Evaluation of Recent SPS-Related Programs in Central America

RAISE SPS Evaluation Report #1

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PREFACE

Trade agreements such as the Free Trade Area of the Americas (FTAA) and the Central American Free Trade Agreement (CAFTA) are in the process of stimulating more open and fair trade of agricultural products between the Latin America and Caribbean Region (LAC), United States, and Canada. As the trend to reduce tariff barriers declines, there is a fear that technical and regulatory barriers will increase, especially those related to sanitary and phytosanitary (SPS) measures.

Significant portions of Central America were devastated by Hurricane Mitch in 1998. As a result, through the Central American Emergency Disaster Relief Fund (CACEDRF), USAID and USDA were funded to assist the Region in a series of export-led, agricultural diversification efforts. Many of these activities helped small farmers, associations, and cooperatives understand and overcome SPS-related requirements for agri-food products destined for export to the U.S.

In this report, Consultants Bash and Lopez-Garcia interviewed over 100 stakeholders (associated with 49 organizations) who were involved in the implementation and delivery of these assistance efforts in El Salvador, Guatemala, Honduras, and Nicaragua. Most interviewees were recipients of the technical assistance. The primary goal of the study was to evaluate the effectiveness of the SPS-related activities, determine what worked, identify shortcomings, and make a series of recommendations for the delivery of future services through development assistance programs.

The Consultants weigh the pros and cons of short vs. long term training and technical assistance in activities aimed at ensuring SPS-related compliance for a wide range of non traditional agricultural export (NTAE) commodities. It is noted, however, that successful SPS compliance alone cannot always ensure the kind of high value market penetration that may be required in order to accelerate economic growth in an environment crippled by devastating natural disasters.

John E. Bowman, Ph.D.
Chief of Party

May 31, 2003

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ACRONYMS

AGEXPRONT: Asociación Gremial de Exportadores de Productos No-Tradicionales

ANAVI: Asociación Nacional de Avicultura

ANDAH: Asociación Nacional de Acuicultores de Honduras

APHIS/USDA: Animal and Plant Health Inspection Service/US Department of Agriculture

CACEDRF: Central American Emergency Disaster Recovery Fund

CAFTA: Central American Free Trade Agreement

CAMAGRO: Cámara Agropecuaria y Agroindustrial

COEXPORT: Corporación de Exportadores

EUREPGAP Protocol 2000

FHIA: Fundación Hondureña de Investigación Agrícola

FSIS: USDA, Food Safety and Inspection Service

FTAA: Free Trade Area of the Americas

GAP: Good Agricultural Practices

GMP: Good Manufacturing Practices

HAACP: Hazard Analysis Critical Control Point

IBD: Banco Interamericano de Desarrollo

IICA: Instituto Interamericano de Cooperación para la Agricultura

IPM: Integrated Pest Management

LAC: Latin America and Caribbean Region

LYD: Lethal Yellow Disease of Coconuts

MSU: Michigan State University

OIRSA: Organismo Internacional Regional de Sanidad Agropecuaria

PAILA: Proyecto de Ayuda a la Industria Lactea

PIPAA: Programa Integral de Protección Agrícola y Ambiental

PRA: Pest Risk Assessment

PROARCA: Programa Ambiental Regional para Centroamérica

PVP: Plant Variety Protection

RAMSAR: Convention on Wetlands of International Importance as Waterfowl Habitat

SAG: Secretaría de Agricultura y Ganadería (Honduras)

UAC: Unión Aduanera Centroamericano

USACE: US Corps of Engineers

EXECUTIVE SUMMARY

This report is the result of a study conducted during March and April 2003 in four Central American countries—Honduras, El Salvador, Nicaragua, and Guatemala—to evaluate USDA- and USAID-funded programs addressing food sanitary and phytosanitary (SPS) conditions in Central America after Hurricane Mitch. The report's objective is to guide the design of future technical assistance programs that help food industries comply with SPS requirements and that take advantage of trade opportunities.

After Hurricane Mitch flooded much of Central America in October 1998, USDA and USAID helped rehabilitate damaged agricultural infrastructure and, recognizing an opportunity to strengthen regulatory agencies and upgrade SPS and food safety conditions, conducted a variety of SPS-related activities designed to enhance economic growth through increased trade of food products. USAID's post-Mitch Special Objective 3 was: "Hurricane-induced agricultural health risks will be reduced to levels consistent with existing WTO obligations and emerging food safety recommendations." Achieving this objective depended on three intermediate results: (1) enhanced health practices for agricultural production and management; (2) institutions essential for ensuring animal and plant health and food safety; and (3) rehabilitation of appropriate infrastructure. Activities included training programs for agricultural producers and processors on SPS trade requirements, strengthening of plant health and food safety institutions, and investments in infrastructure.

In order to facilitate the trade of safe, high value food products between the United States and Central America, USAID, USDA and other donors conducted programs to help Central American food industries meet SPS requirements and gain admissibility to United States markets. Programs for producers and processors included: training programs in good agricultural practices (GAP), integrated pest management (IPM), disease control for crops and livestock, good manufacturing practices (GMP) for dairy processing, NTAE marketing, a coconut breeding program, pest risk assessments required for admissibility to US markets, and identified Medfly-free areas. USDA built a mango treatment plant in Honduras, modernized cold storage and packing facilities in Nicaragua, and assessed the feasibility of food irradiation plants. USDA identified pest-free areas, set up monitoring and control programs, and conducted programs to help regulatory agencies define SPS requirements and accredit private SPS services.

Fourteen of USDA's post-Mitch programs in these countries were short-term training programs; two were long-term pest control programs; one was a long-term coconut breeding program; three involved food and water testing laboratories; and three were investments in physical infrastructure. Program budgets ranged from $50,000 to $3,000,000. GAP, GMP, and food safety training courses were short-term, low-cost activities, while NTAE marketing programs were medium-term and high cost. Pest and disease monitoring and control were long-term and high-cost, and infrastructure investment was even longer-term and higher-cost. The evaluation team grouped programs based on type (formal training, technical support, monitoring, physical infrastructure, and marketing assistance) and target stakeholders (regulatory agencies, beef, dairy, shrimp, fruits and vegetable industries) into four categories: good agricultural practices, pest and disease monitoring and control, infrastructure, and NTAE Marketing.

The final report on USDA's Hurricane Mitch Recovery Program concluded that post-Mitch SPS programs built capacity to withstand future shocks in two ways:

? By enhancing economic resilience (through international trade linkages and diversification of the domestic agribusiness sector); and
? By building a firewall that reduced the potential for negative impact of natural disasters in public health (national food safety protocols, food safety inspection programs, modernization of private sector food processing facilities).

This report supports the conclusion that these programs contributed to the goal of "enhancing economic resilience to future natural disasters in Central America." However, declaring victory and attributing it to USDA or USAID programs would be misleading. Short-term training, pest monitoring, crop breeding, and laboratories did not "diversify agribusiness or create the international trade linkages needed," according to USDA, for economic resilience to natural disasters. New physical infrastructure has had little impact, to date. Enhanced economic resilience, to the extent it occurred and can be attributed to post-Mitch programs, is due to a combination of factors, including synergies between short-term USDA training programs, and long-term technical assistance from USAID.

GAP training for producers and GMP training for processors transferred technology and stimulated investment when industry conditions were favorable. SPS-related programs worked particularly well when they were associated with complementary agribusiness development, and regulatory strengthening activities. The combinations of services and programs that worked best included the following:

? Technical assistance to producers in GAP and IPM, and to processors in GMP and HACCP systems;
? Product promotion in national markets to earn quality-based price premiums and justify investments in SPS compliance and food safety;
? Export marketing, particularly to ethnic and regional markets; and
? Technical support, accreditation, and privatization of selected regulatory services;

Sustained impact was associated with the integration of training, technology transfer, marketing, promotion, and institutional-strengthening. Future coordination of USDA's SPS programs with USAID's agribusiness development projects would facilitate long-term access to US markets and ensure high quality, safe products for national and regional markets. USDA pest risk assessments, monitoring and control programs, plant audits and product pre-inspections, coordinated with USAID agribusiness programs to increase the volume and safety of food products are potentially complementary, and could be used as a development tool to encourage production diversification based on competitive advantages.

Future USDA and USAID technical assistance, marketing, and infrastructure investments are needed to keep SPS compliance costs from excluding small farmers and processors, leaving only large ones to benefit from free trade agreements. These programs, combined with investment in SPS compliance and promotion in national markets to earn quality-price premiums, could result in increased exports, diversified markets, and safer food products in national markets.

Compliance with SPS requirements will not ensure access to high value markets, since official recognition of compliance can be a protracted process. Nevertheless, meeting SPS and food safety standards is a requirement for market access, and a potential source of competitive advantage.

The following recommendations are for future SPS programs that assist national food industries in making the transition from protected national markets to global competition.

Short Term GAP and GMP Training Programs

Investment in SPS compliance. When market demand is strong and prices are attractive, training programs like those conducted by USDA after Hurricane Mitch could stimulate investment in SPS compliance.

Price premiums to justify investments in SPS compliance. Without quality-based price premiums, GAP training for producers and GMP for processors need to be accompanied by national promotion programs to encourage consumers to pay price premiums, and producers to upgrade methods and equipment.

