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PROEXAG

NON-TRADITIONAL AGRICULTURAL EXPORT SUPPORT PROJECT

THE DEVELOPMENT OF FROZEN FRUITS AND VEGETABLES OPERATIONS IN CENTRAL AMERICA

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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Introduction

Central America has been overlooked for a long period of time as as excellent source of supply of Fresh and Frozen Fruits and Vegetables.

In the past fifteen years the demand for their commodities grew rapidly in Europe and the United States.

Commodities that were believed not adaptable to the growing conditions in Central America were thoroughly investigated. A good example is the labor intensive cole crops (Broccoli, Cauliflower, Brussell Sprouts). These crops were known to be sensitive to the length of day, however new varieties were developed with excellent results that are neutral to photo period and can grow successfully in Central America in even day and night periods.

There are several advantages in developing this part of the world to supply fruits and vegetables to the world markets:

1. Low Cost Labor
2. Year Round Operations
3. High Quality Products
4. Off Season Supply in the U.S. Markets

Low Cost Labor

Labor intensive products have a great deal of the competitive edge. 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 drastically compared to mechanical harvesting.

Year Round Operations:

This factor is extremely important specially when the interest rate is relatively high. It is also important in frozen products, since space for cold storages is costly.

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

High Quality:

The longer and slower growing season in Central America specially in high land will result in more color development to the product and accumulation of the flavor components in fruits and vegetables.

Hand trimming and slicing rather than Random mechanical will always develop desirable higher quality.

Off Season Supply:

The off season supply will reduce the competitiveness effect and also could be used to make up for deficiencies in short crop supply at the market place. This factor could

be manipulated to an economic advantage.

I have recommended the following products both in fresh and frozen state.

1. Broccoli (cut and spears)
2. Cauliflower
3. 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 as to the end of the imbalance marketing problem, since México entered the market with big volume of Broccoli exported to the U.S. markets annually.

Broccoli:

The market should be closely watched. A hand cut Broccoli individually quick frozen could be processed and marketed in the United States and Europe in smaller quantities until the prices become more favorable.

Cauliflower and Sprouts:

The varieties of these two products that is 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 recieve good price. However, it should be noted 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 market is available for the ice cream and preserve industry. An also I.Q.F. product "whole" is recommended for the retail and food service markets. Prices are slightly lower, however improvements are expected soon.

Strawberries are labor intensive commodity. Hand picking is still the only econimical 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.

The strawberry puree packed in 55 gal. 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 price are in the high forty cents per pound level which appear to be profitable in a relatively soft market.

In the past Mexico exported to U.S. 140 million pounds of Strawberries annually, however this volume has been reduced to almost in half.

In general, the possibilities for developing strawberry industry is excellent, since the quality of raw material is outstanding.

Okra:

The United States market can easily absorb five million pounds of whole and cut okra. It should be directed towards the soup industry in the U.S.

The breaded okra is becoming a very popular product for the cut okra. Contacts with soup industry could be achieved once the 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 U.S. This product could be easily produced in the same line as the 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 the frozen Snow Peas are imported from Taiwan and some are also imported from Guatemala in retail boxes and bags. There is tremendous need for I.Q.F. Snow Peas for the mixed vegetable retail market. There is also a need for the convenience dinners in the prepared food industry. This product could be processed on the same line with minor modifications.

Baby Vegetables:

Due to its small size, it could easily be frozen as an I.Q.F. product. The French Green Bean (one sieve) should be the largest volume of these items. These products could be marketed in the food service industry only. 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 at all levels. Retail Industrial and food service. The high price product in the U.S. has limited its market, however, the demand is still great. A reasonably priced asparagus could double the size of the market.

A Preliminary Marketing Plan

A typical plan based on the production of the following products is suggested for the first two years of operations. (Not for four pines.)

Obviously, product mix could change with market conditions.

	lbs. / Annually
Bell Pepper	1,000,000 lbs.
Okra	1,000,000 "
Strawberries	1,000,000 "
Cauliflower	1,000,000 "
Broccoli	800,000 "
Baby Vegetables	200,000 "
Total	5,000,000 lbs.

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

The equipment should be simple and flexible. Some of these equipments could be manufactured locally.

The freezing machineries should be flo-freeze or belt freezing types, (I.Q.F.) loose frozen products.

These types of equipments are geared towards the supply of bulk products to the industrial customers in the United States and Europe.

Industrial customers are the most simple form of marketing frozen fruits and vegetables. These products are sold through brokers and directly on pre pack contract basis with a predetermined price.

