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SUSTAIN

**AGRICULTURAL PRODUCTS
QUALITY WORKSHOP**

MAY 9 - 13, 1993

PHILIPPINES

Sharing
United
States
Technology to
Aid in the
Improvement of
Nutrition

A U.S. Private Food Industry initiative
in collaboration with the U.S. Agency for International Development
through a Cooperative Agreement with the National Cooperative Business Association

Upgrading the Food Processing Industries in Developing Countries.

Why SUSTAIN?

SUSTAIN represents a successful collaborative effort between the U.S. food industry and the Agency for International Development (A.I.D.) to upgrade food processing in developing countries. It provides an excellent model for similar private-public sector joint ventures in health, agriculture and other areas of concern to developing countries.

Food processing is a major contributor to development. It serves multiple roles. Food processing can increase the available food supply by extending the life of perishable food products. It can improve the nutritional quality of the diet by making nutritious foods available the year round. It can lead to the growth of related enterprises in transportation, storage, distribution and marketing. And, it can produce much needed foreign exchange by creating value added products both for export and for internal substitution of imported processed foods.

The U.S. food industry has embraced the concept that freely sharing its expertise and knowledge is of mutual benefit to recipient and donor - to the recipient by improving current operations - to the donor by contributing to a healthier global future.

How SUSTAIN Works

A.I.D. missions and trade associations in developing countries publicize SUSTAIN's goals and activities. Executives of U.S. food companies with technical expertise and overall knowledge of the food industry serve as the SUSTAIN Steering Committee, providing guidance and overseeing activities.

Food related companies in developing countries submit their requests to SUSTAIN through the A.I.D. mission or a designated organization in their country. SUSTAIN screens all incoming requests and if necessary asks for additional information. Appropriate U.S. companies are then invited to respond.

Some problems can be readily resolved by providing information. Others require that consultants be sent. When a consultant is sent, the usual assignment is for one to three weeks. Upon completion of the assignment, the consultant prepares a report describing findings and making recommendations. Depending on need, some consultants may return for follow-up visits to ensure that recommendations have been appropriately implemented.

SUSTAIN Helps

Requests are diverse. Help may be needed to solve processing problems, to identify equipment needs and sources of new and used equipment, to train personnel in the use of new equipment and new technologies, to find new uses for indigenous commodities, to establish or improve quality assurance procedures, to control insects and rodents in food processing plants and to improve plant layouts and materials handling.

In the past, U.S. food companies, large and small, have provided technical assistance in the form of information, consultants and training to food processors in Africa, Asia, Latin American and the Caribbean.

SUSTAIN PROGRAM

AGRICULTURAL PRODUCTS QUALITY WORKSHOP

Manila, Philippines

May 9 - 13, 1993

SUSTAIN Volunteers:

**Thomas Harding
AgriSystems International**

**Erlinda Lapid
Universal Flavors, Philippines**

**William Rudd
Meridian Products**

**John Silliker
Silliker Laboratories Group**

Administrative:

**Elizabeth Turner
SUSTAIN Program Director**

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NCBA/SUSTAIN Project 111.021

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SUSTAIN MISSION TO MANILA

May 9 - 13, 1993

INTRODUCTION

A. SUSTAIN

The program Sharing U.S. Technology to Aid in the Improvement of Nutrition (SUSTAIN) provides access to U.S. expertise in food processing to help improve nutrition in the developing world. Technical assistance is provided by volunteer professionals from U.S. food companies, universities, and other organizations. The program is managed under a cooperative agreement between the National Cooperative Business Association and the U.S. Agency for International Development's (AID) Office of Nutrition and receives advice from a Steering Committee made up of private sector representatives.

B. The Workshop

The Agricultural Products Quality Workshop was initiated by AID/Asia/DR/TR (Appendix VI) under its Regional Agribusiness Project (RAP) (Appendix VII) to review quality issues related to Asia's production and marketing of food products. The workshop was a forum to create a better awareness and technical understanding of the issues and problems related to improving the quality of Asian food products. It focused on the importance of food quality and safety in terms of market expansion, nutrition, and health. Issues addressed included phytosanitary and pesticide residue standards, quarantine treatments, and integrated pest management. Participants included USAID personnel, AID project administrators, private Asian businessmen, and U.S. and Asian government representatives. (See Appendix III for agenda and Appendix V for participants.)

SUSTAIN was asked to help plan and provide speakers for the private sector component. SUSTAIN sent volunteers from the U.S. private sector to give presentations on seafood processing, spices, fruits and vegetables, food testing laboratories, and organic marketing. (See Appendix II for background on SUSTAIN volunteers.) The volunteers were:

Thomas Harding, President, AgriSystems International

Erlinda Lapid, Technical Manager, Universal Flavors (Philippines), Inc.

William Rudd, Product Manager, Meridien Products, Inc.

John Silliker, President (retired), Silliker Laboratories, Inc.

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ORGANIC AGRICULTURE: AN INTERNATIONAL MARKETING PROSPECTIVE
BY Thomas B. Harding, Jr.
President, AgriSystems International

I. INTRODUCTION:

In the nearly twenty-five years since we converted our family-farm to a certified organic production system much has changed relative to the market situation for certified organic products. Back then, there were no consistent markets for our organic products - and our farm neighbors have learned that we can survive without agricultural chemicals, farm credit and access to the commodities market.

Today the international market for certified organic products is valued at nearly fifty billion (\$50,000,000,000) dollars; by 1995 the United States alone will represent nearly twenty (20%) percent (\$10 Billion) of the total market; including farmgate sales.

The greater European marketplace will represent at least fifty (50%) percent of the total organic market value - and Asia, mostly Japan and the leading Pacific Rim countries will be much less, but significant growth opportunities are on the horizon throughout the nineties for these countries.

Worldwide growth for certified organic value-added products (food and fibre) will average twenty to twenty-five (20%-25%) percent annually as more and more concerned consumers connect to the serious environment benefits of organic agriculture - including down-line

health benefits, resource recycling and a more holistic life style.

II. THE ORGANIC PRODUCTION SYSTEM

An internationally acceptable definition of a certified organic production system is -

Based on farm/ranch management practices that:

- .replenish and maintain soil fertility by providing optimal conditions for soil biological activity; and
- .reduce the use of off-farm inputs, environmental and health hazards associated with agricultural chemicals, and reliance on non-renewable resources.

Such systems seek to emulate natural ecosystems which achieve stability through diversity, complexity, and the recycling of energy and nutrients.

Ecological farm management relies on building soil humus through crop rotations, recycling organic wastes, and applying balanced mineral amendments. Along with the use of resistant varieties, this minimizes problems associated with pests and disease. As necessary, mechanical, botanical, and/or biological controls with minimum impact on health and environment are implemented.

Organic foods are processed, packaged, transported and stored to retain maximum nutritional value, without the use of artificial preservatives, coloring, or other additives; irradiation; or synthetic

pesticides.

Also, the production system must meet the strict requirements of the international certification program of choice. Please refer to the 1993 OCIA International Certification Standards provided in the handouts as guidelines!

III. ORGANIC PRODUCT CERTIFICATION

.Why organic product certification?

- 1- to verify the production system from farm/field through each stage of processing and final packaging - and soon the retail outlet.
2. to provide an annual inspection review for all producers by an independent third-party inspector - and to improve the production system and product quality.
3. to establish an audit trail system, whereas all organic products can be tracked through each production stage - from field to table.
4. to assure product authenticity, product guarantee and to build consumer creditability through consumer right-to-know and truth-in-labelling for the products.
5. to meet national, supra national and international organic production and labelling regulation.

.THE CERTIFICATION PROCESS

Following are the most acceptable procedures in order to have organic products certified:

- 1- Choose an internationally recognized certification program that encourages producer membership, maintains strict production standards and provides for peer and independent third-party inspection and certification and that meet regulatory requirements.
2. Prepare the farm and/or processor questionnaire, provide three (3) years history, maps, plant layout and flow. Be sure to meet the required certification standards.
3. Submit the documents to the certification program for review and inspection approval. Choose a qualified and professional inspector.
4. Inspection takes place and the inspection report is filed with the certification organization for review and final certification.
5. Before you begin the above process be sure you clearly understand the By-Laws, Certification Standards, Materials List, Audit Trail and Licensing Agreement of the certification program.

Following are some internationally recognized certification organizations that are recognized by the International Federation of Organic Agriculture Movements (IFOAM):

.Washington State Department of Agriculture, USA

- .The Soil Association, United Kingdom
- .SKAL, Netherlands
- .OCIA INTERNATIONAL, USA (Organic Crop Improvement Association)
- .NASAA, Australia

IV. INTERNATIONAL ORGANIC PRODUCTION AND LABELLING REGULATIONS

At the present time there are only a handful of countries, and supra-nationals who have regulations specific to organic product labelling -

1. European Community (Implemented - Annexes)
2. United States (Drafted - Not Implemented 10/93)
3. Australia, Austria, Argentina, Israel and Switzerland
4. Codex Alimentarius (UN/WHO/FAO)
5. Other - Canada, Mexico and Japan

V. THE MARKETPLACE SITUATION

Currently the international marketplace for certified organic products is growing from every direction - and includes small and large producers of raw materials, semi-finished goods and ingredients - and finished shelf-ready products. An excellent future lies ahead for quality, value-added organic products.

