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PROEXAG

NON-TRADITIONAL AGRICULTURAL EXPORT SUPPORT PROJECT

REPORT ON A VISIT TO GUATEMALA
TO EVALUATE THE PROSPECTS FOR EXPANDING
THE FROZEN FOOD INDUSTRY

Assignment Number: ST/87-77

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

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through

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January 1988

SECTION I

INTRODUCTION

Central America has been overlooked for a long period of time as an excellent source of supply of fresh and frozen fruits and vegetables. In the past fifteen years the demand for these commodities has grown rapidly in Europe and the United States.

Commodities that were once believed not adaptable to the growing conditions in Central America were thoroughly investigated in the seventies, with excellent results. A good example is the labor intensive cole crops (broccoli, cauliflower, brussel sprouts). These have always been known to be sensitive to the length of day; however, new varieties have been developed that are neutral to photo period and can grow successfully in Central America in even day and night periods.

There are several well-known advantages in developing Central America's capacity to supply fruits and vegetables to world markets:

1. Low-cost labor
2. Year-round operations
3. High-quality products
4. Off-season supply in U.S. markets

Low-Cost Labor

Labor intensive products offer a competitive edge for Central America. Some are labor intensive in the fields only, such as okra and strawberries, and some are intensive both in the fields and in the plant, such as cole crops. Hand-picking in the fields also increases yields dramatically compared to mechanical harvesting.

Year-Round Operations

This factor is extremely important to the profitability of produce businesses, especially when the interest rate is relatively high. It is also important in frozen products, since space for cold storage is costly and it is important to amortize fixed investment over the largest possible volume.

An important factor in year-round operation is the stability of labor supply and lower maintenance cost per pound of production.

High Quality

The longer and slower growing season in Central America, especially in the highlands, will result in more color development and better accumulation of the flavor components in fruits and vegetables. Hand-trimming and slicing rather than random mechanical harvesting and processing will also ensure higher quality.

Off Season Supply

The off-season supply of some crops will reduce the effect of competition from within the U.S., and also could make up for the short supply of fresh product in the market place. This factor could be manipulated to an economic advantage.

I can recommend the following products in a frozen state. Many are also attractive in fresh form, although some are medfly susceptible.

1. Broccoli (cut and spears)
2. Cauliflower
3. Brussels sprouts
4. Strawberries
5. Okra
6. Bell pepper
7. Baby vegetables
8. Snow peas
9. Sugar peas
10. Asparagus

With the exception of broccoli, the demand in the U.S. market is excellent. Broccoli is in an over supply position. It is difficult to predict when or if there will come an end to the imbalanced marketing problem, which appeared after Mexico began exporting a big annual volume of broccoli to U.S. markets.

Broccoli

Developments in the broccoli market should be closely watched. Even with the heavy competition, hand-cut broccoli, individually quick-frozen, could still be processed and marketed in the United States and Europe in small quantities until prices become more favorable.

Cauliflower and Brussels Sprouts

The varieties of these two products that are adaptable to growing conditions in Central America are well established. The demand in the United States markets are limited in comparison to the European market. The I.Q.F. cauliflower florets are popular

and receive a good price. It should be noted, however, that the cauliflower produced in Central America is not the desirable snow white color that is produced in the U.S. More research is needed to overcome this problem.

Strawberries

A large strawberry market exists in the ice cream and preserve industry. Strawberries are a labor-intensive commodity. Hand-picking is still the only economical method of harvesting. The total pack in the United States is about 230 million pounds annually. California is the main producer with approximately 80% of the total production. Forty percent of the pack is whole strawberries. I.Q.F. "whole" strawberries are recommended for the retail and food service markets. Prices are slightly lower at the moment; however, improvements are expected soon.

The strawberry puree packed in 55 gallon drums is in good demand for the ice cream, jams, and preserves industry. Recently the yogurt industry has been a good outlet for the puree product. The prices are in the high forty cents per pound level and appear to be profitable in a relatively soft market.

