USDA Hurricane Mitch Recovery Program
Special Objective 3

Hurricane-induced agricultural health risks will be reduced to levels consistent with existing WTO obligations and emerging food safety recommendations.

SECTION II:
DETAILED ACTIVITIES BY COUNTRY AND REGION

Special Objective 3 (SpO 3) projects were designed to address Sanitation and Phytosanitation (SPS) issues that were common among the target countries within the region. Honduras and Nicaragua were primary participants and beneficiaries in the major part of the program.

Section II. A describes the Honduras and Nicaragua country programs in detail, desaggregating the data by specific country wherever possible and appropriate to the nature of the discussion.

Five of the 23 SpO 3 projects targeted multiple countries and are reported on here in Section II. B, Regional Program Description. The entire section is organized as follows:

A. Country Program Description-- Honduras And Nicaragua

IR 3.1 Projects--*Enhance health practices for agriculture production and processing*

1. Farm Level Food Safety/HACCP for Livestock Products (Honduras and Nicaragua)
2. Best Management Practices for Shrimp Farming (Honduras and Nicaragua)
3. Establish Medfly-Free Zones (Honduras and Nicaragua)
4. Integrated Pest Management for Food Safety (Honduras and Nicaragua)
5. Extension Practices Improved for Dairy Food Safety (Honduras and Nicaragua)
6. Good Agricultural Practices for Food Safety (Honduras and Nicaragua)

IR 3.2 Projects--*Strengthening of institutions essential for ensuring animal and plant health and food safety*

7. Training In Geographic Information Systems for Monitoring and Control of Livestock Pests (Honduras and Nicaragua)
8. Epidemiological Field Surveillance for Livestock Diseases (Honduras and Nicaragua)
9. Medfly-Free Zone Technical Advisory Committee for Policy Development and Implementation (Honduras and Nicaragua)
10. Strengthening Diagnostic Laboratories for Shrimp Disease Management (Honduras and Nicaragua)

11. Veterinary Education for Rural Women (Nicaragua)
12. Assessment of Feasibility and Benefit of Pink Bollworm Eradication on Corn Islands (Nicaragua)
13. Executive Leadership for Food Safety (Honduras)
14. Institutional Strengthening for Dairy Food Safety (Honduras)

IR 3.3 Projects--*Rehabilitate physical infrastructure*

15. Rehabilitation of Veterinary Laboratories (Honduras And Nicaragua)
16. Design and Construction of Hydrothermic Mango Treatment Facility (Honduras)
17. Modernization of Cold Storage Shipping/Receiving Facility at Managua Airport (Nicaragua)
18. Construction of Vegetable Packing and Cold Storage Facility in Rivas (Nicaragua)

B. Regional Program Description

IR 3.1 Projects--*Enhance health practices for agriculture production and processing*

1. Pest Risk for Admissibility of Non-Traditional Crops (Honduras, Nicaragua, Guatemala, El Salvador)

IR 3.2 Projects--*Strengthening of institutions essential for ensuring animal and plant health and food safety*

2. Mitigation of Lethal Yellows Disease (LYD) in Coconuts (Honduras, Nicaragua, Guatemala, and El Salvador)
3. Food Safety System Infrastructure Modernization (Antigua/Barbuda, St. Kitts, Nevis)
4. Quarantine Systems Training for Policy Development and Implementation (Honduras, Guatemala, El Salvador and Nicaragua)
5. Waterborne Disease Causes and Control in Food Systems--Training for Policy Development and Implementation (Honduras, Nicaragua, El Salvador, Guatemala)

B. REGIONAL PROGRAM DESCRIPTION

IR 3.1

Project 1 Pest Risk Assessments for Admissibility of Non-Traditional Crops (Honduras, Nicaragua, El Salvador, and Guatemala)

Project Summary

The ability to recover from the effects of Hurricane Mitch, and the capacity to recover quickly from future disasters, depends on having an economically robust agricultural sector. Diversification of commercial agriculture mollifies risk, and provides a wider economic base to fuel recovery.

