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**CARIBBEAN
FOOD
CROPS SOCIETY**

22

**Twenty Second
Annual Meeting 1986**

St. Lucia

Vol. XXII

NON-TRADITIONAL EXPORT CROP OPPORTUNITIES
IN PUERTO RICO

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ABSTRACT

The Commonwealth Department of Agriculture has renewed its interest, effort and participation in the stimulation of active projects with non-traditional crops for export. The principal crop areas of attention are food crops, mango and papaya; beverage crops (wine grapes, passion fruit, tea, limes and guava); and spice crops with more than eight dry spices, including basil, chives and majoram. There is also interest in the culture of prawns.

INTRODUCTION

The project known as "Operation Agricultural Impact" was inaugurated to facilitate the enterprising Puerto Rican to become established in, and devote himself to agriculture, Its objective is to advance, or add to the potential of the island's agriculture, and it is distinguished basically by its individual projects, identifiable by the endeavour of the entrepreneur.

All projects in this program are agricultural, agro-industrial, crop market oriented, or anything by nature that somehow relates to local agriculture. Proejcts for evaluation within Operation Agricultural Impact must:

- Be practical
- Have potential for development
- Generate employment
- Increase food production
- Be an acceptable substitute for imports, or increase exportation of locally produced products, and
- Use agricultural land intensively.

To accomplish these ends, assistance in the form of finance guarantee, land procurement, and production technology will be focused and integrated in these particular agricultural enterprises.

The participants in this program are for the most part individuals with farm experience. Some already have farms with on-going agricultural operations which they desire to improve or expand. Others have the expertise and technical training and wish to be included in new projects different to those that they have been associated with in the past. In all instances, it is most important that the proponent be practical, and have the capability for attending to operational and administrative tasks, and most of all, have a clear understanding of what he desires to accomplish. He must have a clear concept of marketing, and his ability to trade is fundamental.

During 1985, within Operation Agricultural Impact, various efforts were initiated and directed to promoting the establishment of 92 projects. Of this total, seven were eliminated. The approved projects require financing of US \$44.5 million, and the use of some 4,700 ha of agricultural land. When all approved projects are in operation, they will generate 2,404 direct jobs, and will increase agricultural production by US \$40.1 million. To date, 63 projects are operational.

During 1986, through experience gained with previous projects, it is quite possible that some 100 new, specific agricultural projects could be initiated.

As of July of this year, the Commonwealth Department of Agriculture has approved and promoted 44 agricultural projects, and at present is involved in the analysis of 64 new projects. At this pace, and considering the new poultry project proposals, the expected 100 projects will be exceeded by an ample margin.

ACTIVE PROJECTS

Prawns (*Macrobrachium* spp.)

"Aquaculture Enterprises Inc." is a wholly-owned subsidiary of "Sabana Grande Prawn Farms, Ltd." During May 1983, this company acquired and rehabilitated a prawn farm with some 14.6 ha of ponds, located at Sabana Grande, in western Puerto Rico. At present they have 34.8 ha of ponds in operation, with plans to increase the pond area to a total of 60.7 ha. At their present size of 34.8 ha, their expected production is a maximum of about 300,000 lb of prawns per year. Initial marketing tests in the Washington, DC and New York City areas indicate excellent acceptance, which could lead to the utilization of the entire production in these two areas. Markets established in Puerto Rico and the U.S. Virgin Islands could use more than is produced at present. The proposed expansion of 25.9 ha would increase the production to a maximum of 525,000 pounds a year, at a price around US \$6.00 a pound.

Their aquatic weed problems were partly solved with the introduction of the grass carp (*Ctenopharygodon idella*), which appears to have adapted well, as some have attained weights of 15 pounds. The surplus is marketed locally at US \$1.00 a pound.

The clouding of water by floating plankton has been solved, in part, by the introduction of swordtails (*Xiphophorus helleri*), and mollies (*Poecilia* spp.), both of which are considered aquarium fish. Exports started to the U.S. aquarium trade in January this year, when production in Florida decreased because of low water temperatures. Weed control on embankments and dikes is accomplished, in part, by permitting local farmers to pasture their goats. Plans are to stock the farm with Barbados Black Belly sheep next year.

Future plans include the culture of silver and red tilapia (*Tilapia* spp.) in cages. Aquaculture Enterprises, at present has 10 full time employees.

Mango (*Mangifera indica* L.)

In 1982, "Fruits International, Inc." began operations in southern Puerto Rico, in the area of Coto Laurel. In 1983, the first grafted trees were planted with drip irrigation. The cultivars thus far established on this farm are Davis Haden, Irwin, Haden, Keitt and Parvin. During 1985, this organization marketed approximately 60 tons of fruit in Europe, mostly in England and Holland; some 23.7 tons found their way into the local market. The total estimated sales for the season were US \$43,524.00. The 1986 crop is forecast at 1,000 tons to be harvested from 137.5 ha. At present, Fruits International has 188.5 ha of mango orchards established. This company has 26 fulltime employees.

"Huertos del Caribe, Inc." has under its management some 212 ha of mango orchards, in four different plantings, all in different areas on the south coast of the island, and they are listed as follows:

The Valdivieso Orchard at Peñuelas, was established during 1975-76, and since that time additional plantings have been made, the youngest of which is two years old. Cultivars are: Davis Haden, Haden, Irwin, Keitt, and Parvin. Fruit has been marketed from this orchard in the local as well as the export market.

The Caribe Orchard, located in Los Llanos, near Coamo, was first planted some eight years ago. This orchard has good production and relatively clean fruit. Cultivars planted are Haden, Keitt, Palmer, Parvin, Sensation and Tommy Atkins. Fruit from this orchard has been exported to Germany, England and Holland.

