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PROEXAG

NON-TRADITIONAL AGRICULTURAL EXPORT SUPPORT PROJECT

**OBSERVATIONS CONCERNING
THE ORNAMENTAL HORTICULTURAL EXPORT INDUSTRY
IN THE CENTRAL AMERICAN REGION**

Assignment Number ST/87-12

Contract Number: 596-0108-C-00-6060-00

**SUBMITTED TO:
Regional Office for Central America and Panama (ROCAP)
U.S. Agency for International Development
Guatemala City, Guatemala**

Submitted by:

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through

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May 1987

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SECTION I

SUGGESTED TERMS OF REFERENCE FOR A PREFEASIBILITY STUDY OF SELECTED SEGMENTS OF THE CENTRAL AMERICAN ORNAMENTAL INDUSTRY

A. The Cut Flower Industry

1. Determine the species and varieties known to be in demand in the North American and European markets and the potential volume of each. Also determine any regional phytosanitary restrictions that could influence product entry into these markets.
2. Determine the climatic requirements for the cut flower species selected.
3. Determine the type and size of the minimum physical infrastructure required to produce an economically viable, quality-competitive product for export.
4. Determine the quantities and horticultural form of imported original material required to start up the above production unit (3). Identify internationally recognized suppliers of required stock and enumerate proforma cost.
5. Describe the horticultural technology and infrastructure required to multiply the original imported plant organ in sufficient quantities to sustain the production unit in a competitive position.
6. Describe/design the type of protective structure required, with consideration given to minimum modification of the natural environment and special attention to the use of indigenous construction material.
7. Describe the horticultural skills required to grow the crop and cultivate it in a competitive form for the international market.
8. Describe the minimum physical infrastructure required for classifying, packing and provisionally storing the harvested product prior to transporting it to the final market.
9. Demonstrate the fiscal documentation and phytosanitary declarations required for product entry into a specific market.

10. Enumerate the known world production centers of a given crop and review the latest cultural selections and market concepts in use or under consideration.

11. Examine domestic quality and volume to determine the potential for channeling the national product into the export market.

12. Chart the particular advantages and/or disadvantages of a specific eco-region over existing competitive production centers.

13. Develop a proforma analysis of capital costs required to begin and sustain on a short and long-term basis the minimum economic unit determined to be feasible.

14. Review the detailed characteristics of the plantation for a given situation and quantify the cost of items 3, 4, 5, 6 and 8.

B. Cut Foliage Product Complementing The Flower Industry

1. Same

2. Examine domestic vegetation with the potential to compete in the above markets and note any special techniques that might be required to bring about product acceptance in those markets.

3. Same as cut flower outline.

4. Same as cut flower outline.

5. Same as cut flower outline.

6. Same as cut flower outline.

7. Same as cut flower outline.

8. Same as cut flower outline.

9. Same as cut flower outline.

10. Same as cut flower outline.

11. Chart the particular advantages and/or disadvantages of a specific eco-region over existing production centers.

12. Elaborate a proforma analysis of capital costs required to begin and sustain on a short and long-term basis the minimum economic unit determined to be feasible.

13. Same as cut flower outline.

C. Ornamental Green Plant Organs For The Interior Foliage Industry

1. Same

2. Describe the climate required for the plant species selected.

3. Same

4. Same

5. Same

6. Same

7. Describe the various horticultural forms of the selected plant organ and the degree of final maturity required to enter the international market. Likewise, note what factors limit complete or uniform acceptance of finished or semi-finished products by the world market.

8. Same

9. Same

10. Same

11. Same

12. Same

13. Same

14. Same as cut flower outline.

SECTION II

OVERVIEW OF THE ORNAMENTAL INDUSTRY

In carrying out this assignment, the consultant attempted to determine the interest of producers in the ornamental industry in entering into the export business, or in improving their present export position. This task was facilitated because in most instances, the owners and managers of organizations with the potential to enter into the export business were one and the same. Also, in many cases, it was possible to carry out discussions on a higher level than that of an initial or exploratory meeting, because of the consultant's previous experience in the Central American region.

As a general comment, regional export federation personnel were eager to assist in programs that develop or improve exports, with little knowledge, however, of the real constraints. The major informational deficiencies could be corrected in many cases if the following menu of services were made available to interested persons:

- o The economic and technical services available in each country by organization name, along with a description of purpose.
- o A listing of all ornamental crops grown for export and for the national market. This should be cross-referenced with botanically correct names and horticultural clones, and should also indicate the commonly used historical and regional names for each plant. Likewise, a listing of all the ornamental plants observed growing in the region should be compiled as a basis for future discussion. This list should indicate the land site on which the plant is growing and its end use.
- o A compendium of all the chemicals available by country that can be used for ornamental plant production. Obviously, this list would serve the entire horticultural industry, and probably its value would be greater than can be calculated at present. This request is based on producers' frequent expressions of ignorance about the availability of growth, insect and disease control products in the market and/or frequently revealed ignorance of the various names under which the product is marketed.

