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POSTHARVEST INSTITUTE FOR PERISHABLES

POTENTIAL SERVICES TO AID/QUITO

from the

Postharvest Institute for Perishables

by
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I. Introduction

The assistance that can be provided by the Postharvest Institute for Perishables (PIP) to USAID/Quito falls into several more or less distinct areas, although in some cases they would be interrelated on administrative or operational bases. PIP and the University of Idaho can provide an institutional link with the Universidad de Ambato that would be beneficial to all three institutions. In addition, PIP draws upon many areas of expertise, i.e. universities, private businesses and private consultants, so a broad range of experience and knowledge can be made available to the AID/Quito IRD and RITS projects.

Because of the relative distinction of the types of assistance that PIP or the University of Idaho can provide, they will be addressed separately in this report.

II. Reduction of postharvest losses in selected crop systems

Apples and one or two other crops have been proposed as models. It has been observed in Ecuador in the case of apples, at least, that postharvest losses are frequently the visible result of various problems that occurred in the preharvest production period.

The area around Ambato is one of the principal apple-producing regions in Ecuador. The orchards that were seen there were generally in poor condition. The problems noted were disease and insect injuries on the foliage and fruit, lack of good pruning practices, and poor or no weed control. There is adequate expertise at the University of Idaho to address these problems.

Assistance in loss reduction would involve the following:

A. Initiate variety trials for dates of harvest, quality and storage characteristics
B. Determine need for, or adequacy of irrigation or drainage
C. Do fertilizer trials for yield effects
D. Demonstrate need for, and results from proper pruning practices

E. Demonstrate the positive results from proper disease and insect control measures

F. Demonstrate the value of weed control programs: compare economics and other factors in hand vs. chemical weeding

G. Teach proper harvesting and handling methods, proper containers and sorting for storage and marketing

III. Potato storage systems

The need has been identified in Ecuador for storage systems under different environments. Assistance in this area could be provided by PIP in the form of technology appropriate to various levels, and could probably be implemented in collaboration with SEDRI.

A. Electricity available. The assistance would be concerned primarily with the following factors:

1. Evaluation of electrically-operated forced air systems vs. potential crop value after storage when potato scarcities normally occur
2. Forced air ventilation systems for proper temperature and humidity controls
3. The possible use of chemical sprout inhibitors, such as CIPC or maleic hydrazide
4. Design of ventilation systems and storage houses for maximum efficiency, e.g. size, air circulation and insulation
5. Bulk or container storage
6. Monitoring storage for quality maintenance
7. Management of storage for maximum return on investment

B. No electricity. The assistance would probably be concerned primarily with technology applicable at the small community or family level, and would involve the following:

1. Evaporative cooling systems:
   a. Designs
   b. Environmental limits or feasibility
   c. Maintenance - daily or other
2. Passive cooling systems (root-cellar type):
   a. Designs
   b. Environmental limits of feasibility
   c. Maintenance

3. Investigate possible use of sprout inhibitors, such as CIPC or maleic hydrazide

IV. Controlled atmosphere (CA) storage for apples or other crops

It is believed that there may be an economic area in Ecuador where CA storage would be feasible. Assistance from PIP could be provided in the following ways:

A. Investigate capital and operational costs of CA in Ecuador - predicted investments
B. Investigate potential market for products coming out of CA - pricing and reduction of price fluctuations
C. Determine availability of personnel to be trained for management and operations of CA units
D. Determine training needed for management and operations personnel in U.S.