The Del Sur Orchard located at Descalabrado is also a young orchard and not yet in production. The cvs. planted are Davis Haden, Keitt and Parvin.

The Coamo Orchard, located at Río Cañas, is several years old, and it is here that the packing and refrigeration plant facilities to serve these four orchards are located. The Coamo planting consists of a total of 89,579 trees planted to seven cvs., namely, Anderson, Early Gold, Haden, Keitt, Parvin, Pascual and Zill.

In July 1985, the forecast harvest for the four orchards was placed at 600 tons, with a sale value of approximately US \$1,000.00 per ton.

"Boca Chica, Inc." has been established in the neighborhood of the same name since 1984. At present their planting consists of some 13.7 ha of various cvs., including Parvin, Tommy Atkins and Van Dyke. Plans for the immediate future are to increase the orchard by 39.3 ha for a total of 53.0 ha. Boca Chica's goal is to enter into the Canadian, European and possibly the U.S. markets. The present number of employees is 10, and will eventually be 25.

"Finca María Antonia", located in the southwestern part of Puerto Rico, near the town of Guánica, has submitted a proposal to plant 13.6 ha of mango under drip irrigation. This project, if approved, will be managed by Boca Chica, Inc. and would require 10 full time employees.

Papaya (*Carica papaya* L.)

Besides mango, Fruits International, Inc., has 51 ha of papaya planted for the export and local markets. The 1985-86 crop, thus far (Feb. '86), has produced some 21,800 boxes (4.5-5.4 kg.) of fruit, valued at US \$139,460.00.

Wine Grapes (*Vitis vinifera* L.)

The Company "Costa de Azahar, Inc." became established in southwestern Puerto Rico, near Ensenada, during early 1983. This project, at present, consists of 23.6 ha, of which 13.4 ha are drip irrigated vineyards planted to several different wine grape cultivars. Well developed and flavorsome grapes have been produced and harvested for evaluation to determine the type and quality of wine that they can be made into. This company also has 10.2 ha dedicated to other crops, including Hawaiian-papaya. Immediate plans are to expand their drip irrigated vineyards with an additional 21.1 ha, with their final goal a total of 56.9 ha in vineyards and Tahiti lime groves.

Passion Fruit (*Passiflora edulis* Sims)

The first group of farmers to produce fruit on a commercial scale, began their project in 1982. They are known as the "Organización de Agricultores de Barrio Espinoso, Inc.". This group consists of 15 family owned farms with an area of 15.7 ha dedicated to passion fruit production in the central part of the island, near San Lorenzo. Plans at present are to incorporate 14 more farm families into the group, for a total area of 44.7 ha dedicated to this crop. The Department of Agriculture has guaranteed loans to this group for the purchase and installation of processing equipment. This year, starting in June, they expect a total production of 6,000 cwt of fruit for pulp processing, and expect to market an additional 2,000 cwt of fresh fruit in the local and export markets.

A more recently formed group, the "Asociación de Pequeños Agricultores del Centro, Inc.", is composed of 12 family farms in the area of Naranjito. Their forecast production for this year is some 4,000 cwt of fruit for pulp. They have made arrangements for the Barrio Espinoso group to process it.

Tea (*Camelia sinensis* (L.) O. Kuntze cv *Assimico*)

The "Caribbean Tea Company, Inc." believes that in a short time, Puerto Rico may very well become an important producer and exporter of tea in the Antilles, with the advantage of access to the United States market. A 1,000 kg shipment of tea seed has been received from Argentina, and the Land Authority of Puerto Rico has rented 17.3 ha to "Caribbean Tea", of which 0.6 ha is for the establishment of a seedbed and nursery. In December this year, the Land Authority will make available an additional 78.5 ha for this project.

"Caribbean Tea" desires to have a final planting of approximately 314.2 ha of tea under their insect management. They also plan to encourage other farmers to establish tea plantations. Plans are to harvest

the tea crop mechanically, and the equipment can harvest 157.1 ha a month with a potential for producing 77.7 tons of dry, finished tea per month, or about 450 kg of tea per ha. The project is expected to create some 56 permanent jobs.

PROJECTS UNDER CONSIDERATION

Tahiti lime (*Citrus aurantifolia* Christm.). For clarified juice and fresh fruit for the export market also.

Guava (*Psidium guajava* L.). To be produced for clarified juice for export, and destined to be blended with other tropical and temperate zone fruit juices of the same nature.

Soursop (*Annona muricata* L.). To produce pulp for nectar manufacture.

Spice crops: "Glie Farms, Vieques, P.R.", has recently submitted a proposal for spice production requiring some 81.6 ha of land for plantings and processing facilities. Experimental plantings with a number of spice producing plants have been successful. Of the crops evaluated, they are considering the following: basil (*Ocimum basilicum* L.), sweet bay (*Laurus nobilis* L.), chives (*Allium schoenoprasum* L.), parsley (*Petroselinum crispum* (Mill.) Nyman ex A.W. Hill), pot majoram (*Origanum vulgare* L.), rosemary (*Rosmarinus officinalis* L.), sage (*Salvia officinalis* L.), spearmint (*Mentha spicata* L.), sweet majoram (*Origanum majorana* L.), tarragon (*Artemisia dracuncululus* L. var. *satino*), and thyme (*Thymus vulgaris* L.). The product will be harvested, dehydrated and packed at the farm on the island municipality of Vieques. Seventy-five persons will be employed in this enterprise.