In the past Mexico exported to the United States 140 million pounds of strawberries annually; however, this volume has been reduced almost by half in recent years.

In general, the possibilities for developing the strawberry industry are excellent, since the quality of raw material is outstanding in some Central American countries, especially Guatemala.

Okra

The United States market can easily absorb five million pounds of whole and cut okra. Okra marketing should be directed mainly towards the soup industry. Breaded okra is also becoming a very popular product for cut okra. Contacts with the soup industry could be achieved once a freezing project is approved. This product should be individually quick frozen (I.Q.F.), loose frozen, and possibly brined in drums.

Bell Peppers

Diced, sliced and pepper halves are in good demand in the U.S. This product could be easily produced in the same line as okra with minor changes. The market is large in the prepared food industry in the U.S., and the demand is excellent. There is not enough production in the U.S. to meet the need.

Snow Peas and Sugar Peas

Most frozen snow peas are imported from Taiwan, and some are imported from Guatemala in retail boxes and bags. There is a

tremendous need for I.Q.F. snow peas for the mixed vegetable retail market. There is also a need for them in convenience dinners in the prepared food industry. This product could be processed on the same line with minor modifications.

Baby Vegetables

Due to their small size, baby vegetables could easily be frozen as an I.Q.F. product. Of these items, the French green bean (one sieve) should have the largest volume. These products could be marketed in the food service industry alone. The demand is great and the prices are high.

Asparagus

Only cut asparagus could be frozen on the I.Q.F. line. Whole asparagus could be marketed as fresh. A large demand for frozen asparagus exists at all levels--retail, industrial and food service. The high price of this product in the U.S. has limited it's market, but the demand is still great. A reasonably priced asparagus could double the size of the market.

SECTION II

A PRELIMINARY MARKETING PLAN FOR FROZEN PRODUCT FROM CENTRAL AMERICA

A typical plan based on the production of the following products is suggested for the first two years of operations. Obviously, product mix could change with market conditions.

	lbs./annually
Bell pepper	1,000,000
Okra	1,000,000
Strawberries	1,000,000
Cauliflower	1,000,000
Broccoli	800,000
Baby vegetables	<u>200,000</u>
TOTAL	5,000,000

These production figures are based on achieving 10 cents per pound of fixed overhead.

The equipment should be simple and flexible. Some of the equipment could be manufactured locally. The freezing machinery should be flo-freeze or belt freezing types for (I.Q.F.) loose frozen products.

This type of equipment is geared toward the supply of bulk products to industrial customers in the United States and Europe. Industrial customers are the easiest client base for marketing frozen fruits and vegetables. These products are sold through brokers directly on a pre-pack contract basis with a predetermined price.

I have also visited the Four Pines operation and talked to Mr. Tulio Garcia. I have submitted the following projections:

	Total (Fresh and Frozen)	For Freezing
Broccoli lbs.	2,700,000 lbs.	800,000
Cauliflower	240,000 lbs.	200,000 lbs.
Snow peas lbs.	4,800,000 lbs.	600,000
Sugar peas	450,000 lbs.	600,000 lbs.
French beans	300,000 lbs.	300,000 lbs.
Bell pepper		1,400,000 lbs.

Anticipated frozen production is approximately 4,000,000 lbs. per year.

A small size freezing operation is recommended as a service operation to supplement the fresh pack shipments. The purpose is to enhance the quality of the fresh product by utilizing the overflow production. It will also be used to stabilize price received from the fresh market. Finally, it will be a great advantage for member growers in case adverse weather affects the quality of raw material such that it may not be considered usable for the fresh market.

The frozen line should be flexible enough to handle different products. The following is a proposed freezing line.

Hopper: 2000 lb. capacity (local)
Stainless if possible.

All Conveyers: Cleeted neoprene belts
Motor driven one H.P. (local)

Washer: Stainless tank--mesh
mesh belt--3 inch
Pump to recirculate to push product forward
(local or imported).