At the present time the average price difference for certified

organic products compared to conventional products is around twenty-five (25%) percent. I must point out that conscious consumers also demand that other environmental stewardship principles are met - recyclable packaging, less packaging and total quality.

ORGANIC PRODUCTS AND PRODUCERS

As mentioned above, small and large producers are involved in organic product production - from the neighborhood marketgardener to the thousand acre farmer. They are growing all kinds of beans and grains, oilseeds, cotton, herbs, spices and essential oils, fresh fruits and vegetables - and tropical and subtropical products of every kind. Also livestock products (meat, fish, eggs, dairy products, and wool) to mention a few.

Small and large food companies from all over the global community are involved and they are producing value-added products of all kinds - soyfoods, sea vegetables, tropical juices, coffee and tea products and you name it. Following are a few of the larger companies from Asia, Europe and North America that are involved in certified organic products:

Mitsubishi (Japan)	Organic Grain and Beans
Asahi Industries Seibu Group (Japan)	Organic Value-Added Products Supermarkets
Marusan Co. (Japan)	Organic Soyfoods
Beechnut (USA)	Organic Baby Food
Dole (USA)	Organic Dried Fruits
General Mills (USA)	Organic Cereal Products

Hipp-Werk (Germany)	Organic Baby & Special Diet Foods
Eden (Germany)	Organic Complete Product line
Espirit (USA)	Organic Cotton Products
Gallo (USA)	Organic wine

These are but a few of the multi-national companies that are involved in the production of certified organic products. There are several smaller regional companies that are doing an outstanding job as well.

Last year Whole Foods Market, a regional natural foods supermarket chain went national in the United States and is now projecting 1993 sales to exceed \$200 Million. This trend continues in Europe and Asia with several traditional supermarket chains like Sainsbury of the United Kingdom and Seibu, of Japan. All of this is a strong indication that the consumer is committed to buying healthier, safer and more environmentally responsible products.

VI. ORGANIC PRODUCT OPPORTUNITIES

As mentioned before there is a growing need for imported certified organic products - raw materials, semi-finished products and ingredients - and quality shelf-ready products. And they include - food, fibre, health care and medicinal products. Here are a few products that are in demand:

- .Cocoa, Nuts and Vanilla (Raw, Dried and Processed)
- .Coffee (Green Beans & Packaged)

- .Cotton (Fibre and Yarn)
- .Herbs, Spices and Essential Oils (Dried and Processed)
- .Green and Black Teas
- .Oilseeds (Sesame, Soya and Sunflower)
Raw, Hulled, Oil and finished
- .Speciality Rices
- .Sugar Cane (Processed, Granulated and Syrup)
- .Tropical Fruits (All Kinds)
Fresh, Pureed, Dried and Aseptic Packaged

These are only a few of the organic products being imported into the marketplace. It is essential that as a producer you find a good partner (let me explain), produce a high quality product and add as much value to the products in-country as possible - it is to your economic benefit!

VII. TOTAL ORGANIC QUALITY ASSURANCE

Following are a few points relative to quality that you need to consider when developing certified organic products for either the domestic and/or export marketplace:

1. Certified organic foods must be of the highest possible quality, employ the best quality-assurance measures at every production step - growing, harvesting, and post-harvest handling.
2. Certified organic food must come from a consistent and diversified supply with high quality. Also, crop and market diversity

is excellent insurance and good business.

3. Certified organic food must be carefully and appropriately packaged and attractively presented. Be proud that you grew it, tell a little story about the "tender loving care" you gave it - and how and why it was grown organically.
4. Certified organic food must carry a product guarantee, in other words, independently third-party certified with a complete audit trail from growing through distribution.
5. Certified organic food must be affordable - not cheap at the cost of our environmental sustainability, our farm and farm families and communities.
6. Be sure that you meet all import regulations of the receiving country and/or supra-national body.

Certainly the market opportunities for certified organic and environmentally responsible products will continue to grow and they will bring good returns for those who make a serious commitment to meet the total quality demands and the specific needs of this new conscious consumer!

At the same time please do not focus all of your resources in strictly developing the export market, certainly in the short term it will bring you good returns. But also direct serious energy in

developing the local marketplace - particularly utilizing the concept "community-centered-agricultural enterprises" - whereas specific attention is directed at meeting local/regional food security needs for a growing, non-agarian population.

Why shouldn't all people be eating locally grown organic foods - they are fresh, healthy and affordable.

Thank you.

Addresses/Numbers of Certification Organizations mentioned above:

Washington State Department of Agriculture
Olympia, Washington 98504-2560

The Soil Association
86 Colston Street
Bristol BS1 5BB United Kingdom
Phone: 44 272-290661 Fax: 44 272-252504

SKAL
P.O. Box 384
8000 AJ Zwolle Netherlands
Phone: 31 38-226866 Fax: 31 38-213063

OCIA International
3185 Township Road 179
Bellefontaine, Ohio 43311
Phone: 513 592-4983 Fax: 513 593-3831

NASAA, Australia
National Association for Sustainable Agriculture Australia
P.O. Box A 366
Sydney South, Australia
Phone: 61 44-651129 Fax: 61 44-651053

AGRISYSTEMS INTERNATIONAL
125 West Seventh Street
Wind Gap, Pennsylvania 18091 USA
Phone: 215 863-6700
Fax: 215 863-4622

Universal Way and Universal Flavors

At Universal Foods Corporation, Universal Flavor's parent company, QUALITY is the foundation upon which we manufacture, market and deliver products that consistently meet or exceed our clients' need and expectation. To achieve this, we have formed a partnership -- between our client and employees -- to determine the value of our products, our service and the success of our future.

In 1985, Universal Foods adopted this definition of QUALITY: We set out to alter our corporate culture and incorporate QUALITY into our way of life. This change in corporate culture is called THE UNIVERSAL WAY. Simply put, THE UNIVERSAL WAY concentrates on giving value to clients and on improving the system by which all work gets done in an environment that nurtures the growth and contribution of all employees. That is what we call QUALITY.

The roots of our QUALITY effort is a new approach to management, based on the philosophy of W. Edwards Deming, renowned authority and teacher of continuous improvement. He said, "Quality is a never ending cycle of constant improvement". Now, it's our job to live up to those words.

The Universal Way focuses on three interlocking principles: TEAMWORK, COMMUNICATIONS and SCIENTIFIC METHODS.

In the Philippines, product quality is assured through strict adherence to rigid quality control measures through all points of production.

- 1) All raw and packaging materials are subjected to quality control inspection (i.e., visual inspection, physico-chemical tests, sensory taste tests and microbiological testing.)
- 2) In-process goods are checked every step of the production process to assure uniformity and consistency of finished products, i.e., Brix, pH, viscosity, etc.
- 3) Finished goods, likewise are also inspected for quality attributes. Results are compared with the standard and specifications set-up by both Universal Flavors and client. To further ensure quality of finished products, they are subjected to sensory taste test evaluation, i.e., cola flavor in cola beverage; ice cream bases in ice cream preparations.

And of course, we do not forget the implementation and periodic check of GMF (Good Manufacturing Practices).

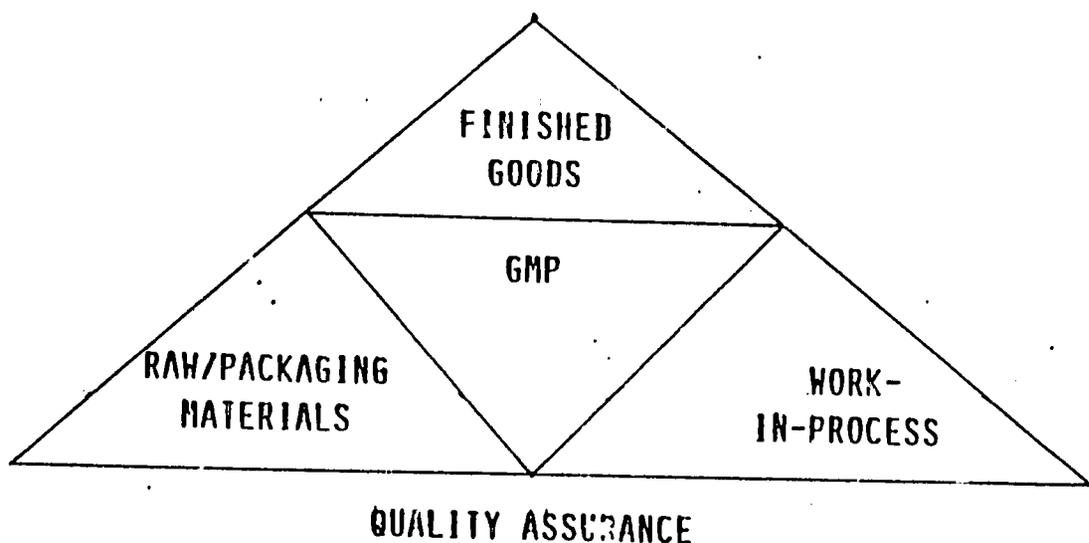
Our approach is more than a
"Quality Control" Program...
it is Customer Satisfaction.



Quality in products & service
are not just an ideal but our
competitive difference.

In-house Quality Control

PRODUCT QUALITY IS ASSURED THROUGH STRICT ADHERENCE TO RIGID QUALITY CONTROL MEASURES THROUGH ALL POINTS OF PRODUCTION.



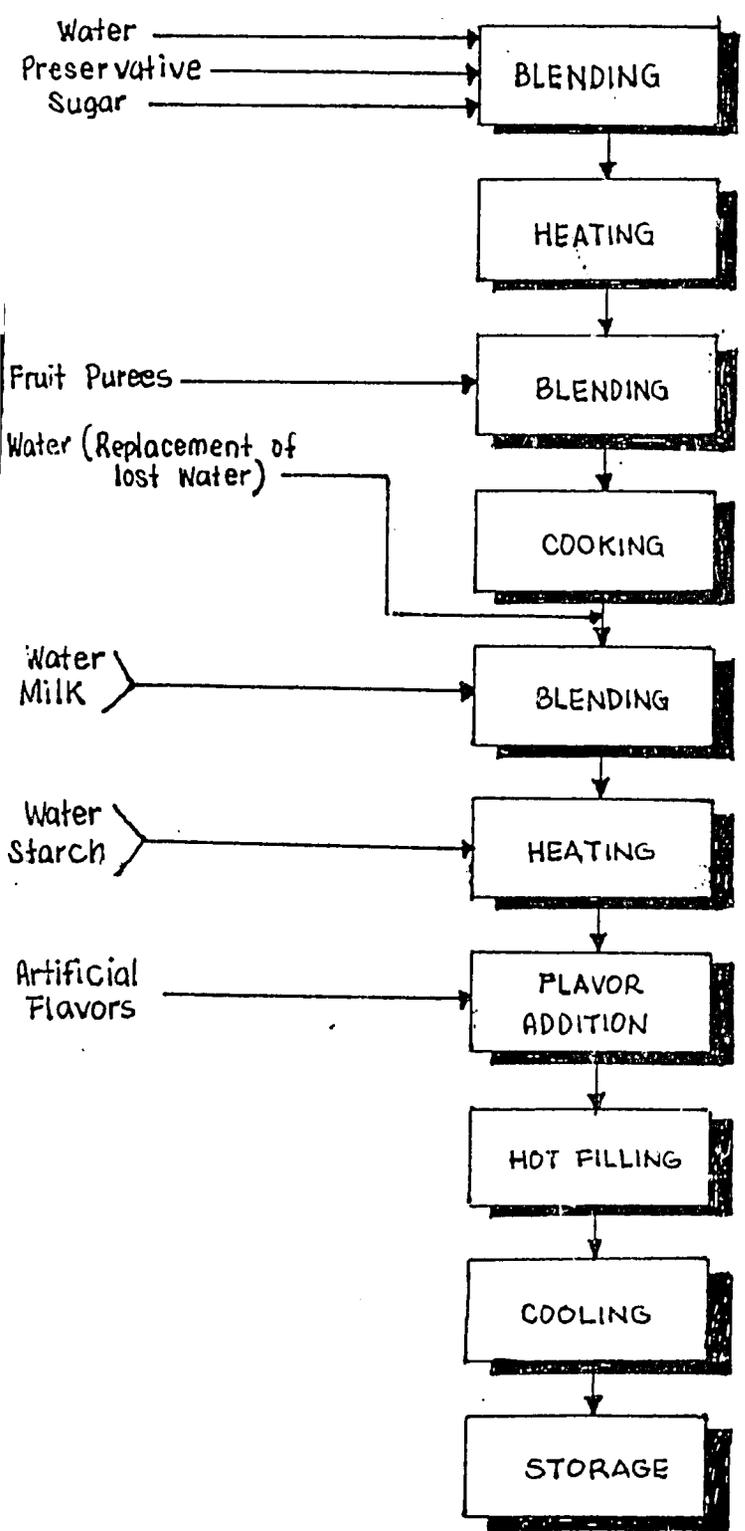
WHEN IT COMES TO QUALITY, THE WORD "COMPROMISE" DOES NOT EXIST.

BATCHING PROCEDURE OF UBE BASE

RAW MATERIALS

PROCESSING

PROCESSING PARAMETERS



Temperature: 120 °F

Temperature: 212 °F
Holding time: 1 1/2 hours

Temperature: 212 °F

Temperature: 212 °F
20 K per 5 gal
plastic lined HDPE pail
Air cool

50 °F MAX.

II. Opportunities Encountered

In occasions like this, one of the most important opportunities we encounter is the promotion of tropical fruit flavors and tropical fruit preparations for the dairy, bakery and confectionery industry.

We also consider updating and exchange of recent trends and technologies as very enriching.

III. Constraints

There are two major constraints we are right now faced with -- seasonality of tropical fruits and the limited technical capabilities of Philippine Fruit Processors.

IV. And that is the challenge we give to the USAID - strengthen the agribusiness development in the Philippines and the whole of the Asia-Pacific rim region in terms of continuing researches, technical training of manpower, transfer of technology and upgrading of technical equipments and facilities.

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SUSTAIN PROGRAM

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MAY 9 - 13, 1993
MANILA

I. UNIVERSAL FLAVORS

Universal Flavors is an international manufacturer and marketer of value-added ingredients and selected consumer foods. Universal Flavors is not a name readily recognized by the retail consumer, because our customers are primarily food processors. Through the QUALITY of our products, TECHNICAL SUPPORT and SERVICE, we help differentiate our customers' product from their competition. In essence, we are the company behind the consumer foods.

Universal Flavors is present all over the world. Our headquarters is located in Indianapolis, U.S.A. We have worldwide branches located in Australia, Belgium, Ontario, Quebec, Vancouver, France, Guatemala, Hongkong, Italy, Japan, Mexico, New Zealand, Singapore, Thailand, United Kingdom, Wisconsin, Missouri, New Jersey, California, Florida and, of course, the Philippines. In the Asia-Pacific Rim, we have three manufacturing facilities - Australia, Hongkong and the Philippines. There are agents located in Indonesia, Korea, Malaysia, Taiwan and Vietnam.

In the Philippines, we provide services in almost all industry segments - food, pharmaceutical, cosmetics, animal feeds, tobacco, etc. thru our :

1. Flavors - both natural, artificial and nature identical. In terms of direction, UFHL has focused its effort on tropical fruit flavors.
2. Dairy Ingredients in terms of fruit bases, toppings, variegate sauces, ripples and ribbonettes which are either fruited or non-fruited. In line with the trend of "going back to natural", UFHL specializes on fruited products with natural flavors as booster. We also have capabilities in producing fruited and non-fruited products WITHOUT PRESERVATIVES.
3. Stabilizers for ice cream, fruit juices and vinegar.
4. Natural Flavor Blends (NFB) that serves as flavor enhancers - which can either be MSG-free or HVP-free or fat-substituted.

**THE COMMERCIAL REALITY OF QUALITY CONTROL
AND SEAFOOD
PRESENTED BY WILLIAM N. RUDD
MERIDIAN PRODUCTS, INC.**

During the last year the Seafood Industry has begun to be increasingly regulated in the U.S., Europe, and in Japan.

- The U.S. Government embargos imports of Tuna.
- Japan suspends the importation of Thailand cultivated shrimp because of residual antibodies.
- France will test all seafood imports for phosphates. If phosphates are detected entry will be denied.
- Dungeness crab fishery closed in areas of the U.S. due to presence of domoic acid.
- U.S.F.D.A. puts Bangladesh shrimp processors on automatic detention due to presence of salmonella.
- All seafood from Peru and Ecuador will be tested for Cholera.
- U.S. importer convicted for economic fraud.
- Canada rejects product for improper labelling.
- Mandatory use of HACCP considered.
- Two die, many ill after eating hamburgers contaminated with E. Coli.

These are just a few of the recent headlines that concern food safety and wholesomeness. The world's major markets are demanding that food imports meet more stringent requirements. In addition to safety, and wholesomeness they are becoming less tolerant of any form of economic fraud.

The penalties are increasingly swift and severe. Anyone who has the desire to participate in today's market is required to consider the consequences. They must learn the rules and regulations, develop the technology necessary to comply with them, and have the integrity to follow through.

In addition customers such as food service, restaurants, retail chains, etc., are requiring that the products they buy meet their own specifications. Many times these specifications are more demanding than those of the government agencies. Producers and importers are finding it increasingly more difficult to remain in business if they cannot supply products that meet their customer's specification. In addition to rejecting deliveries, more and more customers will notify the FDA or U.S. Customs if they encounter products that are not in compliance.

The business of product safety and integrity is a major component of a company's ability to profitably participate in today's market. Products must meet specifications that correctly define what the end user is receiving. They must be produced to a consistency that guarantees to the consumer that he is receiving the same standards each time he purchases the product.

My business is seafood. I work for Meridian Products. Meridian is a U.S. seafood marketing company that works with, and represents producers in most of the world's major seafood production areas. Meridian markets shrimp, lobster, crab, fin fish, chephalopods, and molluscan shell fish. Our products come in many forms and pack styles, all packed to Meridian's specifications and the requirements of the market place.

Meridian's corporate offices are in Los Angeles, California, with additional branch and subsidiary offices strategically located around the U.S. We also have representatives in several countries where the business volume warrants local supervision and management

Our customers are as varied and diverse as our products. Meridian's primary customer base is in the U.S. However, Meridian sells products in other markets such as Mexico, Canada, Asia and Europe. Meridian's customer base includes wholesalers, distributors, processors, restaurant chains, supermarkets, institutions, and wholesale club stores. Each customer category has their own requirements and specifications. Meridian's job is to coordinate the customer's need with the producer's ability. We have to determine what the market wants and then teach the producer to manufacture it. We have to know the required standards and how to produce to meet them.

The U.S. government has established rules and regulations to protect the consumer. Their rules and regulations are enforced in order to assure the consumer that the food they eat is wholesome, safe, uncontaminated and the product specifications are represented or declared on the label.

In addition, most customers have established standards and requirements beyond the issue of wholesomeness to assure that they are receiving the correct weight, size, grade, and specie. They demand consistency and continuity at a fair market value. If they do not receive it they will turn to an alternative product that meets their need.

An importer such as Meridian has to take the responsibility to assure that their producers meet the demands and requirements of both the federal agencies and their customers. This requires:

- Training and educating the producers.
- Supplying them with accurate and achievable specifications.
- Working with the producer on how best to meet their specifications, both efficiently and economically.
- Working with the producer to develop a quality control program that insures the wholesomeness, consistency and integrity of the product.

Meridian achieves these requirements by working with both the customer and the producer on a regular basis. The customer's needs must be fully understood and defined. The delivery times and points of delivery must be determined. Often the customer is not sure or definite about what he wants. They depend on Meridian to help them define what it is that they want.

The customer's needs may be specific as to their perception, desirability, culture, regional orientation, response to product availability, or value. The parameters affecting this need may include the season or time of year. Defining the need includes the price, value, presentation, packaging, delivery logistics, appearance, flavor, odor, color, texture, use of additives, ingredients, sizing, portion control, as well as quality and wholesomeness.

(SUPERMARKET SLIDES)

As an example we can use a supermarket in the Los Angeles area that caters to the local Asian population. Many products are imported directly from the various Asian countries, others are produced in the U.S. Many products originate in other areas of the world outside of Asia or U.S. domestic production.

This supermarket chain moves large volumes of product. They demand reliable and consistent supply. This requires long term planning and coordination with a wide range of suppliers. They have specific packaging and portion requirements. They depend on brand recognition and preferences. They may require that the package has a bar code or some other type of price indicator.

If a supplier is not able to meet their needs as to availability, quality, packaging, price and value they will find another supplier who can. They will not tolerate inconsistencies or inability to meet schedules. They do not have the time and staff to check everything they purchase. They expect their suppliers to do that for them.

(PRODUCER'S SLIDES)

Meridian coordinates the customer's needs with the producers ability to supply that need. Raw material availability, delivery times, and price are a prime concern. Their status may require redefining the customer's need.

Meridian has to assure that the selected producer is capable of producing the required product. The producer must have the raw material source, proper facility, and the required equipment. In addition, the producer must have the staff or personnel to do the job. The staff must be properly trained, and have the required skills. The producer must be able to produce the product under controlled conditions with good personnel hygiene and sanitation programs. Plant management must have a program in place to control and monitor production. The producer has to have the integrity and the ability to assure that the product meets the specifications as to quality, counts, weights, uniformity, additives use, correct species, etc.

The producer has to be able to manage his production. They must source the necessary raw material supply, assure that it is transported and received in a manner that maintains its quality and value. Production must be carried out under time management conditions to maintain product flow and control any unnecessary delay of unprocessed product. He has to be able to do so profitably or he will not remain in business.

The system has to insure that all possibilities of potential contamination or degrading of the product during processing and handling are identified and controlled. This starts with the water treatment system and continues through to the storage and use of packaging materials.

Meridian requires that its producers work under a written program of operation such as HACCP. Each producer has an individual program specific for his facility and circumstances. The producer must be able to monitor his production and react to any potential deviation from the standard. There should be a record of the entire procedure.

(Q.C. SLIDES)

A major part of this written program is the quality control staff and their procedures. They assure that the plant staff is clean and healthy. That the employees are properly dressed and equipped to protect against product contamination. That the facility is properly designed to provide for personal hygiene. That there is an effective and operating cleaning and sanitation program of the facility, and its equipment.

Quality control should have a program to measure and monitor the production from raw material procurement through freezing and storage. They should check for contamination or product degradation due to excessive processing time or temperature abuse. They are confirming that the product meets the required standards of microbiological parameters as well as weights, counts, uniformity, proper packaging, etc.

An effectively operating processing plant gives the quality control staff authority to stop production if necessary. In order for management or owners to be comfortable with the situation they must have confidence in their Q.C. personnel.

They cannot jeopardize the economic well being of their business by employing marginally trained Q.C. people. With today's quickly changing technology they must continue to provide opportunities for further training and development.

Meridian works closely with their producers to provide their Q.C. personnel with training and equipment. We personally work with them to review their techniques and records. In addition, in countries or areas where we have a concentration of producers, Meridian may have their own Q.C. people coordinate the programs and work of the various producer Q.C. personnel.

Meridian's Q.C. staff attends conferences, training programs, and participates on committees in order to further increase their knowledge and keep up with current developments. New information, techniques, and equipment reports are disseminated to our network of producers.

(USDC SLIDES)

As an importer, Meridian, has to assure accurate and regular delivery of product to our customers. The product must meet the customer's packaging and quality specification requirements. Many times a third party assessment of these standards is required by our customers. We have contracted with the U.S. Department of Commerce for the services of full time inspectors to test all incoming product. If the product does not pass our government approved specifications many of our customers will not purchase the product. This is true even if it is already packaged in the customer's brand or required packaging specification. When the product passes the USDC inspection a certificate is issued and the product is stamped or marked declaring that it has passed inspection. This third party evaluation is a useful tool for the producer to guide his production program.

Another technology that is on the horizon is irradiation. If approved as an acceptable quality assurance procedure we must be careful that it is used properly, not as a corrective measure to remedy poorly handled product. If the product has been contaminated or by improper handling allowed to deteriorate to a level of questionable value, then it cannot be fixed. Deterioration or contamination cannot be reversed.

Irradiation should be used as another process in preserving and protecting the quality and integrity of a product. It can assist in maintaining wholesomeness and product safety. It can extend shelf life. It cannot and should not be used as a corrective measure.

We are in a time of change and development. In order to survive and grow we must adapt to our changing technologies and market demands. We must understand our markets and our responsibilities.

Whatever we may be able to devise or create we will not be allowed to continue if we do not have integrity. The system is in the process of protecting itself from those who would abuse the trust.

THE IMPORTANCE OF QUALITY ASSURANCE/CONTROL
OVER MICROBIOLOGICAL HAZARDS AND THE USE OF
THE MICROBIOLOGICAL LABORATORY

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Failure to control microbiological hazards in foods has serious consequences. Diseases transmitted through foods not only cause human suffering but also cost billions of dollars, both in developed and emerging countries. Though food spoilage has obvious economic consequences in developed countries, in many parts of the world it leads to famine. The microbiology laboratory plays a role in preventing both hazards.

Paramount to the successful food microbiology laboratory is its management. It must be staffed with management that is technically competent and aware of problems both of a regional and international nature. It must be abreast of the newest analytical methods and when necessary develop competence in their application. It must generate more than numbers and pluses and minuses. It must be able to interpret these results for its clients. It must develop a liaison with government agencies and with professional colleagues in scientific organizations. But all of this is not enough. The laboratory must be run as a business, whether its goal is just to break even or to make a profit. My business, in 27 years, has grown from one laboratory to 13, spread across the US with one in Canada. This growth has been steady, not explosive. The one factor that has mitigated against more rapid growth in the past and will in the future is the requirement to management with the necessary attributes, including business sense. A laboratory in a new area will generate business, but whether it will survive depends on the management. Strange as it may seem, areas in the US are very provincial. Don't hire somebody from New Hampshire to run a laboratory in Texas - it just won't work. In the establishment of laboratories in countries foreign to the US, it would be essential that natives of the country be the top management, combining the other attributes mentioned. There are opportunities and challenges all over the world, but to seize on them you need to follow the proper road map.