- o These indexes should be auto-sustaining and continually updated.

I believe that failure to recognize the size and need of the ornamental industry will result in an ineffective use of resources, much duplication of effort, and frustration of suppliers as well as potential purchasers of the finished product. In order to address this potentially limiting situation I believe the industry in Latin America is in need of the following:

- o The development of an institution designed to educate and train interested and capable persons in the speciality science of horticulture with an emphasis on ornamentals. Failure to consider this a necessary and immediate need will compound the confusion the writer finds in the industry today. This educational center should be regional in purpose and designed to encompass at least the entire C.B.I. region for the moment. The writer knows of no established institution in Latin America devoted to this purpose. I have heard similar requests in other Latin countries.

I am not qualified to begin a detailed study of a project of this importance and potential. However, I can relate my experience and perspective concerning industry needs to qualified persons. I envision such organizations as partially self-sustaining and capable of offering multi-level educational opportunities. Anyone considering this concept should be aware of the recent plan to establish "The Escuela Agrícola Regional del Trópico Húmedo en Costa Rica" by California Polytechnical State University. It provides an example of the horticultural science interest that exists today in Central America. Extending the stated purpose of this institute should be considered as one alternative.

A more immediate educational tool that should be explored is a video film to meet the following needs:

- o The potential ornamental market as seen and described by the known world commercial marketing organizations, for example, S.A.F., Dutch International Flower Trade Journal, Miami Importers Association, Asocoflores, and F.T.D. The plan would be to enlist these organizations in the composition, organization and editing of the explanatory film. Likewise, the USDA Department of Agriculture Plant Quarantine, and the International Trade Commission should also be considered as potential contributors to the educational video film.

- o It is possible that this educational tool could be expanded to include subjects such as quality standards accepted by the market, and quality detection and control practices designed to enhance market acceptability.
- o Required post-harvest techniques for particular crops might also be incorporated in such a film, as part of the total market requirement theme.

It is possible that many of these proposed educational subjects have already been commercially developed, and it would be a question of editing and translating the subject matter to make it appropriate. Therefore, the first step would be to review the holdings of existing libraries in international commercial and government organizations that are capable of cooperating with PROEXAG on a very broad basis.

I believe we should resist what may appear to be a short-term solution to assistance by attempting to concentrate our efforts on a predetermined list of commonly traded products on the international markets. In the long range, the real resource to be exploited is the diversity of crops that can be grown in this region.

In the last 10 years, the Netherlands has been responsible for a much higher degree of sophistication in product offerings in the U.S. cut flower market than ever existed previously. I have often observed over 25 separate varieties of cut flowers on the New York flower market from Dutch sources. Today, the dollar economies and transport costs are such that Dutch suppliers find it difficult to justify exporting many of these crops. This presents an opportunity for the developing nations of Central America. It should be of interest to note, for example, that the floriculturally advanced country of Columbia now finds it necessary, for various reasons, to enlarge the assortment it offers. This includes such new plants as: Anigozanthos, (Kangaroo Paw), Agapanthus, Trachelium, Cally Lily, Freesia, Gerbra, Thalictrum, Nerine, Statice and Alstromeria in addition to the standard Rose, Chrysanthemum and Carnation.

I believe the value of diversity should be recognized as an important factor in the long-range stability of the industry. Failure on the part of Central American producers to recognize world market trends could tend to diminish their competitive position. Thus, given present grower expansion trends, I often attempt to express less enthusiasm for expansion in conventional crops such as roses.

I recognize that the task of servicing a widely diverse ornamental industry may be contrary to the standards of efficiency and the desire for rapid results in a project like

PROEXAG. It probably will require a discussion on the subject prior to establishing policy.

In all our efforts we must also be cognizant that the growth of the ornamentals industry is going to represent a large part of the benefits each particular country receives. How we can support this within the framework of PROEXAG goals is a subject that will have to be addressed.

A common example of an area of overlapping interest would be when a particular crop can be used for export, and likewise for sale on the national market as a potted plant specimen. This conflict can probably be resolved on the basis of the greatest public relations return in a given situation, and long-range sustainability after the PROEXAG team has left.

One area of assistance I believe PROEXAG should investigate is the capture and conservation of water. Continuous water supply is one of the major constraints faced by potential investors. A natural byproduct of any plastic film roof structure is a rain water receptor that needs only to be channeled to a conservation area for future use.

The major constraint to utilizing this natural resource today is a lack of knowledge concerning the physical design and cost of this channeling and conservation system. Of course, it is not a solution to the water problem per se, but it is a resource that is free and unique to the industry in the infrastructure it employs. At a minimum, it could often extend the growing season for many crops that are now terminated by lack of water. Quite often, rainfall patterns, even in the dry season, are such that simple storage and programmed utilization of this free resource could make a difference in one year's economic returns. I would suggest that at a minimum, PROEXAG team members make available to various government agencies and construction companies a simple bibliography on the subject.