V. Cooling or refrigeration equipment

It is believed that improvement, modifications or enlargements of cooling or refrigeration facilities may be required in Ecuador in order to move crops properly through the postharvest system. Assistance can be provided by PIP to:

A. Determine size and type needed for projected crop volumes
B. Design and oversee construction of facilities
C. Train personnel in management and operations of facilities, and maintenance and repair of equipment
D. Train personnel in temperature and humidity requirements of various crops, and maximum expected storage life

VI. PIP Information Center (PIPIC) services

The PIPIC is prepared to assist Ecuadorean projects such as IRD, RTTS, or segments of Ecuadorean organizations in a wide variety of ways because of its large postharvest information documentation system and because of its linkages with computerized worldwide databases. The assistance could include any of the following:

A. Provide a continuous flow of new or old technology on perishable crop production, handling, packaging, processing, transportation, storage, refrigeration or other related factors

B. Develop communications with source centers for prices, world demand, supplies, sales projections, new or old product trends. This information would be provided to Ecuador by means of a communication system that would be developed between PIPIC and an appropriate center in Ecuador. AGROMOD is very interested in information of this type and has recently installed a telex to obtain current information from outside sources

C. Assist in the development of a computerized or other crop information distribution system in Ecuador to get information to the appropriate people in a useful and timely way

D. Provide information services for training workshops - the latter might be technical in nature to provide assistance in postharvest crop management, or they might cover topics such as export marketing; the information would be tailored to the level of the target audience

E. Provide translated bulletins, brochures or other types of information to any level of expertise or interest in Ecuador

F. Do literature or document services on request to provide bibliographies, annotated bibliographies or literature reviews on subjects of interest

VII. Alternative crops for export systems

It is believed that there exist some viable alternative cropping systems that would allow Ecuador to enter new world markets. Some alternatives appear to offer immediate prospects (within 2 to 10 years) and others would require longer to develop a market. Assistance from PIP could be provided in the following ways:

A. Short-term potentials (2 to 10 years)

1. Investigate possibilities of processing or exporting existing crops in a new way:
   a. to increase demand in existing markets;
   b. to find new markets.
2. Babaco is an example of a fruit crop that could be exported by Ecuador - work in this area is now being intitiated by AGROMOD:
   a. Babaco grows in the country and apparently is native
   b. It is now being grown in New Zealand and Japan from cuttings taken from Ecuador - it is reported to be popular there
   c. Production potential should be investigated in Ecuador

d. Processing potentials or requirements should be investigated

e. Investigations must be made of production costs, transportation facilities, shipping costs, brokers, potential markets and prices

f. Consideration must be given to the possible need for presentation of the crop at trade fairs in the U.S. or elsewhere, test marketing in selected areas, and other marketing devices

B. Long-term potential

1. Investigate crops that may be native or that could be grown in Ecuador and that could have a permanent acceptance in domestic and export markets.

2. Study projections for new or existing crops in the world marketing system.

3. Study abilities of exporting nations to meet world demands and projected demands - determine where windows might exist for Ecuador.

VIII. Development of University of Idaho/University of Ambato linkage

PIP and the University of Idaho could develop an institutional linkage with the Universidad de Ambato in accordance with the proposed agreement that was discussed with Dr. Garcés, Rector, and Dr. Saltos, Sub-Decano. The concept was reviewed by Dr. Ronald Curtis in his recent report to AID/Quito. The recent discussion with Drs. Garcés and Saltos was consistent with Dr. Curtis' recommendations.

After a cooperative agreement is developed between the University of Idaho and the Universidad de Ambato, the next step will be to develop a scope of work in detail. It appears that UTA has some strength in agronomic food production and in food processing. These strengths should be augmented through degree-program education in the U.S. and the cooperative agreement will provide a part of the vehicle to accomplish this. In order to initiate action on the agreement, efforts should be made immediately to identify a prospective student and prepare him/her for U.S. studies.

The greatest need at present at UTA is to develop some expertise and experience in postharvest perishable food management. It is in this area that PIP and the UI can be of the greatest assistance. The scope of work should be focused on this area at all levels of appropriate technology. This need was recognized and described in the Documento de Proyecto for the PITALPRO project.

