

SUSTAIN

GUATEMALA

MARCH 28 - APRIL 2, 1993

PLANNING FOR SHORT COURSE ON QC/QA

S haring
U nited
S tates
T echnology to
A id in the
I mprovement of
N utrition

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

PLANNING FOR SHORT COURSE ON QUALITY CONTROL/QUALITY ASSURANCE

Guatemala

March 28 - April 2, 1993

by

Volunteer:

Dr. James V. Chambers, Professor, Purdue University

and

Administrative:

Elizabeth Turner, Program Director, SUSTAIN

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SUMMARY

As an institution such as INCAP considers offering training programs to targeted audiences it is critical to know the audience and its needs. A case in point is the development of food science and technology outreach programs. In the food industry, the audience mix can vary from engineers to marketing and business people. The food system is very technically oriented but must be in touch with the market place for profitability and survival. Thus, training programs offered by INCAP must be relevant and beneficial to program participants.

In developing training and technical transfer programs for the food and allied industries (e.g. vegetable oil and margarine, pharmaceutical), administrators and INCAP technical staff must be sensitive to institutional image, professionalism and organizational skills in order to develop, structure, promote and deliver a training program to these audiences. Appearance of the laboratories, building structures, condition of the pilot plant and equipment available to do contract research activities compliment the technical competence of the institution.

To organize the course offerings in Quality Control and Quality Assurance, the following need to be done:

1. Train the "core" group of instructors:
 - a. INCAP staff - staff that will be used to teach the training courses will primarily offer instruction in chemical microbiological methodologies
 - b. Industry professionals - professionals that will be used to teach the training courses will primarily offer instruction in good manufacturing practices, basic sanitation, and quality control and assurance
2. Upgrading and remodeling teaching facilities:
 - a. Pilot plant - will be closed until renovations completed. Engineer's report is now in progress.
 - b. Improve maintenance & appearance of laboratories that will be used as teaching facilities.

The initial offering of the advanced (June 28 - July 2) and basic (August 3 - 6) workshops will emphasize quality control and quality assurance activities to improve the safety and eating quality of the food supply offered for sale to the Guatemalan people. It is being designed first as a training of trainers (advanced course) and then as a more elementary course (Basic Course) that will be open to the general public and taught by the new trainers.

SUSTAIN representatives assessed INCAP facilities, technical staff and technical capabilities for delivering technical programs to the

food industry. Presently, there are deficiencies that do exist and must be addressed by the INCAP administration. Organizational protocols for promotion, outreach, and technology transfer programs and strategies were discussed. SUSTAIN offered recommendations to help the INCAP administration plan their strategies for achieving the goals as set forth by the INCAP organization.

The relationship between INCAP and AGTA continues to be very positive and cooperative. To launch the offering of the short-courses and workshops, INCAP will be able to draw on professionals from private industry recommended by AGTA as a means of supplementing INCAP's technical resources. At the present time, INCAP's resources are limited. Professionals can be drawn from AGTA, local industry (who have gone through training of trainers program), and SUSTAIN Program.

INCAP should give consideration to distributing a percentage of income from the training programs to staff that conduct and organize the workshops. This will provide an incentive to staff to maintain a level of excellence and reward them for quality performance. In the beginning stages of implementation of the training programs, it will be important that profits generated from these programs be reinvested in the food science and technology programs at INCAP to nurture their growth and development. After the food science and technology program facilities and staff are adequately developed, profits from the training and technical assistance programs could be split between: (a) bonus for instructors, (b) food science and technology program, (c) INCAP administration and endowment fund.

As recommended previously, the formation of an advisory group from a cross-section of the Central American food industry would help provide focus and direction for INCAP's food science and technology programs.

It is crucial for INCAP to develop and maintain an image and reputation among the food industry for excellence. Otherwise the institution will lose credibility and its programs will fail.

INTRODUCTION

On behalf of the SUSTAIN Program, Dr. James V. Chambers and Elizabeth Turner went to Guatemala during March 28 through April 2 to conduct planning meetings and site visits for the preparation of an intensive short-course program in quality control and assurance. Dr. Chambers is a professor and extension food scientist in the Food Science Department at Purdue University and a volunteer with the SUSTAIN Program.¹ Before joining the Purdue University faculty, Dr. Chambers served as a corporate microbiologist for Ross Laboratories and as the director of the Food, Dairies, and Drug Laboratories for the Ohio Department of Agriculture. He has extensive experience in dairy technology and processing waste management and utilization. Ms. Turner is the director of the SUSTAIN Program.

The short-course in quality assurance and control is being designed in collaboration with the Institute for Nutrition in Central America and Panama (INCAP), the Guatemalan Association of Food Technologists (AGTA), and USAID/ROCAP. The short-courses will be offered at INCAP facilities.

The goal for the short-course is to teach the incorporation of good manufacturing practices (GMP) and hazardous analysis critical control points (HACCP) into quality control and quality assurance programs for the food industry. Adopting these concepts into food quality programs by the industry will not only improve food quality, safety, and nutrition, but also its productivity and profitability. Too often, the linkage between quality assurance practices and the market competitiveness is not understood. During site visits in Guatemala, as well as in other countries, it has been observed that the food manufacturing plants that were experiencing a high rate of product return and consumer rejection were those who were practicing poor manufacturing practices and did not understand the processing environment. Yet, despite plummeting rates of profitability, plant managers often overlook the lack of quality assurance and control systems as being a principal factor.

The idea for the short-course format in basic quality control and assurance systems was initially suggested by Clark McDonald, President of AGTA, during a previous SUSTAIN mission. Mr. McDonald said there was a strong need for this type of training among local industries. He felt that enrollment in these courses would be strong if they were offered on a regular basis by a local institution such as INCAP and were a quality product.

One purpose of the visit by Dr. Chambers and Ms. Turner was to assess the feasibility of the designing the short-course in a two-part series: (1) training for trainers (advanced level course) (2)

¹ See Appendix I for biographical sketch on Dr. Chambers.

offering a course to local food industries (at the basic level), with instruction provided by new trainees and back-up by SUSTAIN volunteer instructors. The training for trainers session will attempt to integrate technical staff from INCAP and quality assurance managers from local food processing companies. Dr. Chambers said he would design an examination to test the level of comprehension and teaching abilities of each trainee following the first training of trainers. Dr. Chambers cautioned that the offering of the course to industry had to be a top notch product, otherwise industry would quickly lose interest in the course, as well as the institution(s) offering the course.

The itinerary for Dr. Chambers and Ms. Turner included the following²:

- meeting with INCAP's Director and staff -- overview of INCAP and recent reorganization
- tour of INCAP facilities (laboratories and pilot plant)
- tour of LUCAM laboratories (National Food Control Laboratory)
- site-visits to local food processing facilities
- meeting and discussion with future trainees on course goals and content from INCAP, AGTA, and local industry

² See Appendix II for full itinerary.

ASSESSMENT OF FACILITIES & STAFF RESOURCES AT INCAP

Purpose of Assessment: To assess (a) INCAP facilities that will serve as the site for the delivery of the food process quality control workshop, (b) candidates selected from INCAP staff for the training of trainers program, and (b) candidates selected by AGTA from local industries for the training of trainers program.

Assessment:

(a) Site Assessment: INCAP should not use any of its facilities for teaching or training purposes unless they can demonstrate a standard of excellence. This includes basic cleanliness and demonstrated maintenance of the facility, physical structures, and relevant equipment.

Since good manufacturing practices (GMPs) are to be a foundation of many of the training programs offered at INCAP, it becomes extremely important that the INCAP physical facilities be in good repair and the laboratories be kept in a clean and orderly state on an on-going basis. The INCAP staff, technicians, and support employees must all work together and share the responsibility for projecting an image for INCAP as a premier teaching and technical assistance facility. This begins with initial impressions of the physical facilities.

Currently INCAP's chemistry laboratory facilities are under-utilized and poorly maintained. Obsolete instruments also occupy valuable space and inadequate attention is given to appearance, maintenance, and cleanliness.

In contrast, the microbiology laboratory areas appear to be in acceptable use and repair.

The present condition of the pilot plant is not adequate for use as a teaching facility. The physical facilities need up-grading and the entire operation, including the refrigeration units, needs extensive cleaning. Once cleaned, it must be maintained in this condition. The equipment that is in place has very specialized uses. Additional processing equipment and supporting pipelines, a separator, an homogenizer, and three types of heat exchanges need to be acquired to provide the very basics in food processing equipment³. Until the basic repairs, up-grades, and cleaning in the pilot plant are completed, INCAP should communicate to the food industry workshop attendees that the pilot plant is undergoing extensive repair and is not in operation.

³ A more extensive list of auxiliary materials and equipment for the pilot plant is attached in Appendix V.

(b) Assessment of Trainers:

During the course of delivering the advanced workshop, the prospective trainers will be given opportunities to participate in selected laboratory activities to explain certain principles and practices. SUSTAIN technical assistance volunteers will evaluate the effectiveness of these individuals for communication effectiveness. Also, at the end of the workshop program, Dr. Chambers will administer a written problem solving examination to evaluate the individual's ability to think critically. Those trainees demonstrating good communication and critical thinking skills will be given preference for selection as instructors.

(1) Trainers Selected from INCAP: At this time, we do not believe that INCAP has adequate professional staff resources to conduct training programs for local industry in quality assurance and control systems. However, they do have experience to offer training in chemical and microbiological methodologies. They have excellent backgrounds in research and nutrition-related disciplines, but less experience with, or understanding of, commercial food manufacturing systems. With more experience in these areas, they will be able to contribute more to the training programs in good manufacturing practices.

We recommend that INCAP's staff initiate broader contact and site visits with local food industries in order to gain a better understanding of the processing operations and needs among local food industries. This would help them to identify niches where their skills and background can best be utilized. It would also help them in the planning and organization of training and technical assistance activities and identifying needs for qualified instructors from outside INCAP.

We observed that INCAP's professional staff turnover appears to be high, in part from low salaries. This can pose real problems for developing core professional and technical staffs at INCAP and hinder the development of training and technical assistance programs. To address this issue, we recommend that additional compensation be given to those technical staff who have developed, organized, and delivered technical training programs which have generated outside monetary revenue.

(2) Trainers Selected by AGTA: Because of the application of science and technology to managing quality control and quality assurance programs, it is very important that the trainers have practical experience and a scientific education base to be effective instructors in food

industry outreach programs. These instructors must be able to translate the training needs of the industry into program curricula that will ultimately benefit the program participants.

The AGTA trainer candidates appear to be quite capable and proficient in the technical areas. However, we have not yet had an opportunity to evaluate their communication skills. Trainers will need these skills in order to translate complex principles into a simple explanation of the application or relevance of these principles. To test their abilities, they will be evaluated during the advanced training session by SUSTAIN's volunteers.

In organizing future training programs, INCAP should consider utilizing these and other professionals as instructors that are outside INCAP. These can be drawn from AGTA, local industry, SUSTAIN Program, etc.

"TRAINING OF TRAINERS"

PROPOSED CURRICULUM

TWTH-Full day
F -To noon

Dates: June 29 - July 2 (Advanced Course)

TUESDAY

8:15 a.m. Role of Quality Production in Profitability and Market Expansion

8:30 a.m. Understanding the post harvest and Processing Environment Affecting Quality

1. Food stuff as a biological system
2. Inherent degradation processes (enzymes)
3. Handling abuse leading to spoilage, infestation, and food safety concerns
4. Handling practices that lead to decreased quality of the food.
 e.g. contamination
 temperature, RH
 exposure to light excess
 aeration

9:15 a.m. Assessing Quality Control needs in the processing of food stuffs.

1. Production practices at the farm
2. Receiving activities at the processing plant
 - a. Defined criteria important to quality factors associated with the raw food material or ingredients
 - b. Use of laboratory methods to properly assess the above criteria in a timely manner.
 - c. Material acceptance/rejection procedures enforced & supported by management
3. Processing Activities
 - a. Written procedures
 - b. Monitoring
 - c. Documentation
 - d. Maintenance
 - e. G M P enforced

- f. Feedback response
- g. maintaining standards
- 4. Meeting label requirements
 - a. Filling Wt
 - b. Composition
- 5. Warehousing and Distribution
 - Environmental control considerations

10:15 a.m. Refreshment Break

10:30 a.m. Laboratory Activities

Microbiology

Chemistry

- | | | | |
|--|-------------------|---|---|
| 1. Analysis | Dairy | - | 1. Titratable Acidity |
| 2. pH Acidified food
Low Acid Food | | - | 2. Added Water |
| 3. Environmental | Fruit | - | 3. Browny Reaction |
| 4. Handling plates | | - | 4. Brix - Refractometer |
| 5a. Microscopic Slide
with pseudomona | Heat &
texture | - | 5. Viscosity - Brookfield |
| 5b. Mold count cell | | - | 6. Water of Activity |
| 6. Most probable
number (drinking
water) | Composition | - | 7. HPLC - Excess Sugar
added |
| | | - | 8. Atomic Absorption
method for lead |
| 7. Insect Infestation
Examination | Cereal | | |

NOON LUNCH

1:00 p.m. Good Manufacturing Practices, The Foundation for a Quality Assurance Program

1:45 p.m. Understanding the Principles of Heat Transfer unit Operations

- a. Kettle/Vat/Batch Processing
- b. Scrape Surface Heat Exchanges
- c. Tube on Shell Heat Exchanges
- d. Plate Surface Heat Exchanges

2:45 p.m. Refreshment Break

3:00 p.m. Laboratory Activities (Repeat of morning laboratory activities with groups changing)

4:30 p.m. Understanding the Operation of Pumps and Pump Sizing and Product Flow Rates

- a. Centrifugal
- b. Positive displacement
- c. Frictions losses
- d. Back Pressures
- e. Sizing pumps to a system

5:30 p.m. Adjourns

WEDNESDAY

8:00 a.m. Post-harvest practices to reduce Product Abuse and Damage.

8:45 a.m. Handling and Processing Conditions Contributing to Chemical Changes of the Food material.

9:30 a.m. Assessing the Sanitary Environment

- a. Facility . Storage areas
 - Dry
 - Rh Control
 - Infestation
- b. Food handling equipment
- c. Product
 - Effect of Processing on nutrient content and bioavailability of foods
 - Chemistry of Cleaning
 - Role of Sanitizing
 - Understanding the Principles of thermal processing and lethality
 - Quality Control Procedures
 - Collecting Valid Samples, monitoring control points, applicable, statistical methods
 - Food Additives (Sources)

Commodities - Define critical controls points for:

Dairy Products
Meat
Cereals
Fruits and Vegetables

THURSDAY

Commodity Laboratory Activities

- Dairy Products
- Meat
- Cereal
- Fruits and Vegetables

(To be arranged)

PREPARATION NEEDED FOR INCAP
LABORATORY FACILITIES FOR USE IN ADVANCED
TRAINING WORKSHOP
(JUNE 29-JULY 2)

Specific Needs for June/July Workshop:

Essential to the success of the Quality Control workshop will be the availability of laboratory space and equipment in good repair, clean, and well organized. Good lighting will also be needed. It is expected that rooms 116, 117, 118, 129, and 130, located on the ground floor of INCAP II, will be reserved for the workshop (June 28 - July 2, 1993). Ms. Flory Cano will arrange for the food microbiology laboratory space and set up the demonstration exhibits identified in the workshop laboratory activities. Mr. Jorge Zuniga will have responsibility for the chemistry laboratory set-up, rooms 129 and 130. Mr. Carlos Arqueta will have responsibility for locating the necessary equipment and support for the processing laboratory in rooms 117 and 118. Mr. Leonardo de Leon will have responsibility for obtaining representative food packages and equipment for evaluating containers for the packaging laboratory, room 116. Specific equipment, supplied food samples, and other laboratory set-ups will be arranged between the above-named individuals and the professional resource people provided by SUSTAIN.

Other General Preparations:

Clean all surface, countertop, equipment space.

Touch up paint
Ensure adequate lighting
Replace all termite infected doors

Improve appearance of countertop areas by laying on bench covering. It will also provide for a safer work environment by providing an absorbent material for spilled chemicals, INCAP can acquire these low-cost "Bench Covering, plastic face, rocks" from most any laboratory equipment dealer.

PROMOTION ACTIVITIES

These activities will be coordinated by Maggy Fischer and Luiz Elias at INCAP and Juan Carlos Morales from AGTA.

TV PROGRAM: Libre Encuentro is broadcasted Sundays night and it is a program/talk show where controversial national issues are discussed by representative members of opposing viewpoints. In order to create some controversy, a member of the governmental regulatory agency (COGUANOR) should be invited along with a member of a consumer association, a key leader of the food industry (CACIF President), a Sustain volunteer, who will be a professor from PURDUE (to bring some prestige and credibility) and maybe someone from INCAP (AGTA need not to be present. While the Gvt. Agency/Consumer Assoc./Industry Rep. push back and forth on "Hot" topics the person (s) from INCAP/PURDUE could stress how training is the solution towards achieving good quality hence avoiding conflicts with local regulations, and talk about the course which will be offered in August.

Announcement in AGTA magazine

AGTA will publish in April in the AGTA magazine a general information on the short course that will be given on August 3, 5, and 6.

Letter to Co's to invite trainers.

A letter signed by INCAP, AGTA and SUSTAIN will be sent to the food industries where the trainers were selected, explaining the nature and the importance of the course. The idea is also to have support from the industries when the "Trainers" needs permission to offer the courses.

Luncheon speaker:

A top management person (probably Mr. Dionisio Gutierrez from the Pollo Campero enterprise) will be invited to be a key note speaker on June 28. Heads of Food Co's will be invited as the main audience. Press will also be invited as part of the promotional strategy.

A suggested topic for the luncheon talk could be:

- Profitability in food quality (investment in improving food quality is worthwhile from the economic point of view.

BROCHURE:

A brochure for the promotion of the August course must be available by July 6. Proposed contents are as follows:

Title of the course, level of course, target audience, dates, location, organizers.

Maggie will ask her designer and editor to attend the meeting during the last day of the Advanced Course (July 2) where SUSTAIN Volunteers and new trainers will decide on the content for the basic course in August.

Then Maggie's staff will work on the desing and content of the brochure so that it will be reado for distribution on July 6.

SAMPLE ADVERTIZEMENT FOR AGTA PUBLICATION

Notice for Basic Course: August 3-6

Location: INCAP

Course Title: Sanitation/Quality Control Workshop

Level of Course: Basic

Organized by : INCAP/AGTA/SUSTAIN/Purdue

Brochure availability: July 6

Contact People: AGTA office
INCAP Marketing and Services Program

Other Issues

Price need to calculate direct costs to develop cost.

Discount for AGTA members

Scholarship for small business

COSTS

Lab materials
Brochures/Promotion
Food & Beverage
Course Materials
Translators

LOGISTICS

Parking security to invite trainees

LETTER TO BE SENT TO FOOD COMPANY _____
INVITING EMPLOYEE TO PARTICIPATE IN JUNE 29- JULY 2 WORKSHOP.

BORRADOR

Como parte de un programa que intenta proveer Asistencia Técnica y Capacitación al personal de la Industria Alimenticia de Centro América, la Asociación Guatemalteca de Tecnólogos de Alimentos (AGTA), el Instituto de Nutrición de Centro América y Panamá (INCAP), el Proyecto SUSTAIN y la Universidad de Purdue han unido esfuerzos para preparar un curso corto e intensivo sobre aseguramiento de la calidad e higiene.

Después de completar el curso, los participantes serán "Capacitadores" en esta área y podrán dar clases de una versión elemental de este curso, conjuntamente con INCAP y AGTA.

Nos complace notificarle que _____ ha sido seleccionado como participante en este curso que se llevará a cabo los días _____ y _____ de _____ de 1993. Esta capacitación no tendrá ningún costo para su empresa, pero el (ella) necesitará completo apoyo de su parte para poder ser un capacitador activo y una fuente invaluable para el desarrollo de la industria de alimentos de Guatemala y para su propia compañía.

Esperamos contar con la participación de _____ y con su apoyo.

Atentamente,

Dr. Luiz Elías
Coordinador
Programa de Mercadeo
Técnico y Servicios

Lic. Clarck MacDonald
Presidente AGTA

Dr. Elizabeth Turner
Director, Proyecto
SUSTAIN

Appendix I

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
Fax: (202) 628-6726

JAMES V. CHAMBERS, PH.D.
Biographical Sketch

Dr. James V. Chambers is a professor and extension food scientist in the Food Science Department at Purdue University. Dr. Chambers' extension thrust is aimed at the transfer of technical information to address such areas as food quality and safety, materials handling, food microbiology, and energy use and conservation in the food industry. He is also nationally recognized in the areas of wastewater management and sanitation practices in the food industry. His tenure at Purdue covers 20 years.

Before joining the Purdue University faculty, Dr. Chambers was employed in industry for eight years and regulatory work for 2½ years. At Ross Laboratories, Columbus, Ohio (1961-1969) he served as the corporate microbiologist with responsibilities for developing quality assurance programs for infant formulae. From 1969-1972, he was the director of the Food, Dairies and Drug Laboratories for the Ohio Department of Agriculture.

Dr. Chambers has been most recently involved in assisting developing countries with improving food quality control programs for many food products. In 1988, he was invited to visit Taiwan by the Taiwan Food Industry Advisory Committee and the Taiwan Council of Agriculture. The purposes of the visit were to participate in a 5 day Symposia on selected dairy topics and to make site reviews of various dairy and food processing operations with an emphasis on good manufacturing practices and quality control programs. In 1990, he visited Indonesia at the invitation of the Inter-University Center for Food and Nutrition at Gadjah Mada University. The purpose of the visit was to assess the technical support base for the Indonesian food industry and to develop a workshop and conference on food process quality control which were delivered in June, 1991.

Dr. Chambers received his academic training from The Ohio State University with a B.S. in Medical Microbiology, M.S. in Dairy Technology and a Ph.D. in Food Science and Nutrition.

PERSONAL DATA

1. Born in Pekin, Illinois, March 12, 1935
2. Education:
 - a. Medical Technology and Blood Banking, U.S. Navel Medical Center, Bethesda, MD.
 - b. B.Sc., Medical Microbiology (1961), The Ohio State University.
 - c. M.Sc., Dairy Technology (1966), The Ohio State University.
 - d. Ph.D., Food Science and Nutrition (1972), The Ohio State University.

3. Professional Societies:

- a. Institute of Food Technologists
- b. American Dairy Science Association
- c. International Association of Milk, Food, and Environmental Sanitarians
- d. American Society for Microbiology
- e. Water Pollution Control Federation

Professor in Food Science with 80% extension, 10% teaching, and 10% research.

4. Expertise in the application of analytical methods for the assessment of quality factors with an emphasis on food safety, wholesomeness/sanitation, composition, and shelf-life performance of food products.

Experience primarily with milk and dairy products and some experience with meat, poultry, fruit and vegetable products.

5. Consulting Activities:

Have provided consulting services to over 40 food industries during the past 20 years. Most of these companies required technical assistance with food quality and environmental problems.

6. Publications (Since 1975):

Referred - 24 Scientific papers/chapters to books

Non-referred -10 Scientific extension papers

Extension - 1 Manual Series (15 volume set), Food Process

Wastewater Management

- 10 bulletins/ proceedings

- 33 Fact Sheets/memos

Has authored numerous popular press articles on dairy related topics which have been published at the national level

7. Areas of Specialization:

Food Microbiology - Food Safety

Environmental Microbiology

Wastewater Management

Dairy Technology

Food Technology

Food Science

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Appendix III(a)

**PROPOSED SCHEDULE FOR PRE-PLANNING MEETING
MARCH 29 - APRIL 1**

DATE & TIME	ACTIVITIES	PARTICIPANTS
Monday, March 29		
08:30 - 9:00	Meeting with INCAPS' Director	SUSTAIN & INCAP Staff
09:00 - 12:00	Generalities - SUSTAIN - INCAP Program - INCAP's projects	SUSTAIN & INCAP Staff
	Results from visits to food industries	SUSTAIN & INCAP Staff
14:00 - 16:00	Tour INCAP's facilities	
Tuesday, March 30		
8:30 - 16:30	Visits to selected food industries	SUSTAIN & INCAP Staff
Wednesday, March 31		
8:30 - 12:00	- Meeting with future trainers from INCAP and the food industry, - Discussion about scope and objectives of short courses	
12:00 - 13:00	- Meeting with Hector Villagrán, banker adviser, and Juan José Narciso from INCAP, to discuss the financial program of INCAP	
16:00 - 18:00	- Meeting with Maggie Fischer and R. Flores to discuss promotional activities for the August short course and the technological transfer promotion of INCAP	
14:00 - 16:00	General Considerations	SUSTAIN, Trainers from INCAP & food industry
Thursday April 1		
8:30 - 12:00	Course - plans, contents	SUSTAIN, Trainers from INCAP & Food industry
14:00 - 16:00	Conclusions/Recommendations	
16:00 - 18:00	Meeting at AID/ROCAP with Sandy Callier	

Appendix III(b)

MEETING WITH FUTURE TRAINERS AND INCAP & AGTA STAFF**MARCH 31, 1993**

NAME	COMPANY	TELEPHONES	/ FAX
Carlos Rafael Anzueto	Osmosis	335335 681493	335336
Carlos Argueta	INCAP	719912	736529
Rolando Galvez Betancourt	Nabisco	933951 943052-3	
Blanca Callejas	Kern's	562222	945172
Dr. Luiz G. Elías	INCAP	719912	736529
Luis Alfredo García	Kern's	562222	721153
Zuly González	Consultor	691544	
Juan Carlos Morales	AGTA	337324	(PHONE & FAX)
Pablo Suazo	Nabisco	933951 943052-3	
Jorge Zúñiga	INCAP	719912	736529

Appendix III(c)

SITE VISITS TO INDUSTRY

MARCH 30, 1993

Licda. Myrna de Zamora
Gerente Control de Calidad
Pasteurizadora La Pradera
18 calle 24-25, zona 10
Ciudad de Guatemala, C.A.
Fax 371548

Sr Hugo Villanueva
Gerente de Producción
Pasteurizadora La Pradera
18 calle 24-25, zona 10
Ciudad de Guatemala, C.A.
Fax 371548

Lic. María Mercedes de Asturias
Gerente de Producción
Empacadora Toledo, S.A.
Aguilar Batres 50-52, zona 11
Ciudad de Guatemala, C.A.
Fax 774035 Phone 773608

Ing. Sergio Nery Chang Bocanegra
Gerente de Producción
Olmecca, S.A.
Apartado Postal 1463
Ciudad de Guatemala, C.A.
Fax 318471

Ing. Guillermo Hernández Hill
Superintendente de Planta
Olmecca, S.A.
Apartado Postal 1463
Ciudad de Guatemala, C.A.
Fax 318471

Sr. Alfonso Santis Monge
Supervisor General
Olmecca, S.A.
Apartado Postal 1463
Ciudad de Guatemala, C.A.
Fax 318471

Appendix IV

AGENDA

DAY: Wednesday 31, 1993
HOUR: 09:00
PLACE: PANAMA Conference Room

- Expectation of Trainers
- Criteria to be a Trainer
- Rethink Course Format - Is it still appropriate to do "Training of Trainers" or should that concept be revised?
- Selection of Trainers, based on experience, education, demonstrated understanding
- Minimum site/facility requirements
 - Equipment needs
- Site preparation for program delivery & technical support
- Course Structure
 - A) Advanced
 - B) General
 - Students/trainers
 - Curriculum
 - Translation

Appendix V

REQUIREMENTS FOR TRAINERS

The following conditions were set by INCAP, AGTA, and SUSTAIN for the selection of Trainers:

They must:

- ° be available to teach elementary version of the food sanitation/quality assurance workshop to forums organized by INCAP & AGTA
- ° agree to work with the other trainers to prepare course materials for the offering of the basic course in August
- ° demonstrate proficiency in the understanding of course material & in being effective communicators. This evaluation will be made by SUSTAIN volunteers following the completion of the advancing course in June/July
- ° be bilingual
- ° have adequate blend of experience & academic background, as determined by INCAP and AGTA, to complete an advanced level course

Appendix VI

SUGGESTED AUXILIARY MATERIALS AND EQUIPMENT FOR INCAP PILOT PLANT

To have a versible pilot plant, that can be adaptable to many different types of food manufacturing equipment, the following auxiliary materials & Equipment should be present in the pilot plant:

- Adequate electrical support
220 V (& possibly 440V)
- air compressors
- pumps - 32 or 3 different kinds
 - Centrifical pumps - 3 sizes
 - Positive displacement pumps ("lobe-type) - 2 sizes
 - Uniform sized pipes - 1 1/2 inch should be adequate
 - a variety of lengths of stainless steel pipes should be available
 - elbows to accommodate pipes
 - support stands for pipes
 - scrape-surface heat exchanger
 - plate heat exchanger
 - tube in shell
 - gaskets & champs - a good supply
 - balance tanks - at least 20 gallons
 - hoist
 - adequate lighting
 - safety & hazard protective gear
 - adequate ventilation .
 - screened window and door openings

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INCAP is advised not to tie-up lots of capital in buying food processing equipment. A pilot plant should be designed with flexibility in mind. Equipment often becomes out-dated & obsolete.

Instead, INCAP should explore opportunities for borrowing equipment from equipment dealers. In return for loaning such equipment, equipment dealers should be given credit & recognition in INCAP informational materials. Equipment manufacturing representatives could also be incorporated into INCAP/AGTA programs as a presenter and resource person. To cultivate these relationships, INCAP should establish links and communication as the local dealerships.

Appendix VII

Existing PILOT PLANT EQUIPMENT LIST

MARCH 1, 1993

EQUIPMENT	QUANTITY
Food Processor	1
Finisher (Pulper)	1
Retorts	2
Can Exhauster	1
Steam Blancher - Cooler	1
Can Closing Machine	1
Can Seam Test Kit	1
Drum Dryer	1
Lye Peeler - Scalding	1
Rotatory Toaster	1
Extruder	2
Band Conveyor	1
Mills (1 Disc Mill & 3 Pulverizing Mill)	4
Mixers	2
Cooking Retort/Boiler (Jacketed Kettles)	2
Bag Sealers	3
Mixer (Hobart)	2
Baking Oven	1
Seed Huller	1
Scales	4
Refrigeration Room (cold room)	1
Hot Room	1
Coloidal Mill	1
Relative Humidity Measure Equipment	5
Past Processor	1
Peletizer	1
Evaporator	1
Refractometers	2
Brookfield Viscosimeters	2
Plates Freezer	1

4. CURRICULUM VITAE

Please include a curriculum vitae for EACH professional.

Other formats are NOT acceptable; this page must be completed.

1. Family name: Cano		Nationality: Guatemalan	
First name: Floridalma			
2. Degrees (including discipline(s), conferring institution, year): Microbiology (B.Sc.) Universidad de San Carlos de Guatemala			
3. Posts held - <u>5 most recent posts only</u> - starting with present post held:			
Date		Post title	Institution
From	To		
1 Aug. 1986	Present	Bacteriologist	INCAP
2 1977	July 1985	Assistant Professor Microbiology	Universidad de San Carlos de Guatemala
3 1975	1976	Laboratory Assistant Microbiology	Universidad de San Carlos de Guatemala
4			
5			
4. Publications: Give full details (title and references) of not more than ten (10) publications considered to be most relevant to this proposal (use additional page if needed).			
1. Cano, F., Cruz J.R., Bartlett A. Contaminación fecal en alimentos y agua consumidos en una comunidad rural de Guatemala. Informe Anual INCAP.1990.			
2. Cruz, J.R., F. Cano, L. Rodríguez, C. Ríos, P. Guerra, Z. Leonardo. Shigella dysenteriae 1 in Guatemala. MMWR. 1991, 40(25):421-428.			
3. Cruz, J.R., G. Pareja, P. Cáceres, F. Cano & F. Chew. Enfermedad diarreica y persistente y sus consecuencias nutricionales en infantes de Guatemala. ALAN 1989. 39(3): 263-277.			

- 21

Samuel de Jesús Salazar Genovez.
RESUMEN-RESUME

Dirección Particular--Home address

Final Av. Los Laureles No. 4C, Colonia La Sultana, Antio, Cuscatlán, Tel.: 23 6018

Direcc. Oficina-Office address

AGRIDEC EL SALVADOR Calle La Rotonda No. 430, Edificio MCL, Col. Escalón, San Salvador, Tel.: 23 9433
Fecha de nacimiento-Birthdate: 12 - 12 - 1961.

Educación y Capacitación

Agronomo e Ingeniero Agronomo con estudios a nivel de Maestria en Administracion de Empresas (actualmente estudiando en FEPACE-ESEADE, Escuela Superior de Economía y Administración de Empresas, Univ. Francisco Marroquin). Estudios no formales a nivel internacional en el area de irrigación y de Administración y formulación de proyectos.

Experiencia de Trabajo

Escuela Nacional de Agricultura "R.O." El Salv. (1985-1990)
Enseñanza y producción hortícola. Enseñanza y producción pecuaria. Planeación de producciones y enseñanza para el adiestramiento, a nivel superior. Dirección y administración de proyectos con financiamiento internacional. Coordinador del Proyecto Manejo de Aguas. ENA/AID. Diseño de programas de estudios y de desarrollo curricular. Profesor a nivel superior en las áreas de Ingeniería en agricultura bajo riego y área Económico administrativa. Experiencia docente y en la planificación y ejecución de ensayos de investigación en agricultura intensiva bajo riego. Experiencia en la producción agrícola intensiva.

Agricultural Development Consultants, Inc. AGRIDEC. (1990-1991)

Planificación de actividades educativas y de entrenamiento, en el nivel académico no formal. Expositor y consultor en el area de manejo de la agricultura bajo riego. Formulación y evaluación de estudios de prefactibilidad técnica y económica.

Otra experiencia

Conocimiento y manejo de programas aplicados de computación como Word Perfect 5.1, Quattro-pro, Page Maker, Lotus 123, Dbase, First Choice y otros más.

Algunas publicaciones en las área educativa y productiva. Traducciones en el área de irrigación y simuladores del desarrollo de cultivos.

Expectativas de trabajo.

Investigación aplicada en agricultura. Capacitación agrícola. Administración de producciones en agricultura intensiva. Administración de proyectos de desarrollo. Administración y producción en empresas agroindustriales.

Education and Training.

Aronomist and Agronomist Engineer with Master of Business Administration studies (actually studying in FEPACE-ESEADE, Economy and Business Administration Superior School, Francisco Marroquin University, El Salv.). Short term scholarship at international level on Irrigation and Project Design and Administration.

Work Experience.

National School of Agriculture "R.O." of El Salv. (1985-1990).

Horticultural education and production. Production and education planning of school agriculture, at high level. Direction and Administration of internationally supported projects. Water Management Project ENA/AID Coordinator. Professor in Irrigated Agriculture Engineering and Economics. Experience on experimental research on intensive irrigated agriculture. Experience on intensive agricultural production experience.

Agricultural Development Consultants, Inc AGRIDEC (1990-1991)

Planning of educative and training activities at non academic level. Expositor and consultant in agriculture irrigated management. Formulation and evaluation project.

Other experience

Knowledge and handling of computer application programs such as WordPerfect 5.1, Quattro-pro, Page Maker, Lotus 123, Dbase, First Choice and others.

Some publications on the educative and productions. Traduction of writings on the areas of irrigation and Crop Growth and development model.

Working area.

Agriculture research. Agricultural training and capacitation. Management of agricultural production. Development project management. Administration and production in agroindustrial bussines.

28

CURRICULUM VITAE

NAME(S) AND SURNAME: (MISS) Zuly Elena GONZALEZ Z.

DATE OF BIRTH:

MARITAL STATUS: Single

NATIONALITY: Guatemalan

PERMANENT ADDRESS:

DEGREE AND POST-GRADUATE UNIVERSITY STUDIES:

1969-1977 Universidad de San Carlos de Guatemala
Degree: Licenciado (B.Sc.) in Pharmaceutical Chemistry
1982 University of Ghent, Belgium
Pharmaceutical Technology Course
1983 University of Miami, Florida, USA
Pesticide Residue Analysis Course
1986-1987 University of Reading
Degree: M.Sc. in Food Technology, Quality Control option

EMPLOYMENT RECORD:

1976-1977 and 1979 Assistant Professor of Biology and Chemistry, Universidad de San Carlos de Guatemala
Description of the work: Lecturer and laboratory practice instructor in chemistry and biology courses for medical and pharmacy students.

1980-1986 Laboratory Supervisor, Food Contaminant Section, Unified Food and Drug Control Laboratory (LUCAM), Guatemala City, Guatemala.
Description of the work: Supervision of the Food Contaminant Section of the laboratory (LUCAM). Coordinator and instructor of mycotoxin, pesticide, hormone and heavy metal contaminant analysis courses imparted to Latin American scientific and technical personnel, sponsored by PAHO and FAO. Lecturer in Food Technology and Food Hygiene at the School of Nutrition in the Instituto de Nutrición de Centro America y Panamá (INCAP). Research in food contaminants.

1986-1987 Post graduate studies, Reading University, England.
1988 to date Quality Assurance Manager, Alimentos Congelados ALCOSA, San José Pinula, Guatemala.
Description of the work: Organization and supervision of pesticide residue and microbiological analysis laboratory controlling frozen vegetables. Training of technicians. Implementation of the quality control programme of two plants that form part of the company. Supervision of the quality control managers of the same plants. Advising on the crop protection programme of the company. Management of the Quality Control Departments of two plants (120 employees).

29

LANGUAGES:

Spanish (mother tongue), English (good), French (fair).

MEMBERSHIPS:

- Member of the AOAC International
- Member of the Institute of Food Science and Technology of the United Kingdom
- Founding member of the Asociación Guatemalteca de Toxicología
- Founding member of the Asociación Guatemalteca de Tecnólogos de Alimentos
- Member of the Colegio de Farmacéuticos y Químicos de Guatemala
- Member of the Asociación de Amigos de Bélgica

PUBLICATIONS:

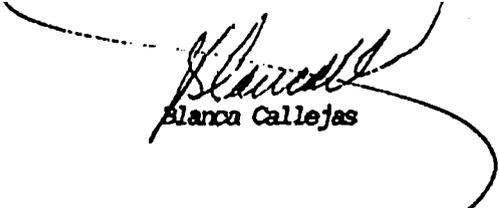
- Fernández, G., González, Zully E., Trigo, F.J. y Blanco, N.: Informe de un caso de intoxicación masiva de ganado por diazinón. IICA: Boletín Laboratorio Central de Diagnóstico de Sanidad Animal. 2(2), Junio 1988, 66-70.
- Contaminantes en dietas totales guatemaltecas. In: Memorias del I Congreso Nacional de Toxicología. 1988.
- Manual de referencia de métodos, cristalería y equipo para laboratorios de alimentos. Análisis de plaguicidas. Pan American Health Organization, Washington, D.C.
- Micotoxinas en alimentos. Presented at: II Seminario Nacional sobre pérdidas post-cosecha de granos básicos. Antigua Guatemala, 18-22 November, 1985.

OTHER RELEVANT FACTS:

- Lived in California USA, from January to December 1978. Extensive travel in Belgium, Dominican Republic, Egypt, El Salvador, England, France, Holland, Italy, Malaysia, Mexico, Panama, Poland, Singapore, Spain, Switzerland, the United States between 1978-1992.
- Consultantship: Implementation of the food analysis area of the Laboratorio de Bromatología del Ministerio de Salud Pública y Asistencia Social (Food Laboratory of the Ministry of Health and Welfare). República de El Salvador, January 13-26, 1991. Pan American Health Organization.
- Consultantship: Training for Dominican chemists in methods for contaminant analysis in meat for export. Dominican Republic. September 1-13, 1991. Inter-American Institute for Cooperation on Agriculture (IICA).
- Consultantship: Evaluation of the food analysis laboratories of seven of the regions of the Ministry of Health. Guatemala, March 1993 to date. Pan American Health Organization.

March 1993.

20


Blanca Callejas

ADJ.: Lo indicado.

03/17/93 15:40

☎ 502 2 562346

ALIMENTOS KERN

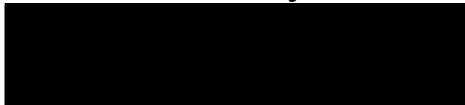
P.02

DATOS PERSONALES:

NOMBRE:

Lloda. Blanca Callejas Rivera

DIRECCION:



TELEFONO:

TELEFONO OFICINA:

56-2222

PROFESION:

Químico - Biólogo
Colegiado 466
Maestría en Tecnología de Alimentos

ANTECEDENTES ACADEMICOS:

- Maestría en Tecnología de Alimentos
Valencia, España I.A.TA.
Instituto de Agroquímica Sp. y Tecnología de Alimentos 1976 - 1978
- Licenciatura Química Biológica
Universidad de San Carlos
Facultad de Ciencias Químicas y Farmacia 1969 - 1975
- Maestra Educación Primaria
Colegio Pedro Molina

ESPECIALIZACION:

Control de Calidad
Microbiología de Alimentos

EXPERIENCIA LABORAL:

- Alimentos Kern de Guatemala, s. a.
Jefe Depto. de Microbiología
Control de Calidad 1978 - a la fecha
- Universidad Rafael Landívar
Facultad de Ingeniería Química
Catedrática de Microbiología Industrial
Ciencia y Tecnología de Alimentos 1991 - a la fecha
- Universidad de San Carlos de Guatemala
Facultad de Ciencias Médicas
Catedrática Biología 1974 - 1976
- Hospital Fuerza Aérea
Químico Biólogo 1975

AREA INTERES COMO INSTRUCTOR:

Control de Calidad
Buenas Prácticas de Manufactura.

31

CURRICULUM VITAE

LUIS ALFREDO GARCIA VELA

Educación

- University of Guelph, Guelph, Ontario. M.Sc. en Ciencias de Alimentos, Agosto, 1989.
- Universidad del Valle de Guatemala, Guatemala. Licenciatura en Química, Junio, 1985.

Experiencia laboral

- | | | |
|---|------------------|---|
| -Alimentos Kern de Guatemala, S.A. | 01/91 - presente | Gerente de Tecnología y Desarrollo |
| -Universidad del Valle | 01/92 - 05/92 | Catedrático Química de Alimentos |
| -Empacadora Perry | 10/89 - 12/90 | Gerente Control de Calidad/Desarrollo de Productos Nuevos |
| -University of Guelph Dept. of Food Science | 11/87 - 05/88 | Asistente de Investigación (M. Sc.) |
| -INCAP | 02/86 - 08/87 | Científico Investigador Técnico/Control Calidad |
| -Plough Export, Inc. | 05/83 - 12/83 | Catedrático (Química Orgánica) |
| -Universidad del Valle | 02/83 - 05/83 | Auxiliar de Cátedra (Química Orgánica) |
| -Universidad del Valle | 01/81 - 11/82 | Laboratorios Química/Física |
| -Colegio Americano | 01/81 - 12/81 | |

Publicaciones Científicas

1. García, L. and Bressani, R. 1987. J.A.O.C.S. 64(3):371.
2. García, L. and Bressani, R. 1987. J.Agr. Food Chem. 35(4):604.
3. García-Vela, L.A. and Stanley, D.W. 1989. J. Food Sci. 54:1284.
4. García-Vela, L.A. and Stanley, D.W. 1989. J. Food Sci. 54:1080.
5. Bressani, R. and García-Vela, L. 1990. J.Agr. Food Chem. 38:1205.
6. García-Vela, L.A., del Valle, J.M. and Stanley, D.W. 1991. Can. Inst. Sci. Technol. J. 24:60.
7. García-Vela, L.A. and Bressani, R. 1989. Turrialba, submitted.

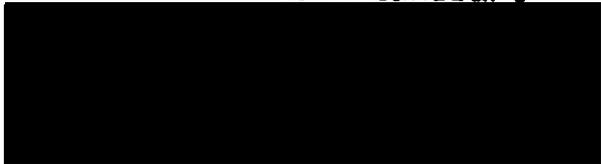
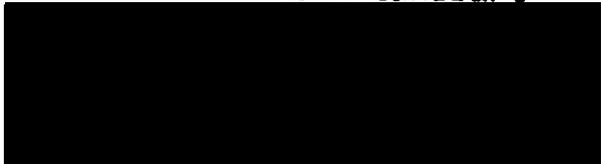
Presentaciones Científicas

- II Congreso UPAD, Guatemala, 1986 (1)
- XXXIV Reunión del PCCMCA, Guatemala, 1987 (2)
- I International Workshop on Nutrition and Acceptability Aspects of common Beans, CIAT, Cali, Colombia, 1988 (1)
- III Congreso Nacional y VI Congreso Latinoamericano de Ciencia y Tecnología de Alimentos, Bogotá, Colombia, 1988 (1)

He recibido varios cursos cortos en universidades de Estados Unidos, y asistido a congresos internacionales sobre mi área de trabajo. Miembro profesional de AGTA, del Colegio de Farmacéuticos y Químicos y del Institute of Food Technologists (USA).

CURRICULUM VITAE

1.- DATOS PERSONALES:

Nombre: Rolando Gálvez Betancourt
Dirección: 
Teléfono: 
Estado Civil: 
Fecha de Nacimiento: 
Cedula No: 
Profesión: Ingeniero Químico
Colegiado No: 139

2.- DATOS FAMILIARES:

Esposa: Myrna Noelia García de Gálvez
Ocupación: Química Farmacéutica
Madre: María Betancourt de Gálvez
Edad de los hijos: 19, 16 & 5 años

3.- ESCOLARIDAD:

INSTITUCION:	AÑO:	TÍTULO:
Colegio Hispano Americano.	1965	Bachiller en Ciencias y Letras.
Universidad San Carlos	1972	Ingeniero Químico
Universidad Landívar	1974	Master Adm. Ind.
Universidad Marroquín	1985	Master Adm. Emp. ESEADE

4.- OTROS IDIOMAS

Inglés, escrito y hablado con fluidez.

5.- EXPERIENCIA DE TRABAJO

A.- AGOSTO 1978 - ACTUAL

COMPANIA: NABISCO FOOD GROUP INT.
Kilometro 13 1/2 Carretera
Roosevelt. Telefono:
911212-922239

PUESTO: Gerente de Manufactura

REPORTA A: Frits Ruinen
Gerente General



B.- ENERO 1977- AGOSTO 1982

COMPANIA: UNIVERSIDAD SAN CARLOS
Ciudad Universitaria
Zona 11

PUESTO: Profesor de Medio Tiempo.

REPORTA A: Ing. Oscar Rosal
Director de Escuela

C.- ENERO DE 1974-AGOSTO DE 1976

COMPANIA: ABBOTT LABORATORIOS DE C.A.
Kilometro 14 Carretera
Roosevelt. Teléfono:
910111-910115.

PUESTO: Gerente de Planta

REPORTA A: Gnte. General de la Planta.
Sr. George Smith

D.- ENERO 1969-ENERO 1974

COMPANIA: LABORATORIOS MILES
Km 14 1/2 Carretera
Roosevelt. Teléfono:
910421

PUESTO: Gerente de Manufactura

REPORTA A: Ing. Sergio Barrientos
Gerente General

6.- OTROS:

COMPANIA: COLEGIO DE INGENIEROS QUIMICOS
Colegio de profesionales Zona
15 . Teléfono: 693689

PUESTO: Tesorero de la Junta Directiva

REPORTA A: Ing. Constantino Alvarez
Presidente de Junta
Directiva

7.- REFERENCIAS:

Se pueden solicitar a
cualquiera de las Compañías en
que he trabajado.

35

CARLOS RAFAEL ANZUETO S.

19 Calle 12-52 zona 10
Guatemala, Guatemala
Tels.: (502-2) 335335/681493
Fax. : (502-2) 335336

- EDUCATION:
- ESEADE, UNIVERSIDAD FRANCISCO MARROQUIN, Guatemala
 - MBA program, (23/40 passed courses)
Concentration in Marketing

 - CORNELL UNIVERSITY, Ithaca, NY
 - M.Eng. Chemical Engineering
Aug 1984 - July 1985

 - M.S. Food Science and Technology
Aug 1982 - Aug 1984

 - UNIVERSIDAD RAFAEL LANDIVAR, Guatemala
 - Industrial-Chemical Engineering
Jan 1976 - June 1982

WORK
EXPERIENCE:

- OSMOSIS, Guatemala
 - Consultant Manager
 - . Post-Harvest Handling of Fruits and Vegetables; Food Processing and Preservation; Product Development; Quality Assurance.
 - . Process evaluation, Methods and Procedures, Productivity.
 - . Market Analysis and Strategy.

- PEPSI-COLA INTERAMERICANA, S.A., Guatemala
 - Field Engineer, Central America (12 Franchises)
Quality Assurance, Productivity/Efficiency Programs, Special Projects, Personnel Training.
Dec 1988 - Dec 1989

 - Franchise Manager, Guatemala (4 Franchises)
Planning/Control of Sales Development Programs, Special Projects (Sales, Distribution, Marketing), Personnel Training, Involvement in development of Annual Operating/Marketing Plan.
March 1987 - Dec 1988

- BIOMASAS DE CENTROAMERICA, S.A., Guatemala
 - Associate Consultant: Research and Product Development; Quality Assurance, in Fruit processing plant.
Feb 1986 - March 1987

- BIOMASAS DE CENTROAMERICA, S.A., Guatemala
- Associate Consultant: Research and Product Development;
Quality Assurance, in Fruit processing plant.
Feb 1986 - March 1987

MAR-18-93 THU 16:56 ANZUETO

5022335336

P.03

WK. EXPERIENCE (Cont'd)

- U.S. PRACTICAL TRAINING, U.S.A.
- Shaw Frozen Foods, Inc., Watsonville, CA
Quality Control; Production, Plant Maintenance in Frozen
Vegetables Plant
- Farmer's Pride, Inc., Newnan, GA
Production Planning and Quality Control, Flavor Reformu-
lation in Fruit Juice Packaging Plant.
- Unisphere Chemical Corporation, Inc., Spartanburg, S.C.
Production and Quality Control. Engineering Projects in
Specialty Chemicals Plant.
July 1985 - Feb 1986
- PROCESADORA DE CARNE, S.A., PROCASA, Guatemala
- Plant/Production Manager Assistant, Meat Processing Plant.
May - Dic 1980
- Quality Control Manager Assistant, Meat Exports
Department.
Jan - Oct 1981

TEACHING
EXPERIENCE:

- UNIVERSIDAD RAFAEL LANDIVAR, Guatemala
- Professor, Chemical Process Industries
- Assistant Professor, Food Technology
School of Chemical Engineering
July - Nov 1986
- Assistant Student, General Chemistry, Unit Operations Lab.
School of Chemical Engineering
July 1978 - Nov 1981
- CORNELL UNIVERSITY, Ithaca, NY
- Teaching Assistant, Equipment Selection and Design
School of Chemical Engineering
Sep - Dic 1984
- Research Assistant, Food Engineering Lab
Institute of Food Science
Jun 1983 - Aug 1984

AREAS OF
INTEREST FOR
THIS TRAINING:

Any of the three, preference in Good Manufacturing Practices
and Quality Control.

31

CURRICULUM VITAE

NOMBRE: PABLO ENRIQUE SUAZO JIMENEZ

DIRECCION:

LUGAR Y FECHA DE NACIMIENTO:

NACIONALIDAD: GUATEMALTECO

ESTADO CIVIL: CASADO

EDULA DE VECINDAD AI - 546035

TELEFONO:

ESTUDIOS REALIZADOS

UNIVERSITARIOS:

LICENCIATURA EN INGENIERIA QUIMICA.

EXPERIENCIAS LABORALES

BODEGAS CARLOS KONG

FECHAS: 1979

CARGOS DESEMPEÑADOS

LABORATORISTA

PAN AMERICAN STANDARD BRANDS INC.

FECHAS: 1980 A LA FECHA

CARGOS DESEMPEÑADOS:

SUPERVISOR CONTROL DE CALIDAD
GERENTE DE CONTROL DE CALIDAD

FRUTESA: 310167
CLARK McDONALD
REF. SUSTAIN PROJECT

Fátima L. Canjurado Arce

DATOS PERSONALES

Estado Civil: casada
Idiomas: español e inglés
Nacionalidad: guatemalteca
Distinciones: Becas de estudio en la Universidad Del Valle; primer graduado de Licenciatura en Ciencia de Alimentos de la Universidad del Valle; beca Fulbright para los estudios de post-grado en North Carolina State University; Miembro Honorario de la sociedad Tau-Sigma de Ciencia de Alimentos.

EDUCACIÓN

North Carolina State University - Raleigh, NC.
Maestría en Ingeniería de Alimentos (énfasis en Ingeniería Química) - Febrero 1990

Universidad De Valle - Guatemala ciudad.
Licenciatura en Ingeniería de Alimentos (énfasis en procesamiento de alimentos) - Mayo 1987

Universidad De Valle - Guatemala ciudad.
Baccalaureatus en Ciencias (estudio de ciencias en general) - Mayo 1986

EXPERIENCIA

Marzo 1993-presente
Gerente de Control de Calidad
Gerente de control de Calidad ALCOSA (Alimentos Congelados S.A.)

Enero 1993-Marzo 1993
Jefe de Producción
Encargada de producción de la planta central de la empresa procesadora de Alimentos MALHER

Abril 1991 - Enero 1993
Jefe de Laboratorio.
Encargada del Laboratorio de Investigación y Desarrollo de una compañía de alimentos guatemalteca Malher.

Marzo 1991 - Presente

Catedrática.

Facultad de Química

Universidad del Valle.

Impartición de los cursos de Ingeniería de los Alimentos I y II.
Asesoría de tesis estudiantes de Ingeniería de Alimentos.

Febrero 1990 - Marzo 1991

Líder de proyecto.

North Carolina State University - Raleigh, NC.

Encargada de un proyecto de investigación para la industria aséptica.

Agosto 1987 - Febrero 1990

Asistente de investigación y estudiante de post-grado.

North Carolina State University - Raleigh, NC.

Conducir la investigación para estudiar la degradación cinética de la clorofila y clorofilidos en vegetales, durante procesamientos térmicos.

Marzo 1987 - Agosto 1987

Curso de aprendizaje del idioma inglés.

Departamento de Lingüística

Iowa State University, Ames IA.

Febrero 1986 - Marzo 1987

Supervisor de control de calidad.

Capri S.A., Pastas Alimenticias - Guatemala Boca del Monte.

Responsable de la producción y control de calidad.

Enero 1985 - Enero 1986

Asistente de investigación y laboratorio.

Universidad Del Valle - Guatemala ciudad.

Estudio del contenido de aminoácidos en concentrado para animales.

Octubre 1983 - Diciembre 1984

Técnica de laboratorio.

Labind S.A. - Guatemala ciudad.

Análisis químico de muestras inorgánicas.

PUBLICACIONES

Fátima L. Canjura. "Evaluación de maíz amarillo, sorghum y amaranto en la sustitución parcial de trigo en la elaboración de pastas alimenticias".
Universidad Del Valle. Tesis. Guatemala, 1987

- F. L. Canjura, S.J. Schwartz and R. V. Nunes. "Degradation kinetics of chlorophylls and chlorophyllides". J. of Food Science. 56(6): 1639-43. 1991
- F. L. Canjura, S.J. Schwartz. "Separation of chlorophyll compounds and their polar derivatives by HPLC". J. of Agri. Food Chem. 1102-5. 1990
- R. van Breemen, F. L. Canjura, and S.J. Schwartz. "Identification of chlorophyll derivatives by mass spectrometry." J. of Agri. Food Chem. 39: 1452-6. 1991
- R. van Breemen, F. L. Canjura, and S.J. Schwartz. "High performance liquid chromatography - continuous - flow fast atom bombardment mass spectrometry of chlorophyll derivatives". J. Chrom. 542: 373-83. 1991

PRESENTACIONES

- "Alimentos deshidratados." VI Conferencia de estudiantes de Ingeniería Química. Guatemala, octubre 1991
- "Procesamiento aséptico de vegetales." AGTA. Cámara de Industria, Guatemala, junio 1991
- "Identification of chlorophyll derivatives by mass spectrometry." The 38th ASMS Conference of Mass Spectrometry and allied topics, Florida, 1991
- "Color improvement and metallo-chlorophyll formation in continuously processed peas." Convención Anual del IFT (Institute of Food Technologists), Dallas, Texas, junio de 1991
- "Degradation kinetics of chlorophylls and chlorophyllides." Convención Anual del IFT (Institute of Food Technologists), Anaheim, California, 17-22 de junio de 1990

SEMINARIOS ASISTIDOS

- "Primer Seminario de Edulcorantes." Arancia. Guatemala, octubre 1992
- "Tecnología de extrusión." Sustain-AGTA-INCAP. Guatemala, agosto 1992
- "Equipos de trabajo dentro de un programa de calidad total." EPC-PM. Guatemala, julio 1991
- "Tecnología de empaque flexible." Rotoflex, Guatemala, agosto 1991
- "University teaching methodology." New Mexico State University. Las Cruces, New Mexico, mayo, 1989
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CURRICULUM VITAE

(RESUMEN)

Nombre:

Luis Eduardo Reyes Garay

EDUCACION

1973-1976

Liceo Guatemala

1977-1983

Ingeniería Química Industrial
Universidad Rafael Landívar
Colegiado N. 321

1983-1992

Maestría en Administración
Industrial
Universidad Rafael Landívar

1986-1987

Maestría en Ciencia y
Tecnología de Alimentos
Instituto de Nutrición de
Centro América y Panamá
(tesis pendiente).**IDIOMAS**Español
Inglés.

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EXPERIENCIA

PROFESIONAL

- 1984-1986 Superintendente de
Servicios Analíticos
(Control de Calidad)
Tabacalera Nacional S.A.
- 1987-1988 Jefe de Planta y Control
de Calidad.
Pollo Campero S.A.
- 1988-1989 Gerente de Control de
Calidad
Pollo Campero S.A.
- 1989-1991 Gerente General
Industria de Alimentos
Tropicales, CAROBE S.A.
- 1991-1992 Consultor a cargo del Proyecto
Transferencia de Tecnología
de Harinas Compuestas Como
Estrategia Alimentaria
en Centro América
PNUD - INCAP.
- 1993- Coordinador del Proyecto
Competitividad de los Sectores
Productivos de Centro América,
Módulo de Conservas de Frutas
y Hortalizas.
BID-Gremial de Exportadores de
Productos No-Tradicionales

DOCENTE

- 1991 Catedrático del Curso de
Tecnología de Alimentos I y II
Maestría en Ciencia y
Tecnología de Alimentos. INCAP