

PI-ABS-746
91409

End of Project Report

Reduction of Postharvest Losses

in

Perishable Food Commodities

Oct 1, 1985 - Sept 30, 1993

Cooperative Agreement DAN-1323-A-00-5093-00

Between

Bureau of Research and Development/AID

and

Postharvest Institute for Perishables/University of Idaho

March 1994

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I. Introduction

Cooperative Agreement DAN-1323-A-00-5093-00 between AID Bureau of Research and Development and the Postharvest Institute for Perishables/University of Idaho was in force between October 1, 1985 and September 30, 1993. Activities within this agreement included; technical assistance, training, adaptive research and the Information Center. It should be noted that funding dropped from annual budgets of \$500-600,000 in the first four years of the project (1981-85) to about 60 percent of the initial budgets beginning with 1986. However, PIP was able to transcend these sharp budget cuts to offer the various assistance activities to AID missions. This report documents the specific activities completed under this Cooperative Agreement.

Purpose, Goals and Objectives of the Cooperative Agreement

The purpose of Cooperative Agreement DAN-1323-A-00-5093-00 between USAID and UI was to: improve postharvest handling of perishables in lesser developed countries by implementing economically sound and environmentally safe postharvest programs; facilitate PIP's collaboration with developing countries; and increase PIP's resource base. Since the dissolution of the Soviet Union and other communist governments in Eastern Europe, PIP has become involved in activities in this region of the world in addition to the developing countries of Africa, Asia and Latin America.

The goals and objectives of the Cooperative Agreement are to:

- Improve the basic diets of people in developing countries by reducing postharvest food losses.
- Increase the availability of perishable food commodities without increasing production areas.
- Help develop and improve private sector agribusinesses associated with marketing, processing, preserving, packaging, storing, transporting and handling perishables.

The Cooperative Agreement was intended to strengthen PIP's capability to:

- Provide technical assistance and training on postharvest problems of perishables to USAID missions in developing countries.
- Produce, selectively collect and distribute key research results and other documentation on postharvest handling and marketing problems, and to increase the capability of PIP's Information Center (PIPIC) to reach developing countries with needed information; and
- Carry out adaptive research related to postharvest preservation and marketing of perishable commodities.

II. Technical Assistance

The technical assistance section includes a description of the projects completed under PIP and its core grant and the Agricultural Marketing Improvements Strategies (AMIS I).

PIP was involved with the AMIS project under a sub-contract with Abt Associates for a five year period. Many of the projects completed were under the auspices of AMIS I. Project objectives were as follows:

Project Goal: To improve the efficiency and effectiveness of agricultural marketing systems in less developed countries.

Project Purpose: To enhance USAID's host country institutions' ability to design, implement and evaluate improvements for agricultural marketing systems.

Project Components:

1. **Rapid appraisals** approach to diagnose marketing system constraints, to identify how markets are changing, to specify the driving forces that affect short and long term change and to identify applied research priorities and potential marketing system innovations and interventions.
2. **Applied research** including (a) developing a network for sharing research plans and results and (b) conducting fieldwork principally on organizational and institutional aspects of marketing systems.
3. **Pilot inovations** consist of (a) identification of successful market interventions and the particular conditions responsible for success and (b) design and implementation of pilot projects and programs resulting from rapid appraisal and applied research activities.

A list of PIP Technical Assistance Projects is shown in Table 1.

Table I. Technical Assistance Project List

1985-1993

PIP PROJECT LIST		Reduce postharvest loss to increase availability of fruit, vegetable, root and tuber crops	Reduce postharvest loss to enhance basic diets of people in developing countries	Reduce costs of perishable commodities by improving marketing efficiency	Encourage development of fruit, vegetable, root and tuber crops, spices, etc.	
					Industries	Processing
53.3	Grenada/Aug. 86. Study of Nutmeg and Cocoa By-products as a Possible Energy or Feed Source.	X			X	X
53.3	Grenada/Sept. 86. Investigation of Aflatoxin Contamination in Nutmeg to Assist Marketing of Grenada Nutmeg to West Germany.				X	X
58.	(Part 2) Postharvest Loss Investigations for Southeast Asia. A composite report based on work in Project No. 58 Part 1.	X	X	X	X	X
62.	Malawi Information Assistance (PIPIC)					
71.	Ghana/June-Oct. 85. Investigation of Adoption of Improved Agricultural Technology in Processing of Cassava Meal (gari).	X	X	X	X	X
74.	Grenada/Nov. 85. Solar Drying Workshop for Peace Corps Volunteers from Caribbean Countries. Funded by Peace Corps/Eastern Caribbean.	X	X	X	X	X
75.	Jamaica/Dec. 85. Solar Drying Workshop for Jamaican Farmers and Mid-level Professionals. Funded by USAID/Jamaica through META Systems, Inc.	X	X	X	X	X
78.	University of Idaho/Jul. 86. Iraqi Postharvest Study Tour. Funded by OICD.	X	X	X	X	X
79.	Asia/Sept.- Oct. 86. Development of a Methodology to Assess Postharvest Losses in Perishable Crops through Use of Mid-level Agents in Developing Countries to Collect Relevant Data (Phase 3). Funded by PIP/IICA. Phase 3 done in cooperation with the ASEAN Food Handling Bureau & Inter-American Institute for Cooperation in Agriculture.	X	X	X	X	X
80.	University of Idaho/Oct. 86. Onion/Potato Storage/Pathology Study Tour for Iraq Official. Funded by OICD.	X		X		X

81.	Panama/Jan. 87. A Training Course on Postharvest Handling and Losses in Perishable Crops Conducted for Agricultural Officials and Private Growers. Funded by USAID/Panama through USDA/OICD.	X		X	X	X
82.	Developing Countries/Dec. 86. A Comparative Analysis of Fruit and Vegetable Marketing to Promote Agricultural Development in Low Income Countries. Funded by USAID/Washington through Sigma One Corp.	X		X		
83.	Central America/Nov. 86. Non-Traditional Agriculture Export System for Central America.					
84.	Costa Rica/Jan. 87. Analysis and Recommended Improvement of Commercial Harvesting, Handling, Exports; Support Services and Technology Transfers Relating to Fresh Strawberries Produced by Commercial Growers. Funded by USAID/Costa Rica.	X		X	X	X
85.	Idaho (CEDA)--Rapeseed Processing in Northwest U.S.A.					
86.	Latin America/Dec. 86. Investigation of Possible PIP Services through the Basic Ordering Agreement and Project Development on Collaborative Ventures in the Following Countries: Honduras, Costa Rica, Peru, Guatemala, Ecuador, Jamaica, and Haiti.	X	X	X	X	
87.	Asia/Feb. 87. Investigation of PIP Services or Collaboration to Countries in Asia. Countries include Philippines, Malaysia (Collaboration with ASEAN Food Handling Bureau), Thailand, Bangladesh, India, Singapore/Japan (Collaboration with Perishable Importers).	X	X	X	X	X
88.	Ecuador/Feb-Mar. 87. Conduct a Course on Harvest and Postharvest Handling of Apples. Funded by PIP, ITAD, PS&ES and the University of Ambato, Ecuador.	X	X	X	X	X

89.	Jamaica/Jan. 87. PIP/Univ. of Idaho Food Scientist to Jamaica. Funded by USAID/Jamaica <ul style="list-style-type: none"> Examine the potential of removing hypoglycin A&B from ackee fruit so the import ban to the U.S. can be lifted. 					
90.	India/June 87. Conduct a Workshop/Study on the Commodity Systems Assessment Methodology Developed by PIP. Funded by USAID through Winrock International. Phase II of the Project Will be Drafted During the Phase I Workshop.	X	X	X	X	X
91.	Thailand/June 87. Refrigeration/Cooling Specialist Sent to Thailand at the Request of the Ministry of Agriculture (through USAID). Funded by USAID/Thailand. <ul style="list-style-type: none"> Assist in training MOA technicians in the use of mechanical cooling equipment. 	X			X	
92.	Boise, Idaho/May 87. Five Thai Scientists Participated in a Study Tour of Southern Idaho. The tour concentrated on pre-harvest technology of onions/potatoes.	X	X		X	X
93.	Central America/May 87. Consultation with Officials of the Nontraditional Agricultural Export Program in Central America <ul style="list-style-type: none"> Discuss PIP's participation in this long-term program. Conduct an assessment of cacao grower's processing problems in the humid tropical regions of Costa Rica. 	X	X	X	X	X

94.	<p>Eastern California/Aug. 87. University of California, Davis/PIP Short Course for 20 Agriculturists Involved in Postharvest Work. Funded by USAID/Barbados, FAO/Barbados, The World Bank, the Institute for International Education and the USDA.</p> <ul style="list-style-type: none"> Utilize a commodity systems to evaluate postharvest problems and determine potential solutions applicable under different socio-economic conditions. 	X		X	X	X
95.	University of Idaho/Aug.-Sept. 87. Reduction of Perishable Losses Study Tour for Saudi Arabia Participant. Funded by OICD.		X			
96.	Hawaii, California/Aug. 87. Processing Facilities Tour for Two Thai Ministry of Agriculture Officials.			X	X	X
97.	Jordan/June 88. Investigation and Recommendation on Marketing Improvements of Fresh Fruit and Vegetables in Jordan. Funded by USAID/Jordan.		X		X	X
98.	Thailand/Europe/June 88. Study and Recommendations of Increasing Thai Export Marketing of Fruit and Vegetables to Europe. Funded by USAID/Thailand.		X		X	X
99.	Niger/May 88. Study and Recommendations on Efficiency of Exports of Onions to Adjacent Countries. Funded by USAID/Niger.		X		X	X
100.	Malaysia/June 88. Workshop on the Use of the Commodity Systems Assessment Methodology (CSAM), a Systematic Approach to Improve the Marketing of Fresh Commodities with Emphasis on Star Fruit. Funded by IICA, MARDI, and PIP.		X		X	X
101.	Nepal/88. Evaluation of Production PH Handling and Marketing of Vegetables, Fruit, and Cash Crops in Rapli Zone. Funded by USAID/Nepal.		X	X	X	X

	x			x
x	x	x	x	
	x		x	x
x	x		x	
x	x	x	x	x
x	x	x	x	x
x	x		x	x
x	x	x	x	x
x	x		x	x
x	x	x	x	x

112.	Hungary/June 91. Identify constraints in the distribution of consumer goods from the farm and agro-processing firms to the final consumer or on an expert basis for the Products Market Development Project.	X		X	X	X
113.	Guatemala/June 91. CSAM Workshop for Rapid Appraisal in Coffee Marketing.	X		X	X	X
114.	Russia and Ukraine/July 92. Study of NIS Potato Losses due to inadequate storage facilities. Workshop Held for U.S. agribusinesses (9/11/92)	X	X	X	X	X
115.	Gambia/July 92. Provide technical assistance to The Gambia on food, storage, preservation and nutrition	X	X	X	X	X
116.	Bolivia/June 92. Provide Technical Assistance and training to increase the investment, production, income and employment in licit commercial and agricultural activities	X	X	X	X	X
117.	Morocco/Sept. 92. Provide long/short-term technical assistance to the Moroccan agribusiness sector to improve its competition on world markets	X	X	X	X	X
118.	Russia/Ukraine/Nov. 92. TA/Training in potato storage	X	X	X	X	X
119.	Indonesia ADP/April 93. Postharvest TA/Training to promote agribusiness development.	X	X	X	X	X
	PIET/Jul. 93. Business course and postharvest storage course for 22 Russian managers of base storage facilities	X	X	X	X	X