I have visited Four Pines Operations and talked to Mr. Talio Garcia and have submitted the following projections:

	Total(Fresh @ Frozen)	For Freezing
Broccoli	2,700,000 lbs.	800,000 lbs.
Cauliflower	240,000 "	200,000 "
Snow Peas	4, 800,000 "	600,000 "
Sugar Peas	450,000 "	600,000 "
French Beans	300,000 "	600,000 "
Baby Vegetables	300,000 "	300,000 "
Bell Pepper		1,400,000 "

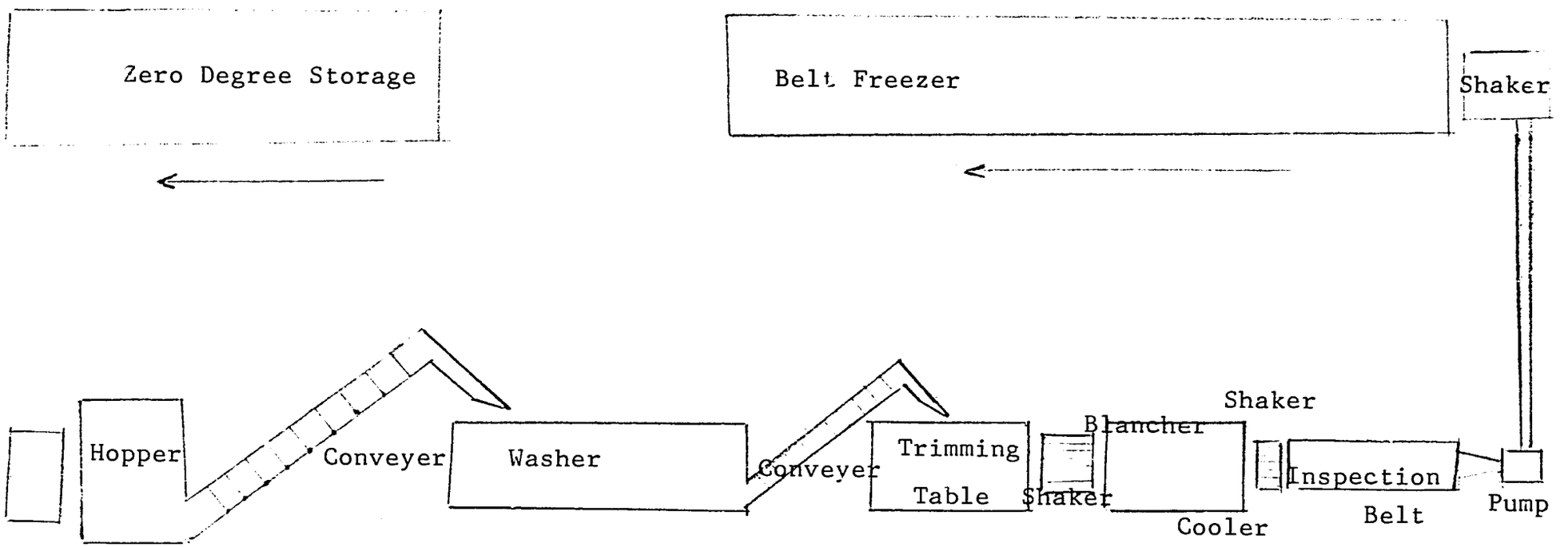
Anticipated frozen production is approximately 5,000,000 lbs. per year.

A small size freezing operation is recommended to supplement the fresh pack shipments.

A freezing line will be a service operation to the fresh pack.

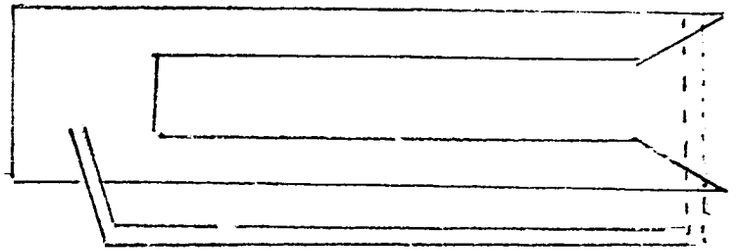
The purpose is to enhance the quality of the fresh product by utilizing the overflow production. It will also be used to stabilize prices recieved from the fresh market.

It will be of great advantage for member growers in case of adverse weather conditions and its effect on the quality of raw material that may not be considered usable for the fresh market.The Frozen line should be flexible to handle different products, the following is a proposed freezing line:



Freezing Flo- line
Specially designed for
Four Pines Products

Trimming Table in Detail



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 effeciency-
Metal frame. All belts are moving--
Recirculate product under and return
to main table-- only finished trimmed
product 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
4 feet long. Spray system (F.M.C. - Key Olney)

Cooler: Could be used stainless blancher-- Sanitary

Inspection Room: Simple-- Stainless frame Belt driven--
Belt 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-- Fricoscardia
(Imported) (6,000 lb/ hour) Capacity of Peas

Refrigeration: 200 ton of refrigeration is needed for this
line Amonia System---
Vilter
Frick
F.E.S.

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. Relatively small operations (5-8 million lbs.) is recommended. Proper planning and development of this project will be an asset to both Central America countries and the U.S. Markets.

Publications Requested

Statistics:

American Frozen Food Institute

1838 Elcamino Real, Suit 202

Burlingame, California 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, Mass. 02021 Tel. 617-828-4800
William Goldstein
John W. Darcy

Dennis Sales Ltd.
P.O. Box 405B
Salisbury, MD 21801 Tel. 301-742-1585
Philip A. Long
Frank M. Marshall

Valley Packing Service
P.O. Box 108
Watsonville, California 95076 Tel. 408-742-7551
Jack Randle
Fred Haas

J.M.L. Sales
111 Marsh Rd.
Pittsford, NY 14534 Tel. 716-586-1833
Jeffery Lawerence

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