PRAs, Pest and Disease Monitoring and Control Programs

Export production in pest-free areas. Taking advantage of newly-identified pest-free areas and new market access based on pest risk assessments (PRAs) will require long term technical support and USDA recognition of pest-free status and admissibility.

Quarantine programs. Pest infestations and crop diseases are dynamic phenomena that require on-going monitoring and control programs. The roles of national quarantine agencies in Central American trade will diminish with the implementation of the tariff-free Unión Aduanera Centroamericana (UAC), and their roles in trade with third countries will increase with the Central American Free Trade Agreement (CAFTA) and the Free Trade Agreement of the Americas (FTAA). Strategic opportunities exist for accredited quasi-public and regional quarantine services.

Pest control programs with agribusiness projects. USAID should identify crops with good market and USDA should assess their admissibility potential, and conduct more PRAs. To take advantage of pest-free areas, USAID should encourage ministries of agriculture to continue monitoring and quarantine programs, producers and processors to invest in export fruit production, and USDA to official recognize Medfly-free zones.

SPS-Related Infrastructure

Ownership rights and management structure. Feasibility studies for infrastructure investment should address ownership rights, management responsibilities, and organizational sustainability.

SPS testing facilities. Stakeholders cited the need for a regional network of analytical laboratories, including reference laboratories and government-accredited laboratories.

NTAE Marketing Projects

Short-term SPS training. Training in GAPs, GMPs, and HACCP systems needs to be supported by follow-up on-the-job training, and long-term technical assistance programs involving HACCP audits and plant inspections.

Trade and investment. Stimulating trade, public-private partnerships, and private investment will require integrated approaches involving training and technical support, improved market access, and regulatory-strengthening.

I. INTRODUCTION

Central America depends heavily on agriculture for economic growth. Success in involving small farmers in NTAE (non-traditional agricultural export) production during the 1980s and 1990s depended on factors such as the technical characteristics of crops, economies of scale in production, returns on capital and repayment rates, labor intensity, management practices, production contracts, transaction costs, access to credit and export promotion. Success also depended on history and traditions, and experience with different crops, subsidies and remittances.

Today, new challenges exist. SPS compliance costs are rising. Supermarket and fast food chains are changing production and marketing practices. Supply and distribution agreements stipulate product and process standards, and tighter SPS requirements. Traditional wholesalers with inconsistent standards and monopolistic control over narrow product lines are losing ground to fruit and vegetable wholesalers specialized in supermarkets.

Tariff reductions due to free trade agreements make SPS requirements increasingly important as potential barriers to agricultural trade. Importing countries tend to view SPS compliance as insurance of food safety and avoidance of new imported pests and diseases. Many exporters, by contrast, view SPS requirements as unwarranted barriers created to protect the interests of farmers in importing countries. Having experience with pest and disease infestations, most exporters understand the need for plant and animal health protection, but they do not understand the importance of food safety to consumers in other countries.

Table 1 below summarizes the major challenges to food export industries, and some of the programs to address them. Table 2 lists recent SPS-related programs in Central America, most of them funded by USDA and USAID.

Table 1: Types of Projects Addressing SPS Market Barriers

SPS-Related Market Barriers	SPS Program Types
Plant pests and diseases	GAP Training - Crops
Animal pests and diseases	GAP Training - Livestock Pest and Disease Monitoring
Food safety problems Training and skill implementation	GAP, GMP, HACCP and Food Safety Training
Quality-based price differentiation in national markets	NTAE Marketing
SPS harmonization for access to regional markets	SPS policy harmonization
SPS Requirements for admissibility to US and EU markets	NTAE Marketing GAP GMP HACCP (required for meat, poultry, fish) PRAs
Animal and plant pest and disease restrictions	Pest and Disease Monitoring and Control
Packing sheds and cold chain	Infrastructure Investment, Good Storage Practices
Weak regulatory enforcement capabilities Personnel turnover in regulatory agencies Lack of transparent regulatory enforcement	Regulatory Institution-Strengthening (Interamerican Development Bank, OIRSA)

Table 2: Recent SPS-Related Programs

	Honduras	Nicaragua	El Salvador	Guatemala
Good Agricultural and Manufacturing Practices				
Integrated Pest Management for Food Safety; Good Agriculture Practices for Food Safety	?	?	?	?
Waterborne Disease: Causes and Control in Food Systems	?	?	?	?
Farm Level Food Safety/HACCP for Livestock Products; Training in GIS for Monitoring and Control of Livestock Pests; Epidemiological Field Surveillance For Livestock Diseases; Rehabilitation of Veterinary Laboratories; Extension Practices Improved for Dairy Food Safety; Food Safety for Milk and Cheese Production	?	?	?	?
Land o' Lakes	?			
Pest and Disease Monitoring and Control				
Strengthening Diagnostic Laboratories for Shrimp Disease Management; Enhance Regional Capacity for Monitoring and Control of Shrimp Aquaculture Diseases; Water Quality Monitoring and Control for Environmental Quality in Shrimp Aquaculture); Good Management Practices for Shrimp Farming	?	?	?	?
Establish Medfly-free Zones; Medfly-Free Zone Technical Advisory Committee for Policy Development and Implementation	?	?		

	Honduras	Nicaragua	El Salvador	Guatemala
Pest Risk Assessments for Admissibility of Non-Traditional Crops	?	?	?	?
Mitigation of Lethal Yellow Disease (LYD) of Coconuts	?			
Infrastructure				
Design and Construction of Hydrothermic Mango Treatment Facility	?			
Modernization of Cold Storage Shipping/Receiving Facility at Managua Airport; Construction of Vegetable Packing and Cold Storage Facility in Rivas		?		
Feasibility Study for Irradiation of Fruits and Vegetables	?	?	?	?
NTAE Marketing				
CDA; IDEA/Fintrac	?	?	?	?
Small-Scale Farmer Income and Employment Project; and Mitch Integrated Reconstruction Activity (CLUSA)		?	?	
Asociación gremial de Exportadores de Productos No-Tradicionales (AGEXPRONT) IICA Marketing Program				?

STUDY OBJECTIVES AND METHODS

During March 15 - April 13, 2003 a two-person evaluation team including Development Alternatives Inc. (DAI) economist King Bash and Michigan State University (MSU) food scientist Rebeca Lopez-Garcia conducted over 100 personal interviews (Appendix 3) with stakeholders in 49 organizations (Table 3)—regulatory agencies, donor programs, producer associations, agribusinesses, research and academic institutions—concerning over two dozen SPS-related programs conducted in Honduras, El Salvador, Nicaragua, and Guatemala (Table 2). Two weeks of research and interviews in Washington D.C. preceded this trip, and one week of report-writing by both members of the evaluation team followed it.

SPS-related programs for producers and processors included training in good agricultural practices (GAP), integrated pest management (IPM), good manufacturing practices (GMP), and NTAE marketing. They also included a plant breeding program to develop disease-resistant coconut varieties, pest risk assessments (PRAs) required for admissibility to US markets, and the identification of Medfly-free areas.

Programs for regulatory agencies included: investments in infrastructure needed for SPS compliance, the construction of a treatment plant for fruits and vegetables, modernization of cold storage and packing facilities, and a feasibility study for an irradiation plant. They also included training programs to strengthen the capabilities of regulatory agencies designing SPS systems, defining standards and protocols, and accrediting private SPS-related services.

The objective of this study is not to measure the overall success of technical assistance programs with SPS components, nor is it to identify constraints and bottlenecks to program

implementation. Instead, the goal is to evaluate the effectiveness of specific SPS-related activities, to determine what worked, to identify shortcomings and logical next steps, and to recommend approaches that can be rolled out in the future. The terms of reference of the study are provided in Appendix 3 and summarized as follows:

? Review publications on efforts by donor programs, regulatory agencies, and agribusiness to comply with SPS requirements for agricultural trade;
? Summarize SPS-related activities supported by USDA and USAID to promote agricultural exports;
? Determine what activities and interventions were effective and ineffective, and why;
? Assess the status of compliance with SPS regulations for exporters of targeted agricultural export commodities, and their abilities to comply; and
? Recommend activities and interventions that can be scaled up or replicated elsewhere.

USAID instructed the evaluation team to answer the following questions: "What approaches to SPS succeeded in helping producers and processors comply with SPS requirements? What didn't work and why? What steps were not taken that could have made them more successful? What activities could be replicated and 'rolled out' in the future?" These questions require clarification. "What succeeded" implies that the programs have ended, whereas several programs are ongoing (Fintrac's programs in Honduras and El Salvador, Land O'Lakes dairy program in Honduras, CLUSA's programs in Nicaragua and El Salvador, IICA's export policy and marketing program, FDA's audits of slaughterhouses in Nicaragua and Honduras, and FHIA's breeding program to control Lethal Yellow Disease of coconuts), with unknown long-term results.

Information from interviews was supplemented by public documents from the Internet, which provided the basis for this report (see Bibliography). The evaluation team lacked access to reports concerning the specific results, indicators, and activities of SPS-related programs. Therefore, this report is based primarily on the assessments of stakeholders in regulatory agencies (approximately 40 percent of respondents), donor agencies and project managers (20 percent), industry associations (20 percent), and academicians and agribusiness managers (20 percent), and not on the opinions and conclusions of program implementers. These qualitative assessments are complementary to program reports in guiding future activities and investments in Central America's rapidly changing SPS environment.

