

- Participation in the Seminar "Motivation Techniques for Sales Personnel"

- Document prepared for CARBEN Produce Sales of Miami, Florida on technical and agronomic aspects (cultivated areas, export volumes, potential, production costs, production techniques, etc.) in squash, new coco-yam, cassava, and ginger production.

EXHIBIT 5

BACKGROUND OF QUALITY CERTIFICATION PROGRAMS

Quality Certification Program

The report submitted by the consultants sent by **FAO** to the Ministry of Economy, Industry and Commerce to carry out the study on the need for a Quality Certification Program for export products includes the criterion that the National Office of Standards and Measure Units (ONNUM) of the MEIC does not have the required financial and human resources to implement this service. The study concludes that only **CINDE** has the appropriate structure to take responsibility of the Quality Certification Program of non-traditional fresh and processed products if granted the necessary funds.

CINDE/Agricultural Division and ONNUM drew a draft of the Executive Decree under which the quality **certifying agents** of non-traditional products will be accredited. In a greater or lesser degree, there are three ministries that have direct influence on the export process and it is for this reason that **CINDE** has proposed that the decree be issued jointly by the Ministry of Agriculture and Livestock, the Ministry of Commerce, and the Ministry of Economy, Industry and Commerce.

ONNUM has informed to **CINDE** that in order to reach consensus and take initial financing actions with funds from donor countries, the minister of economy, industry and commerce will invite the ministers of Agriculture and Livestock and Foreign Trade to work meetings during the month of January of 1992.

The Work Plan that will initiate the Quality Certification Program of Costa Rican exports was made in conjunction with representatives from ONNUM and FAO consultants. The implementation and operation of the Program during the first three years will require an investment estimated in US$ 1,700,000.00 Cost recovery will start in the fourth year and this will make the Program self-sufficient.

Melon Export Certification Program

Marketing of this fruit in the United States --our most important market-- has bee mainly affected by the fact that consumers consider melon vector of the Salmonella bacteria and that it may also transmit the **Vibrio cholerae, race 01.**

The uncertainty created by this situation among local producers led **CINDE/Agricultural Division** to propose the implementation of the Melon Export Quality Certification Program.This action is a pilot plan of the National Quality Certification of Export Products that will show producers the scope of the modern concept of Quality Certification. It will also establish credibility among producers of the institutional capacity to conduct this type of program.

Once the proposal of **CINDE/Agricultural Division** was accepted by the National Chamber of Melon Growers and Exporters and by the General Office of Plant Protection of the Ministry of Agriculture and Livestock, the essential elements of the Quality Certification Program of melon exports were outlined:

- Phytosanitary Certification: promotes the strengthening of all the measures that need to be taken and that attempt to reduce the quarantine risk in pest propagation.

- Certification of microbiological controls: promotes the use of chlorine in water used to wash the fruit to guarantee the annihilation of the Salmonella bacteria. The School of Microbiology of the University of Costa Rica made the corresponding studies to determine concentration and exposure time of the fruit to chlorine water. It is well known that the Vibrio cholerae bacteria has a lower resistance to the action of chlorine than the resistance opposed by the Salmonella type to this substance. Besides, the studies made by F.D.A. on 100% of the products imported from South American countries affected by cholera resulted negative vectors of the V. cholerae.

- Certification on analysis of agrochemical residues

  In order to guarantee the importing country that Costa Rican producers respect the use of agrochemicals approved by **E.P.A.** on melon crops, actions are being coordinated with the laboratory of pest residue analysis of the General Office of Plant Protection of MAG, which is responsible for certifying that the product is residue free or that --if existent-- they are within the accepted tolerance levels.

In order to finance the Program, **CINDE/Agricultural Division** turns to two sources:

- Agreement signed between **CINDE** and the National Chamber of Melon Growers and Exporters.

- The willingness of the MAG's General Office of Plant Protection to allocate a percentage of the fixed rate to export products - ¢1.00/box. It is estimated that this contribution generates ¢2,700,000. **CINDE/Agricultural Division** will use these funds to support the development of the Program, which includes not only product supervision and packaging plants but also the training of the Program Supervisors and the personnel of the different enterprises involved in the exporting process of melon.

Additional funding for special projects

CINDE/Agricultural Division requested before the second Vice-President of the Republic the official approval to obtain funds from the PL-480 Program in order to assist the development of the Quality Excellence Certification Program.

The same proposal was presented to **A.I.D.** representatives who approved US$ 1,500,000 at first and which are expected to be verified by AID/COSTA RICA in January.

PROEXAG

The first PROEXAG Program concluded in July 1991. In October PROEXAG II was initiated with funds from ROCAP. The program will last 4 years and the action plan will be basically the same as that of PROEXAG I. This program includes the participation of an Industrial Advisor.

Program PL-480

In Law No. 7203, published in the Special Addition No.35 of September 1990, appear the funds appropriated by **AID** to **CINDE**, which come from Program PL-480, Section I.

The main objective of the Program is to **aid national exporters to comply with the phytosanitary requirements established by importing countries.**

In order to develop Program activities, **CINDE/Agricultural Division** assigned ten million colones to provide assistance to producers. This will be done through the Phytosanitary Department of Export Products of the MAG's General Office of Plant Protection and the purpose is to find ways to improve product handling substantially and to find solutions to phytosanitary problems that arise during the production and post-harvest treatment stages, including packaging and shipment problems at embarkation ports prior to their departure.