AMIS Projects 1987-1993

AMIS PROJECTS	CONTRACT NUMBER	CONSULTING ORGANIZATION	REP. NAME TELEPHONE NUMBER	COST
YEAR 1--These Projects are all Sub-contracts Under a Primary USAID Contract				
1. University of Idaho/Sept. 87. Operating Budget for AMIS Project	AID/DHR 544-7-00-7074 Sub-Modification No. 1	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$112,518
2. Niger: A Rapid Appraisal of the Marketing of Niger Cowpeas.	AID/DHR 544-7-00-7074 Sub-Modification No. 2	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$6,098
3. Chad: Agricultural Marketing Studies.	AID/DHR 544-7-00-7074 Sub-Modification No. 3	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$9,270
YEAR 2				
4. UI/Sept 88. Operating Budget for AMIS FY89	AID/DHR 544-7-00-7074 Sub-Modification No. 4	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$118,970
5. Cameroon: Monitoring and Data Collection System for the Fertilizer Sub-sector Reform Program of Cameroon.	AID/DHR 544-7-00-7074 Sub-Modification No. 5	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$66,085
6. Asia Near East (ANE): Agribusiness Development in Asia and the Near East: Exp. and Implications for AID Study.	AID/DHR 544-7-00-7074 Sub-Modification No. 6	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$9,328
7. Bolivia I: Market System Improvement Project.	AID/DHR 544-7-00-7074 Sub-Modification No. 6	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$17,934
8. Cameroon II: Monitoring and Data Collection System for the Fertilizer Sub-sector Reform Program of Cameroon.	AID/DHR 544-7-00-7074 Sub-Modification No. 7	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$73,220
9. Philippines: Improvement of Agricultural Information System of the Philippines Ministry of Agriculture	AID/DHR 544-7-00-7074 Sub-Modification No. 8	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$118,420
10. Asia Near East (ANE): Agribusiness Development in Asia and the Near East: Exp. and Implications for AID Study.	AID/DHR 544-7-00-7074 Sub-Modification No. 6	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$2,679

11.	Nepal III: Report on a Vegetable Seed Production and Marketing Strategy for Nepal.	AID/DHR 544-7-00-7074 Sub-Modification No. 8	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$24,116
12.	Bolivia II: Market Potential for Fresh/Processed Perishable Commodities.	AID/DHR 544-7-00-7074 Sub-Modification No. 12	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$85,457
YEAR 3					
13.	Asia Near East (ANE): Agribusiness Development in Asia and the Near East: Exp. and Implications for AID Study.	AID/DHR 544-7-00-7074 Sub-Modification No. 6	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$6,454
14.	Lesotho Buy-In: Strengthening Market Extension System.	AID/DHR 544-7-00-7074 Sub-Modification No. 13	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$21,428
15.	UI/Sept. 89: Operating Budget For AMIS FY90	AID/DHR-5447-7-00-7074 Sub-Modification No. 15	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$95,194
16.	Cameroon II: Monitoring and Data Collection System for the Fertilizer Sub-sector Reform Program of Cameroon.	AID/DHR 544-7-00-7074 Sub-Modification No. 7	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$33,257
17.	Morocco: Private Sector of Agribusiness Development.	AID/DHR 544-7-00-7074 Sub-Modification No. 19	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$21,107
18.	Lesotho II: Marketing Extension System for Hort. Crops.	AID/DHR 544-7-00-7074 Sub-Modification No. 18	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$31,931
19.	Bolivia II Add-On: Market Potential for Fresh/Processed Perishable Commodities.	AID/DHR 544-7-00-7074 Sub-Modification No. 12	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$26,313
20.	Fiji: Postharvest/Marketing Inputs for Agricultural Inputs.	AID/DHR 544-7-00-7074 Sub-Modification No. 22	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$36,147
YEAR 4					
21.	Cameroon III: Third Year Annual Assessment Synthesis of 1990 Survey Data and Review of FSSRP Credit Facilities.	AID/DHR 544-7-00-7074 Sub-Modification No. 24	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$71,043
22.	Niger Onion Seminar.	AID/DHR 544-7-00-7074 Sub-Modification No. 24	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$263

23.	UI/Sept. 90. Operating Budget for AMIS Project	AID/DHR-5447-7-00-7074 Sub-Modification No. 25	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$103,617
24.	Philippines Add-On: Improvement of Agricultural Information System of the Philippines Ministry of Agriculture	AID/DHR-544-7-00-7074 Sub-Modification No. 8	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$22,124
25.	African Bureau Market Information Analysis and Agribusiness Development Strategies (AFR 2)	AID/DHR-544-7-00-7074 Sub-Modification No. 28	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$23,729
YEAR 5					
26.	UI/Sept. 91. Operating Budget for AMIS Project	AID/DHR 544-7-00-7074 Sub-Modification No. 34	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$41,475
27.	Morocco Agribusiness Trade and Investment Conference: Provide conference rapporteur	AID/DHR 544-7-00-7074 Sub-Modification No. 31	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$9,500
28.	Tunisia-3: Additional budget for Market Analyst Assistant	AID/DHR 544-7-00-7074 Sub-Modification No. 32	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$5,115
29.	Cameroon IV: Fourth Year Annual Assessment Synthesis of 1991 Survey Data and Review of FSSRP Credit Facilities	AID/DHR 544-7-00-7074 Sub-Modification No. 33	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$80,555
30.	African Bureau Private Sector Agricultural Technology Development (AFR 3)	AID/DHR-544-7-00-7074 Sub-Modification No. 30	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$20,000
31.	AFR 3, Kenya/Ghana: Private Sector Agricultural Technology Development. Provide consultants for studies of public/private sector involvement and cooperation in ag. technology development	AID/DHR-544-7-00-7074 Sub-Modification No. 30	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$33,070
32.	Niger Onion Seminar: Provide Seminars for Public and Private Sectors in Niger.	AID/DHR-544-7-00-7074 Sub-Modification No. 24, 28, 32	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$27,011
33.	Niger Onion Study: Provide consultant to study the export market of onions	AID/DHR-544-7-00-7074 Sub-Modification No. 36	Abt Associates Hampden Square--Suite 500 4800 Montgomery Lane Bethesda, MD 20814	Jerry Martin (301) 913-0500	\$51,349

III. Adaptive Research

Introduction

Personnel at PIP made a decision in 1986 after the 40 percent budget cuts that adaptive research would be largely limited to a few activities which seemed to have the best opportunities. The one project which stood out among all the others was development of the Commodity Systems Assessment Methodology (CSAM). After years in the development stage, 1,000 copies of the English version were published in 1990. Nearly all the copies of the English version have been sold to various development agencies, both in the U.S. and abroad. In 1993 a Spanish version of the CSAM was published. (Note: a French version was published in 1994.) CSAM objective and principles are explained in more detail below. Other adaptive research activities completed by PIP are shown in Table 2.

The Commodity System Assessment Methodology (CSAM)

The CSAM is a working methodology developing countries can use to examine specific perishable commodity systems determine loss areas, marketing problems, and needed research. This process was developed by PIP in collaboration with the ASEAN (Association of Southeast Asian Nations) Food Handling Bureau in Southeast Asia and the Inter-American Institute for Collaboration in Agriculture (IICA) in Latin America. This joint effort offers assurance that the process meets developing countries' needs.

What is the Commodity System Assessment Methodology?

The CSAM is a **systems approach** to evaluating the functioning and structure of the production/marketing system of a **particular perishable commodity**. (Perishable is defined as fruit, vegetables, spices, oilseeds, and root crops.) The system includes the supply of inputs and information through the production, postharvest handling, and marketing channels to the ultimate consumer.

A commodity system is an interdependent structure which encompasses all the participants involved in the planning, production, processing, marketing, and support services of a commodity, including public and private institutions and marketing intermediaries. A commodity system analysis outlines all the functions performed during the process of producing, harvesting, and moving the product to the ultimate consumer in the form, at the time, to the place the consumer desires and at a price that is affordable.

Objective of a Commodity System Analysis

Using an organized method to outline the structure and function of the commodity system, the overall objectives of a CSAM are:

- Identify and diagnose critical system constraints to efficient functioning of production, marketing, and handling of a commodity to the consumer.

- Make specific recommendations on how to remove or minimize the impact of the constraints by identifying pilot projects, investments, institutions, interventions, research, and/or training needs that can improve the efficiency of the marketing and handling system.

The CSAM has been developed with the belief that most postharvest treatments are carried out because of marketing considerations, with the exception of home storage and consumption of products. Marketing, therefore, is an integral part of the postharvest operations and so must be part of any thorough investigation of postharvest problems.

The CSAM, printed in manual form, is designed to help developing country agriculturalists, scientists, and marketing specialists to look systematically at the entire picture of a commodity system. The manual explains how to set up multidisciplinary coordinating committee workshops of local personnel, and it offers guidelines on a systematic approach to information collection. PIP personnel help organize the initial workshop(s) to train local personnel in implementing the CSAM.

The potential ramifications of this adaptive research are enormous. Developing countries can better determine, with their own personnel, losses that occur in various perishable commodities and solutions to the loss problem. With assistance from the CSAM manual, a country can establish research priorities and "plug the leaks" in programs that have faltered for various reasons. Exhibits 1 and 2 present the CSAM Table of Contents and List of Tables, respectively.

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TABLE 2 ADAPTIVE RESEARCH PROJECTS AND REPORTS
1985-1993

No.	UI Dept./Country	P.I.	Title
1R	Chemical Engineering Grenada	Drown	A Comparative Study of Grenadian and Indonesian Nutmeg, 1986.
2R	Plant Science Worldwide	Shetty, Kochan	Thesis: Use of Shrinkwraps to Extend Storage Shelflife of Quality Potatoes, 1986.
3R	Bacteriology & Biochemistry Philippines	Paterno, Lingg	Thesis: Monoclonal Antibody Production against Colletotrichum gloeosporioides Penz: A Potential Tool to Diagnose Antracnose in Mangoes, 1986.
4R	Ag Economics, Cornell Ghana	Kreamer	Thesis: Gari Processing in Ghana: A Study of Entrepreneurship and Technical Change in Tropical Africa, 1986.
5R	PIP Worldwide	La Gra, Leong, Haggerty	A Postharvest Methodology: Commodity Systems Approach for the Identification of Inefficiencies in Food Systems, 1987.
6R	Chemical Engineering Worldwide	Asbe, Drown	Thesis: Adaptive Design of a Zeolite-Water Solar Refrigerator, 1986.
7R	Ag & Extension Education US/Idaho	Gor	Thesis: Sources of Information on New and/or Innovative Farming Practices and How they are Accessed by Farmers in Nez Perce County of the State of Idaho, 1988.
8R	PIP Grenada	Henry, Neese	Grenada Spice Market Research Project, 1988.
9R	PIP Worldwide	Jang, Fellman	The Use of Shrinkwrap to Control Fruit Flies in Papayas and Mangoes (in progress).
10R	PIP Worldwide	La Gra, Dechert	Publish Commodity Systems Assessment Methodology, 1990 (CSAM).(English Version)
11R	PIP Thailand	Welsh	Case Study: Successful Innovations in Thailand's Fresh Fruit and Vegetable Export Industry.
12R	PIP Chile	Barriga	Fruit and Vegetable Export Industry in Chile.
13R	PIP Romania	Haggerty	Commodity Systems Assessment Methodology (CSAM) Workshops
14R	PIP Worldwide	La Gra	Publish Commodity Systems Assessment Methodology(MECA), 1993.(Spanish Version)

IV. Information Center

The PIP Information Center (PIPIC) continued progress in building its specialized database and working with those in AID assisted countries, providing solutions to marketing and handling problems through dissemination of needed documentation.

PIPIC's collection of postharvest documents increased to almost 15,000 by the end of 1993. Over 3,000 bibliographies were produced from all sources rose from 1,183 in 1985 to 4,331 in 1993, and close to 57,000 documents were distributed. PIPIC provided information services to many of PIP's technical assistance projects. For example, bibliographies and documents on potato storage and handling were provided to the New Commonwealth of Independent States, through PIP projects in Ukraine and Russia. PIPIC also assisted in setting up a plant pathology collection in Algeria by contributing over 800 documents.

PIPIC participated annually with the University of Idaho's International Programs Office in the international student orientation, the International Food Bazaar, and in displays in the College of Agriculture building and for Agriculture Week.

The University of Idaho Library houses PIPIC to allow for easy access to the library materials, including computerized use of national and international databases that are used on a regular basis. The outcome of the library's recent renovation has been new and larger offices for the Information Center. Plans to hook into the Library's network server and consequently the Internet should be completed in early 1994.

Much of 1992 and 1993 were spent executing a retrospective conversion project of the bibliographic data from STAIRS to BRS/SEARCH software and on to a new in-house network, with equipment provided by the College of Agriculture.

PIPIC's *New Titles* publication has been issued twice a year since the last report. However, it has been determined that issuing three editions a year was more conducive to thorough coverage of the field and the needs of the clientele.

According to the annual surveys and those sent with each response, overall client satisfaction remained high. Feedback indicated that less than three percent of the respondents found the material disseminated was too late for use or that the topic of a customized bibliography was too broad.

A number of decisions were made to streamline costs. New, more efficient equipment was purchased in 1991 for filming and producing the fiche copies of articles for the collection. Priority has been given to institutes that are providing exchange documents and journals to PIPIC and to those that are adding the materials to libraries where the usage is more than individual. In-house bibliographies were sent without automatically including searches from outside databases, unless the narrowness of the topic required it. The *New*

Titles was sent as microfiche to those that could use it as such, but the inconvenience was determined to outweigh the savings. Surface (sea) mailing was used whenever possible.

Staffing has varied over the last three years. Due to budgetary constraints, the Information Specialist position has remained open since July 1991. The position is currently being filled by a library assistant. Eleven part-time employees have been trained during this time, with only one remaining. There are no plans under way to increase personnel.

The period from October 1990 to September 1993 was one of considerable regrouping while managing within continuing financial constraints. Much was accomplished in spite of those limitations. The services available through the Information Center remain unique. The Center is technologically prepared to continue into the 1990s providing postharvest information in whatever forms may be needed.

Networking

The PIP Information Center (PIPIC) has been networking with national and international organizations since its inception. Only the methods have changed over the years. Much more electronic exchange, including ready access to international collections, now takes place along with the networking methods found successful in the past such as: document exchange, technical assistance, program development, training activities, sharing of in-house publications, and of particular use to PIPIC, contacts to obtain "grey literature", which is virtually unavailable by standard or electronic means otherwise.

An active network of exchange from institutes and clientele exists with over twenty-five percent of the more than 700 contacts that the Information Center works with. The major suppliers provide documents, journals, and bibliographies on a regular and unsolicited basis. Approximately 60 percent of the documents added to the postharvest collection are derived from contributions from these sources.

Networking through the Internet will soon again be possible. User identification numbers are being exchanged for this purpose. The Information Center has been disconnected from this electronic service, except by modem, since February of 1993 due to renovations in the building in which they are housed. The expediency and minimal cost make this an attractive option.

PIP is prepared to make sub-sets of the PIPIC database available by these electronic means or by CD-ROM (compact disk read-only memory).

PIPIC is in a position to interchange information by a variety of methods and ready to become an active part of the ever changing "information superhighway".

V. Total Project Funding

The funding shown on the project list includes buy-in projects as well as PIP's core budgets during the period 1985-1993. The total amount of project funding was \$6,342,974.

This list does not include PIP projects which were financed by the core budget (adaptive research, training, etc.) which are not seen on this list. The projects in this section are only those which brought in external funding to the University from the FY86-FY93 period.

TOTAL PROJECTS FUNDING 1985 to 1993

PIP PROJECTS	COST
1. Peace Corps.Grenada/Nov. 85	\$10,956
2. USAID/Jamaica/Dec. 85. Solar Drying Training Course.	\$11,257
3. OICD/Iraq/July 86. Postharvest Preservation Study Tour.	\$3,100
4. OICD/Iraq/Sept. 86. Potato Storage/Pathology Study Tour.	\$6,655
5. Panama/Oct. 86. A Training Course on Postharvest Handling Losses in Perishable Crops Conducted for Agricultural Officials and Private Growers.	\$23,925
6. Worldwide/Nov. 86. A Comparative Analysis of Fruit and Vegetable Marketing to Promote Agricultural Development in Low Income Countries.	\$7,034
7. Costa Rica/Dec. 86. Postharvest Handling of Strawberries for Export in Costa Rica.	\$14,500
8. CEDA/Idaho/Dec. 86.	\$30,280
9. USAID/Jamaica/Jan. 87. Proposal for Removal of Hypoglycin in Ackee.	\$7,500
10. India/June 87. Postharvest Losses in Perishable Crops in India.	\$27,238
11. USAID/Thailand/June 87. Precooling of Harvested Vegetables.	\$10,128
12. Central America/May 87. Consultation with officials of the nontraditional agricultural export program in Central America.	\$5,000
13. Eastern California/Aug. 87. University of California, Davis/PIP Short Course for 20 Agriculturists Involved in Postharvest Work. Funded by USAID/Barbados, FAO/Barbados, The World Bank, the Institute for International Education and the USDA.	\$40,980
14. University of Idaho/Aug.-Sept. 87. Reduction of Perishable Losses Study Tour for Saudi Arabia Participant.	\$5,047

15. Jordan/June 88. Investigation and Recommendation on Marketing Improvements of Fresh Fruit and Vegetables in Jordan. Funded by USAID/Jordan.	\$60,490
16. Thailand/Europe/June 88. Study and Recommendations of Increasing Thai Export Marketing of Fruit and Vegetables to Europe. Funded by USAID/Thailand.	\$67,277
17. Niger/May 88. Study and Recommendations on Efficiency of Exports of Onions to Adjacent Countries. Funded by USAID/Niger.	\$44,476
18. Malaysia/June 88. Workshop on the Use of the Commodity Systems Assessment Methodology (CSAM), a Systematic Approach to Improve the Marketing of Fresh Commodities with Emphasis on Star Fruit. Funded by IICA, MARDI, and PIP.	\$5,000
19. Nepal/88. Evaluation of Production PH Handling and Marketing of Vegetables, Fruit, and Cash Crops in Rapti Zone. Funded by USAID/Nepal.	\$24,824
20. Uruguay/88	\$2,150
21. Uruguay/Dec. 88/Feb.89.	\$38,627
22. Grenada Spice Market Research Project, 1988.	\$54,409
23. Nepal/Apr. 89. Organization and Presentation of the Commodity Systems Assessment Methodology (CSAM) on Ginger. Funded by USAID/Nepal.	\$22,000
24. USA/Feb 90 Boise Conference	\$64,093
25. Pacific Northwest/Sept. 89. Training of Nepali Personnel in Postharvest Handling of Apples, Vegetable Seeds, Onions, and Potatoes. Funded by USAID/Nepal, No-Frills Consultants, Kathmandu, and Partners for International Education.	\$15,335
26. Sri Lanka/Mahaweli/Oct. 90. Supply Postharvest Support to DAI/MARD Project (See Activities Below). Funded by USAID/Sri Lanka through DAI.	\$142,394
27. Sri Lanka/July 90. Examine Postharvest Needs for Onions and Other Commodities in Project.	\$49,244
28. Pakistan/Oct. 90. Training, Refrigeration, Storage, and Marketing of Perishable Crops.	\$16,898
29. Sri Lanka/Jan. 91. Establishment of Cold Chain System for Mahaweli Project and Design of Cold Storage Facilities at Colombo Airport. Funded by USAID/Sri Lanka	\$24,113
30. UI/Jan. 91	\$500
31. Hungary/World Bank/Jul. 91	\$13,630
32. Guatemala/USAID/August 91. Coffee Commodity Assessment.	\$15,009

33. Hungary/World Bank/Oct. 91	\$16,992
34. The Gambia /W.I.D.P./Jul. 92	\$22,718
35. NIS Potato Storage/July 92. Study Potato Storage Losses in Russia and Ukraine--USAID/NISTF	\$285,100
36. Russia/Ukraine TA and Training in Potato Storage	\$645,000
37. Cameroon/May 93. Fifth Year	\$70,349
38. PIP/UI/Holm Res Cntr/Jul. 93	\$1,000
39. Russian Business Course/Aug. 93	\$178,120
40. AMIS Core/Reserve/Sep. 88	\$124,075
41. Niger: A Rapid Appraisal of the Marketing of Niger Cowpeas.	\$6,098
42. Chad: Agricultural Marketing Studies.	\$9,270
43. AMIS Core/FY89	\$118,970
44. Cameroon I: Monitoring and Data Collection System for the Fertilizer Sub-sector Reform Program of Cameroon.	\$66,085
45. Asia Near East (ANE): Agribusiness Development in Asia and the Near East: Exp. and Implications for AID Study.	\$9,328
46. Bolivia I: Market System Improvement Project.	\$17,934
47. AMIS Core FY90	\$95,193
48. Cameroon II: Monitoring and Data Collection System for the Fertilizer Sub-sector Reform Program of Cameroon.	\$73,220
49. Philippines: Improvement of Agricultural Information System of the Philippines Ministry of Agriculture	\$118,420
50. Asia Near East (ANE): Agribusiness Development in Asia and the Near East: Exp. and Implications for AID Study.	\$2,679
51. Nepal III: Report on a Vegetable Seed Production and Marketing Strategy for Nepal.	\$24,116
52. Bolivia II: Market Potential for Fresh/Processed Perishable Commodities.	\$85,457
53. Asia Near East (ANE): Agribusiness Development in Asia and the Near East: Exp. and Implications for AID Study.	\$6,454
54. Lesotho I: Strengthening Market Extension System.	\$21,428
55. Cameroon II Add On: Monitoring and Data Collection System for the Fertilizer Sub-sector Reform Program of Cameroon.	\$33,257

56. Morocco: Private Sector of Agribusiness Development.	\$21,107
57. Lesotho II: Marketing Extension System for Hort. Crops.	\$31,931
58. Bolivia II Add-On: Market Potential for Fresh/Processed Perishable Commodities.	\$26,313
59. Fiji: Postharvest/Marketing Inputs for Agricultural Inputs.	\$36,147
60. AMIS Core/FY91	\$103,617
61. Cameroon III: Third Year Annual Assessment Synthesis of 1990 Survey Data and Review of FSSRP Credit Facilities.	\$71,043
62. Niger Onion Seminar:	\$263
63. Philippines Add-On: Improvement of Agricultural Information System of the Philippines Ministry of Agriculture	\$22,124
64. African Bureau Market Information Analysis and Agribusiness Development Strategies (AFR 2)	\$43,880
65. AMIS Core/FY92	\$41,475
66. Morocco Agribusiness Trade and Investment Conference: Provide conference rapporteur	\$9,500
67. Tunisia-3: Additional budget for Market Analyst Assistant	\$5,115
68. Cameroon IV: Fourth Year Annual Assessment Synthesis of 1991 Survey Data and Review of FSSRP Credit Facilities	\$80,555
69. AFR 3, Kenya/Ghana: African Bureau Private Sector Agricultural Technology Development. Provide consultants for studies of public/private sector involvement and cooperation in ag. technology development	\$53,070
70. Niger Onion Study: Provide consultant to study the export market of onions	\$51,349
71. PIP Core contract 1986-1993	\$2,841,316
TOTAL PROJECT COSTS	\$6,279,729

VI. Publications

This section lists documents published by PIP from FY86 to FY93 by fiscal year. The categories include the following: technical assistance, NIS reports, AMIS (English and French), adaptive research, PIP Tips, training manuals, and miscellaneous publications.

