

**1993-1994 ANNUAL REPORT**

# **Guam Cooperative Extension**



**College of Agriculture and Life Sciences  
University of Guam**

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# Mission Statement

The (UOG) GCE enables the multicultural community of Guam to make informed decisions through nonformal education programs based on research and (identified) local needs.

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## College of Agriculture and Life Sciences ~ Extension Administration

**CHIN TIAN LEE, Ph.D.**  
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# Message of the Dean / Director

The Guam Cooperative Extension Annual Report 1993-1994 highlights major accomplishments in our programs over the last two years. The Guam Community is growing and changing and extension programming has to respond to changing societal needs. We continually strive to improve our services to the communities of Guam and Micronesia. Our clients, volunteers and cooperating agencies and organizations serve not only as receivers of our programs, but also, and more importantly as advisors for the future direction of extension work.

The ever changing emphasis of society is reflected in modernization of our programs and structure. The Consumer and Family Sciences Unit, formerly Home Economics addresses human development and family issues. The Community Resource Development Unit introduced a new program to address the demand for information on recycling and composting as our community is increasingly aware of environmental issues. 4-H and Youth initiated the Environmental Club with goals of familiarizing participants with the natural assets of Guam and the need of preservation measures as our island develops. Environmental concerns are also reflected in the sustainable agriculture program, which seeks to identify and promote agricultural techniques leading to consistent production. Our faculty seeks more and more external funding to provide continued high level of services in times of financial strain. Guam Cooperative Extension has promoted faculty development which is reflected in our success to obtain continued funding in a competitive academic environment.

Guam Cooperative Extension as part of the College of Agriculture and Life Sciences will move into a new building on the campus of the University of Guam soon. The building will have modern laboratory facilities, conference rooms, offices and electronic equipment and provide room for extension to deliver programs most effectively to our clientele.

We at Guam Cooperative Extension welcome your encouragement, advice and participation in our programs. I would like to thank all our clients, volunteers and public and private agencies for their commitment to extension programming and your support. By working together, Guam Cooperative Extension will follow its mission and meet future goals in the Western Pacific Region.

**CHIN-TIAN LEE, Ph.D.**

**FUNDING SOURCES:**

<b>FISCAL YEAR</b>	<b>1993</b>	<b>1994</b>
Local Funds	\$1,410,232.	\$1,410,000.
Federal Funds	\$1,045,700.	\$1,166,072.
<b>TOTAL</b>	<b>\$2,455,932.</b>	<b>\$2,576,072.</b>

Federal funds include formula funds and special program funds.

Guam Cooperative Extension (GCE) as part of the University of Guam was established in 1972, after the university obtained Land Grant Status. The University of Guam is obligated, under the mandate of Land Grant Status to carry out the threefold mission of research, extension and resident instruction in the College of Agriculture. GCE is part of the national Cooperative Extension Service, the extension component of the Cooperative State Research, Education and Extension Service (CSREES) of the United States Department of Agriculture (USDA).

The Smith-Lever Act adopted by US congress in 1914 empowered the Cooperative Extension "... to aid in diffusing among the people of the United States useful and practical information...Extension work shall consist of the development of practical applications of research knowledge and giving of instruction and practical demonstrations of improved practices on technologies..."

Extension provides practical knowledge and information to the community and its residents. GCE's mission includes assessment of community needs and development and delivery of nonformal educational programs to address local issues. Our trained professionals use university generated research to carry out the task of providing the newest information and technology to the public. Our clientele de-

mands comprehensive support tailored to local needs to address pertinent issues of our society. We, at GCE deliver in form of printed material, audiovisual presentations, workshops, telephone consultation and electronic communications. GCE programs extend to residents of Guam, Micronesia and throughout the Western Pacific. We use the newest electronic technology and satellite communications to reach out to distant communities.

GCE focus its programs on national initiatives dealing with identified societal issues as well as problems specific to our local natural and societal needs. Guam has a multicultural society undergoing rapid growth and faces particular challenges in terms of society, cultural change and impact on the environment. Educational programs delivered through GCE's units 4-H and Youth, Community Resource Development, Consumer and Family Sciences and Agricultural and Natural Resources address local needs in areas of Human Development, Youth Programs, Family Issues, Community Development, Nutrition, Diet and Health, Public Policy, Agricultural Economics, Agricultural Production and Aquaculture, Sustainable Agriculture, Water Quality, Pest Management, Animal Waste Control and Recycling.



# AGRICULTURE AND NATURAL RESOURCES (ANR)

Our professionals focused their work in the following areas: Water Quality, Agricultural Marketing, Integrated Pest Management, Pesticide Applicator Training and Sustainable Agriculture. In addition, ANR faculty conducted educational activities and responded to telephone inquiries dealing with aquaculture, entomology, farm management, horticulture, marketing, and poultry and livestock.

## Water Quality

The primary objective of the Water Quality program as it relates to agricultural production is to improve and promote cultural practices which minimize or eliminate the possibility of contaminating the Island's potable water resources.

In 1993, several field trials using watermelon and tomato plants demonstrated increased fertilizer use efficiency, if the fertilizer (Nitrogen) is applied in repeated small doses. We showed a greater percentage of applied nitrogen will be absorbed by the plant and determined the Desired Nitrate Level through petiole sap tests. This technique of repeated small fertilizer application reduces the risk of Nitrogen leaching into our ground water where it could turn into a pollutant in Nitrate form.

In 1993 and into 1994, several other Water Quality related workshops and demonstrations were conducted including:

- 1) use of tensiometers to determine irrigation frequency,
- 2) use of plastic mulch for water and nutrient conservation and weed control,
- 3) use of fertilizer injectors as a component of the drip irrigation system to supply plants with nutrients while irrigating at the same time,
- 4) use of aquatic effluent from ponds for other aquatic or plant production use,
- 5) improved animal waste disposal to avoid runoff/seepage into aquifer re-charge areas,
- 6) proper fertilizer-use for crops, ornamentals, and golf course greens/fairways.

Eight vegetable growers and one ornamental nursery owner purchased and installed fertilizer injection and safety equipment and have changed to multiple, split nitrogen fertilizer applications. Total nitrogen application decreased by approximately 13 percent compared to traditional sidedressing practices. Three farmers adopted plastic mulching and two farmers have

installed automated irrigation controllers resulting in reduction of run-off and leaching potential while maximizing water use.

## Agricultural Marketing

The Market Information System (MIS) was adapted to computer facilitated automation. Data collection and report format was updated. The MIS serves to forecast production data of fruits and vegetables as well as to disseminate farm gate and retail prices of local produce through a mail-out flyer called the Crop Forecast and Market News Report. Eight of the major crops were monitored year round. Workshops have been held on Saipan to establish a similar reporting system. The MIS is a joint project of GCE and Guam Department of Agriculture. In addition, ANR faculty conducted a workshop on product grades and standards developed for the Chamorro Village Market.

## Integrated Pest Management (IPM)

The goal of IPM is to have agricultural producers adopt a pest control system which utilizes all available means of control rather than relying continually on chemical pesticides. The IPM program during 1993 and 1994 concentrated on the following crops: papaya, watermelon, eggplant, tomatoes and hot peppers. IPM control methods included the use of pest resistant varieties, scouting of pest populations for determination of pest control timing before spraying pesticides, weed control within plant rows and buffer areas of the crop, and general field sanitation.

Guam experienced one of its worst typhoon seasons in recorded history in 1993. The Island was stripped of most of its vegetation during the ty-



phoon season and the regeneration took the better part of 1994. Farmers experienced a severe outbreak of the melon aphid, *Aphis gossypii*, and the melon thrips, *Thrips palmi* on watermelons resulting in increased use of pesticides in watermelon fields. In 1994, Guam saw the introduction of the sweet potato whitefly, *Bemisia tabaci*. Farmers tended to revert back to the use of extensive chemical spraying. If there was one positive note these passed seasons, it was the realization that extremely high levels of pesticide use was not able to reduce insect problems and some farmers realized IPM may in fact be the only solution to effective pest control.

## **P**esticide Applicator Training (PAT)

The PAT program certified 213 and recertified 103 individuals during 1993 and 1994. Certification in the PAT program allows for the licensing of individuals either to use or supervise the use of Restricted-Use Pesticides. The PAT Certification program is available for both Private and Commercial pesticide applicators. Commercial applicators, licensed to provide service to customers, are certified in various categories including Agriculture; Right-of-Way; Ornamental and Turf; Industrial, Institutional, Structural and Health Related Pest Control.

## **S**ustainable Agriculture

A Sustainable Agriculture project for Guam was developed, submitted to ES-USDA and approved in 1994. The project proposes to identify local farming practices that are environmentally sound as well as economically viable, and to develop a program to promote said practices to the farm-

ing community. Preliminary work in sustainable agriculture involves collection of information for the formulation of plans.

Seven volunteer farmers cooperated in weekly monitoring of their production practices for cucumber, watermelon, eggplant, tomato and longbeans. In addition, using collected data, five preliminary enterprise budgets for participating producers were developed.

## **R**egional Activities

In regional work, ANR Extension Faculty participated in several Agricultural Development in the American Pacific (ADAP) programs. The ADAP is an association of five Land Grant Institutions in the Pacific including American Samoa Community College, College of Micronesia, Northern Marianas College, University of Guam and University of Hawaii that fosters joint projects. The ADAP programs during 1993 and 1994 included: Agroforestry Extension training sessions in Chuuk, Palau, American Samoa; Pohnpei and the Marshalls; development of a Market Information System as a marketing tool; an assessment of Agricultural Statistics needs for American Samoa, the CNMI, Guam and Palau; and the review of an agricultural economics test as well as the development of instructional materials including lecture notes, study guide and lab book for the Agricultural Instructional Materials (AIMS) project.

In addition, two ANR faculty were on-loan to the region, one to the FSM to conduct a Pesticide Applicator Training program for government employees, and the other to the Community College of Micronesia to conduct a seminar on computers and electronic mail.

### **Agriculture and Natural Resources Personnel**

<b>INDIVIDUAL</b>	<b>TITLE / POSITION</b>	<b>SPECIALITY / EXPERTISE</b>
Victor T. Artero, M.S.	Unit Chair / Extension Agent IV	Agricultural Economics
L. Robert Barber, Jr., M.S.	Extension Agent II	Agricultural Economics
David P. Crisostomo, M.Ag.	Extension Agent III	Aquaculture
Frank J. Cruz, M.S.	Extension Agent II	Horticulture
Manuel V. Duguies, D.V.M.	Extension Agent III	Livestock
Vincent M. Santos, M.S.	Extension Agent III	Horticulture
Robert L. Schlub, Ph.D.	Extension Agent III	Plant Pathology
Lee Yudin, Ph.D.	Associate Professor	Entomology
Peter M. Tainatongo	Agricultural Research Technician	
Doris Camacho	Secretary	



# COMMUNITY RESOURCE DEVELOPMENT (CRD)

CRD faculty focused its resources on issues related to social change, cultural diversity, health, and environmental concerns. Programs included conflict resolution, waste management and recycling, cross-cultural promotion, enhancing volunteerism, leadership skills, along with health education and sharing information on health related issues. Our methods utilized curriculum development, facilitation of organized groups, and multi-media distributions. A semi-monthly Health and Behavior Colloquium Series was developed over this two-year period and is ongoing. These workshops, conferences and in short - learning events - informed and empowered local groups, families, and individuals.

In addition to assisting local farmers and various individual households, CRD training programs targeted various community groups which included both public and private schools, village leaders, youth groups, the military community, and various ethnic associations. We also supported government agencies such as Guam Resource Conservation and Development Council, and the Departments of Public Health & Social Services, Mental Health & Substance Abuse, Education, and Corrections, as well as the Navy and Air Force Family Service Centers.

## Social Change

As a result of the Family Community Leadership (FCL) Island-wide Training Institute on "How to Do Workshops", there were three FCL workshops conducted by FCL Volunteers. "Be Prepared for Change: The Job Transition", "Organizational Board Effectiveness" and "Networking to Improve Adolescent Health Services on Guam". Lilli Perez-Ten Fingers joined Community Resource Development as an Extension Agent in June 1994 and was appointed FCL Coordinator.

## Cultural Diversity

CRD faculty R. Workman received grant funding from the Guam Humanities Council and worked with a group of FCL volunteers and several supportive University scholars to collect case study data on "Traditional Familia Helping Networks of Filipino, Chamoru and Micronesian Cultures." The group then developed and pilot tested an FCL curriculum titled Learning To Use The Traditional Strength Of Families For Stronger Families Today. The final pilot of this curriculum (September 1994) became the primary subject for a Culture-Bridging and Community-Building workshop organized by L. Perez-Ten Fingers for social workers with the Department of Education, and Mental Health and Substance Abuse, Sanctuary, Inc. and various community groups. This FCL curriculum has become a

frequently requested topic with workshops conducted for staff and para-professionals of Guam Head Start (November 1994) and the Guam Association of Social Workers annual conference (March 1995).

## Health and Related Issues

CRD programming addressed the public's priority concern for improving health services (CES 1991 Guam Needs Assessment Survey) through inter-agency projects, consultative advisement, and educational events. The most recent success of these efforts was that Guam's 1994-95 HIV/AIDS Prevention Plan was facilitated with the consultative help of L. Perez-Ten Fingers, an appointed member of the Guam AIDS Advisory Council, and R. Workman, an invited member of the Council's HIV/AIDS Prevention Planning Committee.

The interagency collaboration between Extension CRD and Public Health & Social Services that produced Guam's 1991 Behavioral Risk Factor Survey (BRFS), was continued by CRD faculty who mobilized interagency resources to publish several issues of Guam Health Research Notes, a periodically released bulletin disseminating research findings by scholars using the 1991 BRFS research data. Also during 1993-1994 this collaboration received a Public Health Foundation grant for improvement of the health information system capabilities at Public Health and Social Services.



A similar collaboration project was funded in 1994, involving CRD with the University Affiliated Program for Developmental Disabilities of the College of Education. The objective was to improve the network of services, agency programs and community support groups helping Guam's people with disabilities.

## **E**nvironmental Involvements

CRD's Waste Management Program consisted of seminars and workshops conducted on a monthly basis across the two years 1993-94. The aim was to create awareness of different ways the island community could resolve the problem of overflowing garbage landfills and reduce the flow of solid and organic waste generated on Guam. Approximately 500 residents were given non-formal instruction on composting, production of mushroom and mulching. Beginning in 1994, emphasis in the program was directed to the youth in the schools. Due to the need in presenting the cyclical nature of waste utilization, a demonstration area was set up and is being maintained

where visitors and students can view the entire process.

CRD's Recycling and Environmental Information Service (REIS) was a collaborative effort co-sponsored by Recycling Association of Guam, Marianas Audubon Society, the UOG Student "Eco-TaoTao" organization, USDA-Natural Resource Conservation Service. Corporate support came from Guahan Waste Control, Coca-Cola, and HI-Tech, Inc. A volunteer operated "Recycling Phone Line" was initiated that responded to about 10 calls weekly. Volunteers also produced a number of factsheets with translations in several languages used by Guam's ethnic communities. Other volunteers initiated special projects such as developing and conducting a "Home Composting Village Workshop" curriculum where a volunteer hosted a 2-3 hour training for extended family and neighbors at their home garden sites. By the end of 1994 the Recycling and Environmental Information Service had involved over 37 volunteers who contributed an average of 2 hours each week, or in other terms the equivalent of two full-time workers.

### *Community Resources Development Personnel*

<b>INDIVIDUAL</b>	<b>TITLE / POSITION</b>	<b>SPECIALITY / EXPERTISE</b>
Enrico I. Neri, Ph.D. Randall L. Workman, Ph.D.	Unit Chair / Assistant Professor Professor	Rural Sociology Sociology, Social Research & Program Evaluation
Lilli Perez-Ten Fingers, M.H.R. (A.B.D.) Elaine Cepeda	Extension Agent II Secretary	Social Work & Social Research



# CONSUMER AND FAMILY SCIENCES (CFS)

The CFS unit is charged with the development of educational programs addressing the well-being of individuals and families in Guam. Extension activities were focused on the following programs: (a) Youth-at-risk, (b) Decisions for health, (c) Reaching limited resource individuals and families, (d) Expanded food and nutrition education program (EFNEP), (e) Volunteer development management, (f) Food safety first, (g) Guam nutrition initiative (GNI), (h) Early experiences and counseling for effective lactation (EXCEL), (i) Earned Income credit, (j) Managing resources, time, and money, (k) Water quality preservation, (l) Protective clothing in pesticide applicator program, and (m) Coalition building through volunteerism and leadership.

## **N**utrition Programs

One hundred forty-nine adult and 149 youth EFNEP graduates reported food savings of between \$20 to \$50 per month as a result of EFNEP lessons. Additionally, entry and exit surveys on nutrition knowledge show adult mean scores of 21.78% and 90.23% and youth mean scores of 68.24% and 89.52% respectively. This is further validated by the EFNEP computerized reporting system that indicated participants showed positive change in any food group consumption upon exit from the program.

EXCEL was established to increase the nutrition and health knowledge and to improve diet and health behaviors, including breastfeeding, of Pacific Islander pregnant and parenting adolescents. Knowledge is measured by pre/post tests and behavior change quantified by 24-hour recalls and breastfeeding checklist. Program participants are compared to a control group.

The Diet Assessment Project is a Hatch grant with the Agriculture Experiment Station whose objective includes the development of a culturally appropriate diet assessment instrument for children on Guam. Food Safety First seeks to provide educational and training programs for food-service managers and establishments for licensing and regulatory purposes. This collaborative program with the Department of Public Health and Social Services endeavors to provide the latest research-based information on food safety procedures and practices.

## **C**onsumer Education Programs in Clothing Construction Selection and Care

The ever changing choices available and materials used to produce clothing necessitates provision of updated information about care, for clothing to the consumer. Federal regulation ensures each garment contains a label specifying fiber content and permanent care. The multicultural and multilingual society here in Guam needs to be educated about uniwear labeling information in order to make the best selection. The program gathered information on label contents and put it in easily accessible and understandable form. A brochure: Uniwear Label Alert was produced. The information provides consumers with the necessary vocabulary to evaluate clothing for quality, understand appropriate care and choose clothing to meet their needs.

## **M**anaging Resources, Time and Money

Earned Income Credit Campaign is a collaborative program with the Department of Revenue and Taxation, Government of Guam. The campaign allows workers to pay less federal income tax or get money back when they meet the requirements of an eligible individual. The campaign targeted family serving organizations who serve, educate and support limited resource individuals and families.

A program integrating extension and teaching in the form of preparation of a gift shop proposal



for a nonprofit organization was carried out. The proposal entailed visual merchandising, customer traffic and flow, merchandising information and promotion analysis including advertising for a gift shop for the Chamorro Cultural Village Gef Pa'go Inalajan. The proposal is at this point in the actual planning and budgeting phase and realization of

the project should follow soon. CFS faculty held several workshops on clothing construction, including education on budgeting, purchasing of textiles and fashion apparel. The ability of families to provide clothing for themselves is very economic and can be an enjoyable way of creative expression.

### *Consumer and Family Science Personnel*

<b>INDIVIDUAL</b>	<b>TITLE / POSITION</b>	<b>SPECIALITY / EXPERTISE</b>
Erlinda Demeterio, Ph.D.	Unit Chair / Extension Agent III	Family Resource Management
Joyce Marie Camacho, Ph.D.	Assistant Professor	Clothing/Textiles
Sister Mary Elaine Camacho, Ph.D.	Extension Agent III	Nutrition and Health
Loreto Mallimban, B.S., M.T.H.E.	Extension Agent II	EFNEP
Milagros K. Moguel, M.A.	Extension Agent IV	Clothing/Textiles
Teris P. Nolen, Ph.D.	Assistant Professor	Family Life Specialist
Rebecca S. Pobocik, Ph.D.	Associate Professor	Nutrition and Health
Ruth Barnes	Secretary	

# 4-H AND YOUTH DEVELOPMENT

Head, Hands, Heart and Health are the 4-H's. It brings about the direction of the 4-H program within the College of Agriculture & Life Sciences at the University of Guam. These past two years the number of programs provided to youth participants have increased and involved more than 12,000 participants ages 9 to 19. At the completion of each program, success stories result which prove that these programs encourage students to excel.

## **P**roject Youth Empowerment

A coalition involving more than 15 public and private organizations on Guam, was formed to provide potential at-risk youth the opportunity to lead more purposeful and productive lives. Through the support of parents, community leaders and volunteers, educational programs are taught to these youth participants. Funding is provided through the USDA, CSREES, as well as other private support.

The main mission of Project Youth Empowerment is to provide hands-on experience in projects and encourage development of skills. The "Earn While You Learn" program, jointly delivered by GCE 4-H and CFS units, teaches skills to the students, in addition to exposing them to the basic concepts of marketing. Students are also taught to make wise decisions and how to build up their self-esteem in their daily lives. Students, ages 11-14 are given an opportunity to earn limited income. Skills learned included preparation of novelty gifts, resource management and budgeting for small projects. Students could continue after the program to earn some income. A survey conducted showed that students who participated in the program often involved their families and friends in future projects and began teaching their skills to others. This Youth-at-Risk program was recognized nationally by ES-USDA in 1994 as exemplary.

## **D**ress A Living Doll

Another very successful program provided by 4-H is the Dress A Living Doll Program, which takes place over the Christmas season. Clothes were provided to needy children listed by Department of Youth Affairs, Child Protective Services, Sanc-

tuary, and Department of Mental Health. Four hundred eleven (411) children received gifts (227 girls and 184 boys), consisting of one complete set of clothing each. The program was sponsored by 80 individuals/groups and another 52 monetary contributions totalling over \$4,000.00 were collected.

## **Y**outh Workshops

Many 4-H activities occur during the summer months, including the very popular 4-H Summer Youth Fisheries program. In 1993 and 1994 over seventy children were involved in the program. The three week long workshop, taught jointly by GCE faculty from 4-H and ANR units with support from the UOG Marine Laboratory, introduces participants to oceanography, fishing methods and techniques and conservation of natural resources. Youth learned about regulations concerning fishing and hunting from conservation officers. They also learned fish identification and even how to fish with throw nets, pole spears, and rod and reels.

An innovative and educational program involving 26 Island youth was the Thanksgiving 3 on 3 basketball workshop. Unlike any basketball tournament, the program's most important aspect was teaching the kids good nutritional habits and self esteem. This program was jointly taught by 4-H and Consumer and Family Sciences faculty. A collaborative effort with several other entities, this 3 on 3 Basketball Workshop gave youth the opportunity to learn and have fun at the same time.

In order to educate youth in the growing field of computer technology, computer science workshops were formed. Many of the entering students who had not known much about computers left the class with great interest in electronic applica-



tions as they became quite skilled in computer operations.

## 4-H Clubs

The Environmental Club was initiated by 4-H faculty to introduce youth to environmental issues and learn about our local resources and importance of preservation. To immerse the student and adult participants into their environment, members planted trees, hiked and camped out at various island spots. Lessons and lectures on en-

dangered species on Guam, such as the Marianas Fruit Bat were also given. Touring the Piti Guam Power Authority plant provided firsthand insights for the 4-H Environmental Club on energy conservation. Another highlight of 1994's 4-H programs included the International School Exchange Program where Guam's 4-H chapter along with ten schools hosted over 4,000 Japanese students. A learning tool for both visiting and local students, this program proved to be a fun and educational experience. The children enjoyed sharing each others' culture and heritage.

### 4-H and Youth Development Personnel

INDIVIDUAL	TITLE / POSITION	SPECIALITY / EXPERTISE
Anthony M. Artero, B.B.A.	Unit Chair / Extension Agent III	Youth Leadership & Development
Theodore M. Iyechad, M.Ed.	Extension Agent IV	ADAP Coordinator
Allan D. Searle, M.A.	Extension Agent II	4-H and Youth Development
June Aguon	Secretary	

# AGRICULTURAL DEVELOPMENT IN THE AMERICAN PACIFIC PROGRAM (ADAP)

The ADAP is an entity of five (5) Pacific Land Grant Institutions including: American Samoa Community College, College of Micronesia, Northern Marianas College, University of Guam, and the University of Hawaii. The ADAP was established in the 1980's through the U.S. Department of Agriculture and receives annual funding from the U.S. Congress. The primary purpose of ADAP is to foster a collaborative/joint effort among the five Pacific Land Grant Institutions in working towards resolving like-issues affecting tropical agriculture and the general well-being of Islanders.

Agricultural Development in the American Pacific Land Grant Programs (ADAP) funded five (5) projects during this period including:

- Taro Leaf Blight
- Taro Planthopper Predator
- Cucurbit Pest Management
- Pacific Region Dietary Survey & Guidelines
- Agriculture Instructional Materials Service

The Agriculture Instructional Materials Service (AIMS) has published a catalog which has been distributed. The catalog provides listings of material that can be purchased at low cost to be used as instructional materials in areas of the following:

- Agricultural and Resource Economics
- Agroforestry
- Agronomy and Soil Science
- Animal Science
- Human Nutrition
- Instruction and Extension Methods
- Parenting
- Pest Management
- Youth Development

Annual reports of the projects are being compiled into a publication to be distributed throughout the Pacific Land Grant Institutions.



# Publications Listing

## Agriculture Pest Flyers

- Bacterial Blight of Mendioka
- Bacterial Wilt
- Banana Aphid
- Banana Skipper
- Bean Pod Borer
- Black Citrus Swallowtail
- Citrus Leafminer
- Cluster Caterpillar
- Coconut Rhinoceros Beetle
- Coconut Scale or Transparent Scale
- Cowpea Aphid
- Green Scale
- Helmet Scale or Hemispherical
- