

From Melon Patch to Market Place:
How They Learned to Export a Non-Traditional Agricultural Crop¹

by

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List of Acronyms

ACA	Agro-Business Corporation of America
APROEXMEH	Honduran Melon Exporters' Association
Básico	Promotora Agrícola Básico Ltda.
CAAP	Consejo Agropecuario Agroindustrial Privado
CAPCO	Productos Agrícolas Centroamericanos, S.A.
CAPINC	Central American Produce Inc.
CBI	Caribbean Basin Initiative
CDIE	Center for Development Information and Evaluation
Chiquita	United Fruit
COAGRAVAL	Cooperativa Agropecuario del Valle Limitada
CREHSUL	Cooperativa Regional de Horticultores Sureños
DAISA	Desarrollo Agrícola Industrial, S.A.
FEPROEXAAH	Federación de Asociaciones de Productores y Exportadores Agropecuarios y Agro-Industriales de Honduras
FHIA	Fundación Hondureña de Investigación Agrícola
GREMIAL	"Gremial" of Non-Traditional Product Exporters
ICTA	Agricultural Science and Technology Institute
LAC	Latin America and the Caribbean
NTAE	Non-Traditional Agricultural Export
PATSA	Productos Acuáticos y Terrestres, S.A.
PROEXAG	Non-Traditional Agricultural Export Support Project
ROCAP	Regional Office for Central America and Panama
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

This study focuses on how entrepreneurs learned to export a non-traditional agricultural crop. Specifically, the study reviews the evolution since the early 1960s of the export melon industry in three Central American countries (Honduras, Guatemala, and Costa Rica), drawing on in-depth interviews with more than 20 entrepreneurs who had varying degrees of success in growing and exporting melons. The analysis identifies 5 learning processes that impacted on the speed at which entrepreneurs learned how to grow/export melons: (1) attending the school of hard knocks, (2) experimentation (adaptive research), (3) staying on technology's cutting edge, (4) keeping an eye on the market, and (5) taking collective action. Examples are provided of how entrepreneurs accessed (or failed to access) information through each of these sources. The role of learning catalysts (e.g., export support projects and non-traditional agricultural export promotion organizations) in facilitating and accelerating the export learning process is discussed. Three conditions are identified as essential for a takeoff in non-traditional agricultural exports: (1) a technology base, (2) a pool of entrepreneurial talent, and (3) a favorable policy environment. Ways in which development assistance can facilitate either the creation or exploitation of these conditions are identified.

I. Introduction

Over the past decade, there has been a strong interest within A.I.D. in assisting countries, particularly in the Latin American and Caribbean (LAC) region, to develop their ability to grow and export non-traditional agricultural (NTAE) crops. To this end, A.I.D. has worked (1) to improve the policy environment in LAC countries; (2) to support private sector agricultural research and export promotion organizations; and (3) to provide technical assistance through the USAID/ROCAP Non-Traditional Agricultural Export Support Project (PROEXAG).³ Yet an evaluation of A.I.D.-funded Agricultural Crop Diversification/Non-Traditional Agricultural Export (NTAE) Promotion projects concluded that "the most effective source of marketing assistance in NTAE invariably comes from the market itself" (Lack, 1988:III-7). Here "market" refers to receivers and/or traders who, in their own interest to source (secure) a steady supply of profitable product, provide growers/exporters with technical, material, informational, and financial support on a regular basis. Generally, the evaluation found,

most successful agribusinesses and agribusinessmen have very little, if anything, to do with A.I.D. or A.I.D.-sponsored projects. . . . it was learned from the "successful" that in their view A.I.D. tends to complicate things, is bureaucratic and rarely provides adequate long-term technical assistance from professionals with real "hands-on" experience. . . . A starting point for improvement, the [evaluation] team concluded, is for A.I.D. to seek out, learn from and work with more of these agribusinessmen than it has in the past (Lack, 1988:III-17-18).

It was in the spirit of this recommendation that A.I.D.'s Center for Development Information and Evaluation, in conjunction with A.I.D.'s Latin American and Caribbean (LAC) Bureau, commissioned a study of entrepreneurs who have been successful in growing and exporting a non-traditional agricultural crop. After much discussion, CDIE/LAC decided to review the experience of three countries (Honduras, Guatemala, Costa Rica) in growing/exporting melons. While all three countries have experienced success in growing/exporting this crop, they have varied in terms of both the length of time they have participated in the melon export market and the degree of success each country has achieved during the period of time it has been exporting melons.

³PROEXAG, a five-year project begun in late 1986, provides technical assistance/training to a broad spectrum of beneficiaries, including members of export federations, non-member producers, producers' associations, agricultural cooperatives, and export entrepreneurs such as packers, shippers, brokers, and wholesalers. With headquarters in Guatemala City, the project is carried out by Chemonics International.

A. Objective of Study

The study's objective was to identify how entrepreneurs (e.g., farmers/businessmen) in Central America learned to grow/export melons, with an emphasis on identifying the information sources on which they relied during the learning process. A related objective was to identify factors influencing entrepreneurs' decisions to invest, in particular, to determine whether melon growers/exporters used services provided by A.I.D.-supported export promotion institutions (organizations or projects). The scope of work for the study appears in Annex A.

B. How the Data Were Collected and Analyzed

To access melon successful growers/exporters, CDIE invited key export promotion organizations to participate in data collection process, as follows: FEPROEXAAH (Federación de Asociaciones de Productores y Exportadores Agropecuarios y Agro-Industriales de Honduras) in Honduras; PROEXAG in Guatemala; and CAAP (Consejo Agropecuario Agroindustrial Privado) in Costa Rica. Each organization arranged appointments for the author to conduct in-depth, semi-structured interviews designed to elicit details on the development of the enterprises of entrepreneurs who have been successful in growing/exporting melons.⁴ Then the author wrote a case study on each enterprise or, in some cases, biographies on key individuals who played important roles in the development of the melon exports from the Central American region. These case studies and biographies comprised the data base for this report.⁵ The report represents the author's interpretation of the data.

⁴The interviews were conducted in Spanish (but sometimes in English) during a three-week period (9/18/89-10/10/89). The author was assisted in Costa Rica by Claudio Zumbado and Javier Arriola of CAAP and in Honduras by Medardo Galindo of FEPROEXAAH. However, when the initial and revised questionnaires proved unworkable, the author decided to interview each respondent in a conversational style, while at the same time typing into a laptop computer as much of the respondent's replies as the author's typing speed permitted. In Costa Rica and Honduras, the author's notes were supplemented by and checked against the notes taken by the CAAP and FEPROEXAAH representatives. A list of the respondents interviewed is provided in Annex B.

⁵The author attempted to provide each respondent with a copy of the case study (or biography) written on the basis of the data provided by the respondent. This provided the author a means of obtaining feedback on the accuracy of the data recorded during the interviews. CDIE is now seeking each respondent's permission to make the case study (or biography), written on the basis of the data provided by that respondent, available in published form.

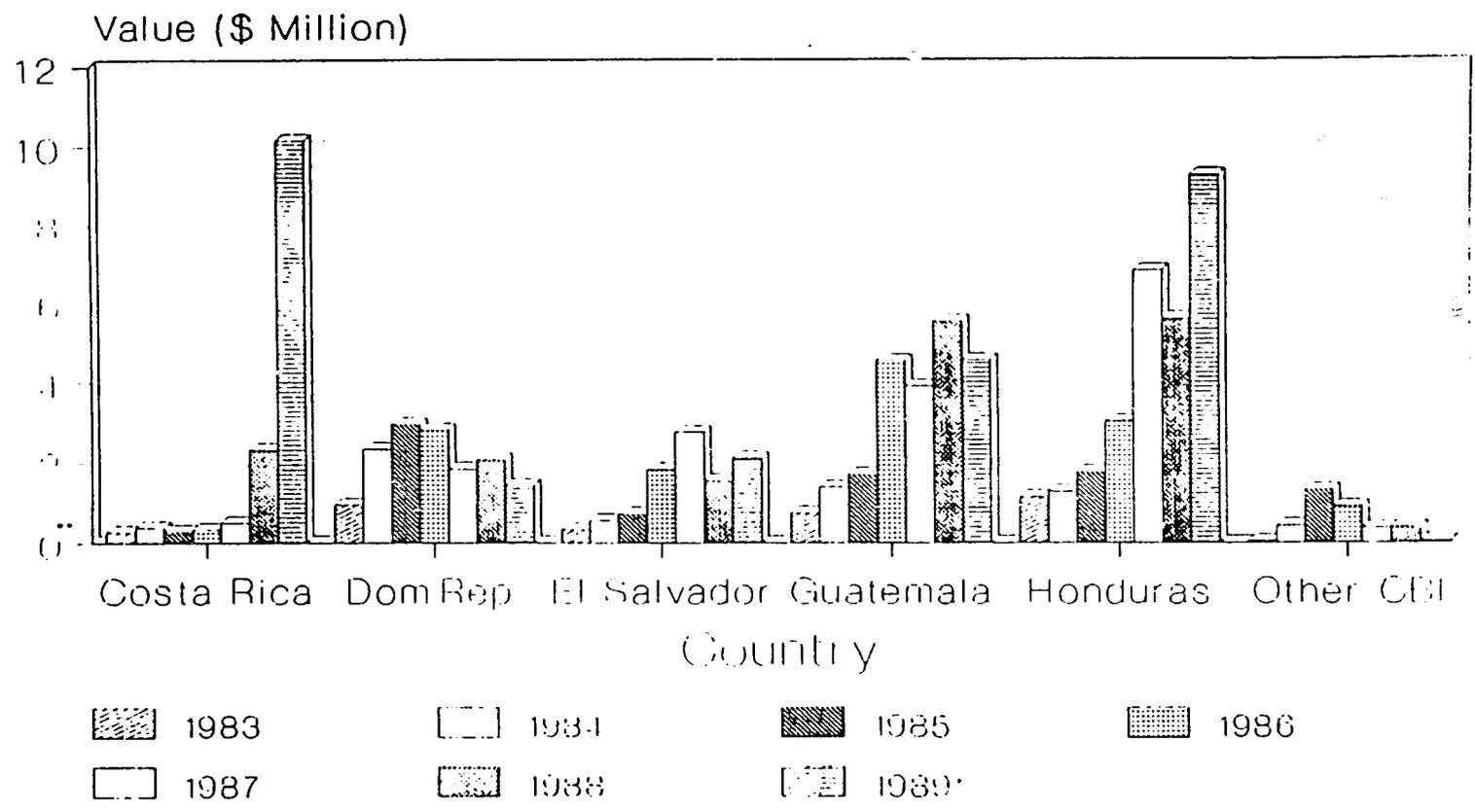
II. Trends in Melon Exports to the U.S. from Three CBI Countries

A. Overview of CBI Melon Exports to the United States

With the announcement of the Caribbean Basin Initiative (CBI) in 1983, there came a flurry of interest in developing exports of non-traditional agricultural crops from the CBI countries to the United States. The progress made in increasing melon exports to the U.S. from CBI countries is evident in Figure 1. This figure illustrates the dramatic increases that have occurred since 1983 in the value of Honduran, Guatemalan, and Costa Rican melon exports. Firm-level data on melon exports by many of growers/exporters interviewed for the present study appear in Annex C.

But caution should be exercised in interpreting Figure 1, as there is a risk that one might mistakenly conclude that the dramatic increases in exports since 1983 resulted from events that occurred at or since that time. While certain of these events (e.g., the CBI) certainly gave an impetus to exports of melons and other NTAE crops, the dramatic increases in exports ultimately may owe as much, if not more, to events that occurred long before the CBI was launched. If all of the CBI countries face the same market (i.e., the U.S.), why has Costa Rica (with some of the least favorable agro-climatic conditions for growing melons) experienced such rapid growth in the value of melon exports (now over \$10 million) in the past two years, while a country such as Honduras (with some of the most favorable agro-climatic conditions for growing melons) has yet to reach that same value? On the other hand, referring to Figure 2, was the CBI responsible for triggering, after the 83/84 season, a takeoff in United Fruit's exports of cantaloupe from Honduras? Stated somewhat differently, did melon exports from Honduras languish during the 1970s because of the lack of a more favorable market environment such as that created by the CBI? And, in all of this, what role, if any, have export promotion organizations (or projects) played in stimulating the growth in exports of melons and other fruits and vegetables over the past decade?

This report attempts to provide answers to these questions and, in doing so, to identify areas in which A.I.D. could play a more effective role in stimulating accelerated development of NTAE crops in the Central American region. But to be able to answer these questions, one must first go back to the early 1970s, more than a decade before the CBI. For a moment, let's retrace some of the major events, beginning in the early 1970s, that led to the takeoff in CBI melon exports to the U.S. in the early 1980s.



*1989 data is January-May only

Figure 1. Melon Exports to the U.S. from Selected CBI Countries (Source: ?)

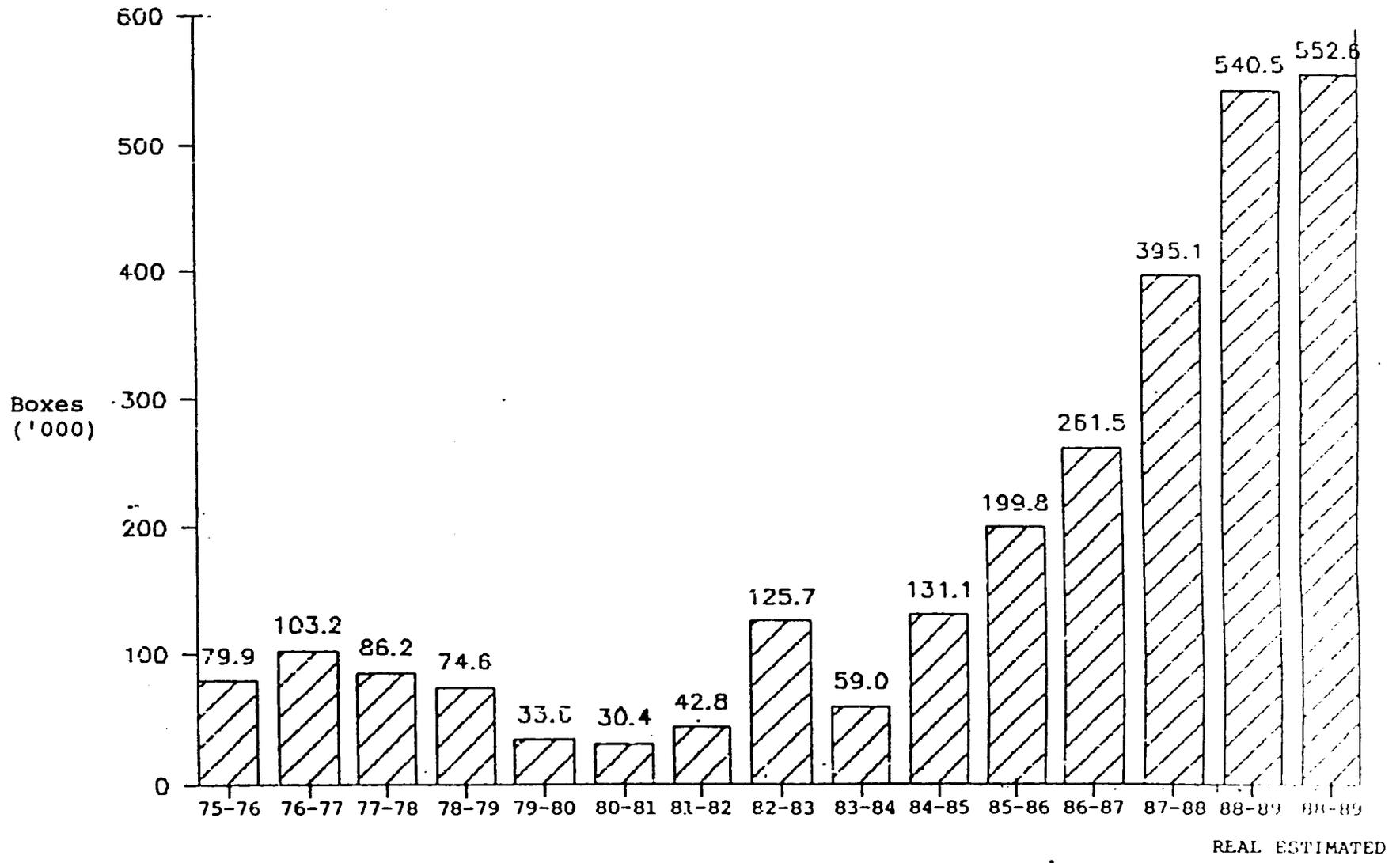


Figure 2. Boxes of Cantaloupe Exported by United Fruit (PATSA) from Honduras (1975-1989)
(Source: United Fruit's PATSA, Choluteca, Honduras)

B. Development of Melon Exports from Three CBI Countries

In the following, we summarize the sequence of events and major players shaping the development of the melon industry in the three Caribbean Basin Initiative (CBI) countries reviewed in this report--Honduras, Guatemala, and Costa Rica.

Honduras--Growing melons for export was first promoted in Choluteca, Honduras, in 1974, by an United Fruit (Chiquita) . . . subsidiary--Productos Acuáticos y Terrestres, S.A. (hereafter, PATSA). Even as PATSA was organizing melon growing by farmers, United Fruit (Chiquita) launched an adaptive research program on melons, drawing on the scientific talent in the company's banana research station in La Lima, Honduras. Over a period lasting at least four years, Chiquita's melon research team adapted melon production technology to Choluteca's agro-climatic conditions.

While United Fruit (PATSA) continues as Honduras' major exporter of melons, over time farmers growing melons for PATSA became less and less happy about the fixed price they received for the melons they sold to PATSA. This led the growers in the late 1970s to organize into CREHSUL (Cooperativa Regional de Horticultores Sureños), a cooperative that could represent the member growers in negotiating with PATSA for a better fixed price. CREHSUL also provided the growers with a single representative to sell, in the local market, melons that PATSA rejected as not being of export quality. CREHSUL eventually became sufficiently organized that the coop's members began to pack their own melons, to make their own contacts with brokers in the U.S., and to contract commercial carriers to transport the melons by truck from the packing shed to the port and by boat from the port to the States. CREHSUL, in learning how to bypass PATSA, became an independent exporter. During this period, USAID/Honduras' "model coop" project provided CREHSUL with technical assistance on how to grade and pack melons for exports. This assistance was provided by a U.S. melon importing company.

Then, during the 83/84 season, the quantity of Honduran melon (cantaloupe) exports began to increase dramatically (Figure 2) as the result of three developments. First, growers/exporters such as PATSA began to use hybrid seed varieties (they previously had used open pollinated seed varieties). The new varieties were higher yielding and retained their quality longer between the time a melon is picked and when it is sold to the consumer. In other words, the new melons held up better during transport. Second, growers/exporters (e.g., PATSA) moved away from relying solely on one large, centralized, packing shed and toward packing melons in sheds built closer to existing and new growing areas, thereby enabling growers to reduce the length of time between when a melon is picked and when it is packed. Third, building of remote packing sheds served to stimulate bringing new fields, many irrigated, into production.

But just as CREHSUL learned to export independently of PATSA, one of the coop's larger farmers (Miguel Molina) also began to export independently of CREHSUL, his firm (Agropecuaria Montelibano) learning the same steps CREHSUL had learned---contacting brokers, contracting with a selected broker, building a packing shed, growing melons, harvesting and packing them, and contracting for transport. Of course, while exporting melons to a broker offers the potential for greater earnings than by selling to CREHSUL or PATSA, this option increases the risk that the grower/exporter takes as well as the costs that he must absorb. However, as an independent (land owning) farmer, Molina had the collateral required to get loans from the banks. Further, as Honduran farmers already had demonstrated they could grow and deliver top quality melons to the market, Molina was able to get advances from brokers. These advances and the bank loans, supplemented by loans from family members, provided Molina the capital needed to finance not only production of the melons but also building and equipping of his packing shed.

During the 87/88 season, PATSA (multinational), CREHSUL (coop), and Agropecuaria Montelibano (independent grower) were joined on the playing field by Sur-Agro, a subsidiary of Sea-Board, one of the major ocean freight carriers operating in the Caribbean. As an established transport company, Sea-Board had access to the capital required to finance the startup of a melon growing and exporting operation. Further, Sea-Board had space available in the company's boats to transport the melons. Indeed, it was the availability of cargo space on the return passage to the U.S. that motivated Sea-Board to grow melons to ensure availability of cargo. Sea-Board established another subsidiary to handle the sale of the melons in the States. On the technology side, Sur-Agro has been aggressive in adapting existing technology to the agro-climatic conditions of the Sur-Agro farm.

The last Honduran grower to be noted here are members of a coop called COAGRAVAL in Valle, near Choluteca. Before establishing their own coop, Valle farmers sold their melons to PATSA and then to CREHSUL. But the growers wanted their own cooperative and to export melons directly to a U.S. broker. This led COAGRAVAL to request FEPROEXAAH (USAID/Honduras-supported export promotion organization) to assist the coop to become a melon exporter. At the time, FEPROEXAAH was seeking to promote joint ventures of U.S. firms and Honduran growers. FEPROEXAAH was instrumental in working out a deal between COAGRAVAL and a Washington, D.C.-based firm, Agro-Business Corporation of America (ACA). However, this marriage proved disastrous because ACA was not able to live up to its side of the deal (e.g., could not get the packing shed built in time, did not return to the coop its share of the proceeds on the melons sold). As a result, COAGRAVAL decided to seek another investor who could finance the upcoming 89/90 season and who had contacts with a broker in the States.

Guatemala--Two of the early pioneers in melon growing and exporting in Guatemala were Ricardo Alfaro (from El Salvador) and John Guy Smith (from the U.S.). Alfaro spent at least three years learning how to grow and export melons from El Salvador, before his enterprise was really able to begin to earn profits. While he already grew melons for the local market, he had to learn how to contact brokers, and was aided in this through contacts with an export company operating in El Salvador. By the time Alfaro moved to Guatemala in 1979, he was established as a successful exporter. His business has continued to grow, in part, because he is exporting melons to three or four brokers in different regions of the United States.

When Smith began to grow melons for export, he started from scratch. The move into growing melons for export was the result of a decision to get his firm (Basico) out of consulting and into exporting. Of several opportunities available, melons appeared to be the most promising. When he began to plant melons in Zacapa, he was not aware of certain agro-climatic limitations in the region. As a result, the best melon growing technology (imported from California) that he had been able to marshall led to low yields and an investment loss. Only after careful study of the reasons underlying this failure, and adjustments in the technology, was Smith able to begin to grow and export melons successfully. Then, in 1980, he sold his company (Basico) to a multinational (United Fruit). But, in the following year or so, United Fruit began to run into losses in the company's banana operations and, after a bad melon harvest in the 80/81 season, decided in 1981 to shut down Basico.

Between 1981 and 1986, United Fruit (Chiquita) in Honduras was contracting with two growers in Guatemala, managing the contracts from the Chiquita operation (PATSA) in Honduras. In 1986, United Fruit hired a manager (Dale T. Krigsvold) to restart Basico in Guatemala. This move was in line with a decision by United Fruit to strengthen the company's ability to source melons in the Central American and Caribbean region (Honduras, Guatemala, Dominican Republic). Also, Chiquita decided to work with a larger number of smaller growers, aiming thereby to diversify sources of supply of melons and reduce Chiquita's dependence on larger growers who, at any given moment, might decide to become independent exporters, as CREHSUL and Molina did in Honduras.

Another successful melon growing/exporting venture in Guatemala has been CAPCO, started by Dave Warren. Earlier in his career, Warren had run successful agricultural produce firms in the States. He was then hired by ROCAP to work on market development in the Central America region. When his contract ended, he decided to start a melon growing and exporting operation in Zacapa. Over the first few years of this venture, Warren adapted the melon production technology (being used by other melon growers such as Smith).

The technology adaptation process entailed melon trials that were carried out in collaboration with agronomists from the Guatemalan Institute of Agricultural Science and Technology (ICTA), assisted by a Texas A&M plant breeder (Dr. Mayo Correa). From one season to the next, Warren further adapted the technology by contracting specialists in areas such as soil fertility and insect control. (These specialists continue to work with Warren on a retainer basis.) At the same time, Warren worked on the import side to develop a melon importing business, Central American Produce Inc. (CAPINC) in Florida.

The last melon grower/exporter interviewed in Guatemala was Chuck Chambers (Productos Frescos). Chambers got into growing melons for export following retirement from the Foreign Service. After a number of business ventures, he started an ornamental export business that eventually led him into growing melons for export. After initial success in growing melons and in capitalizing his business (i.e., equipping a packing shed, installing a slush ice machine), he began to run into production problems during the past few seasons. Excessive rains created problems in growing melons, resulting in operating losses severely cutting into his ability to supply melons to his broker in the States. In turn, the broker would not make the new advances required to finance growing melons during the next season. As a result, Chambers decided, at least for the 89/90 season, to grow melons for Dave Warren (CAPINC), because Warren was the only source of financing willing to give Chambers the money needed to plant. Further, as Chambers will deliver the melons from the field to the CAPCO packing plant in Zacapa, Chambers has shut down his own packing plant.

Costa Rica--While Costa Rica only recently became a major player in Central America's melon industry, this did not occur overnight. Melons trials were begun in Costa Rica as early as 1960 under the Servicio Tecnico Internacional de Cooperación Agrícola, a cooperative research service supported jointly by the U.S. and Costa Rican governments. However, it was not until nearly 20 years later, in 1979, that the Costa Rican government launched a melon growing/exporting venture in Guanacaste called Desarrollo Agrícola Industrial, S.A. (DAISA). But, after only three seasons, DAISA failed because of various factors (e.g., inadequate technology).

Yet the possibility of growing melons for export continued to intrigue Guanacaste farmers who were looking for a crop that would bring them a greater profit during the dry season. One farmer, John Brealey, began to conduct melon trials to identify the technology required to grow melons in Guanacaste. He also entered a partnership with his uncle to form an export company (EXPORPACK). After studying the broker market, Brealey selected Central American Produce Inc. (CAPINC) to be EXPORPACK's broker, based largely on CAPINC's technical support program.

While Brealey left this partnership in 1988, EXPORPACK continues as a successful business and Brealey is starting up a new melon growing/exporting operation. During the period that Brealey was starting up his first melon growing/exporting venture, Guanacaste farmers were looking on with interest. Many farmers approached Brealey with requests for assistance but he was reluctant to provide this assistance while he was still trying to learn how to grow and export melons.

Consequently, several farmers requested the USAID/Costa Rica-funded export promotion organization (CAAP) for assistance in learning how to grow and export melons. CAAP, with technical assistance from PROEXAG (post-harvest handling specialist John Guy Smith and marketing specialist Ricardo Frohmader), organized a pilot melon project to work with a small number (7) of growers who each planted 2-3 hectares during the 87/88 season. For that first season, the growers exported their melons by selling them to Brealey's EXPORPACK. However, for the following (88/89) season, the project assisted the growers in identifying three potential brokers and in evaluating each broker's proposed deal. As a result, the growers decided to sell their melons to United Fruit (Chiquita), although the grower's insisted that Chiquita buy the melons on a fixed price basis. However, when the growers saw that Chiquita was able to sell the melons at a much higher price than the growers had agreed to accept from Chiquita, they decided for the 89/90 season that they would abandon the fixed price option and take up Chiquita's original offer to sell the grower's melons on a consignment basis. This option, while riskier, potentially can earn much greater returns for growers.

During this same period, another group of farmers and business entrepreneurs was learning how to grow/export melons. This group is comprised of farmers/businesses who are growing melons using a drip irrigation systems sold by an Israeli company (Ravit). The impetus for this group of growers came from Jay Nichols Inc., a U.S.-based produce marketing company that was seeking to expand its melon supply sources in Central America. Jay Nicholes Inc. approached farmers with a proposal that they grow melons for export by Jay Nichols Inc. Under the proposed arrangement, Jay Nichols Inc. would enter into joint ventures with the growers, assisting them in acquiring the technology needed to grow melons, including the drip irrigation systems sold by Ravit. In turn, growers would sell their melons on consignment to Jay Nichols Inc., with the profits being split between the partners. Through this arrangement, several farmers (firms) got into growing melons for export. Among these growers were Jose Antonio Urjelles (Frutas de Parrita) and Marco Tulio Bonilla (Melones de Costa Rica).

Where the earlier Costa Rican growers (e.g., Brealey) took several seasons to adapt and learn the technology for growing melons for export, these later growers acquired the technology fairly quickly and began to increase the areas planted and the number of boxes exported. It should be noted that these growers were all independent farmers (or businessmen) who had access to capital from within the family/business or could provide the collateral needed to obtain loans from the banks. Further, they were well educated and cosmopolite (knew English, had traveled to other countries, etc.); most studied in other countries (e.g., Zamorano in Honduras or undergraduate degrees from universities in the United States or Mexico. By comparison with some of the other melon growers in Central America, these entrepreneurs were not small farmers or agrarian reform peasants.

Another multinational (Del Monte) came on the scene in 1988. Del Monte had decided to expand its line of tropical products beyond banana and pineapple, in effect, to get into products such as melon. But Del Monte felt that it would be easier to get into exporting melons by purchasing a company already experienced in melon exporting rather than by trying to learn the business from scratch. Accordingly, Del Monte purchased Jay Nichols Inc., with the result that Del Monte became a joint venture partner with the growers who were previously exporting their melons through Jay Nichols Inc. Del Monte now works with about five farmers who are growing melons for export by Del Monte.

But the story of the development of the Costa Rica's melon export industry would not be complete without briefly commenting on two other growers. The first, Melones del Pacifico, grew out of the desire of MATRA, a company selling imported goods, to expand net returns and ensure that the company would not ever find itself in a position of not being able to access dollars (a problem that exists for businessmen in countries like Ecuador and Honduras). Having seen the success of Melones de Costa Rica during the 87/88 season, MATRA decided in 1988 to invest in growing melons for export. MATRA created a subsidiary, Melones del Pacifico, that grew/exported melons for the first time during the 88/89 season. The company's initial success prompted a decision to expand. In the midst of preparing to expand the company's melon growing operations for the 89/90 season, MATRA realized that the company had ventured into an area completely beyond MATRA's expertise, since the company's basic activity is not in agriculture. Also, the manager of Melones del Pacifico (Mario Castillo) admits that he knows little to nothing about agriculture. This realization led to a decision to sell the venture to Melones del Costa Rica, a firm that already had grown and exported melons during several seasons. Thus, the fear of a potential failure provided one of the incentives for MATRA to sell Melones del Pacifico to Melones de Costa Rica.

Unfortunately, another company (Tico Melon) was not able to get out before disaster struck. Tico Melon is a subsidiary of the largest poultry business (Pipasa) in Costa Rica. Pipasa was approached by ACA (the same company previously discussed in the case of COAGRAVAL in Honduras) in 1988. ACA proposed that Pipasa and ACA enter into a joint venture to grow and export melons. While Pipasa knew absolutely nothing about growing or exporting melons, ACA promised to provide Pipasa with the technology needed to grow melons for export, and Pipasa created a subsidiary called Tico Melon. ACA provided the technology to Tico Melon through a melon expert from California's Imperial Valley, who was presented to Tico Melon as the "dios de los melones" ("the god of the melons"). But the technology proved disastrous, with Tico Melon losing 75% of the melon plants the first (88/89) season.

Thus, just as imported California melon technology had failed John Guy Smith in Guatemala in the 72/73 season, so too did imported California melon technology fail Tico Melon 16 years later in the 88/89 season. Further, while Tico Melon exported some melons, ACA never returned to Tico Melon any of the returns on their sale. While Tico Melon's manager was able to identify why the technology had not worked, the losses from that first (88/89) season have left Tico Melon in a position of not knowing whether the company will plant melons for the 89/90 season.

C. Four Major Problems in Learning How to Export

What emerges from this brief review of the development of the melon exporting industry in Honduras, Guatemala, and Costa Rica is the image of a dynamic process involving basically two actors: (1) firms such as United Fruit (Chiquita) or brokers in the U.S. seeking sources of supply of melons for the U.S. market; and (2) entrepreneurs (farmers or businessmen) seeking markets for the melons they grow or export. On the demand side, buyers/importers seek to obtain quality melons at the lowest possible cost, without having to assume the production risks (weather, insects, diseases, etc.) faced by growers. On the supply side, growers/exporters seek to capture as much as possible of the value added to the melons by virtue of packing, shipping, and selling them in destination markets. Yet, on the demand side, buyers/importers have relatively little control over production of the melons; while, on the supply side, growers/exporters have relatively little control over marketing of the melons. The net result is that each party--buyer/importer or grower/exporter--seeks to strike an acceptable deal with the other party, such that each party sees the deal as beneficial, given each party's objectives (e.g., earn profits) and the party's ability and willingness to assume the associated risks.

The apparent lesson of this dynamic is that not all parties are equally skilled in making good deals, and there is always a risk that a bad deal will be made because the parties, especially on the grower/exporter side, lack the knowledge and experience required to know, with certainty and confidence, which deals are good and which, being bad, should be avoided. In each of the countries, farmers (and entrepreneurs) who lacked the needed knowledge and experience to grow/export melons had to acquire this knowledge and experience through a process of learning. . . They had to learn how to solve a number of problems, some specific to growing/exporting melons, but most probably generic to learning how to export any non-traditional agricultural crop.

By identifying these problems, as well as the process(es) through which entrepreneurs learned how to solve these problems, one can begin to focus on areas in which development assistance can most effectively serve to stimulate entrepreneurs to learn how to grow/export non-traditional agricultural crops. Based on the history of melon exporting in Honduras, Guatemala, and Costa Rica, there are basically four problems that an entrepreneur needs to learn how to solve in order to grow and export a non-traditional agriculture crop successfully. These problems are:

1. Deciding which crop to export;
2. Nailing down the production and post-harvest technology required to grow and export that crop;
3. Gearing production to a specific market (in terms of knowing how to sell the product to a broker in the selected market and how to transport the product to that market); and
4. Keeping production in the field in step with the market place, where change may be occurring in:
 - a. The production and/or post-harvest technology that the farmer/entrepreneur should be using;
 - b. The transportation technology available (in terms of routes, carriers, schedules, and implications for production and post-harvest handling);
 - c. The destination markets (in terms of geographical location, products preferences, and handling practices within the marketing chain); and
 - d. The policy (including regulatory) environment in which the grower/exporter must operate, both in destination markets (e.g., which pesticides are approved for use in U.S.) and in the country in which the crop is being grown (e.g., subsidies).

Further, there is a sequence of steps that the entrepreneur must learn in order to successfully grow and export a non-traditional agricultural crop. At each step, there are problems that must be solved or constraints that must be overcome. Failure to solve any of these problems or to overcome any of these constraints likely will spell DISASTER! Thus, if an entrepreneur is to be successful in melon growing/exporting, he (she) must work out every step in the process and be prepared to deal with any problem/constraint that might arise in the course of growing and exporting the crop. Several persons interviewed indicated that, given the complexity of the task, an entrepreneur needs at least four or five years to really learn how to grow and export melons successfully. Yet, a mistake made at any of the steps along the way, during any one of these five years, can knock the aspiring grower/exporter right out of the game.

III. Learning Processes in Export Learning

As we have seen, each of the three countries reviewed (Honduras, Guatemala, and Costa Rica) varied in how quickly the country's melon exports grew. Also, within and across countries, entrepreneurs varied in how quickly they learned to grow/export melons. But, in the final analysis, some growers/exporters succeeded, while others failed, with success or, as the case may be, failure having come more quickly for some than for others. Sometimes initial failures were followed by successes. Yet, as recently as the 88/89 season, one may observe growers/exporters who are on the verge of failure.

This prompts the question: "Why do some succeed, where others fail?" While there may be competing explanations, this paper offers one hypothesis, namely, that, for various reasons, some persons (or firms) are better able to learn how to grow/export a new crop (such as melons) than other persons (firms). The former class of entrepreneurs, paraphrasing John Houseman's commercial for Smith Barney, "make their money (success) the old-fashioned way: they learn it!"

If the process of learning how to export is a key element in determining whether an individual or firm will be successful in growing/exporting melons, then facilitating or accelerating this learning process potentially could have a significant impact on the speed at which entrepreneurs are able to learn how to grow and export non-traditional agricultural crops successfully.

Based on the case studies of successful (and not so successful) melon growers/exporters, Figure 3 proposes a typology of learning processes that appear to have played an important role in helping Central American entrepreneurs to learn how to successfully grow and export melons. The typology is loosely based on the idea of a learning curve, as illustrated in Figure 3.

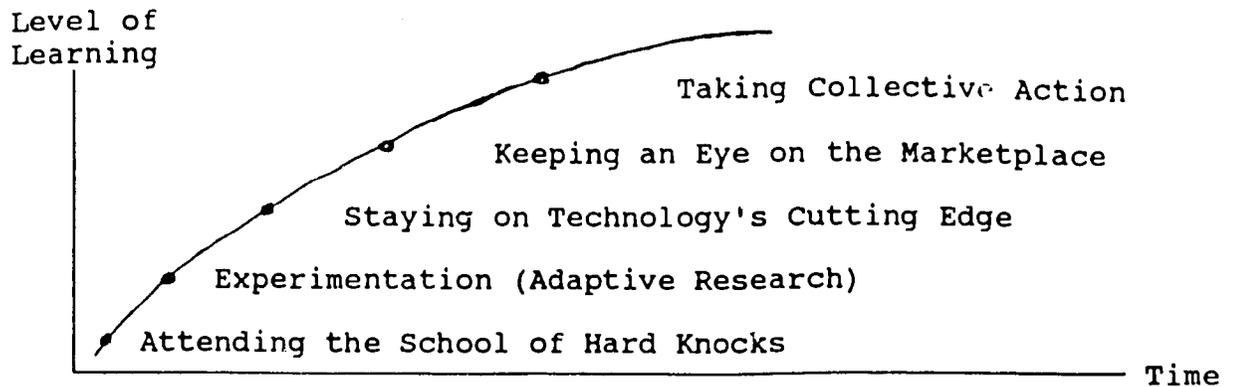


Figure 3. A Typology of Learning Processes Impacting on Export Learning by Entrepreneurs.

The typology outlined in Figure 3 posits five learning processes that appear to have operated as entrepreneurs proceeded to learn how to grow and export melons. These five learning processes are loosely described by the following:

- * Attending the School of Hard Knocks
- * Experimentation (Adaptive Research)
- * Staying on Technology's Cutting Edge
- * Keeping an Eye on the Marketplace
- * Taking Collective Action

In the following, evidence of the operation of these learning processes will be illustrated by reference to the experience of specific growers/exporters interviewed for this study.⁶ Space limitations preclude lengthy elaboration of examples.

A. Attending the School of Hard Knocks

When one hears, in one interview after another, references to learning by "golpes duros" ("hard knocks"), it doesn't take long to figure out that many growers/exporters learned their lessons in the "school of hard knocks." Now, this learning process has its advantages where the learner is aware, up front, that he is proceeding in a "learning by doing" mode, that he is following a "trial and error" approach, and that adequate precautions have been taken that this approach will not result in disaster. Even where a mistake is made, a person who has learned something useful from the mistake can look back and say, as several respondents did, that "experience was the best teacher." But where a farmer lacks the requisite expertise, he may too late discover that he has been working with the wrong entrepreneur, the wrong technology, or the wrong broker.

⁶CDIE is currently seeking to obtain the permission of respondents to have the case studies and biographies published.

The Wrong Entrepreneur--A clear example of the failure of growers to link up with the right entrepreneur (exporter) occurred in 1982 in Costa Rica, when the government's DAISA operation failed because of the lack of appropriate melon growing technology and a lack of experience in terms of knowing how to export melons.

The Wrong Technology--Examples of a novice grower/exporter working with the wrong technology may be seen as early as 1972 in Guatemala, when John Guy Smith found that imported California technology didn't work in Guatemala; and as recently as 1989 in Costa Rica, when Tico Melon found ACA's "dios de los melones" did not know how to grow melons in Guanacaste's heavy soils.

The Wrong Broker--In 1987 in Honduras, FEPROEXAAH linked COAGRAVAL up with an inexperienced broker (ACA), despite the advice of PROEXAG not to go ahead with the deal. In 1988 in Costa Rica, Tico Melon agreed to acquire its melon technology from ACA, despite a warning by CAAP that melons should not be planted in the heavy soils of Tico Melon's farm.

Learning by "attending the school of hard knocks" has pitfalls, particularly when the novice is caught up in a situation where "the blind are leading the blind" or becomes a victim of "funny bunnies." In the former case, the novice grower/exporter makes the mistake of placing himself at the mercy of others who lack technical knowledge or experience to be of any real assistance. In the latter case (i.e., "funny bunnies"), the novice grower/exporter finds all too late that the vested interests of others took priority over those of the grower/exporter, with the result that others have gained but not the grower/exporter.

B. Experimentation (Adaptive Research)

This approach to learning how to grow and export melons is more systematic than simple "learning by doing" in that it takes a rational or scientific approach to what otherwise might be nothing more than random "trial and error." In this approach, the entrepreneur takes a deliberately cautious approach to working out the steps required to successfully grow and then export a crop.

In the case of Guatemala, Dave Warren took a careful approach to starting up the growing (CAPCO) and importing (CAPINC) sides of his melon exporting venture. He traced out each link in the growing and exporting chain, and then took steps to ensure that no problem or constraint would become an obstacle to success. This is not to say that he didn't make mistakes or encounter failures along the way; however, it is to say that he approached the problem with a philosophy that predisposed him to be ready to deal with obstacles as they arose. In Costa Rica, Brealey also followed a cautious approach to nail down the technology required to make his growing/exporting venture (EXPORPACK) a success.

This learning process also was used by ROCAP's PROEXAG project in assisting CAAP to work with the Costa Rican growers who wanted to learn how to grow/export melons. PROEXAG's John Guy Smith (post-harvest technology specialist) advised CAAP to work with a small number of farmers, with each farmer planting only 2-3 hectares. Smith assisted growers in identifying each step of the production and post-harvest handling process that the growers would need to follow, and CAAP's melon specialist worked closely with growers during their first season. Also, PROEXAG marketing specialist Ricardo Frohmader assisted the growers in contacting potential brokers and evaluating the deals proposed by the brokers, with the growers finally deciding to sell their melons to Chiquita.

An even truer example of this learning process (experimentation) would be a formal adaptive research program on melons. Normally, such an adaptive research program might be conducted by a public sector organization having a mandate to carry out research in support of a country's agricultural development. But in each of three countries reviewed, this type of research currently is not being carried out on melons by any public sector organization (government or university). Nor, in the case of Honduras, has the Fundación Hondureña de Investigación Agrícola (FHIA), a USAID/Honduras-supported private sector research organization, undertaken a research program on melons.

But the Central America region does provide examples where the private sector financed adaptive research on melons as an NTAE crop. A first example is the adaptive research program on melons that was financed by United Fruit (Chiquita) in Honduras, where PATSA launched a series of research trials on melon that drew on the scientific talent available at Chiquita's banana research station at La Lima. The initial program was carried out over at least a four year period, with technological spinoffs over the years to other countries where Chiquita sources melons--Promotora Agrícola Básico in Guatemala and Chiquita Tropical Products Company in Costa Rica.

A second example was the series of melon trials that Warren conducted during CAPCO's early years in Zacapa (Guatemala). In support of these trials, Warren hired a plant breeder (Dr. Mayo Correa) to visit Guatemala on a periodic basis to assist in designing and carrying out the trials that were required to nail down the technology to increase the productivity of growing melons in Zacapa.

C. Staying on Technology's Cutting Edge

This method of learning entails judicious investment in one or more of three methods of acquiring technology, knowledge, or information: (1) buying the technology; (2) buying technical expertise; and (3) consulting with specialists.

Buying the Technology--Suppliers of specialized technology (e.g., drip irrigation equipment, hybrid seed) have a vested interest in ensuring that customers are satisfied and will return for repeat purchases. In the case of Del Monte's growers, all of whom use the drip irrigation system sold by an Israeli company (Ravit), Ravit's sales representatives (Israeli) and Del Monte agronomists (both Israeli & Costa Rican) assist growers in learning how to grow melons using the drip irrigation technology properly. As another example, suppliers of hybrid seed which a grower must buy each season, organize tours for growers to visit the company's seed producing facilities in the States (e.g., Tico Melon's Rudiger Lohrengel visited Petoseed in Texas).

Buying Technical Expertise--While working with Central American Produce Inc. (CAPINC), Ricardo Frohmader set up a system to provide CAPCO growers with access to specialists (e.g., in soil fertility) hired by CAPINC on a retainer basis. Three of these consultants came to be known among CAPCO growers as "los tres sabios" ("the three wise men"). The consultants assist growers each season in solving technical production problems, with the cost of this assistance being shared between the growers and CAPINC. CAPINC charges a 12% commission on sales, with 2% of this fee being used to cover the cost of retaining consultants and paying for their international travel between their Florida residences and the country where growers are to be assisted, while the growers pick up the cost of food, lodging, and local transport during a consultant's stay incountry.

Consulting with Technical Specialists--Larger independent growers (e.g., Ricardo Alfaro of Agricola La Aurora in Guatemala) and management personnel of companies (e.g., Rudiger Lohrengel of Tico Melon in Costa Rica) travel, on occasion, to Texas and California to consult with university-based scientists who have developed specialized expertise in melon growing.

D. Keeping an Eye on the Market

This learning process entails three components: (1) informal searching for market information; (2) formal searching for market information; and (3) acquiring market information through feedback on the results of decisions made by the grower/exporter.

Informal Searching for Market Information--Potential growers or exporters looking into the possibility of growing/exporting an NTAE crop engage in a process of looking around at what other farmers are growing in their own country (or other countries). This process also occurs when potential growers/exporters attend export promotion meetings such as the yearly CBI conference, where they can establish contact with potential business clients. Carlos Rodriguez of CREHSUL first met John Williams, a Tavilla broker, at the CBI conference; CREHSUL subsequently began exporting melons to Tavilla.

During the time that this process of informal searching is taking place, the information seeker may be employed in a field other than agriculture but yet be considering growing a non-traditional crop for export. Thus, informal searching can be an important means of acquiring information during a period in which the potential grower/exporter is trying to decide which NTAE crop offers the most promising prospects for earning a profit, given the agricultural resource base to which that entrepreneur has access. Examples of entrepreneurs involved in such an informal search process include John Guy Smith (Básico) in the early 70s in Guatemala, Rolando Pretto in the early 80s in Honduras, and MATRA in the late 80s in Costa Rica.

Alternatively, potential growers/exporters already may be growing traditional crops (e.g., rice) and be searching for alternative crops that have higher profit-earning potential. This was the case with all of the growers in Guanacaste, Costa Rica (from John Brealey in the late 1970s to Alfredo Apestegui in the late 80s). Similarly, a potential grower/exporter of one NTAE crop already may be growing another NTAE crop and be looking either for a more profitable crop or simply to diversify operations. An example of such a grower/exporter is seen in the case of Productos Frescos (Chuck Chambers who switched from ornamentals to melons).

Formal Searching for Market Information--This process occurs at both the individual (entrepreneur) and institutional levels. To illustrate the former, a grower/exporter might contract a study to identify potential brokers, develop broker selection criteria, screen the brokers against the identified criteria, and decide on the broker that best meets the broker selection criteria. This was done by EXPORPACK's John Brealey who hired a consultant to conduct a broker selection study. As a result, Brealey decided to work with Dave Warren's Central American Produce Inc. (CAPINC) in Florida.

The search for market information may also be facilitated at the institutional level, although sometimes with less than favorable results. For example, in Honduras, FHIA conducted a detailed market study to identify the crops on which FHIA's research program should focus. However, for some reason, melons were not identified as a crop that would be given a high priority research emphasis. This has been a disappointment to melon growers who believe that there is a need for specialized melon research in a number of problem areas (e.g., fertility, insect control, fungus and disease control).

A positive example of the search for market information at the institutional level may be seen in PROEXAG. This project searches for data on the export melon market and draws upon this resource in working with PROEXAG's clients, who range from individual growers such as Ricardo Alfaro in Guatemala and Mario Molina in Honduras to institutions such as CAAP in Costa Rica.

Acquiring Feedback on Results of Decisions Made

This learning process occurs as decisions are made, results are observed, and future courses of action defined. Basically, this is a form of "learning by doing." But the process is facilitated to the extent that the grower/exporter already knows how to grow/export melons and/or is willing to take advantage of assistance available through the marketplace (e.g., drawing upon services and/or advice available through projects like PROEXAG or NTAE . support organizations like CAAP). On the other hand, potential or actual growers/exporters may fail to take advantage of these sources of technology, information, and expertise, or even may refuse to heed the advise of knowledgeable experts (e.g., Tico Melon failing to heed CAAP's advise not to plant melons in heavy soils, or FEPROEXAAH/COAGRAVAL failing to heed PROEXAG's advise not to work with ACA).

Further, as melon growing/exporting firms become established, they develop and maintain ongoing links with information sources throughout the industry (e.g., brokers). In all of the countries reviewed, this process is increasingly being aided by modern communication facilities such as the telephone and FAX machines.

E. Taking Collective Action

Many problems involved in developing a melon growing/exporting venture can be solved by the individual grower/exporter. But this is not true for all of the problems. Some of the problems that growers/exporters face can only be solved collectively, that is, by the growers/exporters joining together to take collective action to solve the problem. Many of the growers in Honduras realized this early on and formed their own cooperative (CREHSUL) to enhance their bargaining position in selling exportable melons to PATSA and reject melons to the local market.

More recently, growers/exporters faced by a lack of transport came together from each of the countries in the Central American region to convince the Central American Liner Association to rescind a 12% increase in freight rates. In the wake of this success, melon growers/exporters in Honduras decided to form the Honduran Melon Exporters' Association (APROEXMEH). Similarly, in Guatemala, melon growers/exporters are affiliated with the "Gremial" of Non-Traditional Product Exporters. A comparable organization has yet to emerge in Costa Rica, although the idea is being discussed among the growers/exporters.

IV. Role of Learning Catalysts in Export Learning

Ideally, the role of A.I.D.-supported initiatives such as ROCAP's Non-Traditional Agricultural Export Support Project (PROEXAG) and A.I.D.-supported NTAE organizations (e.g., FEPROEXAAH in Honduras and CAAP in Costa Rica) is to stimulate (accelerate) the process of export learning by private entrepreneurs. These initiatives can achieve this objective by helping growers/exporters to avoid having to learn their lessons the hard way (i.e., "in the school of hard knocks)" and by increasing the speed at which growers/exporters are able to nail down the right production and post-harvest technology and to learn how to make deals with brokers. Further, as learning must be ongoing, an initiative such as PROEXAG can assist growers/exporters in staying on technology's cutting edge, in keeping an eye on the changing marketplace, and in taking collective action on problems which growers/exporters cannot individually solve. Finally, an initiative like PROEXAG can play a crucial role in strengthening the ability of national organizations like CAAP and FEPROEXAAH to play this catalyst role vis-a-vis growers/exporters of NTAE crops, especially after a project such as PROEXAG has ended.

In other words, export learning catalysts such as PROEXAG and NTAE organizations can provide growers/exorters with technology, knowledge, and information that can serve to increase the speed at which entrepreneurs learn how to grow/export an NTAE crop. At the same time, such catalysts can decrease the likelihood that an aspiring grower/exporter makes any disastrous mistake. If the process of learning how to grow/export melons would normally take the period of time indicated in Figure 4 by curve A, the intervention of a learning catalyst should have the effect of shifting this curve upward (e.g., to curve B), whereby the grower/exporter can move to a higher performance level (e.g., in terms of boxes of melon exported) in a shorter period of time.

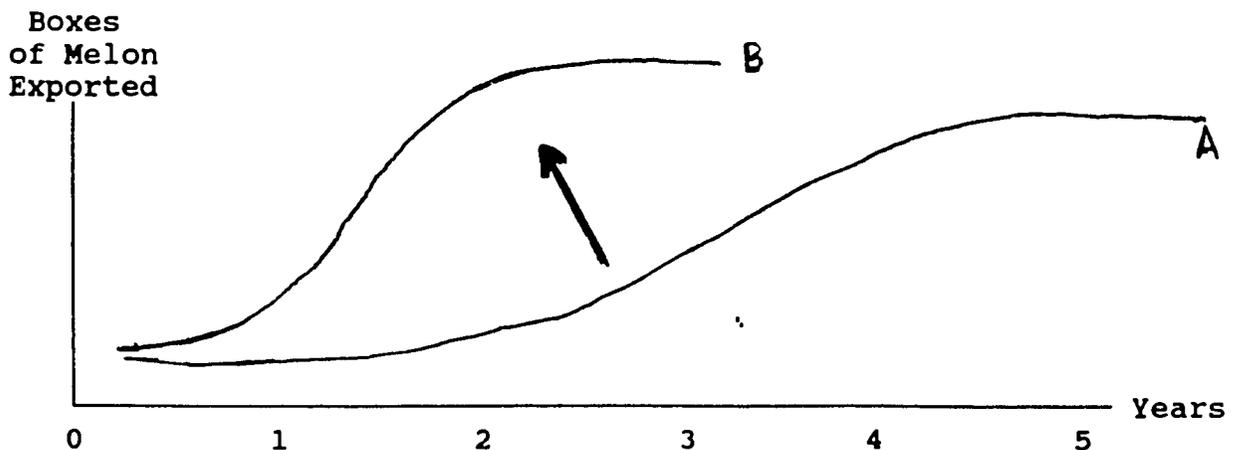


Figure 4. Theoretical Impact of a Learning Catalyst on the Export Learning Process of an Entrepreneur Grower/Exporter.

Whether initiatives such as PROEXAG (or the NTAE organizations) have played a significant learning catalyst role over the past five years is a question that goes beyond the scope this paper's scope. However, it is clear that the existence of information sources such as PROEXAG, CAAP, and FEPROEXAAH have provided growers/exporters with additional information sources in an environment where there are major obstacles to learning how to grow/export NTAE crops. First, in each of the three countries reviewed, there is little or no public sector support for the development of NTAE crops. For example, there is almost a total lack of governmental/university support for research on melons. Second, with the exception of a few independent growers, the export melon industry has been dominated by multinationals. As a result, an aspiring grower/exporter can try to do it on his own or can grow/export under contract to a multinational. But, as we have seen, some of the independent growers who have attempted to learn how to grow/export melons on their own (e.g., COAGRAVAL in Honduras, Productos Frescos in Guatemala, or Ticc Melon in Costa Rica), without the assistance of either a multinational (or major independent such as CAPINC), PROEXAG, or an NTAE organization, quickly or eventually ran into problems, largely because these grower/exporters failed to tap into knowledgeable information sources.

At the same time, the more successful growers/exporters in each of the countries have depended on either multinationals (e.g., Chiquita or Del Monte), major independent brokers (e.g., CAPINC), or a learning catalyst (e.g., PROEXAG) to acquire information. Thus, the presence of a learning catalyst such as PROEXAG or an NTAE organization such as CAAP has served to increase the range of information sources available to entrepreneurs. As a result, entrepreneurs more readily have been able to access information needed to learn how to grow/export melons. To illustrate, Annex D provides an indicative (not exhaustive) list of the general areas in which melon growers/exporters and country-level NTAE programs (FEPROEXAAH and CAAP) have been able to access needed information from PROEXAG over the past three years (1987-89).⁷

⁷PROEXAG provided the author with access to the project's files on technical assistance to clients in Honduras, Guatemala, and Costa Rica. The list of examples (see Box 1) of areas in which PROEXAG has provided information services was generated based on review of PROEXAG documents (trip reports, contact reports, FAXs) relating to the project's clients in these three countries.

It is conceivable that specific kinds of information within any of areas listed in Box 1 could be provided by a number of firms in a competitive information market. But such a competitive market in the Central American context is at best only in an incipient stage, with information services generally provided by an organization directly involved in melon exporting (e.g., Chiquita) or brokering (e.g., CAPINC). These businesses, which developed over time and are now well established, have a vested interest in ensuring that the information needs of client growers are well serviced. But this has not been the case with other information sources such as ACA or the early FEPROEXAAH that lacked specialized expertise essential to assisting growers.

On the other hand, learning catalysts such as PROEXAG or CAAP have recognized that the information needs of entrepreneurs will vary depending on the stage of evolution of the particular NTAE crop (Annex E) that a client is trying to grow/export. Thus, for example, where the melon industry is young (Costa Rica), PROEXAG and CAAP aimed their information services at helping new melon growers to learn how to grow/export melons. By comparison, in countries where the export melon industry is established (e.g., Guatemala and Honduras), PROEXAG has tailored its services to the more specialized information needs of growers/exporters (e.g., helping growers in establishing contacts with Sun World and in negotiating a deal to produce seedless watermelon for that firm).

Conceivably, as private sector firms directly involved in the melon industry (growers/exporters or brokers) expand operations, they may develop their ability to market information services to clients beyond their own growers. But these sources cannot serve all growers/exporters (and certainly may have reservations about assisting competitors). Here, A.I.D.-supported initiatives like PROEXAG and NTAE organizations can play a dual role. On the one hand, these initiatives can continue, in the short run, to be an alternative source of information for growers/exporters who are not linked to the multinationals or independent brokers. On the other hand, an initiative such as PROEXAG can focus some of its energy on trying to institutionalize its information support services within appropriate institutional contexts. For example, some of the information services currently provided by PROEXAG eventually could be absorbed by an NTAE organization, a producer association, or a combination of these (e.g., FEPROEXAAH and APROEXMEH in Honduras). For example, a melon grower association potentially could leverage sufficient resources (through a check off system on each box of melons exported) to be able to provide specialized information services or to contract a private sector firm (either an NTAE organization or another private enterprise) to provide the needed information service.

V. Some Conclusions and Implications for A.I.D.

At the outset, attention was directed to the dramatic increases in exports of melons from the CBI countries since 1983. It was noted that, while certain events (e.g., CBI) may have given an impetus to exports of melons and other NTAE crops, the dramatic increases in exports ultimately may owe as much, if not more, to events that occurred long before the CBI was launched. One cannot discount that the CBI played in creating a favorable incentive structure for entrepreneurs to grow/export NTAE crops. However, based on the events reviewed, the dramatic increases in melon exports would not have been possible without three conditions being in place: (1) a technology base; (2) a pool of entrepreneurial talent; and (3) a favorable policy environment. Let's briefly review each of these requirements.

A. A Technology Base

The technology required to successfully grow melons for export has evolved over a relatively long period of time, and is still being developed and refined (e.g., drip irrigation vs. gravity flow irrigation). A key element of this technology development process has been continuing informal and formal adaptive research that began in Costa Rica as early as 1960. Further research to develop the technology was carried out by Chiquita in Honduras during the mid-1970s, while Dave Warren conducted extensive melon trials in Guatemala during the late 1970s, building on the melon growing experience of John Guy Smith in the early 1970s. Despite the evident importance of formal adaptive research on melons, there is no formal adaptive research program on melons in any of the three countries reviewed.

Even where a technology (e.g., hybrid seed) has been developed, a period of time will be needed to adapt that technology to each growing environment. At the same time, even where the technology required to grow melons in a given growing environment has been nailed down, a novice grower/exporter likely will need as many as 4-5 years to learn how to grow/export the crop successfully.

Implication: One cannot expect a similar takeoff in the ability of entrepreneurs to grow/export an NTAE crop unless the required technology to grow/export this crop has been sufficiently nailed down. The technology required to grow any NTAE crop invariably will be sensitive to the particular region/farm in which one is attempting to grow that crop. Hence adaptive research will be needed to adjust the technology to the growing environment's agro-climatic realities. In short, time is needed to develop and adapt NTAE technology. A takeoff in exports for an NTAE crop cannot be launched simply by importing the required technology. If A.I.D. seeks to stimulate exports in other NTAE crops, the Agency can help to make this become a reality by facilitating the development of adaptive research on NTAE crops.

B. A Pool of Entrepreneurial Talent

There is a saying in the field of marketing that nothing happens until somebody sells something to somebody. This saying applies to launching an NTAE growing/exporting venture--nothing will happen until some entrepreneur makes it happen (i.e., shows that a particular crop can be successfully grown and exported). Hence the importance of pioneers such as Ricardo Alfaro (El Salvador), John Guy Smith and Dave Warren (Guatemala), and John Brealey (Costa Rica). These individuals had a vision that they could grow/export melons and worked to make that vision a reality. They had a certain orientation as well as the determination and discipline to succeed. Finally, they were willing to take risks.

The importance of human capital became very clear in the course of talking with individuals such as Alfaro, Smith, Warren, and Brealey. With very few exceptions, all of the growers/exporters interviewed had backgrounds that proved to be very influential in increasing the chances that they would be successful in growing and exporting an NTAE crop. Generally, respondents were fluent in English, had studied in universities in the United States or technology-oriented schools or universities in other countries (e.g., Zamorano in Honduras or the Tecnológico in Monterrey, Mexico). Many had studied in fields (e.g., engineering) other than agriculture. Further, not all of the entrepreneurs became independent growers or exporters; some began working for the multinationals (e.g., Ricardo Frohmader for United Fruit) or a major independent (e.g., Garrett DenBleyker for Dave Warren).

Implication: An important element in developing the capability of a country to grow/export an NTAE crop is getting entrepreneurs committed to learning how to grow/export an NTAE crop. The basic skill that would appear to be required is not so much a knowledge of agriculture but rather a task orientation to be successful at what you set out to do. Then, if even only one entrepreneur can demonstrate that a crop can be successfully grown and exported, this will serve to attract others to growing/exporting ventures for the same crop.

There is no simple formula that A.I.D. can follow to magically create entrepreneurs! While A.I.D. cannot create entrepreneurs, the Agency can facilitate access of entrepreneurs to knowledge and information about the growing, packing, and exporting of non-traditional agricultural crops. Facilitating such access would make it possible for more potential entrepreneurs to enter the market; it also would increase the chances that entrepreneurs would succeed in the the risk-taking ventures in which they make investments.

In this regard, this study identified five learning processes impacting on the rate at which entrepreneurs learn how to export. A.I.D. can accelerate the learning process by improving the access of entrepreneurs to information sources that facilitate experimentation (adaptive research), staying on technology's cutting edge, keeping an eye on the market, and taking collective action. There is a range of information sources that can support the export learning process. These include:

- Export development support projects (e.g., PROEXAG)
- NTAE organizations (e.g., FEPROEXAAH, GREMIAL, CAAP)
- Adaptive research organizations (e.g., FHIA, ICTA)
- Universities (e.g., export business courses)
- Multinationals (e.g., Chiquita, Del Monte)
- Independent brokers (e.g., CAPINC)
- Transport companies (e.g., CCT, Seaboard, Sea-Land)
- Cooperatives (e.g., CREHSUL, COAGRAVAL)
- Independent growers (e.g., Molina, Alfaro, EXPORPACK)
- Equipment vendors (e.g., for irrigation, for packing)
- Input vendors (e.g., seed, fertilizers)
- Farmer organization strengthening projects (e.g. AID)

Obviously, each potential information source can provide some of the information an entrepreneur may require in order to learn how to export a non-traditional agricultural crop; and some of these sources may provide all of the information an entrepreneur needs. However, since information is not a free good, the entrepreneur faces the additional problem of determining how to acquire the needed information most efficiently. If the entrepreneur seeks to remain independent, he does so at the risk that he may fail before ever learning how to grow/export successfully. On the other hand, if he cuts a deal with a multinational, he may learn how to export quickly but will need to accept a level of returns that falls below the possible maximum return, with the difference being the cut that the multinational requires for services rendered and an acceptable profit on those services.