In addition to the publications listed below, every year over the eight fiscal years of this Cooperative Agreement and amendment extension, PIP has published an Annual Report, three - four Interim Reports, and two - three issues of New Titles from the Information Center.

Technical Assistance Reports

Augustin, Jorg. *Proposal for Removal of Hypoglycin in Ackee*. GTS Report No. 89. April 1987. 17p.

Buehler, Karl. *Precooling of Harvested Vegetables (in Thailand)*. GTS Report No. 91. May 1987. 20p.

Dechert, Thomas V. *Assessment of Postharvest Handling and Marketing Needs for Non-Traditional Agricultural Export Crops in the ANAI Agroforestry Project and the USAID Northern Zone Project of Costa Rica*. GTS Report No. 93. June 1987. 49p.

Dechert, Thomas V. *Development of Postharvest Loss Reduction & Marketing Short Courses for Uruguay, & School Nutrition Improvement Proposal for Ecuador*. GTS Report No. 102. May 1988. 124p.

Drown, David C., Jack Matthews, Sheila Hailey, and Chistine Ahlstrom. *Composition and Processing of Grenadian Nutmeg*. GTS Report No. 53.3. July 1986. 116p.

Drown, D. *Study of Nutmeg and Cocoa By-Products as Possible Energy or Feed Sources*. GTS Report No. 53.3. August 1986.

Drown, D. *Investigation of Aflatoxin Contamination in Nutmeg to Assist Marketing of Grenadian Nutmeg to West Germany*. GTS Report No. 53.3. September 1986.

Edmister, J.A. *Management Visit Final Report, MARD Project*. August 1991.

Edmister, J.A. *Final Report. PIP Field Director Visit: USAID/Jakarta*. August 1991.

Edmister, J.A. *Report of Consultancy to the Food & Nutrition Unit. Ministry of Agriculture, The Gambia, Women in Development Project*. Sept. 1992.

- Harker, J. Michael. *Rapeseed Marketing Study*. GTS Report No. 85. February 1987. 50p. + 24 appendices.
- Henry, F.E. *Packinghouse and Cold Chain Requirements, System B*. March 1991.
- Heron, Waldo, and Jack Ross. *Export Marketing and Postharvest Handling of Perishable Commodities in Thailand*. GTS Report No. 98. July 1988. 85p.
- Jimenez, Miguel A., and William E. Bolton. *Report on Workshop: Reduction of Postharvest Losses (in Panama)*. GTS Report No. 81. October 1986.
- Kreamer, R. *Gari Processing in Ghana: A Study of Entrepreneurship and Technical Change in Tropical Africa*. GTS Report No. 71. January 1987. (Final report published as GTS Research Report No. 6.)
- La Gra, Jerry, Poo-Chow Leong and Robert J. Haggerty. *Postharvest Loss Methodology Trip Report: August - September, 1986*. GTS Report No. 79. September 1986. 43p. (For technical report, see GTS Research Report No. 7.)
- Lev, Larry S. and Millie A. Gadbois. *Rapid Reconnaissance Study of the Nigerien Onion Subsector: A Policy-Oriented Analysis of Market Performance*. GTS Report No. 99. January 1988. 72p. (Also available in French as: *Situation de l'Oignon au Niger: Une Analyse de Systeme Actuel par Reconnaissance Rapide (RR)*.)
- MARDI Training Centre Coordinating Committee. *Assessment of the Commodity System for Carambola in Malaysia: Description, Problem Identification and Alternative Solutions*. GTS Report No. 100 (published by Malaysian Agricultural Research and Development Inst., Kuala Lumpur). June 1988. 98p + 7 annexes.
- McCullough, Jim and Bob Haggerty. *An Application of a Commodity System Assessment Methodology to Improve the Functioning of the Production and Marketing System for Ginger in the Rapti Region of Nepal*. GTS Report No. 104. June 1989. 73p.
- McCullough, Jim and Helene Murray. *Approaches for Improving Marketing and Reducing Postharvest Loss of Agricultural Products from the Rapti District of Nepal*. GTS Report No. 101. January 1989. 28p.
- Neese, H. *Increasing the Exports of Grenadian Nutmeg to U.S. Spice Processors*. GTS Report No. 53.4. January 1987.
- Perez-Ramos, Miguel. *Postharvest Handling of Strawberries for Export in Costa Rica*. GTS Report No. 84. February 1987. 32p.

Postharvest Institute for Perishables and Development Alternatives, Inc. *Design of the Agricultural Marketing Support Services Project, Papua New Guinea: a Technical Proposal to the Asian Development Bank.* GTS Report No. 77. December 1985. 203p.

Postharvest Institute for Perishables and International Programs, University of California, Davis. *Reduction of Postharvest Losses in Perishable Crops: August 23- September 26, 1987.* GTS Report No. 94. November 1987. 7p. + 4 attachments.

Riesenberg, Lou and Merle Menegay. *Postharvest Losses in Fruits and Vegetables in India.* GTS Report No. 90. May 1987. 24p. + 21 appendices.

Ross, J., and J. Hamilton. *Postharvest Needs Assessment for System B Mahaweli Irrigation Project in Sri Lanka.* June-July 1990.

Schermerhorn, R.W., G.R. King, et. al., *Rapid Marketing Appraisal of the Marketing of Four Vegetable Crops in Jordan.* GTS Report No. 97. July 1988. 84p. + 7 appendices.

Schermerhorn, R.W. *A Comparative Analysis of Fruit and Vegetable Marketing in Developing Countries.* GTS Report No. 82. November 1986. 43p.

Swanson, M. and L. Williams. *Eastern Caribbean Solar Drying and Food Preservations Workshop: November 24 - December 5, 1985.* GTS Report No. 74. December 1985. 10p.

Williams, Larry G. and Robert J. Haggerty. *Jamaica Solar Drying and Food Preservation Training Session: January 8 - 10, 1986.* GTS Report No. 75. January 1986. 19p.

AMIS Reports

Abbott, Richard D. and Tjip Walker. *Privatization of Fertilizer Marketing in Cameroon: First-Year Assessment of the Fertilizer Sub-Sector Reform Program.* June 1989.

Abbott, Richard D. *Privatization of Fertilizer Marketing in Cameroon: First Year Assessment of the Fertilizer Sub-Sector Reform Program (Technical Report).* June 1989.

Abbott, Richard D. *Privatization of Fertilizer Marketing in Cameroon: A Second-Year Assessment of the Fertilizer Sub-Sector Reform Program.* June 1990.

Abbott, Richard D. *Privatization of Fertilizer Marketing in Cameroon: A Second-Year Assessment of the Fertilizer Sub-Sector Reform Program (Technical Report).* June 1990.

Abbott, R.D., and D.A. Lloyd. *Privatization of Fertilizer Marketing in Cameroon: A Third Year Assessment of the Fertilizer Sub-Sector Reform Program.* April 1991.

- Abbott, R.D., and D.A. Lloyd. *Privatization of Fertilizer Marketing in Cameroon: A Third Year Assessment of the Fertilizer Sub-Sector Reform Program. Technical Report.* April 1991.
- Abbott, Richard D. and Christine E. Erbacher. *Agribusiness Trade and Investment Promotion: Approaches to Directly Involving U.S. Agribusinesses.* Preliminary Draft. October 1991.
- Abbott, R.A. and D.A. Lloyd. *Privatization of Fertilizer Marketing in Cameroon: A Fourth Year Assessment of the Fertilizer Sub-Sector Reform Program. Technical Report.* November 1992.
- Abbott, R.A. and Edward K. Dey. *Privatization of Fertilizer Marketing in Cameroon: A Fifth Year Assessment of the Fertilizer Sub-Sector Reform Program. Technical Report.* October 1993.
- Abbott, R.A. et Edward K. Dey. *Privatisation de la Commercialisation des Engrais au Cameroun: Evaluation de la Cinquieme Année du Programme de Réforme du Sous-Secteur des Engrais.* Octobre 1993.
- Adoum, Djime D. *Cameroon Fertilizer Sub-Sector Reform Program Agricultural Census Data Analysis Interim Report.* June 1992.
- AMIS Staff. *AMIS Update.* Spring 1989, Vol. 1, No. 1.
- AMIS Staff. *AMIS Update.* Fall 1989. Vol. 1, No. 2.
- Arnould, Eric. *Niger: Export Marketing of Nigerien Onions.* December 1992.
- Arnould, Eric. *Niger: Export Marketing of Nigerien Onions. Executive Summary.* December 1992.
- Chilton, Michael and Rajendra P. Shrestha. *Report on a Vegetable Seed Production and Marketing Strategy for Nepal.* April 1989.
- Lloyd, David. *Technical Report on Proposed Modifications of the Fiduciary Bank Contract. Privatization of Fertilizer Marketing in Cameroon: Fourth Year Annual Assessment of the FSSRP.* April 1992.
- Holtzman, John S., Jerry Martin and Richard D. Abbott. *Operational Guidelines: Rapid Appraisal of Agricultural Marketing Systems.* December 1988.
- Johnson, Anthony and Daniel C. Moore. *Monitoring and Data Collection System for the Fertilizer Sub-Sector Reform Program. (Cameroon)* June 1990.

Minot, Nicholas. *Monitoring and Data Collection System for the Fertilizer Sub-Sector Reform Program of Cameroon*. May 1989.

Minot, Nicholas and Jerry J. Johnson. *Fertilizer Utilization Practices and Crop Response Research: Recommendations for the Fertilizer Sub-Sector Reform Program of Cameroon*. October 1989.

Minot, N. *Impact of the Fertilizer Sub-Sector Reform Program on Farmers: The Results of Three Farm-Level Surveys*. April 1991.

Mittendorf, H.J. *Mission Report. Strengthening of the Input Market Information System in Lesotho*. July 1990.

Mittendorf, H.J. *Mission Report. Strengthening Vegetable Marketing Extension in Lesotho*. August 1990.

Newman, Mark D., Richard D. Abbott, Merle R. Menegay, David Hughes, Jim Brown, JoAnne Yeager and Liana Neff. *Agribusiness Development in Asia and the Near East: Experience and Implications for AID Strategy*. May 1989.

Rassas, Bechir, Millie Gadbois, R. Dixon Phillips, John S. Holtzman and Richard D. Abbott. *A Rapid Appraisal of the Marketing of Niger Cowpeas*. May 1989.

Welsh, T.P., and J. Kayastha. *Market Potential in Thailand for Nepal-Produced Vegetable Seed*. April 1990.

USAID/Government of Morocco. *USAID/Government of Morocco Agribusiness Trade and Investment Conference. Conference Proceedings*. ed. Judy Edmister. April 1992.

AMIS French Publications

Abbott, Richard D. *Privatisation de la Commercialisation des Engrais au Cameroun: Evaluation de la Première Année du Programme de Réforme du Sous-Secteur des Engrais (Rapport Technique)*. juin 1989.

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Arnould, Eric. *Niger: La Commercialisation à l'Etranger de l'Oignon Nigerien*. Sommaire Executif. Décembre 1992.

Minot, Nicholas. *Systeme de Suivi et de Collecte des Données: Programme de Réforme du Sous-Secteur des Engrais*. mai 1989.

Minot, Nicholas et Jerry Johnson. *Recherches sur les Pratiques d'Utilisation des Engrais et les Reponses de Cultures: Recommandations Pour le Programme de Reforme de Sous-Secteur des Engrais au Cameroun*.

Rassas, Bechir, Millie Gadbois, R. Dixon Phillips, John S. Holtzman and Richard D. Abbott. *Une Evaluation Rapide de la Commercialisation du Niébé au Niger*. mai 1989.

USAID/Gouvernement du Maroc. *Le Collque Maroco-Américain sur le Commerce et l'Investissement Dans le Secteur de l'Agro-Industrie. Compte Rendue du Colloque*. ed. Judy Edmister. Avril 1992.

NIS Reports

Abbott, R.A., H.C. Neese, V. Yefimov, J. Eckhardt and M. Lewis. *Final Report: Reducing Potato Losses in Russia and Ukraine*. Postharvest Institute for Perishables, University of Idaho, October 1992.

Abbott, R.A., R. Jackson and R. McGee. *NIS Potato Storage Project in Russia and Ukraine*. Postharvest Institute for Perishables, University of Idaho, April 1993.

Anderson, W. *Trip Report: Identifying Causes of Potato Bruising in Russia and Ukraine*. Postharvest Institute for Perishables, University of Idaho, August 1993.

Bosley, R. *Potato Processing Potential in Russia and Ukraine*. Postharvest Institute for Perishables, University of Idaho, September 1993.

Dwelle, R. and M. Wiese. *Technical Assistance and Training Project to Reduce Storage Losses of Potatoes and Facilitate Future Business Opportunities: Russia and Ukraine*. Postharvest Institute for Perishables, University of Idaho, August 1993.

Guenthner, J. *Marketing Potatoes in Ukraine*. Postharvest Institute for Perishables, University of Idaho, September 1993.

PIP Staff. *First Quarterly Report on Potato Storage Activities in Russia and Ukraine*. Postharvest Institute for Perishables, University of Idaho, April 1993.

PIP Staff. *Second Quarterly Report on Potato Storage Activities in Russia and Ukraine.* Postharvest Institute for Perishables, University of Idaho, July 1993.

PIP Staff. *Third Quarterly Report on Potato Storage Activities in Russia and Ukraine.* Postharvest Institute for Perishables, University of Idaho, October 1993.

Research Reports

Asbe, Douglas A. *Adaptive Design of a Zeolite-Water Solar Refrigerator.* GTS Research Report No. 8. Univ. of Idaho M.S. thesis. September 1986. 86p.

Drown, David C. *A Comparative Study of Grenadian and Indonesian Nutmegs.* Research Report No. 3. February 1986. 46p.

Gor, Cristopher Obel. *Sources of Information on New and/or Innovative Farming Practices and How They are Accessed by Farmers in Nez Perce County of the State of Idaho.* GTS Research Report No. 9. Univ. of Idaho M.S. thesis. April 1988. 111p.

Henry, Wayne. *Grenada Spice Market Research Project.* GTS Research Report No. 10. July 1988. 9p + annexes.

Kreamer, Ross G. *Gari Processing in Ghana: A Study of Entrepreneurship and Technical Change in Tropical Africa.* GTS Research Report No. 6. Published by Cornell Univ. as Internat'l Agr. Ec. Study A.E. Research 86-30. December 1986. 123p.

La Gra, Jerry, Poo-Chow Leong, and Robert J. Haggerty. *A Postharvest Methodology: Commodity Systems Approach for the Identification of Inefficiencies in Food Systems.* GTS Research Report No. 7. January 1987 (draft). 61p + questionnaires.

La Gra, Jerry. *A Commodity Systems Assessment Methodology for Problem and Project Identification.* Adaptive Research Project Report 12R, August 1990. English Version. (Manual available through PIP for U.S. \$25.)

La Gra, Jerry. *Una Metodología de Evaluación de Cadenas Agro-Alimenticias para la Identificación de Problemas y Proyectos.* Postharvest Institute for Perishables, June 1993.

Paterno, Carmen C. *Monoclonal Antibody Production Against Colletotrichum Gloeosporioides Penz.: A Potential Tool to Diagnose Antracnose in Mangoes.* GTS Research Report No. 5. Univ. of Idaho M.S. Thesis. June 1986. 54p.

Shetty, Kiran K. *The Use of Shrink Wraps to Extend Storage Shelf Life of Quality Potatoes.* GTS Research Report No. 4. Univ. of Idaho M.S. thesis. May 1986. 62p.

Shetty, K.K. M.J. Klowden, E.B. Jang, and W.J. Kochan. 1989. *Individual Shrink Wrapping: A Technique for Fruit Fly Disinfestation in Tropical Fruits*. HortSci 24(2): 317-319.

Shetty, K.K., W.J. Kochan, and R.B. Dwelle. 1989. *The Use of Heat-Shrinkable Plastic Film to Extend Shelf-Life of 'Russet Burbank' Potatoes*. HortSci 24(4): 643-646.

The publications listed above are available through PIP or at: USAID/CDIE, User Services, Document and Information Handling Facility, 7222 47th Street, Chevy Chase, MD 20815, (301) 951-7191.

The following publications are available only through PIP.

PIP Tips

Johnson, Paul J. *Mango Seed Weevil (Sternochetus mangiferae F.): Identification, Biology, and Management*. PIP Tip No. 6. June 1989. 7p.

Paterno, Carmen Calma. *Monoclonal Antibody Production Against Colletotrichum Gloeosporioides Penz.: A Potential Tool to Diagnose Anthracnose in Mangos*. PIP Tip No. 8701. April 1987. 4p.

Shetty, K.K., R.B. Dwelle and J.K. Fellman. *Shrink Wrapping--A Fresh Idea in Produce Shelf Life Extension*. PIP Tip No. 5. April 1990.

Schermerhorn, Richard W. *Improving Fruit and Vegetable Marketing in Developing Countries*. PIP Tip No. 8704. April 1988. 8p.

Schermerhorn, Richard W. *So You Want to Enter the Export Market: What Factors Should be Considered?* PIP Tip No. 9. October 1988. 8p.

Schermerhorn, Richard W. and Larry D. Makus. *Economic Feasibility Studies for Business Firms and Organizations in Developing Countries*. PIP Tip No. 8708. April 1988. 12p.

Training Manuals

Postharvest Institute for Perishables and University Extension, University of California, Davis. *Reduction of Postharvest Losses in Perishable Crops* (for participants from the Eastern Caribbean, presented in California and Idaho). August 23 - September 26, 1987. Notebook.

Postharvest Institute for Perishables, University of California Extension, University of California, Davis, and Facultad de Ciencias Agrarias y Forestales, Univ. de Chile. *Manual Para el Curso: Reduccion de Perdidas de Postcosecha de Productos Seleccionados en Uruguay*. Montevideo, 5-16 Diciembre 1988. 34 chapters.

Postharvest Institute for Perishables and Facultad de Ciencias Agrarias y Forestales, Univ. de Chile. *Manual Para el Curso: Comercializacion Externa de Frutas y Hortalizas Uruguayas*. 13-24 Febrero 1989.

Swanson, Marilyn A. and Larry Williams. *Eastern Caribbean Solar Drying and Food Preservations Workshop*. November 24 - December 5, 1985. 136p.

Williams, Larry G. and Robert J. Haggerty. *Solar Drying and Food Preservations Training Session* (in Jamaica). January 8 - 10, 1986. 136p.

Miscellaneous Publications

Bourne, Malcolm C. (Guest Editor). LIFE. Vol. 20, No. 3, June/July 1987. (PIP sponsored and partially paid for this issue of LIFE dedicated to postharvest handling in LDCs.)

PIP Staff. *Postharvest Institute for Perishables: Technical Assistance, Training, and Adaptive Research to Reduce Posthavest Losses in Perishable Food Crops and Improve Marketing Systems*. 1992. Brochure.

PIP Staff Conference Proceedings. *The Rationale for Support of Third World Agricultural Development*. February 1990.

PIP Staff and University of Idaho. "Is Foreign Aid Good for U.S. Agriculture?" Videotape. February 1990. (Available through PIP.)

PIP Staff. *Briefing Papers on Activities of the Postharvest Institute for Perishables, 1985-1990*. July 1990.

VII. Training, Conferences and Meetings

This section deals with training, conferences and meetings by fiscal years between FY86-FY93. Each description should be self explanatory as to the content of the activity. The long and short term training, conferences organized and attended, and meetings usually initiated further training or assistance. The section is broken down into fiscal years which gives the reader the ability to better assess how training progressed or changed during the period.

FY 86

Training activities conducted by PIP under the second Cooperative Agreement fall into two categories: 1) workshops, seminars or short courses presented in-country or in the U.S. and 2) sponsored students for degree or non-degree training at a U.S. university. During the period October 1, 1985 to September 30, 1986, PIP presented two in-country workshops, and two in the U.S. Also, five students were sponsored for all or some portion of their advanced degrees.

A. Workshops, Seminars and Short Courses

1. "A Solar Drying and Food Preservation Workshop in the Eastern Caribbean." PIP/Grenada/Peace Corps/Nov - Dec 85/No. 74.

Two instructors from PIP presented a workshop in Grenada on the construction and use of a solar dryer with supplemental heat for perishable food preservation. The 10-day workshop was presented to 27 participants from Grenada, Dominica, St. Lucia, St. Vincent and Carriacou at the request of the Eastern Caribbean Peace Corps.

2. "Jamaica Solar Drying and Food Preservation Training Session." Project: PIP/Jamaica/Jan 86/No. 75.

Two specialists from PIP presented a workshop in Kingston, Jamaica on the construction and use of solar dryers with supplemental heat for perishable food preservation. This demonstration, hands-on training session was conducted at the request of the USAID Mission in Kingston. The course focused on small-scale low technology for individual farmers or families.