The writer believes that before further effort is expended in the ornamental field, PROEXAG staff should convene and define in more detail what specific ornamental horticultural knowledge and assistance it can provide. This process of defining objectives should take place before another fact-finding trip, unless it would be in the green foliage plant sector of the industry, simply because we did not devote much effort to this sector the first time around. One issue that must be resolved, for example, is PROEXAG policy in regard to export organizations that have established consulting contacts with existing companies.

The ornamental industry in Central America may have reached a stage of development that would permit diversification into

crops that are more basic in product presentation and economic return, for example, more marketable forms of cut foliage, ornamental seeds, and non-traditional exotic bulb crops with year-round demand on the international market.

SALVADOR

4-30-87

Upon arrival I was met by Pedro Urquillo and his new assistant, Sr. Roberto Arbizú Mata. It was decided that since one of the potential beneficiaries of the meetings planned had a rose planting at a site near the airport. It might be advisable to visit the planting.

The present installations do not resemble, nor could in any way be economically converted to a commercially feasible export organization. The major limiting factors observed are:

1. Land site requires that the cultivated terrain be terraced thereby eliminating the possibility of constructing the normally required protective roof structure.

2. The available water supply is insufficient for even the present planting. The present source of water is limited and is almost 2 kms. from the point of final demand.

3. The soil is very acid and has very little desirable structure. It would require considerable soil ammendments. The latter would present a formidable logistic problem because of the cultivos distance from the nearest passable road and the labor associated with distribution of same on the extensive terraces. Later at the offices of Sr. Carlos Palacios, all the above was discussed in detail. In addition the requirements to establish a viable export operation was detailed. I also loaned Sr. Palacios a copy of a previous study of the requirements needed to establish an export rose operation that I have used previously.

I did not find the plant growth satisfactory and in the field attempted to diagnose the various cultural deficiencies apparent to an experienced eye. I am somewhat concerned by some of the apparent vascular disease symptoms I observed. If I am correct in my concern a Plant Pathologist should be requested to get involved in diagnosis and control of this potentially serious disease.

The above visit required the whole morning until 1:30 p.m., and in reality was terminated because of another previously arranged visit with Dr. Jorge Antonio Giammattei. Mr. Giammattei's farm called: Las Delicias, is situated one hour from the capital. It has considerable potential as a site for the establishment of a horticultural enterprise for export.

The site has at least 6 hectares of reasonable level land appropriate for greenhouse construction, and I estimate an additional 2-3 hec. could be secured with some additional land movement that I believe

2.
SALVADOR

would be economic. The altitude is 5331 feet which automatically insures the desired temperature ranges will be encountered.

The soil is excellent both in pH and physical characteristics as observed visually, and indicated by the existing ornamental plants being grown. The major limiting factor is the lack of water. The finca has two sites. The upper site would be acceptable to produce carnations of competitive quality. The lower site could serve for a large spectrum of plants having export potential. We discussed in general terms the management of these crops. I also discussed the management of the crops he is presently growing and conversed on how he might incorporate these crops into the export market.

After extensive discussion on the possibility of encountering a reliable water source on the land, Mr. Giammattei revealed that the military have taken possession of a very reliable source of water of the finca. I proceeded to insist that this only meant that another source of water from the same, or similar aquifer should be considered, because the finca lies below a crater lake known to have water in abundance. He promised that efforts to commence to discover an alternative reliable and adequate source of water should be instituted. It should be noted that the maximum distance that might be required to convey the water could be 2 kms likewise a water reserve would be required to permit temporary storage for water from this source and for the water collected from the plastic roofs required for export culture. The meeting was terminated at 5 p.m. after we concluded a discussion regarding the additional technical information I would mail him at a later date. This information is to assist in decisions related to technical management of crops he might select and additional information of the crops he is presently growing.

Mr. Giammattei proceeded to transport me to Mr. Ernesto Alvarez, whom I have visited on previous occasions and who has been in my Miami office on at least 5 occasions with the intent of acquiring orientation on the crop he might grow for export on his land. At present he is exporting Ginger and Heliconia flowers to an importer I connected him with. His product has been well received in Miami-for this reason he is engaged in studies that should result in expansion up to 15 manzanas. We discussed the terrain he plans to use for this expansion, also the potential assortment of crops he might grow in his environment. The meeting terminated with dinner at his home.

5-1-87

At 7 a.m. breakfast meeting was completed with Sr. Pedro Urquilla of ASPENT. This meeting centered on a review of what had ensued in the ornamental industry since the Jan. 85 conference organized

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SALVADOR

by Mr. Urquilla. Mr. Urquilla requested information on what I considered crops that had potential for export on a property he personally has available. The discussion was terminated with the appearance of Sr. Rafael Sol. He has two properties which we visited with the purpose of attempting to assist him decide if he should consider going into the additional investigation required for an export industry. I found the landsite to be suited for the production of green foliage plant organs for export. The larger site is now in citrus trees. He was able to show me some Heliconia plants that he was cultivating with possible export plans. We discussed the efforts he would find necessary to exert if he planned to enter into the green foliage plant industry, and why it might be a desirable alternative. The conversation covered the spectrum of subjects from what to plant, to how to cultivate, as well as how and where the marketing of same was structured.