Note that this report focuses on formal, commercial food markets, including cash-based wholesale markets. They exclude the large and important, but largely unregulated and informal, rural markets. The terms "Central American" and "regional" are used synonymously. Due to difficulties distinguishing between stand alone projects and activities that are part of larger programs, the terms "program" and "project" also are used interchangeably.

Table 3: Organizations Interviewed

Organization	Honduras	El Salvador	Nicaragua	Guatemala
USAID	Mission Director Project Officers; Rural Diversification; Ag and Natural Resources	Trade and Economics; Water and Environment Economic Growth	Commercial and Rural Dev.; Strategic Management Agribusiness	Trade and Economic Analysis; Finance
Other US Government	USDA Animal and Plant Health Inspection Service	USDA Ag Officer US Embassy: Econ. and Commercial		
Ministries of Agriculture	Plant Health/ SENASA/SAG Animal Health / SENASA/SAG Agriculture and Livestock	Vice Minister Politics and Strategy Plant and Animal Health	Plant and Animal Health DGPSA / MAG-FOR	Norms and Regulations Unit/MAG
Other Regulatory Agencies		OIRSA (Organismo Internacional Regional de Sanidad Agropecuaria)	OIRSA MIFIC Ministry of Public Health	OIRSA Moscamed Program Food Regulation and Control / Ministry of Public Health
Project Implementers	CDA/Fintrac Land o' Lakes PAILA (Proyecto de Ayuda a la Industria Lactea	IICA (Instituto Interamericano de Cooperación para la Agricultura) Asociación CLUSA TechnoServe IDEA/Fintrac Programa de Frutas/IICA	IICA CLUSA Small Farmer APENN	
Agribusiness	AgroBioTek Laboratorios Chestnut Hill Farms CAFÉ COHORSIL EXVECO, S.A.	Arrocero San Francisco	Sahlman Seafoods Asociación Soya de Nicaragua	Exotic Farm Market S.A.
Producer Associations (Gremios)	ANDAH (Asociación Nacional de Acuicultores de Honduras)	CAMAGRO (Cámara Agropecuaria y Agroindustrial) COEXPORT (Corporación de Exportadores)	UPANIC (Unión de Productores Agrícolas) Faganic (Federación de Asociaciones Ganaderas)	AGEXPRONT (Asociación Gremial de Exportadores de Productos No-Tradicionales) PIPAA (Programa Integral de Protección Agrícola y Ambiental), ANAVI (Asociación Nacional de Avicultura)
Research and Academic	FHIA (Fundación Hondureña de Investigación		Centro de Investigación de Ecosistemas	

Organization	Honduras	El Salvador	Nicaragua	Guatemala
	Agrícola Zamorano		Acuaticos, Universidad Centroamericano	
Other Donors	Banco Interamericano de Desarrollo			
NGOs	Red de Desarollo Sostenible			

ORGANIZATION OF REPORT

The remainder of this report is organized as follows. Section II describes post-Mitch programs addressing SPS-related market barriers and compliance requirements. When the Unión Aduanera Centroamericana (UAC) comes into effect in 2004, reputations for food quality may become regional in scope. Problems created by one supplier of a single commodity will have the potential to threaten national and regional reputations. Section III describes weak regional regulatory agencies with inadequate resources to fulfill these responsibilities. Sometimes, they preferentially monitor and inspect large and easily accessible producers and processors. This selective regulatory enforcement punishes those producers and processors that try to operate legally. Section III summarizes the lessons learned from programs to strengthen and to harmonize SPS trade regulations at national and international levels, and how SPS programs need to be coordinated. (For example, dairy programs in Honduras successfully combined marketing, technical assistance in GAP and GMP, promotion, and technical assistance to regulatory agencies.) Moreover, Section III discusses the need for quality-based price differentiation in local markets. This section shows how export markets create investment incentives for SPS and food safety systems, and how promotion can foster active and discriminating national markets where consumers differentiate on the basis of food quality and safety.

II. EVALUATION OF RECENT SPS-RELATED PROGRAMS

GOOD AGRICULTURAL PRACTICES (GAP) AND GOOD MANUFACTURING PRACTICES (GMP)

GAP Training—Crops

? Integrated Pest Management for Food Safety; and
? Good Agriculture Practices for Food Safety

Geographic scope: Honduras and Nicaragua

Program objectives included:

? Improving producers' understanding of SPS requirements;
? Upgrading skills and methods needed for compliance;
? Enhancing food safety through improved production practices;
? Reducing the incidence of unacceptable levels of pesticide residues in fruits and vegetables; and
? Establishing a regional, collaborative network for ongoing IPM and pesticide safety training.

The returns to investments in GAP and IPM methods depend on access to markets that pay premium prices for high quality, safe food products. These USDA-funded training programs improved market access. Export markets that discriminate on quality are larger than upscale national and regional markets, but require "admissibility" status to enter the United States. The potential cost of rejections for non-compliance with SPS requirements is high.

The rapid decline in rejections of Honduran fruit and vegetable shipments is an indicator that these programs reduced the incidence of high pesticide residues in fruits and vegetable exports, in particular, and improved the safety of NTAEs in general, resulting in increased mango and papaya exports. However, the potential impact of GAP and IPM training programs was reduced, by the lack of follow-up to ensure that improved methods were implemented. On-the-job training to reinforce the skills learned in formal training sessions and implement them in the workplace, was missing, and most Central American producers remain poorly informed about SPS requirements. Training programs were not widely replicated, so the "training of trainers" approach apparently failed. The proposed regional collaborative network of IPM and pesticide safety trainers was never established.

Creating a regional network of food safety testing laboratories would increase the impact of IPM and GAP training programs. These laboratories would reduce export risks by testing for SPS compliance before products leave their countries of origin. The impact of GAP and IPM training programs would have been greater and more sustainable if they had been coordinated with programs to upgrade testing laboratories.

GMP and Food Safety

? Waterborne Disease: Causes and Control in Food Systems

Geographic Scope: Regional

Program objectives included:

? Increasing food producers' knowledge of water-related SPS requirements and improving their capacity for compliance; and
? Enhancing food safety through improved water quality and irrigation practices.

This program addressed potential sources of risk of waterborne disease transmission, particularly in fruits and vegetable exports. Producer and educational institutions - PIPAA in Guatemala, APENN and CEI in Nicaragua, FHIA and Zamorano in Honduras - participated in these programs. They all are well positioned to replicate the training to producers.

This training program was a response to the *cyclospora* pathogen detected in Guatemalan raspberries in 1997. The relationships between irrigation, diary waste, sewage systems, human pathogens, and improper agricultural practices for fresh raspberries were identified. However, the highly publicized process by which these relationships were established caused serious damage to the industry. AGEXPRONT and other export promotion organizations are unlikely to manage future food safety problems with the same level of transparency in the future. The *cyclospora* case is an example of how producers and exporters can be penalized for trying to comply with SPS requirements.

An indicator of this program's success is the renewal of raspberry exports to the United States. Nevertheless, the training program was "too little, too late." Guatemala's reputation for unsafe raspberries already was established. Only one Guatemalan raspberry producer continues to export to the United States, down from six in 1999 and 85 in 1996. Raspberry producers modified their export strategies, and are targeting national and regional markets with higher potential profitability, lower risks of inspections and rejections, and lower SPS compliance costs.

Food safety training programs would have greater impact on NTAE exports if they were associated with complementary programs to improve market access and increase sales prices. These programs' sustainability will depend on the success of efforts to harmonize SPS regulations at the national and regional levels, strengthen regulatory enforcement capabilities, and provide incentives to investing in food safety.

GAP and GMP Practices—Livestock and Dairy

? Farm Level Food Safety/HACCP for Livestock Products;
? Training in GIS for Monitoring and Control of Livestock Pests;

? Epidemiological Field Surveillance For Livestock Diseases;
? Rehabilitation of Veterinary Laboratories;
? Extension Practices Improved for Dairy Food Safety; and
? Food Safety for Milk and Cheese Production

Geographic Scope: Honduras and Nicaragua

Principal organizations involved: APHIS, Ministries of Agriculture and Health, OIRSA, Texas A&M, North Carolina State University, Zamorano, Land O' Lakes, RDS, ENA, FPX, Partners of America, and Livestock Associations

Program objectives included:

? Strengthening systems for monitoring food safety;
? Establishing microbial testing protocols;
? Enhancing cheese processing and packing skills to ensure food safety;
? Upgrading infrastructure in milk collection centers and small- to medium-size cheese making facilities.
? Meeting basic internationally-recognized sanitary standards;
? Enhancing the capacity to diagnose livestock diseases;
? Establishing epidemiological surveillance and control for seven animal diseases;
? Generating data for export certification of animals and animal products; and
? Establishing the use of GIS to fulfill international reporting requirements.

USAID and USDA conducted several post-Mitch programs to develop the dairy industry, including food safety training programs for dairy producers, coolers for milk collection centers to maintain quality and increase shelf life, and assistance in negotiating with processing plants for quality-based price premiums (see GAP and GMP dairy training programs above). Producers benefited from increased productivity and income, and consumers benefited from improved quality and safety.