In a broad sense, the microbiology laboratory has a number of functions which it can perform, and based upon the position of the laboratory with respect to the food chain, its efforts will tend to be somewhat specialized in response to the particular needs of its clients.

Measurements may be made to assess "general microbiological quality." Included among these are the aerobic plate count, detection of indicator organisms, e.g. coliforms, and assays for specific spoilage organisms of relevance to the food in question. Such measurements are made to determine the quality of raw materials, to check general levels of hygiene in processing operations and the influence of processing steps, and the consequences of storage and transport. The results of such testing must be interpreted in terms of "norms," i.e. what is expected with respect to the food in question at the stage the sample is taken. The effective laboratory will be able to interpret these results in terms of general norms. In the absence of such interpretation, tests for general microbiological quality become efforts in futility. With proper baseline information, the results become a useful measure of the degree to which Good Manufacturing Practices have been applied.

The laboratory can be used to determine the utility of raw materials for the use intended. Tests of general microbiological quality (above) fulfill this function to a limited extent. More often specific tests are needed. The best example is the testing of starches and sugars

for the presence of thermophilic spore forming bacteria. If such raw materials are to be used as ingredients in canned foods, the tolerance for these organisms is very low, if spoilage is to be prevented. Tests for general microbiological quality are useless. Other examples could be given, but the point is that for determining the utility of a raw material for use in a particular food, it becomes necessary to conduct specific tests for organisms of relevance, independent of general microbiological quality.

The laboratory must be capable of analyzing foods for foodborne pathogens. This not only includes the examination of finished products. Their detection in raw materials and their fate during processing must often be determined. Here again, "norms" are important. Certain raw materials are inherently contaminated with pathogens, and processing may or may not be expected to eliminate them. For example carcass meat is regularly contaminated with salmonellae, and processing does not eliminate them - this is the norm. On the other hand, cooked meat and poultry products should be free of salmonellae. Similarly, most raw animal and vegetable products may be contaminated with small numbers of *Clostridium botulinum*, *Bacillus cereus* and *Clostridium perfringens*. These same organisms are to be found in most processed foods, except those subjected to thermal processing, i.e. canning. None of these three organisms is of consequence in the finished product, unless temperature abuse permits its growth. Certain pathogens are a constant threat in ready-to-eat foods, and the laboratory must be capable of detecting them in connection with control and epidemiological efforts. Most significant among these are *Salmonella*, *Campylobacter*, *Listeria* and *Staphylococcus*. Others could be included, and without doubt still others will emerge in the future. The scope of foodborne pathogens has been rapidly expanding, and the laboratory is a primary focus both with respect to their control both in processing and with respect to epidemiological investigations.

Having indicated the functions of the laboratory with respect to assessing general microbiological quality, determining the utility of raw materials, and the detection of pathogens, it is important to emphasize that the role of the microbiologist is a state of change. This relates to the global recognition of the Hazard Analysis Critical Control Point (HACCP) concept as the most rational approach to the control of microbiological hazards in foods. The rising importance of HACCP has not diminished the importance of the microbiological laboratory. It has simply changed its position in the total scheme of control.

The elements of HACCP include the following:

1. Hazard Analysis to determine microbial risks
2. Determination of Critical Control Points where control over hazards can be effected
3. Establish limits that must be met at each Critical Control Point
4. Establish monitoring procedures at each Critical Control Point
5. Establish corrective action to be taken when monitoring indicates a point is out of control
6. Establish effective record keeping systems that document the HACCP plan,

- and
7. Establish procedures for verification that the HACCP system is working correctly.

From this, it follows that the microbiologist has an important role to play in HACCP. The experienced microbiologist is an important part of the team necessary to establish HACCP programs. With the requisite experience, the microbiologist is in a position to identify the critical control points, based on in-depth hazard analysis, and to predict the overall success of the program. In some cases, the conclusion may be reached that a safe product cannot be produced with the established procedures, this leading to modifications. Where necessary, the microbiologist is in a position to recommend the research needed to establish the basis for a successful HACCP program. In a high degree, microbiological expertise will decrease the cost of establishing a successful HACCP program and greatly increase its likelihood of success.

Having established the HACCP program, including the identification of critical control points and the establishment of monitoring procedures, is there nothing left for the microbiology laboratory? The HACCP program, on its surface, tends to de-emphasize microbiological testing and substitute rapid observational and physical-chemical testing to monitor critical control points. So what need for the microbiology laboratory. The answer lies in VERIFICATION as a step in the HACCP program. Monitoring is an on-going procedure, tied to production. But is the overall program really effective? Finished product analysis may indicate that it hasn't been. This may indicate that monitoring procedures have failed to detect lack of control at critical control points. Alternatively, it may indicate the initial hazard analysis failed to identify certain critical control points. Though verification is after the fact with respect to production, it is necessary to a continuing successful HACCP program and requires conventional microbiological testing.

p:liz-rpt

Hazard Analysis and Critical Control Points

HACCP (Hazard Analysis and Critical Control Points) programs for the food industry are currently being considered for mandate by the federal government. The following questions and answers have been compiled to give the food processor a better understanding of HACCP and its direct effects on the food industry.

by John H. Silliker, Ph.D.

WHAT DOES HACCP MEAN?

HACCP is the acronym for the Hazard Analysis Critical Control Point system for control of microbiological hazards in foods. The HACCP concept was formally introduced at the National Conference on Food Protection in 1971.

WHAT IS THE HACCP SYSTEM?

The HACCP system is made up of three parts: (1) *The identification of hazards and assessment of the severity of the hazards and risks.* These are risks associated with growing, harvesting, processing, manufacturing, distribution, marketing, preparation, and/or use of a raw material or a food product. Within this context, hazard means the unacceptable growth, survival, or contamination of foods by microorganisms of concern with respect to safety or spoilage. A hazard can also include unacceptable production of, or persistence in foods of, microbial metabolites. Risk is the estimate of the probability of occurrence of the hazard.

(2) *The determination of critical control points (CCP) required to control the hazards.* A critical control point is a location, practice, procedure or process which can be used to minimize, prevent unacceptable contamination, survival or growth of foodborne pathogens or spoilage organisms or the unacceptable production or persistence of microbial metabolites.

(3) *Establishment and implementation of monitoring procedures to determine that each CCP is under control.* Criteria must be specified to indicate that a specific CCP is under

control. Corrective procedures must be established in order for remedial action to be taken when a CCP monitoring point indicates that the system is out of control.

ISN'T HACCP JUST A NEW NAME FOR THE SAFETY/QUALITY CONTROL APPROACH THAT GOVERNMENT AND INDUSTRY HAVE BEEN USING ALL ALONG?

No, HACCP is truly a new philosophy and approach to control microbial hazards associated with food. To understand that HACCP is new it is necessary to take a view from the historical perspective of food laws, regulators' methods of enforcing laws, and the processors' problems with compliance.

WHAT DOES FOOD LAW HISTORY HAVE TO DO WITH HACCP?

Food laws are of ancient origin (Hebrew Talmudic dietary laws, Roman laws to protect consumers against economic losses). These laws predate our knowledge of microbial hazards by over 2,000 years, as microorganisms were first observed by man in the late 17th Century, and it wasn't until the 19th Century that microorganisms were recognized as agents responsible for foodborne illness and food spoilage. Ancient and modern food laws have been directed towards preventing deceit of consumers and ensuring a wholesome food supply. The laws contain vague descriptive terminology for compliance. Words such as "satisfactory," "adequate," "acceptable," "if necessary," and "suitable" are used to invoke compliance. Further, these laws do not distinguish between essential and important requirements for safety and compliance and those that are relatively unimportant. The implementation of the HACCP procedure provides for specific requirements and standards to identify, rank, and control microbial hazards associated with foods.

HACCP:

WHAT HAS BEEN THE REGULATORY APPROACH TO FOOD LAW ENFORCEMENT?

Essentially, inspectors attempt to determine compliance with the laws and regulations through periodic visits to the facility to observe "normal" operations. The observations relate almost entirely to what is happening in a factory at a given time during that day of inspection. These observations do not consider what happens at other times, they do not necessarily delve into the activities which have occurred since the last inspection. What the inspector reviews or emphasizes is a personal choice and may not be important in terms of controlling microbial hazards because most regulations fail to distinguish between aesthetic requirements and the factors which have a direct effect on microbiological safety and quality. Periodic inspections may uncover deviations from the aspects of a particular law, but whether these deviations are related to microbial hazards is a matter of chance. Most meat and poultry processing operations are subject to continuous regulatory inspection and this reduces some of the problems of periodic inspection. The emphasis of continuous inspection is on antemortem and postmortem observations of animals and carcasses. Resident inspectors are responsible for a broad scope of activities, only a minor portion of which control microbial hazards. Despite continuous inspection, a major portion of food-borne illness is caused by meat and poultry products.

HOW HAS THE INSPECTIONAL APPROACH AFFECTED FOOD PROCESSORS?

The vague terms in existing laws, the failure to distinguish between factors related to microbial hazards and those of purely aesthetic significance, the failure to distinguish between the essential and superfluous are among the factors which create confusion and hardships for food processors. Food processors are forced to attempt compliance with all facets of the applicable law. This dilutes the processors' efforts and restrains concentration on essential factors related to microbial hazards.

HOW CAN HACCP REDUCE THESE REGULATORY PROBLEMS FOR FOOD PROCESSORS?

HACCP is directed toward control of microbial hazards. The key to control is hazard analysis which identifies the CCP's over which control can be exercised. The CCP's must be monitored to determine whether they are under control. Thus, HACCP is an active rather than a passive system to control microbial hazards. Furthermore, HACCP is not concerned with aesthetics, with weights and measures, with labels, with colors, or a variety of other attributes having no direct bearing on microbial safety and quality. CCP's are sites where microbiological control can be exercised. CCP's are not, a priori, points at which contamination occurs but points where there are means to eliminate, prevent, or minimize contamination. Thus HACCP calls for analysis of microbial hazards associated with a food processing system, determination of the points where the identified hazard can be controlled, and establishment of procedures and specifications to monitor the CCP's for assurance that the process is under control. The monitoring function implicitly calls for the development of remedial procedures to bring a process back into control when the monitoring results indicate that control of a CCP is lost. It should be logically evident that HACCP is far more rational than the systems historically used to attempt to control microbiological hazards associated with foods.

HOW DOES HACCP AFFECT THE REGULATOR?

HACCP, properly applied, should enhance regulators' ability to determine whether microbial hazards in food processing operations are under control. Under HACCP, the primary concern during inspections would be a review of the hazards, the CCP's, and the monitoring of results from CCP's. If the review of the monitoring data indicates that the CCP's are under control, the inspector has a high degree of assurance that the plant is operating satisfactorily with respect to control of microbial hazards. The inspector's HACCP review is not restricted to a particular time, as is the case with a traditional inspection. Inspection of monitoring results permits a relatively rapid evaluation of the status of the food processing plant since the last inspection. If monitoring results indicate satisfactory control of CCP's, inspectors can reasonably direct their attention to other operations where time could be spent more efficiently.

HACCP:

Not only is the HACCP method cost effective for the processor, but it also increases the efficiency of the regulator and in the long run yields greater protection for consumers.

HAS HACCP BEEN FIELD TESTED UNDER REAL PLANT CONDITIONS?

Yes, in that low acid canned food regulations adopted by the FDA in 1973 contained all the elements of the HACCP approach, although, the term HACCP was never included in the regulations.

HAS THE HACCP APPROACH BEEN SUCCESSFUL AS APPLIED TO LOW ACID CANNED FOODS?

Yes, and for good reason: (1) industry and government working cooperatively identified "critical factors" relating to the production of commercially sterile canned foods. The term -- critical factor -- in the regulations is equivalent to critical control points in the HACCP approach. Monitoring procedures for critical factors were developed; (2) the FDA required operators of retort, aseptic packaging systems, product formulation systems, and container closure inspectors to be under the supervision of a person who satisfactorily completed the prescribed course approved by the FDA Commissioner; (3) FDA inspectors were trained to review monitoring results as they related to the control of critical factors; (4) Use of this system was mandated by regulations published in the Federal Register on Jan. 24, 1973.

WHY HAS THERE BEEN A RECENT RESURGENCE OF INTEREST IN HACCP?

Although HACCP was officially introduced in 1971, except for the elements of this approach being used relative to low acid canned foods, its use in other segments of the food industry was negligible. Two reports published by the National Research Council (National Academy of Sciences) sparked interest. The first publication, *An Evaluation of the Role of Microbiological Criteria for Foods and Food Ingredients*, was released in May 1985. The second report, *Meat and Poultry Inspection: The Scientific Basis of the Nation's Program*, was released a couple of months later.

WHAT WAS THE CONTENT OF THESE REPORTS WITH RESPECT TO HACCP?

The first report recommended that the American food industry be required to use the HACCP system through promulgation and enforcement of governmental regulations for food protection. The second report indicated the HACCP concept is a part of the strategy of the USDA's Food Safety and Inspection Service, particularly in reference to the USDA's procedures for approving quality control plans in processing plants. The Committee encouraged the Department "to move vigorously as possible in the application of the HACCP concept to each and every step in plant operations, in all types of enterprises involved in the production, processing and storage of meat and poultry products."

WHAT IS THE CURRENT STATUS OF HACCP?

In response to these reports, the National Advisory Committee on Microbiological Criteria for Foods (NAC) was formed in 1980. Its activities are funded by the FDA, USDA, the Department of Defense and the Commerce Department. The committee has defined and described the HACCP approach and is currently working on the development of prototype HACCP documents relating to specific foods.

(In its activities, the NAC has limited the scope of HACCP to food safety problems, i.e., hazards, critical control points and monitoring, definitions which relate exclusively to food safety. Omitted from the committee's consideration is the relationship between HACCP and food quality. This omission is rather confusing when one considers that the issues of food safety and food quality are irrevocably intertwined.)

HOW WILL IMPLEMENTATION OF HACCP BE ACCOMPLISHED?

The "Microbiological Criteria" report is the most instructive in this regard. It states that the proposed regulations should not specify the details of the application of the HACCP system, and that development of such details should be the prerogative of the food industry. This approach is different from that taken from the development of the HACCP program for the low acid foods where industry and government worked cooperatively to identify CCPs and develop monitoring

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HACCP:

systems. The Committee's recommendations specify training of regulatory personnel in the elements of HACCP "so that their inspection activities focus on review of monitoring records as the primary basis for assessing the adequacy of monitoring procedures, and appropriateness of proposed remedial action when a CCP is out of control. The work of the NAC is providing templates that can be used by companies or processors within various segments of the food industry.

WHAT SHOULD FOOD PROCESSORS BE DOING NOW?

Food processors should bring control of their food products under the HACCP system now. The templates provided by the NAC should provide guidance to individual processors in the establishment of HACCP programs appropriate to their operations. This approach is more prudent than waiting to see if the government actually mandates the use of HACCP because the HACCP method intrinsically offers the most rational means to control microbial hazards in foods.

WHAT SHOULD BE CONSIDERED PRIOR TO ADOPTION OF THE HACCP CONCEPTS?

The design and establishment of a HACCP program requires technical expertise to understand the microbiology of the food product over which control is desired. The beginning requires an analysis of the microbiological hazards found in the production, distribution, sale, and use of a food product. This analysis should lead to the identification of critical control points. The expert food microbiologist is, through training and experience, able to anticipate the hazards and the probable CCP's if the characteristics of the food are known. In the absence of microbiological expertise, expensive and lengthy testing must be performed to determine the hazards and

CCP's. Microbiological expertise will also greatly reduce the probability of technical errors in evaluating processes and products for HACCP.

ASSUMING THE PROBABLE HAZARDS AND CCP'S HAVE BEEN IDENTIFIED, WHAT IS DONE NEXT?

Microbiological studies must be done under plant conditions to verify the CCP's and to determine if any hazards have been overlooked. The initial microbiological work may require shelf life tests and challenge studies of the product with pathogens or likely spoilage organisms.

WHAT IS DONE AFTER THE HAZARDS AND CCP'S HAVE BEEN CONFIRMED?

A monitoring system must be established for each CCP. The method must rapidly determine whether a CCP is under control. Monitoring could require visual observations or the use of physical/chemical tests such as measurement of time/temperature, pH, water activity, moisture, and others. Except for inspection of raw materials before use, microbiological analyses generally require too much time to obtain results for use in a CCP monitoring system. However, microbiological tests are used as verification that the overall HACCP system is operating correctly.

WHAT IS VERIFICATION AND WHEN SHOULD IT BE USED?

Verification is the use of supplementary information to check whether the HACCP system is working and that critical points in a process are truly under control. Verification is employed to confirm that the system is working effectively. Although the results of verification tests are usually not obtained until after the product has left the processor's control, they still provide vital information on the HACCP system.

This article originally appeared in SCOPE, a technical bulletin of Silliker Laboratories.

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SUSTAIN PROGRAM

The program **Sharing U.S. Technology to Aid in the Improvement of Nutrition (SUSTAIN)** provides access to U.S. expertise in food processing to help improve nutrition in the developing world. Technical assistance is provided by volunteer professionals from U.S. food companies, universities, and other organizations who donate their time and expertise.

SUSTAIN was granted a five-year renewal from the U.S. Agency for International Development (USAID) on September 30, 1991. The program is managed under a cooperative agreement with the National Cooperative Business Association (NCBA) and receives advice from a Steering Committee made up of private sector representatives.

NCBA was founded in 1916 and is a membership association representing America's 45,000 cooperative businesses. Known overseas as CLUSA, NCBA works overseas with its own member co-ops, USAID, World Bank, UNDP, and other donor agencies to promote development and joint ventures in the third world.

Many benefits can accrue to the developing world through improvements in food processing. From the standpoint of alleviating hunger and improving nutrition, food processing has much to offer. It helps meet food and nutritional requirements and reduce post-harvest food losses. From the economic standpoint, food processing provides a means for increasing foreign exchange earnings through exporting value-added processed foods rather than commodities. It helps generate employment and stimulates technological development and the growth of allied industries.

SUSTAIN helps improve food quality, expand production, and lower operating costs of locally grown and processed foods by providing technical assistance in post-harvest food systems, including: (a) food safety, quality, and sanitation (b) food preservation and storage (c) food processing (d) food fortification (e) packaging (f) marketing (g) weaning foods and (h) environmental technologies.

How the Program Works

SUSTAIN receives requests for assistance from individual food companies, research institutions, and USAID. Short-term technical assistance is provided by experienced U.S. professionals who donate their time and expertise to the project. Missions are typically one to three weeks in duration. SUSTAIN covers international travel costs. Companies or host organizations requesting SUSTAIN assistance are asked to contribute towards in-country expenses. Due to budget constraints, priority is given to requests that can demonstrate an ability to improve the nutritional quality, safety, and availability of food in the local community.

SUSTAIN is able to solve many problems by providing information that exists either in technical literature or in the "memory" of a company. If the problem cannot be solved through correspondence, then SUSTAIN volunteers may be sent to provide short-term technical assistance. Workshops and seminars can also be organized to help address food technology issues. The program does not fund product or equipment acquisitions.

The program publishes a quarterly newsletter (*SUSTAIN Notes*) on food technology issues. It is provided gratis to approximately 2300 recipients in more than 50 countries.

For more information, please write to:

SUSTAIN Program
National Cooperative Business Association
1401 New York Avenue, NW, Suite 1100
Washington, DC 20005-2160
Phone: (202) 638-6222
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THOMAS HARDING

Thomas Harding, Jr. is President of Agrisystems International, an internationally recognized small business serving all aspects of the certified organic food industry. Mr. Harding's areas of specialization are certified organic food and agriculture development, independent third party certification inspections, evaluation and accreditation relating to value-added business and trade needs. In his international development work, he has assisted local groups in the development of organic production methods appropriate for specific regions and specialized crops. This work has taken him to over 60 countries and has encompassed broad areas of food production, processing, and manufacturing. In 1992, Mr. Harding became the first American elected President of the International Federation of Organic Agricultural Movements (IFOAM). He is also Past President and co-founder of the Institute for Alternative Agriculture (IAA) and Past President and founding member of the Organic Foods Production Association of North America (OFPANA).

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 COMPANY: UNIVERSAL FLAVORS (PHIL.), INC.
 POSITION: TECHNICAL MANAGER

WORK EXPERIENCES:

COMPANY	PERIOD	POSITION
PHIL. COCOA CORP.	1972 1974	CANDY PLANT HEAD QUALITY CONTROL HEAD FOR ALL 4 PLANTS: 1. COFFEE 2. CHOCOLATE 3. BISCUIT & WAFER 4. CANDIES
UNIVERSAL ROBINA CORP.	1975 1976 1978 TO 1981	PRODUCT DEV'T MANAGER BRAND MANAGER EXPORT BRAND MANAGER
NABISCO BRANDS PHIL., INC	1982 1983 1985 TO 1986	PRODUCT MANAGER SENIOR PRODUCT MANAGER SALES MANAGER
ST TRADING	1986 TO 1988	MARKETING DIRECTOR
LAPID FOODS	1988	FAMILY-OWNED BUSINESS, ENGAGED IN MANUFACTUR- ING PORK RIND CRACKERS, PORK LARD AND CURED MEATS.
DESTI FRIA LIMTUACO	1989	PLANT ADMINISTRATIVE MANAGER RESPONSIBLE FOR THE PLANT START-UP OF THEIR CANDY PLANT
BASF	1990	TECHNICAL SALES MANAGER OF FD & O FLAVORS
Universal Flavors (Phil.), Inc.	1991 TO PRESENT	TECHNICAL MANAGER

OTHERS:

INSTRUCTOR ON FOOD
 TECHNOLOGY (PART-TIME)
 CONSULTANT ON:
 CONFECTIONERY AND
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EDUCATIONAL BACKGROUND:

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WILLIAM RUDD

William Rudd is Project Manager of Meridian Products, Inc., a California-based marketing company for producers in most of the world's major seafood centers. Mr. Rudd is a biologist by training with experience and skills in feasibility studies and the operation and management of commercial aquaculture operations. He represents Meridien as an aquaculture consultant in many countries, and is responsible for product procurement, product development, and quality control. He is presently in charge of Meridien's purchases in Central America, South America, India, and Indonesia.

JOHN SILLIKER

John Silliker (Ph.D., Bacteriology, University of Southern California, 1951) is a consulting microbiologist and founder of Silliker Laboratories, Inc. of Chicago Heights, Il. He was President of Silliker from 1967-1987, and also held several visiting and adjunct appointments during this time. He earlier worked in research positions at Swift & Company and at James Hospital, Chicago Heights, Il. He has served on numerous industry and government committees and commissions concerned with food microbiology, sanitation, and safety, and has published extensively on these topics in the scientific literature. Dr. Silliker holds 10 patents on food preservation and processing technologies.

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AGRICULTURAL PRODUCTS QUALITY WORKSHOP

MAY 9-13, 1993
The Manila Diamond Hotel
MANILA, REPUBLIC OF THE PHILIPPINES

Co-sponsored by:

THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
Asia Bureau, Development Resources/Technical Resources

THE DEPARTMENT OF AGRICULTURE, REPUBLIC OF THE PHILIPPINES
International Agricultural Affairs

THE UNITED STATES DEPARTMENT OF AGRICULTURE
Office of International Cooperation and Development

Presentations by:

The United States Environmental Protection Agency
The Food and Agricultural Organization
The U.S. Food and Drug Administration
Export Services Center, Oregon, U.S.A.
Agencies of The U.S. Department of Agriculture
The SUSTAIN Project, a USAID sponsored program
The Customs Service, United States Treasury Department

**OPENING RECEPTION:
(Registration)**

**6:00-8:00 SUNDAY, MAY 9, 1993,
THE MANILA DIAMOND HOTEL**

MONDAY, MAY 10 REGISTRATION 8:00 A.M.

9:00-10:30 Opening Remarks:

Richard Johnson, Deputy Director, USAID/Manila

Carlos Fernandez, Philippine Department of Agriculture

Mary T. Chambliss, United States Department of
Agriculture

Elizabeth Turner, the SUSTAIN Project

10:45-Noon The Asian Perspective

Di-Yaunbo, Asia Plant Protection Commission
Marshall Kirby, USDA Animal and Plant Health
Inspection Service

NOON-1:30 Luncheon Speaker: Andrew McGregor, USAID/Suva

1:45-2:45 U.S. Customs, Guidelines and Procedures

Jerry Laderberg, U.S. Customs Service, Treasury
Department

3:00-5:00 Animal and Plant Health

USDA/APHIS Area Directors: Marshall Kirby (Chief),
T.H. Russell, Ray Miyamoto, and James Moulthrop
Lyn Fielder, Animal Damage Control Center

TUESDAY, MAY 11

8:00-NOON Perspectives from the U.S. Private Sector

John Silliker, Silliker Labs (Food Testing)

William Rudd, Meridian Products (Seafood)

Erlinda Lapid, Universal Flavors (Fruit, Flavors and
Spices)

Tom Harding, Agrisystems International (Organic
Marketing)

cf

TUESDAY, MAY 11 CONTINUED

1:45-5:00 Country Agribusiness Experiences

Indonesia: Sam Filiaci, NCBA/CBI
Shidiq Moeslim, NCBA/CBI
Philippines: Ms. Kilayko
Nepal: D.B. Shakya
Sri Lanka: Martin West
Tonga: H. O'Fa'anunu

WEDNESDAY, MAY 12

8:00-2:45 FOOD SAFETY, QUALITY AND LABELING

Angel Cielo, USDA Food Safety and Inspection Service
Norma Corristan and Anup Engquist, Oregon Department of
Agriculture, Export Services Center
Frank MacKeith, Food and Drug Administration,
U.S. Department of Health and Human Services

3:00-5:00 ENVIRONMENTAL PROTECTION

Cathleen Barnes, U.S. Environmental Protection Agency
Kevin Gallagher, Food and Agricultural Organization

THURSDAY, MAY 13

**8:00-10:00 MARKET INFORMATION, MARKETING AND
TRANSPORTATION**

Winfred (Bill) Crocker, USDA Agricultural Marketing
Service, Fruit and Vegetable Market News
James Caron, USDA Agricultural Marketing Service
International Transportation

10:00-12:30 CONCURRENT BREAK-OUT SESSIONS

Animal and Plant Health
Food Quality, Safety and Labeling
Environmental Protection
Market Information and Int'l. Transportation

1:30-3:00 REPORTS FROM BREAK-OUT SESSIONS



S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

July 8, 1993

Ms Elizabeth Turner
Director, SUSTAIN Program
National Cooperative Business Center
1401 New York Avenue, N.W.
Washington D.C. 20005-2160

Dear Liz,

I would like to take this opportunity to thank you and the SUSTAIN Program for providing the private sector volunteers for our recent Agricultural Products Quality Workshop in the Philippines. Certainly, all of the SUSTAIN volunteers made quality presentations and in general served as excellent resource persons during the discussions of other Workshop topics. In particular, the knowledge, interest and communication skills of Mr. Tom Harding, the organic farming specialist are outstanding. I'm pleased that the South Pacific mission asked us to add organically produced products to the program and that SUSTAIN was able to respond with such an impressive individual. The request for additional assistance from Mr. Harding testifies to his abilities. I also believe that Dr. Sillicker was a particularly valuable resource on the important topic of laboratory testing of food products.

I also thank you for your attendance. In particular, your involvement in the wrap-up session helped to focus the discussion and led to more participation from the various country attendees. I hope that in one way or another we can continue to work with the SUSTAIN Program throughout the implementation of our Regional Agribusiness Project.

Sincerely

Timothy J. Miller
Agriculture Development Officer

AGRICULTURAL PRODUCTS QUALITY WORKSHOP

May 9 - 13, 1993

THE MANILA DIAMOND HOTEL

Manila, Republic of the Philippines

DIRECTORY OF PARTICIPANTS

AGRICULTURAL PRODUCTS QUALITY WORKSHOP

May 9-13, 1993

The Manila Diamond Hotel

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TO: Asia Mission S/ADO's and Agribusiness Project Officers
FROM: Tracy Atwood and Roger Bloom, ASIA/DR/TR
SUBJECT: AGRICULTURAL PRODUCT QUALITY STANDARDS WORKSHOP

ASIA/DR/TR and the USDA, under the Regional Agribusiness Project (RAP), are planning a workshop to review food quality issues constraining Asia's exports and domestic marketing. We estimate that the workshop will be three or four days in duration and held February-March 1993 at a yet to be determined location. This message solicits your ideas about the workshop's organization, agenda, timing and venue.

Our thinking is that emphasis should be on food quality issues such as phytosanitary and pesticide residue standards, quarantine treatments, integrated pest management, etc. The intended audience is private agribusiness personnel collaborating in Mission programs, host country officials, Mission agribusiness project contract staff, and Mission personnel. The workshop should create a better awareness and technical understanding on the part of missions and agribusinesses of the issue/problems related to improving food quality to respond to a growing sophistication among Asian country domestic consumers and for increased participation in export markets.

We will fund, through RAP and our USDA RSSA, the costs associated with the workshop's organization and the travel costs of 2 private sector participants affiliated with missions' projects. We encourage missions to fund additional participants. All Mission direct hire personnel (U.S. or FSN) would need to be funded from OE. Contract staffs should be able to pay their own way. ASIA/DR/TR estimates a total of 50-60 participants (organizers, presenters, participants). We hope that about half of the participants will be from the private agribusiness sector.

ASIA/DR/TR has asked the USDA and APHIS to take the lead in organizing the workshop and making presentations. APHIS is active in the region with personnel stationed in Tokyo, Seoul, and Kuala Lumpur and assists Asian governments and private sector exporters with information on the U.S. certification system, exchange of technical information, and provides training to improve host country plant and animal inspection services. APHIS will provide a technical orientation on the importance of commodity inspections, identify key quarantine issues and treatments for consideration by mission projects, relate some of the more important lessons learned from the region to mission personnel and their agribusiness collaborators, and present its programs for strengthening host-country inspection services.

The other RAP implementing organizations will also make presentations on relevant topics to the region. These organizations and topics will be: the Agricultural Marketing Service (AMS) for market analyses, establishing systems of grades

and standards, and market news reporting training; the Environmental Protection Agency (EPA) for problems related to agroprocessing pollution prevention and pesticide use and disposal; and the Oregon Department of Agriculture's Export Service Center (ESC) for information on its data base on food law and quality standards for the major Pacific Rim markets. Also, we would expect mission personnel and/or their agribusiness project collaborators to give presentations on their projects. It would be desirable to complement these workshop presentations with a one or two-day field trip to visit agribusiness activities.

The RAP workshop will provide an opportunity early in the RAP implementation process for missions and their private sector clients to obtain an orientation to the types of services provided by the project, provide a forum to discuss some key agribusiness development issues of common interest across the region, and provide an opportunity for missions to compare notes and share initial lessons learned on progress/problems encountered in implementing their agribusiness projects. Likewise, the RAP implementing organizations will gain a better understanding of mission agribusiness development efforts which should help them in organizing their technical assistance services.

Once we have a better idea of how the workshop will be organized, the agenda, the date and hopefully a venue, we will send an official announcement cable. The title, topics and participants of the workshop are subject to change depending on your needs. We solicit feedback, will your pass comments to the USDA organizers and will keep you posted on progress.

EXECUTIVE SUMMARY

I. Background

Agribusiness in ASIA provides expanding opportunities for increased trade, employment and national income growth. The emerging importance of agribusiness is a result of overall economic growth in the region and a shift in the source of agricultural sector growth away from field production to food processing, marketing and other value-added services such as post-harvest handling, packaging, storage, transport and food wholesaling and retailing. These functions and services will continue to expand rapidly as overall economic growth continues, domestic consumer preferences become more sophisticated, and trade opportunities in new markets for agricultural products are accessed.

Recognizing the importance of agribusiness in the economies of Asia, all Asia missions (with the exception of Cambodia, Mongolia, Pakistan and Thailand) have begun implementation of, or are designing, an agribusiness project(s) in FY 1991 and 1992. However, agribusiness represents a relatively new technical focus for the Bureau. As the Mission agricultural portfolios shift from a production emphasis to a systems approach for achieving private sector-led market integration for key agricultural products the Regional Agribusiness Project (RAP) will support their first generation agribusiness projects by filling gaps. RAP will also provide leadership for the development of agribusiness activities in new Missions.

Overall, the Regional Agribusiness Project (RAP) will: provide an expanded range of technical support and assistance to USAIDs just embarked in agribusiness projects; and serve as a vehicle for technical support and assistance to new USAID programs in Mongolia, Indo-China, the Central Asian Republics should they join the Asia Bureau, as well as smaller missions without agribusiness projects. As a vehicle for expanded services RAP will emphasize: improving regional market transparency, creating a better understanding of regional market support infrastructure, and defining product quality standards for market entry; identifying solutions to agribusiness development environmental concerns; serving as a regional liaison with the U.S. private sector; and addressing key regional agribusiness development issues which transcend individual country programs. As a support mechanism for new or less than fully delegated USAIDs, RAP will explore the potential for agribusiness investments, provide analytical support for sectoral assessments and assistance with agribusiness project designs.

The dynamics of the Asia market and USAID demands for timely agribusiness services and specialized environmental information were reviewed to determine if technical support and assistance

could be provided through a central bureau project. An ASIA focused regional agribusiness project offers comparative advantages and economies of scale for: accessing and interacting with the U.S. private sector for involvement in mission programs; analysis of key intraregional and international marketing issues; disseminating state-of-the-art knowledge and lessons learned; addressing specific technical concerns such as environmentally sustainable agroprocessing, high value crop production and market enterability requirements; and expanding the range of services offered through existing and new Asia agribusiness programs. At this time no central project exists with the scope of services to be provided under RAP. A planned R&D/EID agribusiness start with no coincidence with RAP components will not be ready for obligation until FY 93 and will require geographic bureau OYB transfers to maintain a sufficient core budget.

The services included under RAP represent a widespread sharing of market, trade, investment and technical information among agribusinesses in Asia. These agribusiness support services can potentially have a powerful impact on the agribusiness subsector and can accelerate and expand agribusiness growth. The RAP emphasis on providing agribusiness support services for improving market transparency, understanding market support infrastructure, and establishing linkages to foreign buyers/sellers and investors builds on key lessons learned and is consistent with the recent CDIE analysis "Export and Investment Promotion: Findings and Management Implications From A Recent Assessment," (McKean, Cressida, 1992).

II. Project Goal and Purpose

The Regional Agribusiness Project (RAP), 499-0009, is a five year, \$13.5 million (\$8.5 million core and \$5.0 million buy-in) project designed to expand and enhance ASIA Bureau agribusiness project capabilities and influence future directions of Bureau agribusiness assistance. The goal of RAP is to improve private sector agribusiness performance and participation resulting in increased employment and income.

The purpose of the project is to increase the effectiveness of existing and new Bureau agribusiness projects and programs in promoting market efficiencies and increased trade and investment in an environmentally sustainable manner. RAP will serve the technical and information needs of ASIA missions and will provide mechanisms for accessing complementary support services for improving the transparency of regional and international markets, addressing key agribusiness development environmental concerns, facilitating U.S. private sector involvement in mission programs, and addressing regional-level agribusiness development issues.