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POSTHARVEST INSTITUTE FOR PERISHABLES

**Technical Assistance
to
Belize Cantaloupe
Production**

**by
William E. Bolton
for the
Postharvest Institute for Perishables**

**GIS Report No.
PIP/Belize/January 84/No. 34**



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University of Idaho

**in cooperation with:
United States Agency for
International Development**

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I. Executive Summary

The U.S. Agency for International Development Mission in cable number Belize 3376 (1983) requested technical assistance from the Postharvest Institute for Perishables for a cantaloupe project. Specifically, assistance was requested in all aspects of packaging and transportation of the melons by Belize Winter Produce Ltd.

In response to this request Mr. William Bolton, a private consultant, spent the period of January 9 - 20, 1984 in Belize on the project. He identified various constraints in the melon production and handling process in preparation for export. His recommendations for improvement included field management for weed, disease and insect control, as well as proper fertility and plant populations. At the packing shed his recommendations covered conveyers, radio communication, refrigerated holding rooms, quality control, and similar improvements.

Three principal melon brokers in the U.S. were identified by Mr. Bolton as representatives of market areas that should be tested by Belize Winter Produce.

II. INTRODUCTION

A joint-venture melon project has been undertaken recently by a small group of investors consisting of two U.S. citizens and three Belizeans. All contribute in a variety of ways. Belize Winter Produce Ltd. is presently shipping melons (cantaloupe) by air cargo from Belize City to Miami, Florida. Growers are located in the Orange Walk District, as is a central packing shed. Some 150 acres were planted in cantaloupe by 110 farmers, most of whom are Mennonites. Plantings were staggered so melons are picked and delivered daily to the packing shed where they are now held in a precooled 44,000 lbs capacity refrigerated container.

Although present deliveries (first 3 weeks) amount to some 150 boxes per day, daily deliveries within the next 2 - 3 weeks should exceed 700 boxes, equal to over half a container per day. One full container per day, some 1200 boxes, should be obtained at peak of harvest season. A preselection of melons is conducted by producers in the fields.

At the packing shed melons are sorted, washed, fungicide treated, sized, graded and packed in wax laminated cardboard boxes - capacity 40 pounds. Cantaloupe boxes are then loaded into the precooled refrigerated container and trucked to Belize City, 60 miles south, over a good paved highway.

Air freight contracts are negotiated with one of two airlines offering aircargo service to Miami. Although ocean freight is less expensive, Hyde Shipping offers this service only three times per month (once every ten days). Belize Winter Produce Ltd. sells all fruit to Agrow Corp. of Saint Michaels, Maryland, which is a wholesale/distributor broker.

III. OBSERVATIONS, CONSTRAINTS AND PROBLEM AREA

A. Agronomic Field Practices.

In the Little Belize area, field selection varies from very poor to good, i.e. some fields have very rocky soils with indications of poor fertility, others have only a few rocks and some 40 percent are well selected fertile fields virtually free of rocks.

Weed control also varies considerably. Poor weed control results in inefficient chemical applications and generally reduced yields. Some fields observed had excellent weed control.

Disease and insect control is a major problem area, particularly disease control. Most advanced fields observed had downy mildew to some degree, some were heavily infected. Fusarium wilt was also suspect. Some 10 - 15 percent of rejected fruit is from ground insect scars and or punctures. Still more is rejected because of soft rot.

Plant populations seem rather erratic, being generally on the low side, i.e. 3,000 to 4,000 plants per acre or less. Only a few fields were observed with solid canopies of melon vines.

Fertilization. Due to most soil types observed being of medium/low fertility, present fertilizer programs seem to be on the low side. Foliar fertilizers are not included in the present program. Indications of nitrogen deficiency were observed. All soils in this area are reported as high in potassium.

Harvesting technique is also noticeably erratic as incoming fruit at packing shed is not uniform with regard to maturity.

B. Packing shed

Although the present packing shed is rustic and rather small, it is adequate for this first year small scale operation. Some few improvements are included under "Recommendations and Suggestions".