The second land site has rose plants that are designed to supply local demand. While the quality is not acceptable for export, they are superior to those previously viewed.

The climate is not conducive to the cultivation of roses for export, even if he were to construct protective structures. He demonstrated an unfinished greenhouse he planned to use, but I found it to be inadequate in ventilation. We discussed the remedial measures he would have to make and the calculations that are used to govern these changes. I observed the previously noted symptoms of wilt in this rose plantings and we proceeded to determine the extent and symptomology of the apparent disorder. In depth conversations revealed that the disorder is now considered serious since previously supposedly resistance varieties have been found exhibiting the fatal symptoms. I was also informed that he knew of no rose cultivo en Salvador that did not exhibit the known symptoms.

From experience, and with the aid of cultural information, I had with me, I have come to the conclusion that the disease can be vascular in nature and may consequently be spread by shears used in harvesting.

I suggested that for these reasons, I thought it might in the best interest to acquire connections with qualified pathologist and have the disorder identified. I promised to assist in the same if they found the above to be difficult.

I am concerned that even the local industry is threatened and that should anyone attempt to establish an industry in Salvador, it might find existence of this disorder a limiting factor.

This meeting was terminated with the return to the Hotel.

L.
SALVADOR

At 1 p.m. I met with Mr. José Roberto and Mr. Eduardo López. They are both part of the Administrative Staff of ASPENT, as well as being associated with other organizations designed to promote agriculture exports. They are engaged in studies designed to result in the establishment of an export foliage industry.

The actual stage of development of this plan is obviously in the very early talking stages as evidenced by the questions asked, and the depth of additional explanation each answer I gave required. In retrospect it appears to me that the discussion would be classified as an initial orientation session. They expressed a desire to have me examine a landsite selected near the airport they believe has merit. I promised to mail additional information on the plants having market acceptance and general cultural information.

I believe they need additional information in culture and market demand prior to commencing any additional investment. They have since contacted me and expressed their desire to assist them.

At 1:30 p.m. a previously arranged meeting with Mr. Mario Molina of FUSADES commenced at the hotel. His principal interest was related to his desire to acquire additional information on the culture and marketing of Heliconia flowers. It should be noted that I have had previous communication with Sr. Mario Molina and his father, as an offshoot of the original 1965 conference previously spoken of. He also expressed interest in acquiring more culture knowledge on Bird of Paradise. This interest seems to be in vogue in Salvador, as noted from the number of persons who interrogated me on what I knew, and thought was the potential for export of this plant specie. I was never able to determine the original source or stimulus of this interest. Sr. Molina and I also discussed several other projects being considered by FUSADES and how I might assist.

Later joined by Mr. Pedro Urquilla proceeded to discuss other crops that might be considered as having potential in the climate associated with the land areas available near the capital. It should be noted to the reader, that any investigator attempting to assist Salvadoreans will frequently hear the phrase: "land that is known to be relatively politically safe". It is for this reason many times one is forced to restrict his outlook to terrain within 1-2 hours distance from the capital, and normally only on certain well travelled highways.

5-2-67

At 7:15 a.m. meeting with Sr. Gustavo Longoria and Filadelfo Leonildo Paires, both of whom I have known for approximately 3 years. Sr. Longoria and his associates have an established flower producing farm approximately 2 hours from the capital.

5.
SALVADOR

The farm was established with the intention of using it in the initial stages as a learning and training center for eventual export market. Sr. Longoria has slowly constructed his original model. He has effectively used it to train several local agronomists to the point where the flower quality would be competitive on the international market. He has also reached the stage of management skill on some species of cut flower production that he is now extending joint association and technical assistance to other potential investors in the area having interest and property.

Because I have been involved in the project since its inception the level of technical assistance is on a review, and constructive criticism basis. Most of the day was spent on a review of the present crops and discussions on how improvements can be made.

Some of the specific points discussed.

1. Control of several insect problems observed to be present and having potential to reduce quality as well as delay entry of product in to export stream.
2. The management for the "Leather Leaf Fern" plants now in production and how to expand the present planting with the existing plants and continue producing saleable fern leaves at the same time.
3. Planned changes in the chrysanthemum cutting procedure or system. This new system proposed will require some additional horticultural techniques. We went into detail on these in terms of quality control and cost. We attempted to educate the agronomist of the benefits of the new packing system with the use of photos of other latin production centers using the same equipment.
4. Discussed some additional new crops that I believe can be grown in the area.
5. Visited the land site proposed for a joint venture and discussed the proposed orientation and use of the land available in terms of maximum efficiency and optimum use of land.
6. Reviewed the export carton box Mr. Longoria had made since his last visit to the U.S.A. We actually packed a box of flowers demonstrating to the workers and the agronomic staff the how, and why of the process.
7. Sometime enroute to and from the finca was spent discussing the trends in the market specially in relation to the effect the recent USA Duty Actions would have on potentially competitive centers of production. We also discussed effects of world economic trends are having on the markets and how a new center of production such as Salvador would be effected.

6.
SALVADOR

8. The meeting terminated at 6 p.m. in the hotel where we reviewed the most immediate product needs the finca will have; and which of these he will find necessary to import as well as the lead time needed to insure that delivery of same is coordinate with the proposed expansion.

LOCATION OF LAND SITES:

Sr. Gustavo Longoria - Viveros

San Antonio - Ataco

Ahuachapan

Sr. Carlos Palacios

Rose Farm - located approx. 4 kms. from airport - right side of road going from airport to El Salvador.

Sr. Rafael Sol. Rose planting in region of Zapotitan. This region has several other Bird of Paradise - outdoor Rose and Gladioulus growers.

PANAMA

5-11-87

Meeting commenced in the office of CONDEPRO with Mr. Max Jiménez, Ing. William Campbell and Dr. Rolando Barsallo. A general discussion of what CONDEPRO hopes to be engaged in to accomplish in ornamentals was commenced. I was asked for my qualifications, and informed of the proposed plan of visits programmed for the next four days.

The conversation finally centered on the question of the present and potential position of Panamá in the ornamental export industry.

OBSERVATIONS

1. Any person engaged to assist interested persons in Panamá to enter into or enlarge the ornamental industry for export markets must recognize that because of the dollar based economy, the local investment does not have the easily recognized incentives to acquire dollars that competing Latin neighbors do. This difference in basic attitude will require the incentivating organization and government to propagandize and sell the program in what may easily be considered non-conventional. It is for this reason a simple replication of a program that was effective in a neighboring country, may not be functional in Panamá.

2. At present the above attitude seems to be prevalent in all the established production centers. I had contact with on this visit, with the exception of Mr. Elías Zafrani, who exports finished foliage plants to Europe. What is equally interesting is the comments of many of the managers of ornamental production units. The distillation or summary of their feelings could best be expressed in a simple expression of faith in the local market's capacity to utilize more product, and their planned expansion to serve this market. The expansion is planned both in volume and in diversity of products offered. The extent is difficult to gauge, but I have attempted to measure this based on the number of inquiries made, and the depth of interest expression encountered when conversing with owners and managers. The depth of interest in diversification expressed by Panamanian growers, I believe is greater than I find in other areas of Latin America, where the major interest is expressed in the direction of how to improve the culture of their existing traditional crop for increased export. One however has to note that in most cases these organizations are engaged in competing in the international export market.

2.

PANAMA

3. The most ideally suited area for the production of cut flowers for export is the Chiriqui Zone. This definition of ideal is related greatly to the climate, plus the existence of established vegetable production. This zone is oriented in the attitudes required to produce and market horticultural vegetable and flower products. This historical region does however tend to present some limiting factors to expansion when land prices and trained labor availability are considered in the initial inputs of any feasibility study. In addition the limited amount of available land that meets all the requirements for a cut flower export production center must compete with the demands for vegetables for the country of Panamá.

Transport facilities from David to Panamá international airport today are not satisfactory for a cut flower export industry. The minimum requirements would be the establishment of a refrigerated transport chain combined with related refrigerated holding capacity in the international airport.

4. There exists no reservoir of trained agronomists capable of establishing or maintaining the horticultural routines on today's international market. In this aspect Panamá is probably less capable than its exporting neighbors; simply because of the strength and size of its domestic market, as alluded to previously.

5. The present managers often expressed considerable reservations, and in some cases frustration, at the inability to secure required sophisticated chemicals, to produce satisfactory quality for local market. Without resolution of this present limiting factor none of the present production unit managers were willing to consider discussions on production designed to compete on the international market. Most spoke of the extremes they had to employ to acquire the specific insecticides, etc., just to keep their national production competitive, and lamented at what they thought was a definite advantage the neighboring Costa Rica producers had. This attitude may have merit. Upon further inquiry it was determined that little cooperative effort among the various growers of the area to educate the agricultural suppliers of their particular needs had been exerted. Considering the known size of the vegetable industry it seems reasonable to believe the regional supply houses could be responsive to the ornamental industry if potential demand communications were established.

6. The only new proposed export ornamental crop is a project in Heliconias. The initial justification studies have been

3. PANAMA

researched. Initial planting stock for multiplication has been imported. We visited the three proposed land sites and assisted in evaluation of them, as well as inspected the growth of the imported stock. Unfortunately, inadequate preparations and vigilance were exerted and some of the imported stock has been lost. The project needs an agronomist to establish the horticultural routines required to multiply the limited stock, and commence planting the final production center. The project manager at present is Mrs. Pamela Navarro. She has secured funds from CONDEPRO to continue studying the market in U.S.A. and Europe. Mrs. Navarro is seeking additional funds to travel to the Int. Heliconia Soc. Conference in Hawaii June 22-87. The plan has merit, since Hawaii is the only leading large producer-exporter of Heliconias and the exposure to the industry at this level would be valuable. Because the commercial cultivation of Heliconias for export is a new industry there exist no written production guide lines. Consequently the trip could be functional in terms of production guide to the extent the competitors are disposed to reveal.

It is interesting to note that while there exist only the Hawaiian center, almost all the countries in the C.B.I. region have expressed interest in producing Heliconias and Gingers. Costa Rica, Jamaica and Martinique are exporting small quantities of Ginger. They are planning on entering the market with indigenous Heliconias. There exist a very strong conversational interest in this plant in all the C.B.I. region. Salvador is also exporting some Heliconia and plans to expand as noted in this report.

The major difficulty I foresee is the lack of organized market demand and product knowledge. I have attempted in all conversations to implant the idea that much more market research and promotion will be required before the product is accepted in the quantities being proposed by the numerous production centers. The reader should be aware of the fact that Heliconias are indigenous to most of the tropical climate regions. This fact, no doubt, influences potential growers to consider the crop simple to cultivate. This may be very deceiving in the long run, and for this reason I am always very cautious in my enthusiasm. Panamá does appear to have at present a slight edge on other areas simply by the act of importing and establishing the more exotic and productive species from Hawaii.

7. It is quite possible that the horticultural potential of the Chiriqui area could be utilized in the production of less perishable but equally high value crops, such as flower bulbs.

4.

PANAMA

The climate and soils I believe are suitable to bulb crops. In fact, tuberous and bulbous crops are common to the region. Considering this, I would like to suggest it might be advantageous to have an initial study made as to what bulb crops could be grown for export. At this moment I can suggest; Lilies, Caladiums Ornithoglum, Agapanthus, Calla and Allium, as only a few of high value and demand in the world markets.

The growing of this type of horticultural product would require less capital in-put than perishable cut flowers, but would require more technological skill. Because of this fact, they do tend to be more promotive of joint venture schemes.

3. Because Panamá's established sea container service is not as large nor as frequent as Costa Rica's, the large cut fern industry transports its products to Puerto Limón for transport to Europe via the banana transport system. This transport deficiency could limit Panamá's entry into the green plant foliage, even though there exist land and climatic factors favorable to its growth.

COSTA RICA
May 7,8,9

I was met at the airport by Mr. Alfredo Herrera, manager of programs for the CAAP office. He has had only 40 days in this position and is still defining his responsibilities. His background is well known by Mr. Hurlson since they have worked cooperatively on banana production and quality control. This quality control training will be very useful to the CAAP Program since one of the areas that the U.S. importers complains of, is the lack of consistency of product.

In his initial conversation Mr. Herrera presented his immediate problem solving obligations that seemed to be centered on two areas:

A. The conflict of interest for space on lassa between the ornamental plant producers (foliage plant producers), and the cut flower producers. I did discuss the alternative of utilizing sea container transport for the foliage plant. I promised to send technical bulletins on this subject. There exist qualified technicians in this science. This might be one area of immediate assistance CAAP could extend.

B. Diagnosis and elaboration of alternative solutions to the present inconsistency of export product from Costa Rica, as seen by importers.

Sr. Herrera views much of this limitation to be the result of a lack of knowledge on the part of what he chooses to classify as middle management.

He cites conversations with various owners or managers who verify this. I believe his point may have validity but I also believe the problem in Costa Rica is probably a quite a bit more historically oriented as will be elaborated later.

The meeting with Sr. Herrera lasted 3 days, and did include a visit to one production area where he had an opportunity to hear field site extension assistance discussions on cultural problems.

Sr. Herrera has some ideas on what the industry needs, but because he is not trained in the vocabulary of the industry it was a very good learning experience for him. His proposed assistance objectives are very global in scope, and he seems to believe that the Costa Rican industry needs to concentrate on quality control and middle management education. We discussed many topics on these concepts. We drew up an outline of subjects in order of importance of the actual educational themes, he thinks should be discussed in programmed conferences with middle management teams and workers. I am at a disadvantage in the area, because I am not a qualified teacher,

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COSTA RICA

except on a one to one field or extension assistance basis. I also informed him that he must consider the ROCAP policy is regional in nature. If ROCAP was involved, it might possibly direct the program to a more regional approach, which may or may not cover all his immediate needs. Likewise, I informed him that before I could commence assisting in collecting information relevant to the outlines we made, it would have to be discussed with additional ROCAP people.

His concept involves using funds, to make video training films, and lectures on many subjects. My global outline of the topics we agreed on, are noted here. Mr. Herrera has a more detailed outline he will submit with his report. I cannot disagree with his concepts and final purpose. I believe it would help other areas equally, and very likely give superior results in other countries that are less advanced than Costa Rica in horticulture techniques. My reservations arise from the scope of the project and the amount of information he believes he can impart in a short time.

We finished discussing the proposal on 5-9-87 at 6:30 p.m. I left him with the idea that he had to submit it through his superiors and the ROCAP Guatemalan office, as a next step.

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COSTA RICA
May 7-8-9

OUTLINE OF THE SUBJECTS FELT ESSENTIAL TO ASSIST IN
EDUCATING MIDDLE MANAGEMENT PERSONNEL IN QUALITY CONTROL
REQUIREMENTS FOR EXPORT AS SUGGESTED BY MR. HERRERA

THEMES TO BE DEVELOPED

1. Development of the vocabulary of the commonly used terms in the culture. Classification and marketing of cut flowers and foliage used in the industry to facilitate communications among all levels.
2. Structure and size of market. Potential of Costa Rica and other Central American countries to participate and compete in world markets.
3. Basic infrastructure, materials and personnel required to produce products capable to compete in international markets.
4. Horticultural techniques required to economically produce a consistent competitive product for the international market.
5. Concepts, terms and measurements, used to define quality and practices essential to the maintenance of the previously defined standards.
6. Concepts, chemicals and practices used in the industry today to optimize the useful shelf life of the product.
7. Importance of communication at all levels of production and marketing. Including suggested minimal outline of record keeping required. Sources of information available to assist in alternative decision making for diversification in production and marketing.

Sr. Herrera has a more detailed explanation of the above outline, which he plans to submit in a formal proposal to ROCAP as a possible assistance program.

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4-29-87

I arrived in Guatemala from Mexico City at 9:15 a.m., Miss Audrey Stillman picked me up. Then proceeded to meet with Mr. John Guy Smith and Mr. José Mondonado. We discussed general topics concerning the assistance MEMORIOS/ROCAP plans to provide, and where my effort might be useful.

A meeting at 1 p.m. with Ing. Néctor Sánchez Latour had previously been arranged. This required a visit to his cultivo and a discussion on how best to manage the crop to optimize his quality and production. Many cultural topics were discussed.

Ing. Sánchez is acting President of the producing and exporting flower group in Guatemala. Subsequent discussions at his home were related to the progress that had been made recently in reducing government red tape and acquiring lower air tariff rates. This I had to admit, was progress in Guatemala. Guatemala was the first Latin American country to export flowers to the developed countries. Because of the lack of reliable air transport and aforementioned red tape, it has had an erratic continuity in the terms of participation in the growing world cut flower market.

At the meeting of the Gremial offices this opinion was confirmed by the Guatemalan participants who stated that any export growth activity over the past several years should be attributed to growth in the green foliage industry. The group did however appear to be serious in its desire to continue pursuing the remaining obstacles. At the Gremial meeting at least five themes related to the difficulties the Guatemalan grower has that puts him at a disadvantage with their neighbor Costa Rica were discussed. Most of these were factors that ROCAP could not directly get involved in solving. Indirect assistance such as providing an information basis could be possible and it was suggested by John Guy Smith that ROCAP would be pleased to be considered participants in any follow-up meetings, especially the immediate follow-up one that was the conclusion of the meeting being discussed here. The only immediate benefit I was able to provide was some bulletins on sources of ornamental horticulture information that I usually carry with me. Mr. John Guy Smith arranged later to photocopy the packet of information I promised. The suggestion that ROCAP could assist in the commencement of technical library on Ornamental Horticulture was well received and I believe will be pursued by Gremial if the indications given to me at later meetings are followed up.

5-5-87

The day commenced with a breakfast meeting with almost all the Antigua region rose growers present at the Ramada Hotel. First place we visited is the largest rose grower in Guatemala. It has an excellent name in the USA market. The original installations I have known for many years. Mr. Fernando Andrade, the original

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owner, grew chrysanthemums for export in them. The discussions were excellent in terms of rose plant management in the volcanic soils of the region. I acquired considerable information on variety response to the climate. The product that finca Primavera (Flores Antigua) is exporting is excellent. Part of their marketing strategy is related to the large number of varieties and colors they grow; 48 in all. This is not considered normal in the industry, simply because of cultural and marketing complexities that arise. The tour then proceeded to view some recently purchased land of Mr. Ernesto Falla, who likewise plans to plant roses. The property has many desirable characteristics but will require a well for the water required for post harvest and fumigation. Lunch was at the Ramada Inn.

A proposal to form an active association for the cut flower growers in the Antigua zone was suggested by Sr. Sánchez. The purpose was defined as having a mechanism to speak in unison to all industry where raw material suppliers and particularly in actions where they felt reason to involve the government. With the new operations being planned this could represent up to six exporting organizations.

After lunch the tour visited another proposed rose planting site. The finca seems to be a triple venture with German and Bolivian capital being invested on Guatemalan land of which the owner is a participant. The finca has many advantages including high quality water in abundance. The site is very well protected from strong winds and the soil appeared excellent having been in coffee many years. The flowers will be marketed under the name of Pam Putik. At present it appeared that they were expecting some additional funding before they commenced building growing units. This terminated the day.

5-6-87

The 8 a.m. meeting commenced in the PROEXAG offices since an originally planned field visit was cancelled, due to a transportation problem of the foliage grower who requested the visit. Cancellation was turned into a fortunate meeting with Mr. Lamb and Mr. Edward Hurlston.

The discussion centered around what ROCAP, and possibly how ROCAP should establish and use its priorities in terms of the ornamental industry? While we did not reach any rigid or operating decision, I think the preliminary outlines of potential objectives can be very useful. At least, if for nothing more than to point out the size of the field and

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possible complexity of same we must consider when thinking of the next 3 to 5 years. Mr. Lamb sketched an outline of his ideas and I demonstrated the procedure or format I usually follow when working with a new potential producer.

Because we really never completed the conversation, both Mr. Lamb and I promised to continue studying the rough outlines we traded, and also to contact each other on the termination of this trip. My conversation with Mr. Hurlston was related to global picture of the ornamental industry in Latin America. We conversed about the various personnel I would be meeting with in Costa Rica and Panamá.

A 11 a.m. meeting with Mrs. Patricia Mansilla regarding the interest in the production and marketing of Bird of Paradise took place in the offices of ROCAP. At 3 p.m. we were taken to the San José Pinula production region by Sr. Latour. The rose and margarine flower finca of Sr. Luis Francisco Valdez was visited, and discussions on rose culture ensued. The finca I have known for many years and have watched a succession of crops grown and exported. The finca has real potential for the following reasons:

- A. Extensive - 68 hectares of level land.
- B. Abundant water.
- C. Close to the airport.
- D. Located near an agricultural region.

The principal disadvantage I have noted over the years is the number of very cloudy days experienced which obligates one to construct protective structures superior to other growing regions near Guatemala City.

The plan as presented to the ROCAP team was to construct additional greenhouses and produce roses for export with the technical and marketing assistance of Sr. Latour. I would be inclined to believe they will succeed. However, I always take the opportunity to discuss and present the necessity to consider diversification of crops as one of the marketing security practices they should consider. We proceeded to visit another newly constructed rose operation in the same region. Most of the discussion centered on the importance of ventilation in the control of superficial rose disease, such as mildew.

Upon return to the hotel Sr. Latour and I reviewed the technical information on rose culture, fertilizers and disease control I had previously loaned him to copy. Because he had not had time to study the information, I used the opportunity to refresh his thinking on what was in the information and how to use same.

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We ended the session at 6:30 p.m. at which time I went to meet with Ing. José Cruz of the Ministerio de Agricultura. He informed me that he is obligated to work with the small flower fincas, not necessarily engaged with export purpose.

We discussed how the growers we had seen with him the previous day could improve their cultural practices and enter the export stream. He expressed the knowledge that the growers he is working with have a long way to go to accomplish this. I suggested some easily grown annual crops which could prove interesting and could be planted in open fields, such as Statice and Gypsophila. His principal concerns centered on the control of the insect, leaf miner, in the present cultivos. He was also interested in flowers that Guatemala could grow in export quantity not actually being grown in Latin America with an excellent economic return, the "El Dorado of Guatemala" that the Spaniards had overlooked and is still waiting to be discovered..... I promised to send him additional information on the subjects he requested. It should be noted that he has a very difficult position to fill. He has no funds and at present no transportation to the growing area he is obligated to service.

At 8:30 p.m. Sr. José Orosi presented Sr. Minon as a person that has investigated the potential of raising ornamental flowers for export, and has the desire to enter the business. He had in fact just arrived from a trip from Colombia with the purpose of associating with Sr. Payan. Sr. Payan I have known for many years since I have assisted his organization in planning, execution and sales. We conversed for at least 2 hrs. on what crops I would recommend. I agreed to relay my opinion to Sr. Payan on my return to the U.S.A. Sr. Payan has never travelled to Guatemala, however he tentatively has programmed to visit it soon. Sr. Minon considered it essential that I contact Sr. Payan and if possible coordinate a meeting prior to, his Guatemalan visit to discuss the various crops he is considering. Sr. Minon also spoke of other ornamental projects he is considering. We conversed superficially on the potential of each of these crops.

Because of its many micro-climates, Guatemala offers an unique opportunity to grow a very wide range of ornamental crops. In addition the country has a very favorable published air tariff when compared with Costa Rica and Mexico. In the past the unreliability of the service has been a limiting factor but the export industry appears to have reached a size and sophistication that it may be able to overcome this. The one possible limiting factor we have discovered in several studies made on cut flower export potential, is the electrical energy cost. In comparison to Costa Rica for example, this cost is approximately 40% higher. For this reason plans to grow a plant requiring photoperiod control by night illumination should be investigated with this economy in mind, example: Chrysanthemums.

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The green plant foliage industry appears to have the most immediate opportunity for expansion. In this instance I would be inclined to suggest that consideration be given to expanding the market demand knowledge, especially in terms of finished product for the European market. This would require a more detailed study of the competitive position of ocean container transport availability compared to other countries in the region.