The Pest Risk Assessments (PRA) project addressed the region's lack of PRA to inform decision making for producers considering commercial ventures for non-traditional crops, and to satisfy requirements for gaining admissibility of these products into foreign countries.

Key Accomplishments/Practical Impacts

Pest risk assessments were accomplished for 12 commodities using the USDA/APHIS protocol:

- Basil for Honduras
- Fennel for all four countries
- German Chamomile for all four countries
- Long Bean (*Vigna unguiculata* ssp. *sesquipedalis*) for Nicaragua
- Lorocco (*Origanum* spp.) for El Salvador and Honduras
- Mint for El Salvador and Honduras
- Parsley for El Salvador and Honduras
- Rosemary for El Salvador and Guatemala
- Sage for El Salvador, Honduras, and Nicaragua
- Waterlily root (lotus) (*Nelumbo nucifera*) for all four countries
- Yam Bean root (jimica) (*Pachyrhizus* spp.) for El Salvador, Honduras, and Nicaragua.

A scientifically based PRA is the first step in the process of gaining admissibility of these products to the USA and other countries. The four countries are well positioned to gain export capability for these 12 new commodities.

The SAG in Honduras and MAG-FOR in Nicaragua must shepherd the process forward for gaining admissibility of their products in the USA and elsewhere using the PRAs generated in this project. The PRAs represent a national scientific resource that can now be shared with producers and exporters to inform their decisions for pest control and enterprise development. SAG and MAG-FOR have the capacity to make full use of the PRAs.

Additional Measures to Protect the Investment/Recurring Costs

SAG and MAG-FOR must proceed with the admissibility process, devising a way to make the information available to producers and agricultural entrepreneurs of all scales and means, and keeping the PRAs up to date. In the immediate future, negligible funds should be necessary to sustain the benefits of this project.

Other Activities to Consider to Mitigate Future Disasters

Assistance in production and marketing of these products (no recurring costs).

IR 3.2

Project 2 Mitigation of Lethal Yellows Disease (LYD) in Coconuts (Honduras, Nicaragua, Guatemala, and El Salvador)

Project Summary

Coconuts are an important element in the economics of local communities, a source of food, and a central feature for the tourist industry. The region's coconut palms had been hit hard by lethal yellows disease (LYD), and the situation was exacerbated by Hurricane Mitch due to increased distribution of the pathogen and physical damage to palms as a result of the storm.

The native coconut palms in the region are not resistant to LYD, and virtually all are doomed. The demise of the coconut palm is having serious impact on local economies and also represents loss of an important lost food source for coastal populations. Coconut trees play a very important role in stabilization of sand dunes, prevention of soil erosion, and reducing water run-off and flooding during heavy rainfall periods. The loss of the trees leads to increased soil erosion, contributes to receding shorelines, and excessive runoff of rainfall. The loss of the trees leads to increased soil erosion, contributes to receding shorelines, and excessive runoff of rainfall.

The disease is spreading rapidly and the only cost effect means of control is through planting selected varieties with disease resistance.

Figure 6. Devastation of LYD on coconut trees. Trees are dead, defoliated, only trunks standing.

Key Accomplishments/Practical Impacts

- Formal situation assessments were accomplished for Guatemala, Honduras, and Nicaragua; the resulting data were provided to the Ministries of Agriculture in each country.
- Thousands of LYD-resistant seedlings were planted.
- Local communities were trained in the management of seedling nurseries and the care of the transplanted trees.
- Rural leaders were trained to identify diseased trees, and the proper way to destroy them to reduce the rate of spread of the disease.

The *Garifuna* population on the north coast of Honduras has been especially hard hit by LYD, and is one of the principal focuses of this project. The north Atlantic coast of Nicaragua is also a focus for planting LYD-resistant seedlings.

Additional Measures to Protect the Investment/Recurring Costs

The field activities were carried out in large part by the private voluntary organization, CARITAS, and by non-formal local community organizations. CARITAS is entirely capable of continuing this work, but its resources are not adequate to expand the LYD activities beyond a very limited area. Local community organizations that participated in this project need occasion technical assistance, and human technical resources are needed to expand the project to other communities.

Approximately $2000 in Year 2002 would permit IICA and/or CARITAS to provide follow-up support to the communities that participated. LYD-resistant coconut seeds cost about $1/each. $20,000 would allow the purchase of an additional 10,000 seeds and technical support for community training for rearing of the seedlings and transplanting.

Several hundred thousand LYD-resistant seedlings will be needed to completely address the problem in Honduras, Nicaragua, and Guatemala.

Figure 7. During a LYD Workshop, participant holds a disease specimen; diseased coconut palm in background.

Other Activities to Consider to Mitigate Future Disasters

A source of sufficient quantity of LYD-resistant seeds is a problem. Institutional assistance is needed to establish an enterprise capable of providing the necessary germplasm, and performing research trials to match variety with location and intended usage. LYD-resistant palms vary in aesthetic attributes, fruit productivity, and fruit characteristics.

The cost of maintaining trees after they are transplanted is negligible. The cost of establishing and maintaining a seed production facility sufficient to provide for regional needs over a span of approximately 5 years has been estimated by IICA (Dr. Ed Ayers) to be in the area of $500,000.

Project 3 Food Safety System Infrastructure Modernization (Antigua/Barbuda, St. Kitts, and Nevis)

Project Summary

The two principal objectives of this Food Safety project were to improve the ability of these countries to address post-Hurricane Georges food safety issues and reduce hurricane induced agricultural risk to levels consistent with the World Trade Organization obligations and food safety recommendations.

Improvement of infrastructure related to food safety was selected as a critical area for reconstruction assistance. As a result of an assessment trip to the islands in January 2000, the USDA technical team recommended several areas which merited improvements, including public market sanitary conditions and slaughterhouse (*abbatoir* in French) processing facilities. The project was implemented with the assistance of the Organization of Eastern Caribbean States Secretariat (OECS) based in St. Lucia.

Vulnerabilities in the Eastern Caribbean Food Safety systems relate to risk factors for the tourism sectors of these countries. Dependence on tourism income is extremely high and the Eastern Caribbean countries are seeking to market more local food products directly to the hotel sector. Improved sanitary conditions and products are a requirement for successful internal market development.

The planned expectations were to improve infrastructure and sanitary conditions to safeguard public health, and to improve market conditions for local producers.

Key Accomplishments/Practical Impacts

Antigua/Barbuda--Protection of Reef Fisheries Resource Base.

The host country Ministry of Planning, Implementation and Public Service Affairs focused its Hurricane Reconstruction Project on the protection of Antigua and Barbuda's Reef Fisheries Resource Base. Fisheries is a significant sector in Antigua/Barbuda, employing many local people. Fish is an important food in Antigua, both for consumption and export. The hurricane project funded the purchase and establishment of marker buoys and related materials in order to demarcate the protected reef fisheries areas. As a result of the project, the newly demarcated areas are better protected from unauthorized fishing and marine sporting activities. The fisheries department will provide the necessary surveillance to the area as well as actively monitor the progress of the area marine life by using underwater camera equipment purchased under the project.

St. Kitts--Repairs and Upgrade of Public Market and Abattoir Facilities

The market rehabilitation involved the renovation and upgrade of the meat sales outlet at

the Basseterre public market in St. Kitts. Repairs funded through the project included: repair of the structural damage due to recent hurricanes; replacement of cutting tile in butchers shop with sanitary laminate cutting surface; replacement of the cold storage room (chiller) in the meat market section; painting of the market complex; and repairs to electrical wiring and fittings

The upgrade of the abattoir was completed in August 2001 and included the following equipment purchases: electrical sterilizer for utensils, circular cutting saw, electrical elements for scalding tanks, a standby power generator, an electric hot water heater, processing utensils; insect control and sanitizing equipment and solutions. Renovation activities included: construction of a ramp for the refrigerated container; installation of refrigerated container and electrical works; installation of meat cutting saw and vector control unit and facilities; and repairs to the concrete floor of abattoir.

The St. Kitts project will have an immediate impact on improving food safety conditions in the processing and sale of livestock products. The renovations made at the market and abattoir will enhance St. Kitts ability to comply with SPS requirements by providing supporting facilities for enforcing food safety legislation. The improved facilities at the abattoir have contributed to an increase in the quantity of meats being processed.

The longer-term expectation on St. Kitts is that demand from hotels, restaurants and supermarkets will increase thus reinvigorating the local livestock industry and favorably impacting farm incomes.

Nevis--Public Market Improvements

In Nevis, the Ministry of Agriculture was in charge of project implementation. Similar to St. Kitts, Nevis focused their project on infrastructure repair and improvement related to food safety systems. After substantial delay, the following project activities were implemented:

- Purchase and installation of an ice-making machine at the Fishermen's Cooperative located at the Charlestown public market.

- Renovations of the public market in Charlestown completed to meet improved food safety standards. These activities included construction of a new entrance to allow better access; installation of a new sink; installation of an air-conditioning unit; repairs to walls, windows, doors, and floors.

- An expansion and renovation of the abattoir undertaken to improve the meat handling, processing, storage and overall sanitary conditions.

The facilities upgrades at the public market will have the effect of bringing people back into the habit of using the public market. The ice machine will improve the sanitary conditions for the fresh fish sales section of the market. The market now has improved

food safety infrastructure and facilities. The abattoir is being expanded and when completed will have improved facilities and procedures for processing meat products on Nevis.

Additional Measures to Protect the Investment/Recurring Costs

Authorities on Nevis had difficulty initiating the planning of the project resulting in a significant delay to implementation. Counterparts in Antigua and St. Kitts demonstrated more capacity to implement projects, and they should be able to maintain the new facilities as user fees grow and the capacity to process livestock increases.

Regulatory authorities on St. Kitts and Nevis will need to provide proper inspection monitoring at both of the slaughterhouses in order to maintain satisfactory sanitary conditions.

All of the countries involved in the project will need to budget national funds in order to provide proper staffing to monitor the on-going activities.

Project 4 Quarantine Systems Training for Policy Development and Implementation (Honduras, Nicaragua, El Salvador and Guatemala)

Project Summary

Honduras, Guatemala, El Salvador and Nicaragua are all signatories to the World Trade Organization Sanitary Phytosanitary Agreement (SPS). This agreement obligates them to strengthen their agricultural health systems in order to meet the requirements under the SPS agreement. Prior to Hurricane Mitch, none of the countries in the region were in a position to fully meet the WTO SPS requirements. After the hurricane, the situation only became worse. Key infrastructure sustained damaged and available human and financial resources were diverted to emergency actions and away from efforts related to strengthening agricultural health systems.

The four Mitch-affected countries of the region are agriculture-based economies. As leading producers and exporters of many agricultural products, the Central American countries are required to prevent the spread of “quarantine significant” plant and animal pests and diseases by implementing internationally accepted plant and animal health standards in the trade of agricultural products.

The objective of this project was to increase knowledge and understanding of the international standards governing plant health issues, including how the standards may be implemented in each of the participating countries. The main project activity was a two-

week Quarantine Systems training course designed and delivered in Spanish at the *Escuela Agrícola Panamericana* (Zamorano) in Honduras. Thirty-one participants from five countries attended.

Specific course objectives:

- Develop and promote rules to strengthen phytosanitary systems in the respective country.
- Identify the elements and the functions of the phytosanitary systems and determine what phytosanitary methods need to be improved your country's system.
- Identify the barriers to positive change in national phytosanitary systems.
- Develop a strategic plan to apply the changes and international standards in your national system.
- Identify and develop specific plans for restructuring and strengthening the delivery of phytosanitary services to the agricultural industry in your country.

Program Subject Content

- Fundamentals of Phytosanitary Standards and Principles of the International Plant Protection Convention and the WTO
- Phytosanitary Protection and Quarantine Models
- The Process of Pest Risk Analysis
- Activities regarding Risk Management
- Public Relations and Communication Risks
- Pest Free Production Areas and Sites
- Systems for Export Product Certification
- Cooperation and Collaboration with the Animal Health Unit of the Ministry of Agriculture
- Ethics and Conduct
- The Future of Phytosanitary Systems in the Region

The course employed a highly participatory methodology. Participants were divided into groups and instructed to develop responses to twelve tasks concerning the status of plant health in the region and individual countries. Each group made formal presentations verbally and in writing. The reports were thorough, providing a synopsis of the plant health problems, barriers and alternatives for change and implementation of plant health standards.

For the content areas of Inspection and Field Risk Management, course participants made site visits to the main border entry point at El Amatillo (Honduras-El Salvador border), the local food market in Tegucigalpa, and Comayagua, a principal crop production area in Honduras. Working in multi-country task groups, participants observed and reported on the adequacy or inadequacy of plant health standard they found at each location visited.

Zamorano faculty provided valuable assistance in the form of presentations and materials for several course topics, including integrated pest management, animal health and the major diseases of concern in the region, surveillance and biometric design, and entomology and taxonomic identification.

Course participants represented a diversity of backgrounds and levels of plant health experience. Included were officials from OIRSA and producers and exporters from the private sector in El Salvador, Honduras and Guatemala.

Key Accomplishments/Practical Impacts

The Quarantine Systems training served to clarify the current status of plant health activities in Central America vis-a-vis WTO standards and strengthen the commitment of host country representatives to improve their respective plant health processes so as to meet standards.

Additional Measures to Protect the Investment/Recurring Costs

The National Plant Health Organizations (NPHOs) in Honduras, Guatemala, El Salvador and Nicaragua are not meeting their obligations in implementing plant health standard in the conduct of plant health activities. Major barriers include lack of stability and staff continuity due to political change. The problem is region wide and represents a major impediment to the effective conduct of plant health activities.

Project 5 Waterborne Disease Causes and Control in Food Systems, Training for Policy Development and Implementation (Honduras, El Salvador, Nicaragua, and Guatemala)

Project Summary

Water borne disease causes and controls in food safety is a major public health concern as well as a critical issue in the trade of fresh agricultural products at the regional level. The expansion of trade in fresh agricultural products has highlighted the threat of microbial contamination. Contaminated water is prevalent in much of the region and is often used to irrigate crops. Regulatory responsibilities for dealing with microbial contamination of food products in the region are often split between the Ministries of Public Health and Agriculture.

The objectives for this project were to review the epidemiological situation concerning water and food borne illness in the countries of the region and increase cooperation between public health and agriculture officials in the design and implementation of policies and programs of control and prevention. Key project activities were:

- A one-week technical seminar held June 19-23, 2000 in Antigua, Guatemala, to bring together professionals from Ministries of Public Health and Agriculture for dialogue and strategic planning.
- Follow-up workshops held in August and December 2001with the country teams from Guatemala, Honduras, El Salvador and Nicaragua to review implementation of targeted activities in control, prevention and educational.

The Centers for Disease Control (CDC) and the Medical Entomology Research & Training Unit (MERTU/G) of the Health Studies Center of the *Universidad del Valle de Guatemala* (UVG) collaborated with USDA in the design and delivery of the seminar and follow-on workshops. Counterpart organizations were the Ministries of Public Health and Agriculture from the four Central American countries.

Both the technical seminar and the follow-on meetings were designed to raise and address issues in the public policy agendas of the countries in the region.

Key Accomplishments/Practical Impacts

Dialogue on the issue of microbial contamination was opened between public health and agriculture officials. Country teams developed strategic plans in water borne disease control and prevention. The plans were based on four goals:

- Improve epidemiological surveillance
- Improve the supply of clean water
- Provide training in the following areas: Good Agricultural Practices, Good Manufacturing Practices, and Hazard Analysis Critical Control Points (HAACP)
- Provide health education especially for consumers and students

During the follow-up meetings, the strategic plans were evaluated and adjusted to meet current country situations relating to water borne disease transmission.

Constraints to project effectiveness

Many participants who attended the seminar and follow-on workshops were not in decision making positions, a constraint that hindered implementation of some planned activities. In other cases, managers showed little interest in the designed activities.

Additional Measures to Protect the Investment/Recurring Costs

While this project was helpful in promoting a regional discussion and country specific review and analysis of the situation regarding food and waterborne diseases, further programming is needed to strengthen the institutional capacity for control and prevention of water borne diseases in the region.