3. "Postharvest Loss Reduction Study Tour for Iraqi Participants." Project: USDA/OICD Study Tour for Iraqi Participants.

PIP collaborated with USDA/OICD in the presentation of a study tour in Idaho and Washington for participants from Iraq. This observational study tour was designed to help the participants gain exposure to and learn postharvest loss reduction methods in fruits and vegetables, particularly apples, cherries and potatoes.

4. "Postharvest Diseases and Loss Reduction Study Tour." Project: USDA/OICD Study Tour/Sept 86/No. 80.

PIP collaborated with USDA/OICD in the presentation of a study tour in South Idaho for a participant from Iraq. The one week study tour concentrated on potatoes, onions, and some fruits and consisted of visits to various private sector harvest, handling, storage, and processing operations.

B. Degree and Non-degree Students

PIP supported, wholly or partially, seven developing country students during the period of this report.

1. Ms. Carmen Paterno (Philippines)
Department of Bacteriology and Biochemistry
University of Idaho

Completed M.S. degree in May 1986, which was fully supported by PIP. Thesis: "Monoclonal Antibody Production Against *Colletotrichum Gloeosporioides* Penz. A Potential Tool to Diagnose Anthracnose in Mangos."

2. Mr. Miguel Bastarrechea (Guatemala)
Department of Vegetable Crops
Cornell University

Completed M.S. degree in June 1986. Thesis: "Postharvest Quality in Snow Peas." Acknowledgement of some support from PIP was given in the thesis which was published by Cornell University.

3. Mr. Kiran Shetty (India)
Department of Plant, Soil and Entomological Sciences
University of Idaho

Completed M.S. degree in May 1986. Thesis: "The Use of Shrink Wraps to Extend Storage Shelf-life of Quality Potatoes." Financial support was provided by PIP. PIP also assisted Mr. Shetty in locating private sector support from Cryovac Corporation for his research. Mr. Shetty is subsequently completed a Ph.D. and is currently employed as Extension Assistant Professor, Potato Specialist at the University of Idaho.

4. Mr. Christopher Obel Gor (Kenya)
Department of Agricultural and Extension Education
University of Idaho

Mr. Gor completed M.S. degree in May of 1988 with his education wholly supported by PIP. Thesis subject was related to transfer of appropriate technology to developing countries.

5. Mr. Sulub Ali Aman (Somalia)
Department of Agricultural and Extension Education
University of Idaho

Expected to complete M.S. degree in May of 1987 with thesis on solar drying. Received some financial and administrative support from PIP.

6. PIP provided assistance to eighteen students from developing countries who were studying for Bachelor's, Master's or Ph.D. degrees at the University of Idaho under funds provided by AID or FAO. PIP assistance was principally in the form of staff time to orient the students, helping them find faculty advisors and placing them in various departments at the University of Idaho, and providing guidance as needed during the academic year. This assistance was given to students from Somalia, Rwanda, Egypt, Mauritania, Kenya, Burkina Faso, Morocco, Pakistan, Philippines, Lesotho, China, India, Zimbabwe and Zambia.

FY 87

PIP's training program consists of two areas of emphasis: 1) workshops, seminars or short courses presented in-country or in the U.S. and 2) sponsored students for degree and non-degree training at a U.S. university. During the period October 1, 1986 to September 30, 1987 PIP presented three in-country workshops and three training courses or study tours in the U.S. Also, PIP sponsored one student, Christopher Obel Gor, for his Master's degree.

A. Workshops, Seminars and Short Courses

1. "Panama Postharvest Loss/Handling Training Course." Project: PIP/Panama/Oct 86/No. 81.

Two PIP training consultants, William Bolton and Miguel Jimenez, conducted a three week postharvest course in Panama in Spanish. USDA/OICD was the facilitating organization and USAID/Panama funded the program. Sixteen participants attended the course.

2. "Ecuador Postharvest Training Course on Apples."
Project: PIP/Ecuador/March 87/No. 88

Dr. Mike Colt, UI Extension Horticulturalist, in collaboration with the Universidad Tecnica de Ambato, conducted a two week training course in Ambato, Ecuador for apple producers and agricultural officials. Dr. Colt travelled under the sponsorship of PIP, the International Trade and Development Office, and the Department of Plant, Soils and Entomological Sciences at the University of Idaho. The training course was offered under the auspices of a Cooperative Agreement between PIP and the Facultad de Ciencia y Ingenieria en Alimento de la Universidad de Ambato.

3. "Postharvest Losses in Fruits and Vegetables in India."
Project: PIP/India/May 87/No. 90

Two PIP consultants, Merle Menengay, consultant, and Lou Riesenber, University of Idaho, facilitated a three-week intensive workshop on Postharvest Losses in Fruits and Vegetables in New Delhi and Lucknow, India. The workshop focused on defining the various marketing systems for mangoes produced in the Lucknow region and identifying problems in the various systems. The India Council of Agricultural Research was the primary sponsor of the workshop. Most participants were either agricultural economists or plant pathologists.

4. "Food Processing Study Tour for Saudi Arabian Food Engineer."
Project: PIP/Saudi Arabia/Sept 87/No. 95

PIP collaborated with USDA/OICD in the presentation of a study tour in Idaho, Washington, Oregon, and California for a Saudi Arabian food engineer. The three-week study tour concentrated on juice, dairy and date processing and postharvest loss reduction methods in fruits and vegetables.

5. "Californian and Hawaiian Processing Facilities Tour for Thai Ministry of Agriculture Officials."
Project: PIP/Thai Study Tour/Aug-Sept 87/No. 96

In collaboration with the University of California, Davis and the University of Hawaii, PIP facilitated a tour of fruit and vegetable processing and research facilities in Hawaii and California for two high-level Thai Ministry of Agriculture officials.

6. "Reduction of Postharvest Losses in Perishable Crops."
Project: PIP/UC Davis Short Course/Aug 87/No. 94

PIP in collaboration with the University of California, Davis, presented the short course in California and Idaho. Along with UI and UC Davis faculty, five postharvest professionals from the UN food and Agriculture (IICA) participated as instructors for

the course. Postharvest technology theories and applications, postharvest management decision-making, and project development were presented in the framework of the Commodity Systems Assessment Methodology (CSAM). Twenty participants from the Eastern Caribbean were funded by USAID/Barbados, FAO/Barbados, the World Bank/Grenada, and the Institute for International Education.

B. Degree and Non-degree Students

PIP wholly supported one developing country student during the period of this report.

1. Mr. Christopher Obel Gor (Kenya)
Department of Agricultural Extension Education
University of Idaho

Mr. Gor completed his M.S. degree in May of 1988 with his education cost supported by PIP. Thesis: "How do Farmers Access Information Sources on New and/or Innovative Farming Practices in Nez Perce County?"

2. PIP provided assistance to several students from developing countries who were studying for Bachelor's, Master's, or Ph.D. degrees at the University of Idaho under funds provided by USAID, UN/FAO, and other institutions. PIP assistance was principally in the form of staff time to orient the students and providing guidance as needed during the academic year. In this activity, PIP assists the UI by maintaining an international perspective on campus.

C. Conferences and Meetings

PIP personnel attended three conferences and made four program development trips in FY87. These are listed below:

1. The Association for International Agricultural Education Annual Conference
National 4-H Center, Chevy Chase, Maryland
April 24 26, 1987
Attended by Christopher Obel Gor

At this conference, Mr. Gor presented a paper entitled, "A Discussion of Strategies for Appropriate Technology Transfer to Developing Countries." The problems addressed in his paper were the meaning of technology transfer, its role in development, and means of strengthening its role and/or effectiveness.

2. Annual Conference of the Special Libraries Association: "Global Information Access"
Anaheim Convention Center, Anaheim California
June 6 - 11, 1987
Attended by Paulette Foss

Ms. Foss networked with several international library personnel and as a result PIPIC may have the opportunity to provide consulting services within the U.S. to various libraries.

3. "Solar '87: 12th National Passive Solar Conference"
Portland, Oregon
July 12 - 16, 1987
Attended by Dr. David C. Drown

Dr. Drown presented a paper at the conference entitled, "Adaptive Design of a Zeolite - Water Solar Refrigerator." This paper was a result of PIP-sponsored work by Douglas Asbe, University of Idaho M.S. student, and Dr. Dave Drown.

4. Trip to Guatemala, Honduras, Costa Rica, Peru, Ecuador, Jamaica, Haiti.
From November 22, 1986 through December 23, 1986, the assistant field director travelled to the following countries at the request of the USAID Missions or other institutions:

Guatemala - met with USAID/ROCAP and Chemonics, Inc., officials on the implementation of the Non-traditional Agricultural Export Support project;

Honduras - met with USAID and Fundacion Hondureno de Investigaciones Agricola officials regarding potential PIP technical assistance and research activities.

Costa Rica - met with USAID about potential technical assistance on the non-traditional agricultural export projects and with IICA officials about the development and testing of the CSAM.

Peru - met with scientists at the International Potato Center about PIP collaboration on extension activities in the postharvest area;

Ecuador - met with the dean and faculty at the Universidad Tecnica de Ambato to plan collaborative programs;

Jamaica - met with USAID officials to discuss the ackee proposal and other potential collaboration, including training; and

Haiti - work with the Agricultural Producers Association and USAID in the design of a project for production, postharvest handling, and export of winter vegetables.

5. Trip to Asia

The Field Director made a five week trip during this reporting period to visit: Japan, Philippines, Singapore, Malaysia, Thailand, Bangladesh, and India. Discussions with AID Missions, private sector firms, and postharvest organizations were included in the agenda. Several projects in Thailand and India resulted from this trip. In addition, potential project work is pending in several other countries.

6. Trip to the Caribbean

The Field Director visited Barbados and Grenada in the Caribbean during the reporting period. The purpose of the visit was to discuss on-going project work and potential projects for the future. The trip led to the funding of ten participants by the FAO to the postharvest short course sponsored by PIP and UC Davis.

FY 88

Long Term Training

Mr. Christopher Obel Gor, a Master of Science candidate in Agricultural and Extension Education, completed his degree program, graduated in May, and returned to his native country of Kenya. Mr. Gor, who had paid for his own travel from Kenya and had worked his way through under-graduate school, was supported by PIP and the College of Agriculture for his M.S. degree. Mr. Gor's thesis, *Sources of Information of New and/or Innovative Farming Practices: A Survey of How Farmers Access Information Related to New and/or Innovative Farming Practices in Nez Perce County* was published as PIP/GTS Research Report no. 9. PIP provided assistantship funding for Gor's M.S. studies and helped make arrangements for him to return home. PIP also assisted him to locate a position in Kenya. He had employment opportunities with both the East African Regional Office of the International Potato Center, or Rodale International in their sustainable Agriculture programs in East Africa.

At the end of this fiscal year, PIP had no further funds available to support long term training of students. However, PIP initiated a program in the College of Agriculture to facilitate faculty and departments in their quests for qualified foreign graduate students. Working with the USDA Office for International Cooperation and Development (OICD) UN/FAO, World Bank, and private student placement agencies, PIP attempted to channel qualified students from LDCs into openings which exist at the University of Idaho.

Short Term Training

PIP personnel participated in two short term training exercises this year, both as parts of projects described elsewhere in this report. Jerry LaGra from the Inter-American Institute for Cooperation on Agriculture (IICA) presented a two-week workshop to train personnel of the Malaysian Agriculture Research and Development Institute (MARDI) in the implementation of PIP's Commodity Systems Assessment Methodology (CSAM).

Jack Ross and Waldo Heron, PIP consultants, presented portions of a training workshop organized by the ASEAN Food Handling Bureau and the Thai Ministry of Agriculture on *Export Marketing and Postharvest Handling of Perishable Commodities in Thailand*. PIP personnel interacted with the presenters and the USAID Thailand mission to develop the workshop. Participants came from several ASEAN countries. Ross and Heron were in Thailand on the *Thailand Market Opportunities Assessment* project for PIP, USAID/Thailand and the Thailand Ministry of Agriculture.

Throughout the year, PIP took the lead in the development of rapid appraisal training materials for the AMIS project. AMIS rapid appraisals have similarities to PIP's CSAM but are oriented to systems constraints in the areas of government policy and institutions. As USAID Missions and host governments see the utility of rapid appraisals for accumulating relatively reliable information quickly and cheaply, they are requesting that AMIS train host country personnel in the planning and implementation of rapid appraisals. The packet of training materials for AMIS rapid appraisals, being developed by PIP, will be ready for its first test in November 1988.

PIP developed training materials and organized two short courses which were given in Uruguay in December 1988 and February 1989 on postharvest handling and marketing respectively. The two courses were approved by the Government of Uruguay. The postharvest reduction course was given in collaboration with the University of Chile. The marketing course will also be given in collaboration with the University of Chile.

International Potato Center (CIP)

The University of Idaho College of Agriculture and PIP have built-in commonality with CIP-the International Potato Center. In this fiscal year, Dr. Patricio Malagamba, Head of the CIP Physiology Department, travelled to Moscow to discuss possible collaborative programs. Later, Dr. Siert Wiersema, Head of CIP's new postharvest research center in Thailand, travelled to the University of Idaho to discuss collaboration in the development of extension materials for potato postharvest technologies. Following this, the assistant field director from PIP met again with Dr. Wiersema while on other business in Thailand to pursue the extension activities.

Shrinkwrap Research

In order to coordinate the shrinkwrap research taking place in Idaho, Hawaii, Honduras, and possibly, Florida and Thailand, PIP arranged for Dr. Panfilo Tabora from the Honduran Agricultural Research Foundation (FRIA), La Lima, Honduras, and Dr. Eric Jang from the USDA/ARS Tropical Fruit and Vegetable Research Center, Hilo, Hawaii, to travel to the University of Idaho to meet with interested personnel and plan future activities. The conference resulted in a series of seminars with faculty and staff at the University, a work plan, and a proposal presented to USAID for funding.

Postharvest Training

PIP continued to promote short term, intensive training in the areas of postharvest handling and marketing of perishable commodities. At times the training is requested to be given in the host country, in which case a needs assessment is required to evaluate the facilities, available funding, and/or design appropriate training modules. PIP personnel travelled to three locations to work on training.

Thomas Dechert travelled to Thailand and Malaysia to meet with officials of the Thai Ministry of Agriculture and Cooperatives and the ASEAN Food Handling Bureau to evaluate available funding and design a short course on appropriate postharvest technologies. The short course/workshop was presented in September in Bangkok by the two organizations with input by PIP consultants. Similarly, Mr. Dechert travelled to Uruguay and Chile to design courses for the Uruguayans.

Robert Haggerty, Robert Dwelle, and Nasrullah Malik from the University of Idaho independently spent time in their travels to Pakistan to encourage the Pakistan Ag Research Council to move forward with the identification of funding for a short course proposed to be given in Pakistan.

"Marketing Idaho" Conference

Harvey Neese, PIP Field Director, interacted with personnel from the Idaho Department of Agriculture and private sector to organize a conference entitled "Marketing Idaho Specialty Food and Beverages" on April 22 and 23. The conference was well attended and received enthusiastic comments. The conference led to further meetings designed to organize an association of Idaho specialty food producers and exporters.

PIP and AMIS Administration

PIP personnel made a number of trips to attend meeting and conferences related to the administration of the two projects. Harvey Neese, PIP Field Director, travelled to Washington D.C. twice. The first trip to finalize negotiations of the AMIS sub-contract and pursue PIP business, and the second time to attend a meeting of all Project Directors of

USAID/S&T AGR. supported research projects and to review the 1989 AMIS workplan. Yvonne Sertich, PIP Records Manager, travelled to Washington D.C. to internet with Abt Associates to set up accounting procedures for PIP's AMIS sub-contract.

PIP meets twice a year with the College of Agriculture's private sector "Agriculture Consulting Council" to inform them of PIP activities and plans, and to receive their input. This is a critical activity to maintain support for international agricultural programs in Idaho. Thomas Dechert travelled to Boise to meet with the Council, and Harvey Neese attended meetings in Moscow.

PIPIC Networking Update

Paulette Foss and Karri Meister, PIPIC Information Specialist and Assistant, travelled to Spokane, Washington to attend a conference and update training session to acquaint users with enhancements introduced in the DIALOG information retrieval system.

FY 89

Effective transfer of technology and ideas is based on education and training. Training both formal and informal, is a major component of all of PIP's international development projects. Over the past year, PIP has been instrumental in the organization and presentation of six formal training programs.

Uruguay Export Marketing Development

The Government of Uruguay Office of Planning and Budget (GOU/OPP) is implementing a program to increase exports of fruits and vegetables. Traditionally, Uruguayan agricultural products and exports have been dominated by livestock. Programs were aimed at diversifying the economic base. The USAID Representative's Office in Montevideo supported the GOU/OPP diversification programs.

An initial evaluation by PIP of the Uruguayan fruit and vegetable diversification program identified a number of constraints and opportunities. Uruguay, as a Middle Income Country with a relatively well-educated population, contains considerable technical, organizational and managerial expertise. However, Uruguay's ability to translate these skills into effective export programs for fruits and vegetables faces three major limitations.

First, postharvest handling of fruits and vegetables is not taught in the Uruguayan higher education system. As a result, private and public sector technicians and officials need a better understanding of the breadth and scope of postharvest technologies and of export marketing management. Second, those in the perishables industry need to know more about the technical and managerial requirements of competing in the international markets for fruits and vegetables.

The GOU/OPP contracted PIP to design and implement a series of three short courses to address these limitations. The three short courses, "Reduction of Postharvest Losses in Selected Perishable Commodities for Export from Uruguay," "Export Marketing of Selected Uruguayan Fruits and Vegetables," and a "Field Trip to Chile," were presented in Uruguay and Chile in December 1988, February 1989, and March 1989, respectively.

Trainers for the courses were selected from the Universities of Idaho, California at Davis, and Chile, and from the private-sector. Each of the three short courses had between forty and fifty public and private sector participants.

The field trip to Chile strongly reinforced the absolute need for higher levels of technology and business management in all aspects of the industry, private and public, if Uruguay is to compete in the world market.

Two volumes of background materials were prepared in Spanish for the postharvest and marketing courses. The materials, obtained from diverse sources, provided the most up-to-date information on postharvest handling and export marketing of high-value perishable commodities. The volumes were published by PIP and made available through PIPIC and the USAID Center for Development Information and Evaluation(CDIE).

In regard to institutional and personal linkages, the University of Chile has continued its involvement with the GOU/OPP through a number of contacts, consultancies and the institutional development of postharvest handling and marketing training in Uruguay. Similarly, PIP is worked with the GOU/OPP to develop programs for more in-depth analysis and innovation of selected export commodity systems. To secure advanced degrees and specialized training to meet the needs of the diversification program, the GOU Ministry of Agriculture has signed an agreement with the Mid-Western Universities Consortium for International Activities (MUCIA).

ROCAP Commodity Commission Study Tour

As marketing chains change from the traditional rural-community centered, to rural-to-urban, or to rural-to-international, changes must be made in the services provided to the systems. In order to develop an understanding of urban or international consumer demand and marketing, a whole new research and information distribution apparatus generally needs to be developed. Ideally, this apparatus should receive considerable financial and institutional support from government organizations. However, in many developing countries caught in the throes of debt crises, resources simply are not available to help producer groups develop the information and marketing techniques to enter new markets.

The USAID Regional Office for Central American Programs (ROCAP) addressed this problem as part of its Non-traditional Agriculture Export Programs and the Caribbean Basin Initiative. ROCAP asked PIP to set up a study tour for USAID/ROCAP employee Mr. Richard Clark to learn about the structure and functions of various U.S. commodity

commissions and marketing boards. Of particular interest was the ability of organized producer groups to tax themselves and use the funds to meet their research and marketing info needs. PIP organized a tour of a number of California and Idaho perishable-commodity marketing boards and commodity commissions, and of the state and federal agriculture agencies that support their activities. ROCAP hoped to be able to transform this information for Central American producer groups which need to fund and perform a wide array of export marketing activities without government support.

Nepal Vegetable and Fruit Crops (VFC) Program

USAID/Kathmandu is interacted with His Majesty's Government (HMG) of Nepal to increase the incomes of small farmers in the remote middle hills regions of the country. PIP contributed to this program by providing postharvest handling and marketing evaluations using the CSAM and marketing improvements through AMIS. The numerous inputs to the program from both PIP and AMIS were channelled through a private Nepali consulting firm, No-Frills Consultants, and were designed to improve the firm's capabilities in agriculture development and to meet the goals and needs of the VFC Program.

Within the framework of training No-Frills, USAID, and HMG personnel in the specifics of implementing a postharvest handling and marketing program, PIP conducted two training programs.

In one program, personnel for PIP introduced the CSAM to Nepali personnel by conducting an actual rapid appraisal (commodity system assessment) of ginger production, and postharvest handling and marketing in the Rapti Zone. Participants included farmers, small processors, traders, middlemen, government extension agents, and other government personnel. The Nepali Coordinating Committee consisted primarily of personnel from HMG and No-Frills. The training goal was for the Coordinating Committee to learn how to set up and conduct commodity system assessments.

In the second program, officials from No-Frills, HMG, and USAID/Kathmandu toured postharvest handling and marketing facilities in the Pacific Northwest, Singapore, and Thailand. These officials were directly associated with the development and implementation of the VFC program. The tour focused on four major commodities identified as having potential as income-generating crops for the Nepal hill regions: onions, potatoes, apples, and vegetable seeds. All of these crops are being successfully produced and marketed in the Pacific Northwest and Thailand, so the participants could observe many of the steps in functioning systems. In particular, the participants saw several different levels of technology being applied to production, postharvest handling and management. In Singapore, the participants studied markets and marketing as they are likely to develop throughout South Asia in the near future.

FY 90

PIP has had several different projects this reporting period which related to training or preparing training manuals. PIP staff feels that training, both formal and informal, should be a major component of all of PIP's international development projects.

CSAM Manual

The Commodity Systems Assessment Methodology (CSAM) is a systematic procedure developed as a guide for training developing countries' personnel to identify postharvest and marketing problems and to find solutions. The CSAM manual is now completed and PIP expects the CSAM to be used by numerous developing countries and international donor organizations.

Conference entitled "Rationale for U.S. Support of Third World Agricultural Development."

About 75 people attended this PIP-sponsored national conference in Boise, Idaho, which was opened by Governor Cecil Andrus. The Citizen's Network for Foreign Affairs and the Agency for International Development helped to finance the conference.

Various speakers gave the pros and cons on the value of foreign agricultural assistance to the U.S. agriculture industry. A consensus opinion at the end of the conference was that developing countries that do not progress economically will buy few agricultural products from the U.S. Because of developing countries' heavy emphasis on agriculture, the group agreed that this is the area that has the best opportunity for increased commodity sales, for both domestic and export markets.

Panamerican Agriculture School/Honduras

The PIP Information Specialist traveled to Zamorano, Honduras, to help prepare a proposal for setting up an information center at the Panamerican Agricultural School.

Phase One included a visit to Zamorano to prepare a proposal. Phase Two, if funding was acquired, would accomplish the following: acquire necessary equipment, train personnel, and implement a work plan.

Pakistan Training

PIP set up an eleven-week training program in postharvest handling and marketing of perishable crops for a Pakistani from a private sector cold storage firm in Pakistan.

The training program involved theoretical training in marketing and postharvest handling, and a tour of various cold storage and postharvest facilities in the states of

Washington and California. Faculty from the Universities of Idaho and California/Davis conducted the training course.

PIPIC also provided technical training to a Pakistani librarian who visited the campus under the auspices of the University library.

FY 91

PIP's training activities in FY91 included further field testing and translation of the Commodity Systems Assessment Methodology (CSAM) manual; continued work on a solar food drying manual; and staff participation in conferences and seminars. These activities are briefly described below.

CSAM Manual

The CSAM is a systematic approach to the identification of postharvest commodity system problems in LDCs. Developed and field tested by PIP, IICA (Inter-American Institute for Cooperation on Agriculture), and the ASEAN Food Handling Bureau for numerous perishable commodities, the CSAM is an effective training tool for LDC agricultural development personnel to pinpoint important system constraints and to develop appropriate solutions to those constraints. PIP has already sold over half of the 1,000 CSAM manuals published and has actively promoted utilization of the CSAM through USAID missions and other international donor organizations.

CSAM Workshop, Guatemala

In July, Marketing Specialist Jerry La Gra conducted a CSAM coffee system assessment workshop for the USAID/ANACAFE Project. The primary objectives of the workshop were to: 1) acquaint coffee sector participants with the CSAM methodology; 2) access participants' knowledge of coffee production and marketing to identify constraints to the development of the small farmer coffee subsector; 3) develop project profiles to address the problems identified; and 4) encourage better communication/coordination between institutions and individuals participating in the coffee sector. Workshop participants included local production, postharvest and marketing specialists, agricultural extensionists, economists and agricultural policy makers.

Feedback from participants regarding workshop structure, content and usefulness in identifying coffee sector constraints was very positive. Participants agreed that important information was lacking about some aspects of the system and that additional field research and information gathering was necessary to provide a comprehensive assessment. Mr. La Gra made an additional trip to Guatemala in the fall to organize and analyze the field data gathered, develop an action plan to complete the assessment and prepare a final report. ANACAFE will use the results of the CSAM to plan and develop its services and activities, and has already formed an interdisciplinary team to provide follow-up and continuity in the application of the methodology in future work.

Staff Training

In order to meet the growing demand for postharvest and marketing specialists qualified to implement CSAM assessments, PIP organized a workshop January 8-9, 1991 for approximately 20 UI/WSU faculty and graduate students. The workshop's objective was to introduce the CSAM methodology and provide the opportunity for participants to stimulate information-gathering techniques and workshop skills in a structured setting. With the skills acquired, participants are eligible to act as CSAM facilitators for assessments relevant to their area of expertise and foreign language ability. Initially, participants will be fielded as junior members of a CSAM team; as they gain field experience, they will be eligible to be team leaders.

Translation

Translation of the CSAM into Spanish and French will significantly increase its effectiveness and applicability to LDC field personnel. The Spanish translation was initiated this year with publication targeted for January 1992.

Methods Development

In September PIP Postharvest Specialist Bob Haggerty participated in a one-day conference with representatives of Appropriate Technology International (ATI) and Abt Associates Washington D.C., to discuss strengths, weaknesses, and field applications of rapid appraisal methods including the CSAM. PIP feels strongly that the expertise of other organizations in developing and implementing rapid appraisals should be drawn upon whenever possible to assist in refining appraisal techniques.

Conferences/Seminars

This year PIP staff participated in and/or contributed to a number of conferences relating to international development, food production and food processing in developing countries. These conferences are described briefly below.

Nutribusiness Roundtable, Washington D.C., November 1990

PIP's Field Director Judy Edmister was invited to participate in this USAID/S&T/Nutrition sponsored conference. The conference focused on developing innovative strategies to strengthen AID's programs of assistance to small-medium scale food processors in developing countries and to improve the nutritional status of the LDC poor. Specialists in food processing and preservation, storage/packaging and fortification/enrichment were brought together to discuss and recommend technical assistance, research and training strategies for AID to emphasize in future development projects and programs. Ms. Edmister participated in and was rapporteur for the storage/packaging discussions.

International Development Conference, Washington, D.C., January 1991

PIP Market Analyst Christine Erbacher attended this two day conference, which consisted of workshops, panel discussions, and plenary sessions addressing current issues in international development. PIP contributed written materials introducing the CSAM for a panel discussion on sustainable agriculture.

Food Pack of the Americas Exposition and Conference, Florida, January 1991

The conference focused on means of facilitating trade between the North and Latin America. PIP Senior Market Analyst Richard Abbott attended the conference and also met with representatives of USAID/Bolivia and the Latin American Agribusiness Development Corporation to discuss AMIS project possibilities.

Institute of Food Technologists (IFT) Annual Meeting and Exposition, Dallas, June 1991

PIP's Field Director, Judy Edmister, attended this four day meeting to promote PIP's activities among IFT members, recruit food technologists for PIP's consultant roster and learn more about IFT's international agenda.

University of California, Davis/PIP Postharvest Loss Reduction Short Course, UC/Davis, August-December 1991

PIP provided promotional support to UC/Davis course organizers through USAID missions and other development organizations. PIP furnished abbreviated versions of the CSAM manual for use during one of the course sessions.

FY 92

In FY92, PIP's training activities included CSAM field projects, training in the CSAM methodology, a study tour for representatives of a Thai agribusiness development project, a workshop on U.S. investment opportunities in potato and grain storage/handling in the NIS, and final drafting of PIP's solar drying training manual. These activities are described below.

CSAM

USAID/Guatemala Coffee Production and Marketing Systems Assessment

Marketing Specialist Jerry LaGra conducted a follow-up workshop on the CSAM methodology for USAID/Guatemala's Small Coffee Farmer Improvement Project (SCFIP). The focus of the workshop was to develop diagnostic and survey tools to assist in identifying groups of coffee farmers as potential SCFIP beneficiaries. An earlier workshop conducted

in July 1992 focused on utilization of the CSAM to identify problems and constraints within the small farmer coffee production and marketing system.

Training in Rapid Appraisal for Food and Agriculture Using the CSAM--Romania

PIP provided logistical and administrative support to Postharvest Specialist Robert Haggerty for an evaluation of Romania's food and agriculture sector conducted under the auspices of WSU's Small Business Development Center. The CSAM was used as a management tool to generate primary information about the postharvest handling of potatoes and beef.

Introduction to the CSAM, UC/Davis Short Course

PIP Postharvest Specialist and CSAM co-author Tom Dechert was invited to present an overview of the methodology to participants at the UC/Davis Postharvest Loss Reduction Short Course. Participants had the opportunity to simulate workshop facilitation methods and to work through the process of identifying commodity system constraints using examples taken from their home countries.

NIS Workshop: "Opportunities in Ukraine and Russia"

In August, PIP organized and implemented a workshop in the Washington D.C. area for approximately 90 U.S. manufacturers of potato and grain storage facilities/handling equipment to acquaint them with investment opportunities in the NIS or countries of the former U.S.S.R. Presentations were based on information gathered during a five-week fact finding mission to Russia and Ukraine conducted by a PIP technical assistance team in July and August.

Study Tour for Representatives of "Thai Green Project"

PIP organized and implemented a study tour for two representatives of a joint U.S.-Thailand project to promote development of Thai agribusinesses and U.S. markets for Thai food products. The project representatives were in the process of preparing a proposal for developing production and processing of tropical fruits in the Chiang Mai region of Thailand, and were investigating potential linkages with cooperating U.S. public and private sector firms. The tour included meetings at PIP, UI and WSU to discuss opportunities for institutional linkages, and visits to fruit and potato processing operations in eastern Washington.

FY 93

UC/Davis Postharvest Loss Reduction Short Course

Again this year PIP assisted UC/Davis with course promotion and implementation. Field Director Judy Edmister attended two days of the course and made presentations on PIP's program and activities and the *Commodity Systems Assessment Methodology. (CSAM)*

Cold Storage Management of Perishable Commodities

PIP organized and implemented this two-week course July 19-30, 1993. Course lecturers were UI and WSU faculty. Participants represented both public and private sector organizations in Kenya, Philippines, Costa Rica and Honduras. Course topics ranged from postharvest physiology and pathology of temperate/tropical fruits and vegetables to modified/controlled atmosphere storage technologies to storage structure design and maintenance. Classroom lecture/discussion was supplemented by a four-day tour of area cold storage facilities, fruit packers and postharvest research institutions.

Aflatoxin Analysis of Food Commodities

PIP coordinated a week-long training course at UI's Holm Research Center on aflatoxin analysis and detection for a Kenyan Ministry of Agriculture student. Holm Research Center staff conducted the training.

Business Administration and Cold Storage Management for Russian Storage Managers

Twelve Russian cold storage managers participated in a five-week training course in business administration and storage management August 28-Sept. 30, 1993. The business administration portion of the course was coordinated by Dr. Jeff Bailey of UI's College of Business. Course lecturers consisted of UI faculty and guest speakers from private sector agribusinesses and equipment suppliers, including J.R. Simplot, Hansen and Rice, and Industrial Ventilation, Inc. The cold storage management portion of the course included a five-day study tour of potato growers, packers, processors and storage facilities.

Technical Training for Russian and Ukrainian Potato Specialists

Nine Russian and Ukrainian potato specialists were given an average of three weeks training each in potato storage, seed potato technology and equipment use. These specialists were from the Russian Potato Concern and the Ukrainian Institute for Potato Research.

Indonesia Agribusiness Development Project

Project training coordinator Bob Haggerty began work on two short courses to be conducted at UI in FY94. Each will involve 10-15 Indonesian participants for a 4-6 week period, and will consist of classroom lecture/discussions as well as a study tour.

Institute of Food Technologists (IFT) Annual Meeting

In July, Judy Edmister attended the 1993 IFT annual meeting in Chicago. IFT has an active International Division, with affiliates in over 20 countries around the world. Edmister will serve as chair of the International Affiliate Relations Sub-committee through 1995.

Morocco Agribusiness Promotion Project

PIP has been asked to organize and identify speakers for an applied postharvest technology conference to be held in Morocco in 1994. The focus of the conference will be on postharvest technologies having practical application for Moroccan agribusinesses who wish to enter the export market.