Trimming Table: Specially designed to increase efficiency, with metal frame. All belts are moving. The product is recirculated under and returns to the main table. Only finished, trimmed product is on the center belt (local).

Blancher: Rotary stainless steel open blancher (F.M.C. Hughes--Robins) Capacity 4 tons/1 hour, steam injected.

Shakers: Dewatering type (rod shakers), 36 inches wide and 4 feet long. Spray system (F.M.C.-Key Olney)

Cooler: Could be a used stainless blancher-sanitary.

Inspection Room: Simple--stainless frame. Belt driven.
Chlorine sprayed continuously (local).

Pump: Product food pump, 4 inch outlet and inlet single and double vein (I.M.C.-Moorse, imported).

Freezer: Belt or fluidized bed system.
Lewis freezer-Gryco-Fricosandia
(Imported) 6,000 lb/hour capacity for peas.

Refrigeration: 200 ton of refrigeration is needed for this line

Ammonia System.
Vilter
Frick
F.E.S.

SECTION III

CONCLUSION

Central America could be further developed to supply needed markets in the United States and Europe with fresh and frozen fruits and vegetables.

Only labor intensive commodities should be considered. Product diversification to avoid an over supply is essential annually. A relatively small operation (5-8 million lbs.) is recommended. Proper planning and development of this project will be an asset to both Central American countries and the U.S. markets.

PUBLICATIONS REQUESTED

Statistics:

American Frozen food Institute
1838 Elcamino Real, Suite 202
Burlingame, CA. 94010

Marketing and Prices and Market Conditions:

The Food Institute Report
American Institute of Food Distributions, Inc.
28-12 Broadway
Fair Lawn, N.J. 07410-3913 Tel. 201-791-5770

Engineering:

Food Engineering
P.O. Box 2035
Radnor, PA 19089-2036

Food Processing and Technology:

Food Processing
Putman Publishing Co.
301 E. Erie St.
Chicago, IL 60611

LIST OF FROZEN FOOD BROKERS REQUESTED

Doran Foods
500 Turnpike Street
Canton, MA 02021
William Goldstein
John W. Darcy

Tel. 617-828-1800

Dennis Sales Ltd.
P.O. Box 405B
Salisbury, MD 21801
Philip A. Long
Frank M. Marshall

Tel. 301-742-1585

Valley Packing Service
P.O. Box 108
Watsonville, CA 95076
Jack Randle
Fred Haas

Tel. 408-742-7551

J.M.L. Sales
111 Marsh Rd.
Pittsford, NY 14534
Jeffery Lawrence

Tel. 716-586-1833

STATUS OF EXISTING FROZEN FOOD INDUSTRY IN GUATEMALA AND EL SALVADOR AND THE
PROJECTIONS FOR SEVEN NEW PROJECTS

CAPACITY AND PRODUCTION OF EXISTING PLANTS (6)
Millions of Pounds per Year

AGRIC YEAR	BROCCOLI	CAULI- FLOWER	BRUSSELS SPROUTS	OKRA	OTHER PRODUCTS	TOTAL PRODUCTION	PLANT CAPACITY	USE OF CAPACITY
87/88	28.0	6.25	2.25	14.0	4.5	55.0	120.0	46%
88/89	28.0	7.0	3.0	18.0	7.0	63.0	120.0	53%
89/90	28.0	8.0	4.0	21.0	11.0	72.0	120.0	60%

The six plants represent all the plants in Guatemala and Salvador that are currently exporting more than 500,000 pounds of frozen product annually. Collective plant capacity includes new lines under construction or on order.

PROJECTIONS, SEVEN NEW PROJECTS FOR GUATEMALA AND SALVADOR
Millions of Pounds per Year

AGRIC YEAR	BROCCOLI	CAULI- FLOWER	BRUSSELS SPROUTS	OKRA	OTHER PRODUCTS	TOTAL PRODUCTION	PLANT CAPACITY	USE OF
87/88	NONE OF THE REFERENCE PROJECTS WILL BE IN PRODUCTION							
88/89	8.2	4.2	2.4	5.5	4.7	25.0		
90/91	16.2	6.1	3.0	8.1	6.6	40.0		

The projections for these projects were reduced by 40% to account for an unrealistic dependency on broccoli, and overlapping constituencies (sources of supply).

COMBINED ESTIMATES FROM EXISTING PLANTS AND PROPOSED NEW PRODUCTS
Millions of Pounds per Year

AGRIC YEAR	BROCCOLI	CAULI- FLOWER	BRUSSELS SPROUTS	OKRA	OTHER PRODUCTS	TOTAL PRODUCTION	PLANT CAPACITY	USE OF CAPACITY
88/89	36.2	11.2	5.4	23.5	11.7	88.0		
90/91	44.2	14.6	7.0	29.6	17.6	112.0		

ADVICE TO NEW FROZEN FOOD PROJECTS, GUATEMALA

These notes were assembled from Nazmy Elehwany's individual consulting sessions with the sponsors of seven prospective frozen food projects and were presented in summary form in Spanish at a final "wrap-up" workshop at which six of the seven attended.

Prospects for the future of the frozen food industry in Guatemala and its steady growth are promising provided:

Dependency on broccoli is reduced.

Profitability and growth are predicated on increases in the production of those lesser commodities and specialty items that require a high labor contribution. (See separate list of products.)

New markets are opened in Europe.

Economies of Size

In Guatemala, given appropriate circumstances, a plant as small as 5,000,000 pounds/year capacity should be able to operate profitably. The high range would be on the order of 30,000,000 pounds annually.

Small plants can operate competitively by concentrating on specialty products secured from suppliers located in the areas close to the plant. Also, a small frozen food plant is particularly well adapted as a back-up or supplementary operation for an enterprise that has a strong fresh export business.

Larger plants can operate advantageously processing the major commodities on as full a schedule as possible.

In either case -- a new plant with an intended small output, or one with an intended large output -- it is prudent to start with a plant designed to accommodate new lines in the future rather than to start out with excessive surplus capacity.

Financial Projections

Most of the proposals that were reviewed failed to provide for sales costs and US handling costs, and did not assign contingency costs for loss of product (unacceptable for sale or downgraded). Overhead costs were generally pegged too low. Income projections were generally based on US prices for frozen broccoli that do not reflect the current and projected soft condition of that market.

Diversification (Choice of Products)

Guatemala's great advantage as a location for frozen foods processing businesses is that it produces such a large variety of vegetables and fruits that are marketable as frozen product, and since the seasonal production cycles for these raw materials overlap, frozen food plants can be operated on almost a year-round schedule.

However, over-diversification should be avoided. Small plants should be able to do a first-class job with three or four products (no more than five); concentrating on two or three lesser commodities or specialty crops, backed up by one or two of the high consumption commodities as overhead items. Large plants should concentrate on several of the high consumption commodities with production spread out over as long an operating schedule as possible.

Reducing Overhead

Overhead costs can be reduced substantially by operating at as near plant capacity (70%) as possible over as many months of the year as possible. In Guatemala, plants located in the highlands can operate up to ten months out of the year if they source lowland products such as okra and melon balls when highland production is slack. As a general rule it is profitable to do out-sourcing if the product can be processed at the break-even point. It is also usually profitable to process the low-value commodities when it substantially increases the rate of plant utilization. (Such may be the case for broccoli over the next few years.)

Marketing Strategy

Use a reputable broker until product reputation is established, and even then don't discard the broker. When selling direct, spread sales among more than one buyer.

European Market

The Guatemalan frozen food industry should try to promote sales in the European market. Brussels sprouts, as an example, is a specialty product in the US but is a commodity in Great Britain.

Products

See separate list developed by Dr. Elehwany.