These training programs provided tools needed by regulatory agents for epidemiological surveillance and control of livestock diseases, and by dairy producers to upgrade food safety. Training in laboratory protocols provided the technical basis for certifying beef and dairy export producers. Follow-up, on-the-job training to reinforce the skills learned in formal training settings was not provided by the ministries of agriculture, Zamorano, or livestock associations. Fortunately for producers in some areas, long-term technical assistance programs helped implement the new methods (see Land o' Lakes below).

Upgraded artisanal cheese plants benefited relatively few producers. Only five of the plants where operators were trained, and less than one percent of the estimated 600 artisanal cheese processing plants in Honduras, eventually passed FDA inspections. Furthermore, the upgraded plants compete in national markets with cheese made under unsanitary conditions from low quality milk. Since the national market does not differentiate dairy products based on safety or quality, the upgraded plants operate at a cost disadvantage, and benefit little from food safety

investments. Lacking national standards of food identity that provide legal distinctions, product differentiation depends entirely on promotion.

There is a significant demand for authentic Central American soft cheeses. While not large, soft cheese is the kind of market where Central America has sustainable competitive advantages. The extent to which short-term training in good milking practices, GAP, and GMP ("Extension Improvement for Food Safety in Cheese Production" and "Good Safety for Milk and Cheese" resulted in safer cheese products depended on follow-up training and assistance. In eastern and southern Honduras, for example, the PAILA project (Proyecto de Ayuda a la Industria Lactea) provided follow-up, on-the-job training to dairy farmers, milk collection centers, and cheese processors. Presently, this collaborative approach between donor programs, agribusiness, and regulatory agencies is operating on a small scale. Nevertheless, the approach provides a useful model for emulation. If Honduran milk producers are protected from subsidized, imported milk powder, they can carve out a sustainable niche for Honduran cheeses in Central American and US markets.

Recent events in Central America's dairy industry show the need for additional training and technical assistance. A dairy processor in El Salvador, for example, invested in modern sanitation technology and HACCP systems for export production. Nevertheless, their cheeses were detained for inspection at the US border. Lacking a clear understanding of detainment and inspection procedures, and exporters' rights under these conditions, the company waited months for a decision. Eventually the cheese, which satisfied SPS and documentation requirements, was destroyed. Meanwhile, the demand for Central American cheese is supplied by low-quality "suitcase cheese" smuggled from Central America to the diaspora in the United States.

LTTA—Dairy

? Land O' Lakes

Geographic Scope: Honduras

Project objectives included:

? Training milk collection centers and dairy processors in good manufacturing practices; and
? Promotion of dairy products in national markets.

Recent donor-funded dairy programs show the potential benefits of integrated approaches to SPS requirements. SPS training and upgraded laboratories, combined with marketing programs to differentiate products on the basis of quality, have synergistic effects. The potential returns on investments in food safety and marketing depends on access to markets for high-quality dairy products, and buyers willing to pay quality-based price premiums. Without these premiums, producers have little incentive for investments in food safety.

Donor-funded dairy programs focusing on niche markets for ethnic-style dairy products in export markets are a strategic response to changing SPS requirements. The success of this strategy will require consistent compliance with SPS requirements. The potential benefits of a healthy dairy industry could be eliminated by rapid market liberalization results in the blending of Central American with subsidized, imported powdered milk, which would wipe out the competitiveness of local dairy industries.

The Central American dairy industry cannot compete on a cost basis with imports. Inadequately defined national food standards create additional problems of differentiating products on the basis of quality. Fortunately, a cluster of development programs (Land o' Lakes, PAILA in Honduras, cheese processors in Nicaragua, and exporters in El Salvador) were well positioned to take advantage of USDA and USAID training programs after Hurricane Mitch, and promote industry-wide quality standards.

In an attempt to differentiate dairy products on the basis of quality, and position them in upscale markets, Land o' Lakes is conducting a mass media campaign to raise consumer recognition of its Seal of Quality. The program targets the Central American middle class which, according to Land o' Lakes, represents "a segment of consumers (that) will place quality attributes such as food safety, freshness, and taste above price when purchasing food for the family." Future dairy programs need to take into account the:

? Importance of maintaining reputations for consistently high quality;
? Opportunities to differentiate Central American food products on the basis of quality and safety; and
? Overall costs and benefits of food safety programs.

PEST AND DISEASE MONITORING AND CONTROL

GAP Training—Shrimp

? Strengthening Diagnostic Laboratories for Shrimp Disease Management;
? Enhance Regional Capacity for Monitoring and Control of Shrimp Aquaculture Diseases;
? Water Quality Monitoring and Control for Environmental Quality in Shrimp Aquaculture; and
? Good Management Practices for Shrimp Farming.

Geographic Scope: Honduras and Nicaragua

Primary organizations involved: University of Hawaii, Rhode Island University, University of Arizona, Zamorano, Auburn University, ANDAH, SAG, INFOP, and Private Laboratories

Program objectives included:

- ? Providing information on good shrimp production practices for small- and medium-size producers;
- ? Training in water quality monitoring;
- ? Strengthening collaboration between public and private laboratories;
- ? Strengthening the diagnostic capabilities of laboratories; and
- ? Assessing water quality in the Gulf of Fonseca.

Shrimp exports represent a large portion of agricultural exports from Honduras and Nicaragua. When Hurricane Mitch damaged shrimp industry infrastructure, USAID rehabilitated laboratories in shrimp production areas, trained producers in "Good Management Practices for Shrimp Farming," and trained regulatory agencies in "Water Quality Monitoring and Control for Environmental Quality in Shrimp" and "Enhanced Regional Capacity for Monitoring and Control of Shrimp Aquaculture Diseases." Some training participants, including ANDAH, (Asociación Nacional de Acuicultores de Honduras), continue to provide training and technical support to producers.

Programs that combine technical assistance and environmental monitoring help Central American shrimp producers remain competitive in increasingly competitive global markets. Global prices are depressed due to Asian production of shrimp varieties popular in the United States and EU. These programs also help producers compete in regional markets. In Honduras, where shrimp consumption is rising due to improved quality control systems, according to Zamorano, some shrimp producers find national markets to be more profitable than exports.

These training programs upgraded the shrimp production management skills and practices of medium- and large-size producers. They improved the capabilities of aquaculture laboratories to diagnose shrimp diseases and monitor water quality. (The Contaminant Survey and Assessment of the Gulf of Fonseca showed the levels of pesticides, heavy metals, fertilizers and other chemical contaminants and identified some potential problems.) Coordination between public and private laboratories is a strategically important result of these training programs, and may be an initial step towards accreditation.

The profitability of the shrimp industry and its importance to national exports help ensure the sustainability of training and laboratory programs. The Universidad Centroamericana assumed the costs of laboratories when post-Mitch funding ended in Nicaragua, and a shrimp producer association continued operating laboratories in Honduras. Nevertheless, they have inadequate analytical equipment for follow-up work to detect and control contaminants, including pesticides, heavy metals and antibiotic residues in water used for shrimp farming. Eventually, the ministries of agriculture should accredit private shrimp laboratories to conduct this work.

Future SPS training for the shrimp industry should help shrimp organizations develop their laboratory operations and water monitoring capabilities, and create a regional network of laboratories that optimizes resources and analytical capabilities. Forming an international association of aquaculture laboratories and producers in the Gulf of Fonseca also could be useful.

Pest Risk Assessments

? PRAs for Admissibility of Non-Traditional Crops;

Geographic Scope: Regional

Principal organizations involved: APHIS/USDA, Ministries of Agriculture

Program objectives included:

? Assessing the potential risks of pests associated with twelve NTAEs from Central America to the United States.

After Hurricane Mitch, in an effort to create new export opportunities for Central American farmers while protecting U.S. producers from potential SPS hazards, USDA conducted pest risk assessments on a variety of crops including mint, chamomile, basil, fennel, oregano, parsley, rosemary, sage, water lily roots, yam bean, and long beans produced in Central America (see Appendix 2). These crops were not chosen on the basis of their current economic importance or potential export earnings, but on the basis of food safety risks (an FDA study conducted in 1999 indicated a high incidence of microbial contamination on imported culinary herbs) and the higher probability of their admissibility to the United States. They are unlikely to become important export crops generating significant income.

On a positive note, this program demonstrated USDA's ability to quickly assess the risk of pests in NTAEs with export potential. New PRAs will be critical to future NTAE programs, which can use the post-Mitch program as a precedent for "fast-track" PRAs.

Medfly-free Zones

? Establish Medfly-free Zones;
? Medfly-Free Zone Technical Advisory Committee for Policy Development and Implementation.

Geographic Scope: Regional

Principal organizations involved: USDA/PECAD, OIRSA, IICA, FAO, APHIS, International Atomic Energy Agency

Program objectives included:

? Identifying and monitoring Medfly-free zones;
? Eradicating Medfly and other fruit flies in regional fruit-producing areas; and
? Enhancing short term crop production and export potential.

This program, funded by the International Atomic Energy Agency, identified Medfly-free zones in Central America and established programs to monitor them. Unfortunately, most of these zones are not in important fruit and vegetable production areas. Consequently, the economic impact of these programs has been minimal. On-going monitoring programs are needed to maintain Medfly-free status, and will require investments that will be difficult to justify without export income.

Before agricultural development projects can take advantage of the newly-identified Medfly-free zones, USDA and other international organizations must officially recognize them as Medfly-free. The process of conducting PRAs and defining conditions under which products from these zones can enter the United States is protracted. Medfly-free areas in Mexico were recognized officially after 10 years, and Guatemalan areas took 12 years. Collaboration between USDA and USAID could facilitate this process and synchronize export production with admissibility approvals.

LTTA Crop Breeding

? Mitigation of Lethal Yellow Disease (LYD) of Coconuts.

Geographic Scope: Regional

Primary Institutions Involved: FHIA, IICA, SAG, APHIS, Caritas, Zamorano

Program objectives include:

? Mitigating the impact of LYD;
? Breeding LYD resistance into conventional varieties; and
? Propagating and distributing disease-resistant planting materials.

USAID-funded a long-term breeding program currently underway at FHIA (Fundación Hondureño de Investigación Agrícola) to develop replacements for traditional coconut varieties affected by Lethal Yellow Disease. FHIA imported LYD-resistant dwarf and hybrid coconut plants from Jamaica, established validation trials to assess them in LYD areas, and established nurseries for future breeding programs.

INFRASTRUCTURE

Mango Plant

? Design and Construction of Hydrothermic Mango Treatment Facility

Geographic Scope: Honduras

Principal organizations involved: USACE, SAG, PRO-MANGOH, Fintrac

Program objectives included:

? Providing treatments to control Medflies in mangos.

By providing hydrothermic treatment for Medfly larvae, this US Army Corps of Engineers (USACE) program enhanced the export potential for Honduran mangos. The plant is a complement to, not a substitute for, good agricultural practices (GAP) for Medfly control. The plant is also part of the protocol required to export these products to the United States.

The hydrothermic plant shows how cultural and organizational constraints, such as weak producer associations, can delay or eliminate the benefits from investments in physical infrastructure needed to meet SPS requirements. The mango producer association was too weak to take advantage of this donation. The facility is underutilized and lacks clear guidelines for user rights and management responsibilities. In 2002, its first year in operation, stakeholder disputes limited the use of the plant to only two exporters. Other producers expected to use the plant in 2003, but two weeks before mango season, when field work was conducted, the plant still was non-operational.

Fruit and Vegetable Packing Plants

? Modernization of Cold Storage Shipping/Receiving Facility at Managua Airport; and
? Construction of Vegetable Packing and Cold Storage Facility in Rivas.

Geographic Scope: Nicaragua

Program objectives included:

? Increasing income and export potential for Nicaraguan fruit and vegetable producers.

Some Central American packing facilities (e.g., oriental vegetable packers in Honduras) are "accidents waiting to happen." The packing areas visited by the Evaluation Team were filthy with rotten vegetables and employees did not understand the basics of hygienic food handling. These issues must be addressed before a food safety related incident occurs. By increasing the capacity and upgrading the equipment of cold storage facilities in Rivas, Sebaco, and the Managua airport, these investments enhanced income and the export potential of fruit and vegetable producers. (This program was similar to FHIA's investment in a pre-cooling facility in La Esperanza, Honduras, funded by USAID as part of REACT - Project for the Reactivation of the Agricultural Sector by Technology - which played an important role in the recovery of Honduran plantain production after Hurricane Mitch.) Other industries, including suppliers of

veterinary and health care products, also benefit from cold storage facilities. Although their use for non-food products increases the risks of contamination.

Increased cold storage capacity and upgraded packing facilities in Rivas, Sebaco, and the Managua airport increased the incomes and exports of only a handful of fruit and vegetable producers. The under-utilization of these renovated facilities indicates that market studies over-estimated the demand for cold storage. Unable to operate the Rivas and Sebaco facilities profitably, APENN rented them to private exporters. Additional technical assistance is needed to improve sanitization and avoid corrosion due to improper use of sanitizers. Follow-up on-the-job training also is needed to ensure good storage practices, improve record-keeping, and upgrade temperature control systems. Improving and maintaining these facilities will require on-going support.

Irradiation Plants

? Feasibility Study for Irradiation of Fruits and Vegetables.

Geographic Scope: Regional

Principal organizations involved: International Atomic Energy Agency, FAO, OIRSA, CAP

Program objectives included:

? Investigating the feasibility of alternative treatment methods for Medfly control to increase fruit and vegetable export volumes.

Given sufficient volumes of fruit and vegetable exports, irradiation could be an attractive alternative to hydrothermic treatment of fruits and vegetables, resulting in lower treatment costs and SPS risks. Before investors are inclined to build an irradiation plant to serve the region, at least two preconditions must be met : an increase in fruit, vegetable, and meat production levels that justify investment in a new plant; and protocols developed for irradiation of different fruit, vegetable, and meat products and submitted to USDA for approval.

NTAE MARKETING

Fintrac

? CDA and IDEA/Fintrac

Geographic Scope: Honduras and El Salvador

Project objectives include providing:

? Technical assistance to increase production of fresh and processed fruit and vegetables for national and export markets;
? Technical assistance to maintain quality and safety during post-harvest operations; and
? Market information, business management, and investment analysis services.

These projects are increasing exports of fresh and processed fruits and vegetables. Working through processors, marketing agents, and industry associations, they are penetrating traditional export markets and establishing new market linkages with supermarkets in the United States, Europe, and Latin America. Project activities are focused on a relatively small number of farmers. As a result, they would be expensive to implement on a large scale. Nevertheless, they provide useful examples of training programs involving formal and on-the-job training that could be adapted to the budgets of future programs.

The long-term sustainability of Fintrac programs depends on market linkages with supermarkets. Production contracts specifying prices, volumes, quality characteristics, and SPS requirements are critical to sustainability. Fintrac expects supermarket expansion to continue and production contracts to proliferate, requiring producers to meet increasingly high safety standards. Some supermarkets may provide technical assistance to producers. Others will merely require producers to meet standards, which will provide incentives to invest in the GAPs and GMPs Fintrac promotes.

Fintrac activities would have greater impact if they were accompanied by an enabling policy environment, national food standards, food industry safety standards, PRAs for a range of new crops, and a phased-in regulatory enforcement system.

CLUSA

? Small-Scale Farmer Income and Employment Project; and
? Mitch Integrated Reconstruction Activity
? IICA NTAE Marketing Program

Geographic Scope: Honduras and Nicaragua

Program objectives include:

? Transferring knowledge and skills to small farmers producing and marketing organic crops; and
? Identifying and addressing food quality and SPS-related constraints.

These projects are diversifying small farmer production into organic foods (coffee, lettuce, strawberries, baby carrots, green onion, spinach, zucchini, cacao, sesame, cashew, soybean, radish, banana, potatoes, flowers, and others). The low-input management practices used since the 1980s, when cotton production ended, facilitate the conversion from conventional to organic

production. Abandoned fields, where agrichemicals and fertilizers have not been applied for decades, are widely available. Through improving production and marketing methods, these programs are increasing the incomes of thousands of small farmers, cooperatives and producer groups. CLUSA's extension systems deserve emulation.

These projects continue to provide technical assistance, train farmers, improve market access, and monitor changes in SPS requirements. Their ability to help farmers meet the SPS requirements of foreign markets is undermined by changes in SPS regulations that threaten to create confusing and expensive new sets of SPS-based, non-tariff trade barriers. As a result, these projects, like many Central American food marketing organizations, are turning to national and regional markets where SPS requirements are loosely enforced, rather than depending on traditional export markets where SPS requirements are changing and increasing costs and risks.

Industry Marketing Associations

? Asociación Gremial de Exportadores de Productos No-Tradicionales (AGEXPRONT)

Program objectives include:

? Representing the interests of producer organizations in crop-specific committees;
? Promoting exports of diverse products;
? Identifying new marketing opportunities;
? Developing promotional materials and participating in trade fairs;
? Developing workshops and providing technical support; and
? Providing logistical support to PIPAA's pre-inspection export services.

AGEXPRONT plays important roles in promoting Guatemalan NTAEs through training, trade promotion, market information, and activities that increase export efficiency and competitiveness. AGEXPRONT works closely with regulatory agencies, producers, and exporters. The organization holds trade fairs in Guatemala and sends exporters to international trade shows and missions. Its Documentation Center makes international trade publications publicly available. It advertises Guatemalan exports, distributes market information, and facilitates access to foreign markets. AGEXPRONT's Trading Center Guatemala provides information to potential investors, match-making services for them to meet Guatemalan suppliers, and business counseling services to expedite negotiations.

AGEXPRONT organizes seminars, conferences, workshops, and field days. Moreover, their School of Foreign Trade offers specialized programs, and provides scholarships for international education. Through the Agricultural Research Fund, AGEXPRONT and the Ministry of Agriculture help farmers and exporters conduct research and field trials, identify new products with export potential, transfer technology, and improve the quality of NTAEs. AGEXPRONT provides logistical support to PIPAA's pre-certification program, which is recognized by regulatory agencies in importing countries.