It will be necessary to define UTA's plans and capabilities in the field of extension, outreach programs or rural development. At present, this does not appear to receive more than passive attention at UTA, and it may well be that a linkage with SEDRI could fill the gap. The need for extension-type services has been recognized at UTA and discussed in the PITALPRO Documento de Proyecto. The problem appears to be that there is no identifiable mechanism in existence for accomplishing extension services.

SEDRI now has an agreement with UTA. Dr. Augusto Larrea at SEDRI said that the agreement might be expanded to include assistance from PIP and UTA in the area of small farmer outreach.

IX. Workshop on Export Marketing

PIP could hold a workshop in Ecuador modeled after the recent one that PIP sponsored in Jamaica for CBI countries. The workshop would cover various aspects of export marketing that would be of value to present or future projects in the public or private sectors:

A. Harvesting practices
B. Packing practices and standards
C. Grading and sorting standards
D. Pesticide residues
E. Timing of harvests to meet U.S. demand
F. Broker contracts
G. U.S. tariffs/duties
H. Inspection regulations of U.S. entry
I. Ecuadorean taxes for exports and other laws
J. Identification of U.S. markets

Item "I" should be presented by an Ecuadorean knowledgeable on the subject. The workshop should include field trips, possibly to Ambato and Quinche. There, hopefully, the participants could see apples and strawberries, and what is and what is not export quality. The workshop could be completed in one week.

X. Technical Assistance for AGROMOD

Strawberry fields and sorting, grading, and packing sheds of AGROMOD were visited near Quinche. It is a sociedad anónima with about 15 members. Currently they are growing strawberries on about 40 ha of their own land and have exported about 30 tons of fruit to Miami and New York. Some sent to New York went on to Canada.

AGROMOD is supplying berries to the Eastern U.S., so they are not in competition with Mexico which supplies the west at the same time of year, i.e. during the northern winter months of November to March. In addition, AGROMOD is very correctly working with a temperate climate crop such as strawberries instead of tropical or subtropical crops, such as plantain, mangoes or papaya. In the latter case, AGROMOD would be in direct competition with the CBI countries who are thinking strongly of such crops and would have U.S. tariff advantages.

AGROMOD is planning to enter the raspberry market next for exports to the U.S. Also they have plans to export frozen as well as fresh fruit and are now constructing the facilities to do so.

AGROMOD is also planning to get into babaco production. One of the socios of AGROMOD is an Israeli and has sent babaco cuttings to Israel where they are being propagated by meristem culture. Then, they will be returned to Ecuador for large plantings by AGROMOD. This is very forward thinking. AGROMOD is aware that babaco is being produced in New Zealand and Japan, and that company would like to get into the U.S. market.

In summary, AGROMOD is a very advanced, little, young company with much ambition and potential. PIP could provide assistance to them in the following areas:

A. Training in harvesting, grading and packing
B. Training in operation and management of a pre-cooler when it is installed at this new grading station
C. Information concerning market trends, etc. on strawberries and raspberries in the U.S.
D. If a workshop, as described above in IX were held in Ecuador, it is likely that AGROMOD would want all technical and management personnel to attend

XI. People Visited in Ecuador

Joseph Goodwin, RDO, USAID/Quito
Joseph Beausoleil, USAID/Quito
Darell McIntyre, USAID/Quito

Luis Aníbal Garcés, Rector, Technical Universidad de Ambato
H. Aníbal Saltos, Sub-Decano, Technical Universidad de Ambato
Carlos Portales, Gerente General, AGROMOD
Patricio Jaramillo, AGROMOD
Augusto Larrea, Executive Secretary, SEDRI

XII. Itinerary

April 8, 1984 - Arrive Quito
April 9 and 10 - Conferences with USAID/Quito personnel
April 11 - Visit Universidad de Ambato
April 12 - Conferences with USAID/Quito personnel, present seminar on PIP for USAID personnel
April 13 - Visit AGROMOD and SEDRI
April 14 - Conference at USAID/Quito with Dr. Garcés and Dr. Saltos from Ambato
April 15 - Depart Quito

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