Organization training and management are the most visible and most important constraints that should be improved as soon as possible. Grading and selection of melons and pack uniformity improvements are direly needed as soon as possible.

The present lack of communication (radio) between the packing shed manager and the field production manager is also a major constraint. Improvements in communications between the Belize City representative and the packing shed manager are also needed. Logistics for all chemicals, fertilizers and other supplies must be well planned and coordinated whereby all materials are in country and available prior to planting the first seed. This is imperative.

Proper attention must be given to import details such as:

1. temperature and humidity control of refrigerated containers
2. excess/improper handling (bruising) of melons
3. uniformity of pack and proper box marking
4. proper washing and spraying (fungicide) of all melons
5. packing shed volume and unitary cost controls (daily)
6. warehouse controls of boxing materials, tools, and all inputs
7. proper stacking in refrigerated containers (to avoid losses)
8. size of work crews (in advance), shifts, plus training and supervision of all workers
9. constant transmittal of market and other information to field production manager and close coordination with him
10. shipping dates and related information which must be obtained from Belize City representative.

IV. RECOMMENDATIONS AND SUGGESTIONS

Field selections must be improved. No rocky fields should be permitted. Weed control, whether chemical, manual or a combination has to be done according to the project production manager's specifications. Weed control is a must. As to insect and disease control, a list of all inputs used by an eleven-year-old successful cantaloupe producing project in Honduras (PATSA at Choluteca, Honduras) is detailed below. A preventative disease program is imperative. Insect population must be monitored to determine when insecticides are required.

<u>Product</u>	<u>Per/acre</u>	<u>Price per unit</u> US\$
seed	1.7 lb	13.00
18-46-0	250 lbs	.21
Urea (46%N)	150 lbs	.15
Nitrogen Phosphate	50 lbs	.25
Furadan	22 lbs	1.25
Foliar fert.	6 lbs	.80
Tamaron 600	2.25 liters	15.00
Arrivo	.60 liters	50.00
Lannate	.6 lbs	16.00
Bravo	4.7 lbs	9.00

Plant populations should be increased to at least 7000 plants per acre. The fertilizers detailed above are also suggested. Harvesting and other agronomic techniques have improved. However, technical assistance in the form of one melon agronomist for 60 - 90 days plus one pathologist supplied by USAID is strongly suggested. At the packing shed, a series of indicated improvements is detailed as follows:

- a. some 70 to 80 feet of roller conveyors
- b. a telephone and radio at packing shed - portable radio for field manager
- c. a refrigerated holding room (small 20' x 20')
- d. stronger management -tighter organization
- e. a quality control program adhering to U.S.D.A. grades, standards and sizings
- f. for late 1984 plantings and early 1985, live belt conveyors for fruit distribution, empty box chute, roller brush, washers and other improvements as may be appropriate for projected volume.

V. GENERAL

Prevor Marketing International, Bronx, New York is the largest importer of melons in the U.S. Griffin and Brand Inc. of McAllen Texas is another large importer and Six L's Packing Co. of Immokalee, Florida is yet another most reputable firm. It is suggested that more than one broker be used and different market areas tested. Details as to contacts with the three firms are as follows:

Prevor Marketing International
127 of the NYC Terminal Market
Bronx, New York 10474
Telephone: 212-991-5050
Contact: Mr. Jerry Young

Griffin & Brand Inc.
McAllen, Texas (main office)
Telephone: 512-682-6181
Contact: Mr. Othal Brand - Chairman

Six L's Packing Co.
Immokalee, Florida

A trip of three days to PATSA melon project at Choluteca, Honduras and Fruta del Sol cucumber project at Comeagua, Honduras is strongly suggested for this project's production manager, packing shed manager and six to eight leaders of Mennonite and other producer groups. Arrangements could be made by USAID Belize with the assistance of USAID Honduras where the Ag Section is familiar with both of the above mentioned projects.

As only one refrigerated container is now being used at least one additional 40 foot container is direly needed. The newer type airflow system, i.e. over the top return, is recommended. Thermo King manufactures this type unit. Financial assistance again would expedite this acquisition.

Cantaloupe + Water Melon Packing Line