Two decades of technical and financial support to NTAE promotion organizations like AGEXPRONT have had limited impact. AGEXPRONT should broaden its focus to include more national and regional markets. (Guatemala is already a major exporter of fruits and vegetables to El Salvador and Honduras, while Costa Rica is more important in Nicaragua.) AGEXPRONT could help producers adapt to new SPS requirements, encourage production of high-value specialty products, and avoid overproduction.

III. CONCLUSIONS AND RECOMMENDATIONS

USING SPS TO COMPETITIVE ADVANTAGE

SPS requirements are growing in the United States, the European Union, and Central America. US food producers tightened industry standards to protect their reputations for high quality and safety. European consumers, who tend to be more skeptical of food regulatory agencies, are insisting on higher standards, resulting in EUREPGAP. EUREPGAP specifies not only SPS requirements, but also labor conditions and environmental protection practices of exporters. Many Central American exporters believe that US import requirements will follow the EU's example.

Private firms, including supermarkets and fast food chains, play important roles in SPS requirements. Some supermarkets are demanding equivalent safety and quality standards in all their markets. Increasingly, production contracts are specifying SPS requirements, in addition to volumes, prices, and quality characteristics. As a result, SPS compliance costs of new equipment and methods, regulatory transaction costs, inspections and audits, are rising.

Successful export marketing programs in Central America are highly attuned to SPS requirements and the costs of non-compliance. They offer GAP and GMP training and follow-up technical support to ensure consistent food quality and safety. Three examples of successful USAID-funded export marketing programs include:

? AGEXPRONT, funded by USAID and private exporters in Guatemala, has provided export marketing services for the past two decades, working closely with regulatory agencies like USDA, providing pre-certification inspections of NTAEs, and training producers and food processors.

? Fintrac's NTAE export marketing programs in Honduras and El Salvador are relatively new, by comparison, but are similar to AGEXPRONT in terms of providing technical assistance to producers and processors in GAPs and GMPs.

? CLUSA's Small-Scale Farmer Income and Employment Project in Nicaragua and El Salvador also provide technical assistance in GAPs, but primarily focus on organic fruits and vegetables in national and export markets.

All these programs involve collaboration with other SPS-related programs. Many of Fintrac's clients in Honduras, for example, operate under production contracts that provide access to IDB credit for drip irrigation equipment. CLUSA and IICA export marketing programs in Nicaragua have access to USDA-funded, modernized fruit and vegetable packing and cold storage" facilities managed by APENN. Each program was supported by short-term USDA training programs: "Integrated Pest Management for Food Safety," "Good Agricultural Practices for Food Safety in Fruits and Vegetables," "Waterborne Disease Cause and Control in Food Systems," and "Plant Health Systems: Design, Operation and Management". These programs

also provided opportunities for agribusiness and regulatory agencies to discuss ways to harmonize SPS programs in order to address the requirements of different markets.

Central American food companies are increasingly marketing to national, regional and ethnic diaspora markets, rather than to conventional US and EU food markets. Whether producing for the US, EU, or Central America, however, SPS requirements are becoming more stringent, requiring investment merely to maintain market access. Tighter SPS requirements are particularly troublesome for minor crops that do not justify sizable investments. These investments often provide indirect benefits, like improved input utilization efficiency and reduced risk of inspections, internment, recalls, and consumer complaints. Still, many food companies continue to search for low cost, low-risk ways to satisfy SPS requirements.

Some firms have invested in good manufacturing practices and are teaching their suppliers to use good agricultural practices. Other firms are weighing their alternatives, which include upgrading food quality, packaging, food safety, and new promotion and distribution strategies to justify these investments. Yet others have concluded that they cannot compete with foreign suppliers or meet supermarket requirements, and are either converting to other products, repositioning for informal markets, selling out, or closing down. Some industries are lobbying for exemption from free trade agreements. Dairy producers, for example, expect to remain exempt from WTO guidelines to eliminate trade tariffs. Poultry producers are lobbying for exemption. Other agribusinesses are taking a "wait and see" approach until SPS requirements and other market conditions are better defined and understood.

Recommendations: In order to compete in international markets, Central American food suppliers need to continue investing in equipment, training and analytical services to meet international standards. Time and technical support are required for these investments to help suppliers make successful transitions from protected to open markets. The transition to HACCP standards, for example, typically requires a year or two of OTJ training and technical support. Donor programs can play important roles in these transitions by encouraging firms to adopt good manufacturing practices, advocating for regulations consistent with target markets, providing technical assistance for modernization and regulatory harmonization, and encouraging public-private investment. Perhaps most importantly, donors can remind members of the hazards of doing nothing to prepare for competitive conditions under UAC, CAFTA, and FTAA.

Successful training programs (e.g., fruit, vegetable, shrimp and dairy GAPs, GMPs, and HACCP systems) should be expanded to include other crops and more producers. In addition to SPS compliance, training should address SPS and food safety in general, and enforcement programs in particular, including industry self-regulation, public enforcement programs, contract production arrangements involving SPS compliance, and consumer responses to unsafe food products. Formal training typically requires follow-up, on-the-job training.

PEST AND DISEASE MONITORING AND CONTROL

Successful pest and disease control programs would have more impact if they were integrated into agribusiness development projects. Since most export fruit production occurs outside

Medfly-free zones, the "Identification and Monitoring of Medfly-free Zones," "Control and Eradication of Mediterranean Fruit Fly," and "Integrated Management of Fruit Flies" programs did not increase exports significantly or lower marketing barriers. Proposals to expand Medfly-free areas are under consideration, but would require large investments.

Recommendations: Combine pest monitoring and control programs with agribusiness projects to take advantage of newly-identified Medfly-free areas. Future SPS-related programs should identify high value crops that justify continued quarantine and monitoring programs, Suppliers should be encouraged to invest in export fruit production in these areas. USAID should seek ways to expedite official recognition of these areas as Medfly-free, and work with APHIS in conducting PRAs to identify other tropical fruits for US markets.

INFRASTRUCTURE DEVELOPMENT

To date, large-scale post-Mitch investments in infrastructure to address SPS constraints have not increased exports significantly. The design of the hydrothermic mango treatment plant in Honduras inadequately specified ownership and management rights, resulting in underutilization. Packing plants and cold storage facilities in Nicaragua are also under-utilized. The results of the irradiation feasibility study are unknown.

Recommendations: Some stakeholders told the evaluation team that developing efficient regional systems for agricultural trade will require laboratories accredited to perform analysis and certifications. A regional network of reference laboratories could be formed from laboratories previously established by donor agencies. The network would include FHIA and several of the national laboratories built and equipped by the IDB. Some laboratories have equipment and technology that national research budgets can not afford. Other facilities are over-equipped to address the current needs, or have inadequately trained personnel. Some laboratories are closed or under-utilized, but could be reactivated for the laboratory network.

QUALITY-BASED PRICE DIFFERENTIATION IN NATIONAL MARKETS

Central American food companies that are not low-cost suppliers need to differentiate their products in order to compete in increasingly global markets. Investment in product differentiation must be linked to price premiums, or it merely reduces the cost competitiveness of upgraded plants. For example, programs to renovate milk collection centers and upgrade cheese processing plants in the absence of price premiums offer few benefits. Regulations need to be phased in over time, providing opportunities for food companies to adapt and invest in new processes and equipment. Premature enforcement of regulatory requirements merely punishes those producers that are trying to comply, forcing non-compliers into informal market arrangements, and risking the reputation and viability of the entire industry.

Agricultural products can be differentiated by certifying them as organic, produced and marketed using fair trade practices, or environmentally benign. AGEXPRONT, Fintrac, CLUSA, and Land o' Lakes are using third-party certification to differentiate products, add value, and raise farm-

gate prices. AGEXPRONT created a "Food Safety Certification System" using HACCP controls consistent with Codex. The PIPAA (Programa Integral de Protección Agrícola y Ambiental) certification agency issues a quality seal. Land O' Lakes offers a "Dairy Seal of Approval" for milk collection centers meeting quality standards. New private SPS laboratories and organic certification services are appearing. "Green labels" are proliferating. PROARCA (Programa Ambiental Regional para CentroaméricaCentro America)proposes to certify environmentally-friendly shrimp production.

Public regulatory agencies may lack resources for certification programs, but private third-party certifiers can provide analytical and auditing services, leaving public regulators to develop accreditation systems to ensure that certifications are based on technical criteria, and are not susceptible to commercial interests.

Reputations for quality can be industry-wide or national, particularly in small countries. Food safety problems in one crop can damage the reputation of an entire industry or country. The UAC will increase the hazards of bad reputations; local SPS and food safety problems may affect the reputations of exporters from the entire region. Strong regulatory agencies are essential to SPS compliance, exports, and food safety in national markets.

Guatemalan berry producers learned the importance of food quality reputations. The *cyclospora* outbreak in raspberries caused large financial losses and damaged the reputations of Guatemala fruit and vegetable producers. The resulting automatic detentions and inspections led to the creation of PIPAA, a public pre-inspection and certification agency. PIPAA is responsible for verifying the use of good agricultural practices and good manufacturing practices for fresh fruits and vegetables. PIPAA is an example of a successful food safety system for exports, and a way to upgrade sanitary standards in national and regional markets. The agency is based on prevention and verification, rather than sampling and inspection, and supported by an effective regulatory framework.

The importance of plant and animal health remains unclear to many processors and regulatory authorities in the region. Open-air fruit and vegetable packing plants and artisanal cheese producers are "accidents waiting to happen" in export markets. There is a high likelihood of microbial contamination, which will reflect on Central American agricultural exports in a detrimental fashion, increase inspection costs, and increase the likelihood of product rejections.

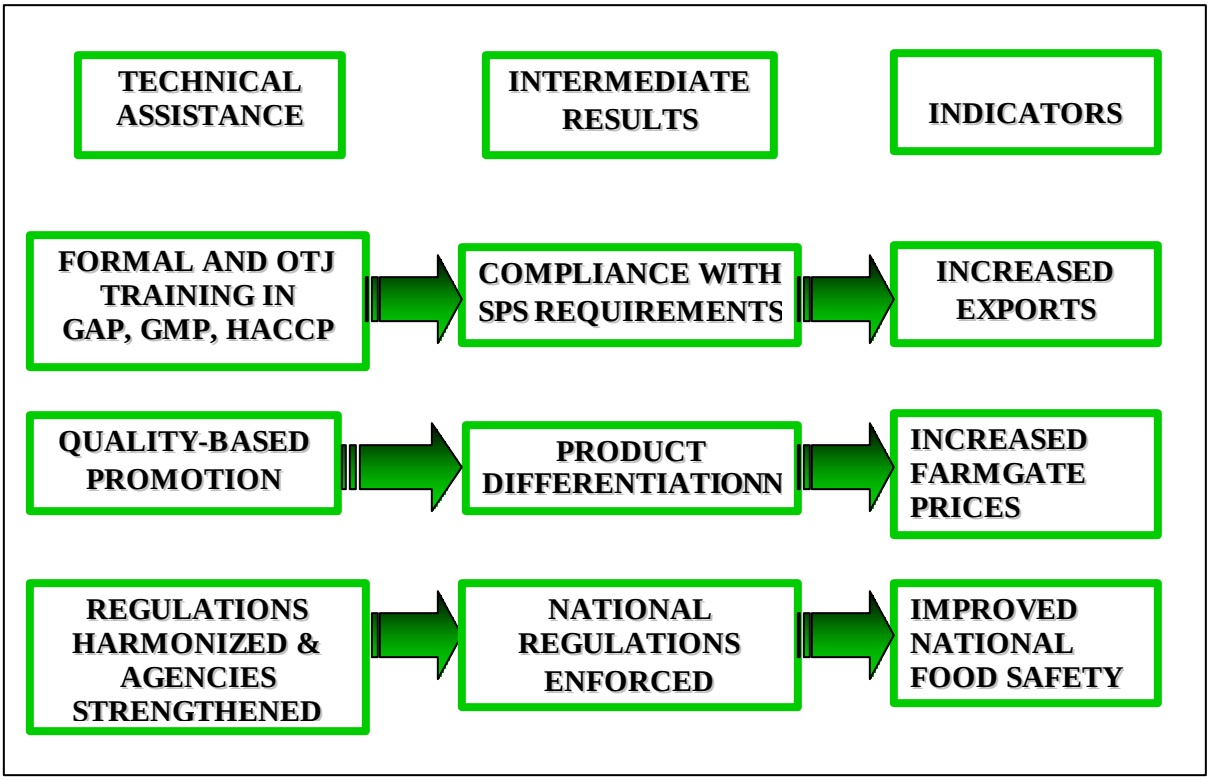
Recommendations: To develop a reputation for high quality, and avoid potential lawsuits from consumers, Central American food industries need to upgrade and protect their reputations for consistency, quality, and safety. Cheeses, for example, need to be differentiated on the basis of quality, and promoted in national markets. Recent SPS-related dairy programs provide examples of successful investments in food safety, complemented by promotion in national markets. They should be rolled out to many milk processing plants to foster a "food safety culture" in the dairy industry.

Figure 1 shows how training, promotion, and regulatory strengthening could help Central American food industries adapt to new SPS requirements. The first step is to provide technical assistance in SPS compliance, including GAP and GMP training to produce high-quality food

products for export and upscale national markets. Simultaneously, USDA should conduct pest risk assessments on a variety of new crops with attractive market potential. Between exports, fast food, and supermarkets, the demand for premium-priced products will motivate processors to invest in quality, efficiency, and higher SPS standards for raw materials. Promotional programs funded by donors and producer associations can accelerate this process by helping to differentiate food products on the basis of quality, instead of strictly on price. As Central American food products are repositioned as premium products in US ethnic markets, national consumers will be increasingly willing to pay quality-based price premiums.

Eventually, when a critical mass of food producers meet SPS requirements, regulatory agencies can phase-in SPS enforcement programs, allowing time to adopt new technologies, pressuring low-quality producers to upgrade their operations, and eventually requiring them to invest or face onerous penalties.

Figure 1: Integrated SPS, Marketing, and Regulatory-Strengthening Strategy



BIBLIOGRAPHY

GUATEMALA

Ministry of Economics/ECLAC (2002). National Action Plan for Trade Capacity Building in Guatemala.

Hamilton Sarah and Sullivan Glenn (2001). Economic and Social Impacts of Non-Traditional Export Crop Production in Highland Guatemala: Impact Perception Survey.

Damiani Octavio. "The State and Nontraditional Agricultural Exports in Latin America: Results and Lessons of Three Case Studies."

Nathan Associates Inc. and Louis Berger International, Inc. (1992). Volume 1: Synthesis of Findings from Latin America an the Caribbean. Export and Investment Promotion: Sustainability and Effective Service Delivery. AID Program and Operations Assessment Report No. 2.

HONDURAS

IICA. Análisis de Competitividad de la Cadena Agroalimentaria de la Leche y Productos Lácteos en Honduras.

Louisiana State University Agricultural Center (2002). Agricultural Reconstruction and Development Strategic Plan for Honduras.

VIFINEX (2003). Reporte de Volúmenes de Exportación de Berenjena 1999-2002. Tegucigalpa. M.D.C.

SAG/SENASA. Manual de Bioseguridad en Granjas de Instalaciones Avícolas (2002).

FHA/Informe Anual 2001-02.

ZAMORANO/Informe Anual 2001.

EL SALVADOR

MAG/IICA. Memoria de Labores 2000-2001. Programa Nacional de frutas de El Salvador.

TecnoServe. Situación, tendencies y oportunidades de la red de lácteos en El Salvador.

TecnoServe (2000) The US Market for Selected Salvadoran Foods.

Huezo Raúl (1998) Financial and Economic Analysis of the Non-Traditional Agricultural Exports and Marketing Activity.

Camara Agropecuaria y Agroindustrial de El Salvador. Programa de Apoyo a la Competitividad de los Agronegocios.

OIRSA (2000). Diagnóstico de Situación de los Países (Centroamérica, Panamá y Belice) sobre Inocuidad de Alimentos. San Salvador, El Salvador.

CAMAGRO.COM. VOLUMEN I. Enero-Marzo 02

NICARAGUA

República de Nicaragua (2002) "Operational Program for the National Action Plan for Institutional Strengthening."

USAID Nicaragua. Executive Summary. USAID Nicaragua Special Objective Hurricane Mitch Reconstruction Program.

Cooperative Resources International (2002). Building Dairy Producer and Cooperative Capacity in Cooperativa San Francisco de Asís in Camoapa, Nicaragua. Annual Performance Report.

Campbell, Robert (2000). RAP Agriculture Reconstruction Assistance Program: Analysis of Nicaraguan Meat Processing Industry.

Picha, David H. (2000) ARAP Agriculture Reconstruction Assistance Program: Análisis de Factibilidad para Usar Tecnología de Enfriamiento en el Desarrollo del Comercio de Productos Frescos en Nicaragua.

Randel, Ronald D. (2000) ARAP Agriculture Reconstruction Assistance Program: Evaluación de Sistemas de Producción de Leche y Carne en Nicaragua.

Guevara, Flores (1996). PL-480. Intercambio de Experiencias sobre el papel de las organizaciones campesinas en el manejo de problemas y oportunidades de desarrollo agrícola. Estudio de Caso: Proyecto APENN.

USAID (1998). Nicaragua Supplemental Reconstruction Programs. Response to Hurricane Mitch: Status as of September 30, 2001.

APPENDIX 1

POST-MITCH, SPS-RELATED PROGRAMS

POST-MITCH, SPS-RELATED PROGRAMS

I. USDA-FUNDED, POST-MITCH, SPS-RELATED PROGRAMS

Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP)

GAP Training –Crops
- ? Integrated Pest Management for Food Safety
- ? Good Agriculture Practices for Food Safety

GMP and Food Safety
- ? Waterborne Disease: Causes and Control in Food Systems

GAP and GMP Practices – Livestock and Dairy
- ? Farm Level Food Safety/HACCP for Livestock Products
- ? Extension Practices Improved for Dairy Food Safety
- ? Training in GIS for Monitoring and Control of Livestock Pests
- ? Epidemiological Field Surveillance For Livestock Diseases
- ? Rehabilitation of Veterinary Laboratories

Pest and Disease Monitoring and Control

GAP Training – Shrimp
- ? Strengthening Diagnostic Laboratories for Shrimp Disease Management
- ? Good Management Practices for Shrimp Farming

Pest Risk Assessments
- ? PRAs for Admissibility of Non-Traditional Crops

Medfly-free Zones
- ? Establish Medfly-free Zones
- ? Medfly-Free Zone Technical Advisory Committee for Policy Development and Implementation

LTTA Crop Breeding
- ? Mitigation of Lethal Yellow Disease (LYD) of Coconuts

Infrastructure

Mango Plant
- ? Design and Construction of Hydrothermic Mango Treatment Facility

Fruit and Vegetable Packing Plants

? Modernization of Cold Storage Shipping/Receiving Facility at Managua Airport
? Construction of Vegetable Packing and Cold Storage Facility in Rivas

II. OTHER POST-MITCH, SPS-RELATED PROGRAMS

Good Agricultural Practices (GAP) and Good Manufacturing Practices (GMP)

GAP and GMP Practices – Livestock and Dairy
? Food Safety for Milk and Cheese Production

LTTA – Dairy
? Land o' Lakes

Pest and Disease Monitoring and Control

GAP Training – Shrimp
? Enhance Regional Capacity for Monitoring and Control of Shrimp Aquaculture Diseases;
? Water Quality Monitoring and Control for Environmental Quality in Shrimp Aquaculture); and

Infrastructure
? Feasibility Study for Irradiation of Fruits and Vegetables

NTAE Marketing

Fintrac
? CDA and IDEA/Fintrac

CLUSA
? Small-Scale Farmer Income and Employment Project (El Salvador);
? Mitch Integrated Reconstruction Activity (Nicaragua)

Industry Marketing Associations
? Asociación Gremial de Exportadores de Productos No-Tradicionales (AGEXPRONT)

APPENDIX 2

NEW PRODUCT ADMISSABILITY BASED ON PRAS

NEW PRODUCT ADMISSIBILITY BASED ON PRAS CONDUCTED AFTER HURRICANE MITCH

(11th Periodic Amendment published October 1, 2001)

Country	Admissible Product
Honduras	Basis German chamomile Oregano or sweet marjoram or lotus Yam-bean or root
El Salvador	Fennel German chamomile Loroco Oregano or sweet marjoram Parsley Rambutan Rosemary Waterlily or lotus Yam-bean or Jicama root
Nicaragua	Fennel German chamomile Loroco Rambutan Waterlily or lotus Yam-bean or Jicama root Yard-long bean (pod)
Guatemala	Fennel German chamomile Rambutan Waterlily or lotus
Costa Rica	Rambutan

APPENDIX 3

SCOPE OF WORK

SCOPE OF WORK

WORK PLAN

Evaluation of SPS Technical Assistance Programs and Agri-business Technical Assistance Programs that Encountered SPS issues
(Honduras, Guatemala, Nicaragua, El Salvador)

Background

In the Latin America and Caribbean (LAC) region, trade negotiations for the Free Trade Area of the Americas (FTAA) and the Central American Free Trade Agreement (CAFTA) are underway. The successful completion of these negotiations is a high priority for the Bush Administration. It is anticipated that these new trade agreements will remove additional tariff trade barriers that will open-up new opportunities for agricultural trade for the US, Canada and LAC countries. As tariff barriers decline, countries fear that technical and regulatory barriers will increase, particularly those associated with sanitary and phytosanitary (SPS) standards.

Concurrently, Central America, the focus of this task, is reeling from natural disasters and economic crises. They are suffering from a two-year drought coupled with drastic declines in international commodity prices of coffee and bananas. For instance, Central American countries lost a billion dollars in revenue because of the drastic decline in coffee prices. The coffee industry is facing a massive restructuring due to consumption and production changes. Since the changes are structural, coffee prices are not expected to recover in the near term. These countries must assist their farmers to diversify their crop base from traditional commodity crops to high-value crops and enterprises.

The dangers of Central America's economies relying on a few agricultural commodity crops has long been recognized and efforts towards agricultural diversification are not new to Central America. Over the last thirty years, many efforts for agricultural diversification have been made and have had varying degrees of success in the region. The current situation indicates that these efforts have not been sufficiently successful to balance the economies of the region. For each country, important diversification efforts have been made along with lessons that have been learned from the implementation of those projects.

Up until the late '80s these projects were evaluated, and the reviews were made available to project managers. Now, there is a need to evaluate the more recent SPS and agri-business programs (those funded within the past 5 years) to determine what has worked and what has not. The lessons learned from these evaluations will be incorporated into country development plans and into foreign assistance program plans.

Of particular interest are the projects that were funded through the Hurricane Mitch supplemental. Large parts of the region's infrastructure was damaged or destroyed by Hurricane Mitch in 1998. In response to the damage caused by Hurricane Mitch, Congress provided over $600 million to the Central American Emergency Disaster Recovery Fund (CACEDRF) to mitigate the regional devastation and to reactivate economies.

Within the CACEDRF, funding was provided to the Missions and to Washington-based US Government Agencies. For example, the USDA allocated $7 million for SPS-related activities. USDA established a two-year program to enhance agriculture practices in production and management; strengthen institutions essential for animal and plant health and safety; and rehabilitate appropriate infrastructure. The agricultural sub-sectors addressed were shrimp, dairy, beef, poultry, fruits, and vegetables.

Also of interest are the agri-business programs that USAID Missions in Guatemala, Nicaragua, Honduras and El Salvador supported over the past five years, through emergency supplementals or development assistance programs. The agri-business programs often assist producers to export high-value cash crops. These programs assist producers, associations and cooperatives to overcome export-related hurdles, ranging from financing to food safety.

The focus of this evaluation will be on the SPS-related technical assistance activities supported by USDA and agri-business activities, supported by the USAID missions, which encountered SPS hurdles. The LAC Bureau wants a detailed summary of SPS-related activities, a thorough understanding of what worked and what did not and a snap-shot of the various methodologies used by project implementers.

Approach

A team of evaluators will compile a list of the SPS and agri-business related projects supported by USDA and USAID over the past five years. The evaluators will interview project implementers, cooperatives, trade associations, government officials and farmers to determine the impact of those programs. Project implementers will be asked about the export opportunities (international or regional) available to farmers, the steps taken to meet SPS related export hurdles as well as what opportunities were not pursued. The opportunities not pursued may give project managers insight into intractable problems or the needs for longer-term development assistance. The information will be analyzed and synthesized into lessons learned that will assist USAID design agricultural diversification technical assistance projects.

The contractors will also identify the most likely areas for interventions taking into account key policy, institutional, infrastructure, technical, business, market, finance, and/or other constraints that have enabled or inhibited producers and exporters in the region to successfully export specific agricultural commodities.

A number of constraints may limit a country's ability to export agricultural commodities, including:

? The inability of the exporting country to adequately comply with SPS requirements set by the importing country,
? National policies limiting inputs (restrictions, costs) or regulations for export,
? Technical feasibility of SPS compliance and quality assurance,
? Inadequate national infrastructure, and

? Human capacity and resources to ensure SPS compliance.

SPS-related bottle-necks may include, but are not limited to, the following:

? Production locations and methods (disease free areas, disease free seeds, good agricultural practices, post-harvest handling, packing and processing practices, etc.);
? Transportation and storage (chain of custody, sanitation, etc.),
? Diversification and marketing (new products, grading, pricing, etc.),
? Compliance resources (technical information, laboratory and quarantine stations, etc.)

OUTPUTS

The primary output will be an evaluation of SPS and of agri-business activities that addressed SPS-related bottlenecks on agricultural export projects. The components of the output will be:

? A review of existing project reports on SPS compliance;
? A summary of SPS and of agri-business activities that addressed SPS-related constraints supported by USDA and USAID;
? A determination of which SPS bottlenecks constrained USDA and USAID assistance;
? A determination of what activities/interventions were effective in alleviating SPS bottlenecks and why (results/impacts);
? An assessment of what activities/interventions in alleviating SPS bottlenecks were NOT effective, and why;
? A set of recommendations on what activities/interventions related to SPS bottlenecks can be scaled up, modified or dropped.

The final version of the document must be submitted in Word 2000 in hard copy and electronic format. A representative of the assessment team may be requested to prepare for and make a presentation of the findings to USAID.

TIMEFRAME

? Review of SPS-related project documents
? Preparation of implementation plan that includes a list of projects to be visited and organizations/people to meet in Honduras, Nicaragua, Guatemala and El Salvador (including mission staff),
? Discussion meeting and approval of implementation plan
? Evaluation teams in field -- in Honduras, Nicaragua, Guatemala, and El Salvador
? Preparation of a draft document
? Discussion meeting of draft document, comments from USAID
? Finalization of document
? Submission of final document (NTE April 30, 2003)

LEVEL OF EFFORT

It is anticipated that the level of effort required for this activity will involve the following:

? days of a senior expert with knowledge of agri-business and SPS issues
? days of a senior expert with evaluation experience
? days of local facilitators

USAID ACTIVITY MANAGEMENT

Principal point of contact for this scope of work is Carol Wilson. In her absence, contact the LAC/RSD/BBEG team leader.

APPENDIX 4

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PERSONAL INTERVIEWS AND MEETINGS

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