The important point to recognize is that an integrated system of technology transfer has been established in terms of a number of ongoing relationships between growers/exporters and brokers. On the side of the multinationals, United Fruit as a buyer/importer of melons has deals with melon growers/exporters in all three countries (PATSA in Honduras, Básico in Guatemala, and Chiquita in Costa Rica). On the side of the independents, Dave Warren's CAPINC has deals with melon growers in Costa Rica (EXPORPACK), Guatemala (CAPCO, Productos Frescos), and Honduras (Agropecuaria Montelibano). In terms of facilitating export learning, these deals are important because they provide a framework within which there are incentives for transferring production technology and market information to growers. A.I.D. should seek to strengthen and expand the capability of this system to facilitate the export learning process.

C. A Favorable Policy Environment

While each of the countries reviewed place a degree of constraint on the ability of growers/exporters to access the dollars earned via their melon exporting ventures, the policy environment for NTAE exports in these countries is generally favorable. For example, an entrepreneur who wants to grow a given crop (e.g., melons) for export can obtain a permit that provides an exemption from taxes on the import of inputs required to grow/export that crop. Other incentives are also provided in each of the countries reviewed.

Yet melon growing/exporting has been able to forge ahead only to the extent that this activity has not been impeded by any major constraint. In this regard, each of the countries has faced external transport constraints in terms of availability and affordability of timely and adequate transport to move cargo from packing sheds to ports, between ports, and between ports and destination markets. Further, while melon growing is a highly labor intensive crop, it also is highly demanding in terms of capital requirements. Thus, for the small farmer who has little or no collateral, the lack of access to capital sources (e.g., bank loans) quickly will become a constraint. This has been a major problem for smaller growers in Honduras and Guatemala.

Implication: In view of the importance of the policy environment as a key factor in determining an entrepreneur's incentive to invest in growing/exporting non-traditional agricultural crops, A.I.D. should continue to work with host country governments to ensure the continued development of policy environments that make it attractive for entrepreneurs to enter risky growing/exporting ventures in non-traditional agricultural crops.

In short, a favorable policy environment, coupled with continuing support for (1) the development and adaptation of NTAE technology and (2) improvement in the access of entrepreneurs to knowledge and information about growing/packing/exporting non-traditional agricultural crops, will facilitate entrepreneurs to learn how to export more rapidly. The process can be even further accelerated to the extent that credit and transports constraints can also be alleviated. Relaxation of credit constraints will particularly benefit smaller independent and agrarian reform farmers who do not have sufficient collateral to leverage loans from commercial or public sector banks.

E. A Final Implication

It should be noted that Central America is yet at a relatively early, albeit dramatic, stage in terms of the area's developing ability to grow/export NTAE crops. And, as several respondents noted, the ultimate market potential (including the U.S., Europe, and Japan) is not known. Yet, while the future could be very bright, one must exercise caution. Specifically, the final act in the history of melon growing/exporting in Central America has yet to be played out. Thus, it is not known how many more entrepreneurs will become successful melon growers/exporters. On the other hand, it is possible that some entrepreneurs, for whatever reason, will not succeed. Just as initial failure does not preclude eventual success, initial success does not preclude eventual failure.

References

- Lack, Stephen, C. Kenneth Laurent, Conchita Espinoza, Arden Christiansen, and Donald Calvert
1988 Agricultural Crop Diversification/Export Promotion
Cross-Cutting Evaluation: Draft Evaluation Report.
Washington, D.C.: Experience inc.

List of Annexes

- Annex A. Scope of Work for Non-Traditional Agriculture Export Study.
- Annex B. List of Firms Studied and Respondents Interviewed.
- Annex C. Firm-Level Data on Exports of Melons by Enterprises in Central America. (Source: CDIE/LAC Non-Traditional . Agriculture Export Study)
- Annex D. Areas in Which Growers/Exporters and NTAE Organizations Have Accessed Information from PROEXAG During the 1987-1989 Period (Source: PROEXAG files).
- Annex E. The Stages of Evolution of Non-Traditional Export Crops: From the Perspective of an Export Support Project Organization. (Source: PROEXAG)

Annex A. Scope of Work for Non-Traditional Agriculture Export Study.

SCOPE OF WORK

FOR NON-TRADITIONAL AGRICULTURE EXPORT STUDY¹

CDIE and the LAC/Bureau are conducting a major study on A.I.D.'s experience with support services for trade and investment in developing countries. The study's objective is to develop a conceptual framework to permit comparative analysis of A.I.D. export promotion interventions. The ultimate goal of the study is to identify strategies for providing cost-effective support for export marketing in less than ideal policy environments and to provide A.I.D. managers with guidance on export promotion. Several inputs are required to achieve this objective: a desk review of A.I.D. project experience with export promotion; a series of complementary studies to provide additional empirical data relevant to export promotion strategies; and a workshop to provide A.I.D. staff, principally those managing trade and investment projects in the LAC region, with a forum to discuss key issues and findings with export promotion experts.

One of the complementary studies to be undertaken is a report on the experience of investors in specific non-traditional agricultural export (NTAE) crops in the Central American region. This firm-level study will examine what influences individuals to invest in particular commodities, and how these enterprises learn the process of exporting. Additionally, the study will seek to identify the extent to which investors are aware of, have used, and have benefitted from the services available from export promotion institutions.

The study will focus on the investment decision-making process and the export learning process of firms in the melon and cut flowers/ornamental industries in Guatemala. The study will gather primary information in Guatemala, but also will draw on relevant secondary information available on other Central American and Caribbean countries. The aim is to ensure that the study takes into account the experience of exporters in a given industry in a regional context.

¹This study is being done by Kerry J. Byrnes, Senior Social Science Analyst, Labat-Anderson Incorporated (LAI), under an LAI contract with A.I.D.'s Center for Development Information and Evaluation (CDIE). Byrnes will be in Guatemala July 30-August 23, 1989. Contact person in Guatemala: Nancy Fong, Deputy Director, Agriculture Office, ROCAP.

Contact person in CDIE is Cressida McKean, Economist,
Phone: (703) 875-4980. FAX: (703) 875-5269

Melons and cut flowers/ornamentals were selected as case studies principally because the investors in these crops have been able to launch successful industries. Their experience in investment decision-making and export learning provides an empirical base for identifying the factors that were influential in the successful development of these industries. Further, the study will consider, to the extent possible, how investment decision-making and export learning are influenced by the stage of evolution of these crops. (See attached PROEXAG table on "The Stages of Evolution of Non-Traditional Export Crops"). The aim is to make the analysis relevant to the requirements of firms at different stages in the evolution of export marketing of a given crop.

Key questions to be addressed in the study include:

- * The Investment Decision-making Process: What influences individuals to invest in non-traditional agricultural exports?
- * The Learning Process: How did investors in non-traditional agricultural export industries go about learning how to export?

Issues relevant to these questions to be examined:

1. The stage of development of the crop

How does the stage of development of a given crop affect the investment decision-making and export learning processes of firms?

e.g. framework developed by PROEXAG "The Stages of Evolution of Non-Traditional Export Crops" (attached)

2. The policy environment, including specific regulations or incentives regarding investment, foreign exchange, exports, imports, etc.

In what ways did the policy and/or regulatory environment facilitate the development of the export market for the specific crops? Where specific constraints existed, were investors able to get around these constraints, and how did they learn to overcome the constraints?

3. Types of services and information required

For each of the services below, did the exporter provide the indicated service from resources within the firm or purchase it? How was this decision made? What factors influenced these decisions?

- information and analytical services (e.g., regarding feasibility, market potential, and ability to produce);
- capital resources (e.g., equity investment, export guarantee program, joint ventures);
- production services to ensure an adequate level of supply (e.g., human resources, technology, harvesting techniques);
- post-harvest handling services (e.g., packaging, quality control);
- marketing services (e.g., deal-making, identification of buyers, market data); and
- transportation-related services (e.g., selection of carriers, transport mode, route).

Which services were most critical for investors/exporters at different stages of evolution of the export market for a given crop?

- Services most critical (constraining) for those who invested in an export crop during the launch stage (prior to X tons being exported)? (i.e., constraints faced by the entrepreneur or innovator during the initial years that the crop was exported);
- Services most critical for those entering the market during the takeoff stage (prior to Y tons being exported); and
- Services most critical for those entering the market during the cruise stage (years during which an average of Z tons being exported).

From the viewpoint of the investor/exporter, which services must be obtained sequentially (i.e., first, second, third) vs which must be provided simultaneously?

4. Suppliers of information and services

How was each service obtained by the investor/exporter?
(Note: to be linked directly with the services identified above)

What types of suppliers of information and services were most effective in the investment decision-making process and in the export learning process? What was the link of these suppliers to A.I.D. or other donors, if any ?

- self (e.g., trial and error by investor)
- contacts with potential buyers (e.g., in US)
- banks or other financial institutions
- consulting firms
- universities
- commercial suppliers of goods
- publications (e.g., newspapers, trade magazines)
- commercial suppliers of information services
- publications
- investment promotion and/or export promotion institutions (identify if government/private)
- contacts with donor agencies (e.g., A.I.D.)
- other

5. What are the study's implications with respect to how donor agencies such as A.I.D. can be more effective in providing development assistance (e.g., information and services) to investors/exporters in a NTAE industry?

The Report

The report will be developed during a four-week period in August 1989. The report shall be no longer than 30 pages and shall include, in addition, a 5-10 Executive Summary. Annexes may be included as appropriate.

Annex B. List of Firms Studied and Respondents Interviewed.

Biographies: John Guy Smith, Ricardo Frohmader, Rolando Pretto

Case Studies

Honduras

Productos Acuáticos y Terrestres, S.A. (PATSA) (Jesus E. Coto V.)
 Cooperativa Regional de Horticultores Sureños (CREHSUL)
 (Oscar Narvaez, Reina Bernarda Moreno, Carlos Rodriguez)
 Agropecuaria Montelibano, S.A. (Miguel A. Molina)
 Sur-Agro (Andres Lardizabal and Vernan Pérez)
 Cooperativa Agropecuario del Valle Limitada (COAGRAVAL)
 (Melido Reyes and Medardo Galindo)

Guatemala

Agricola La Aurora (Ricardo Alfaro Castillo)
 Promotora Agrícola Básico Ltda. (Dale T. Krigsvold)
 Productos Agrícolas Centroamericanos, S.A. (CAPCO, S.A.)
 (Garrett DenBleyker and Dave Warren)
 Productos Frescos, S.A. (Chuck Chambers)

Costa Rica

Desarrollo Agrícola Industrial, S.A. (DAISA) (Claudio Zumbado A.)
 Corporación Agrícola Ganadera del Guanacaste, S.A. (John Brealey)
 EXPORPACK, S.A. (Jose Fidel Tristan Orlis)
 Chiquita Tropical Products Company (Carlos Barquero Quiros)
 Federico Apéstegui (independent grower)
 Del Monte Specialty Products, S.A. (Alfredo Apéstegui)
 Frutas de Parrita (Jose Antonio Urjelles)
 Melones de Costa Rica, S.A. (Marco Tulio Bonilla)
 Melones del Pacifico, S.A. (Mario Castillo)
 Tico Melon (Rudiger Lohrengel, Camilo Rodriguez L.)

Other Key Informants

Honduras:

USAID	Jose Antonio Carranza
FEPROEXAAH	Miguel Angel Bonilla, Medardo Galindo

Guatemala:

USAID	Tully Cornick, Barry Lennon, Felipe Manteiga
ROCAP	Ron Curtis, Nancy Fong, Richard Clark
PROEXAG	John Lamb, John Guy Smith, Ricardo Frohmader, Bruce L. Brower, Pam Michel

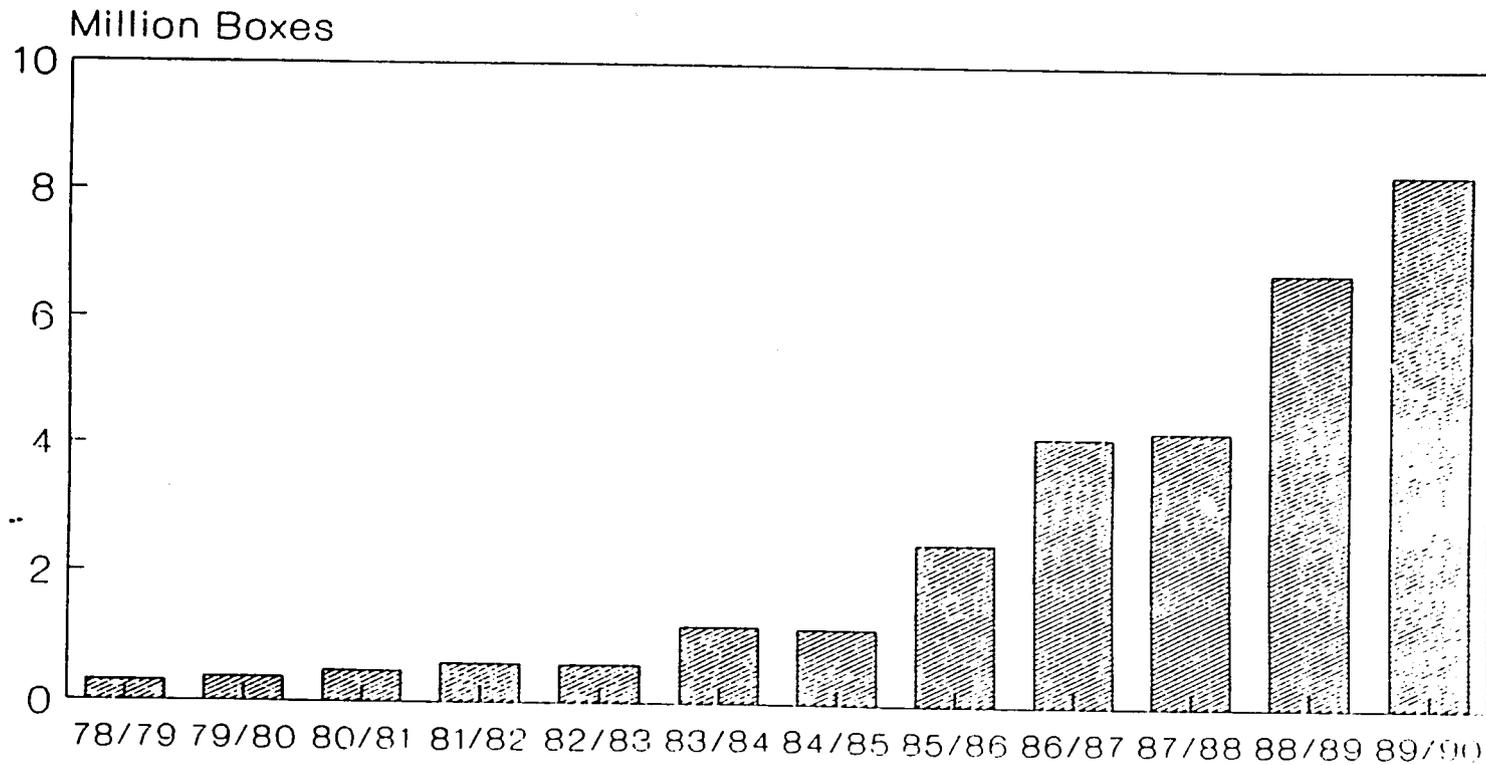
Costa Rica:

USAID	William Baucom, Richard Rosenberg
CAAP	Willie Loria, Claudio Zumbado, Javier Arriola

Annex C. Firm-Level Data on Exports of Melons by Enterprises in Central America. (Source: CDIE/LAC Non-Traditional Agriculture Export Study)

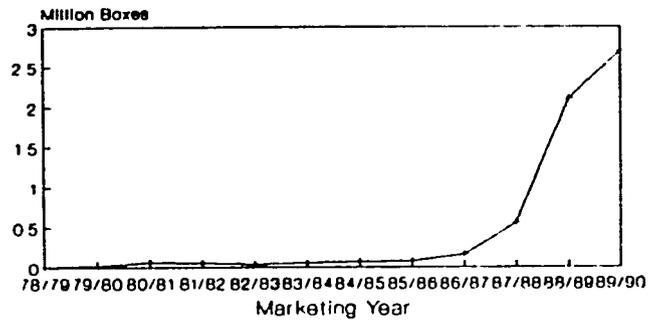
All Melons					
Quantities in Metric Tons					
	Guatemala	El Salvador	Honduras	Costa Ric	Total
1973	775	1749	0	0	2525
1974	2129	2919	0	0	5048
1975	795	967	0	0	1762
1976	484	663	0	0	1147
1977	370	831	0	0	1201
1978	407	1021	1415	22	2865
1979	1302	711	1752	8	3773
1980	1432	1150	1824	177	4583
1981	4116	0	2204	685	7005
1982	4105	0	1574	612	6291
1983	3598	971	2471	479	7519
1984	8432	1960	3099	595	14086
1985	6900	3111	4605	816	15432
1986	17385	5460	9147	902	32894
1987	17325	10407	20461	1886	50079
1988	18731	6166	19752	6666	51315
1989	20000	9000	30000	23000	82000
1990					

CENTRAL AMERICA MELON EXPORTS TO U.S.A.



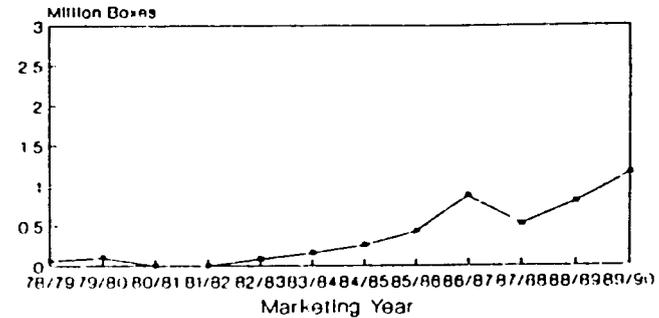
1990 is Projected

**COSTA RICA
MELON EXPORTS TO U.S.A.**



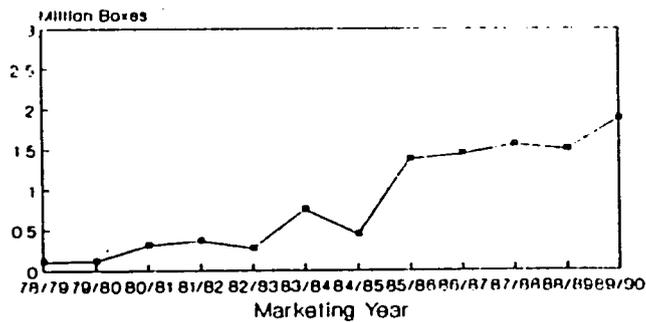
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**EI SALVADOR
MELON EXPORTS TO U.S.A.**



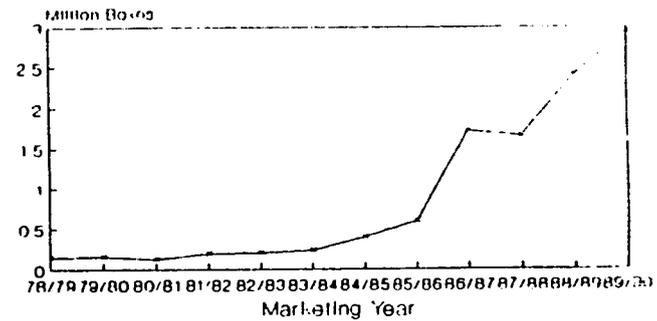
1990 is Projected

**GUATEMALA
MELON EXPORTS TO U.S.A.**



1990 is Projected

**HONDURAS
MELON EXPORTS TO U.S.A.**



1990 is Projected

Annex D. Areas in Which Growers/Exporters and NTAE Organizations Have Accessed Information from PROEXAG During the 1987-1989 Period (Source: PROEXAG files).

- * Setting up information (computer) systems and training personnel in the use of these systems.
- * Organizing and participating as technical experts and resource persons in training courses and seminars.
- * Identifying how country-level programs can support the development of the melon industry of the country.
- * Determining technical assistance needs in production, post-harvest handling, transport, and commercialization.
- * Providing technical assistance and/or linking the client with specialized technical assistance sources.
- * Designing, implementing, and evaluating product and post-harvest handling trials.
- * Providing counsel to the parties (growers/exporters and brokers) who are contemplating making a deal.
- * Estimating export intentions, availability of product in specified time periods, and transport requirements.
- * Identifying areas in which long-range study (e.g., potential for break-bulk shipping) is required.
- * Collecting and monitoring data on production and marketing costs.
- * Providing lists of approved pesticides and USDA/EPA/FDA regulations; keeping abreast of other developments in U.S. melon market.
- * Advising growers on steps they could take to better compete (marketing strategy options).
- * Developing and providing charts with information on market behavior.
- * Monitoring the start-up of production and packing operations, to detect any problems early on; witnessing melon shipments on arrival at U.S. ports and providing feedback to growers/exporters.
- * Explaining to brokers the grower/exporter's need for advances on liquidations (so that grower/exporter can comply with export controls of Central Bank).

Annex E. The Stages of Evolution of Non-Traditional Export Crops: From the Perspective of an Export Support Project Organization. (Source: PROEXAG)

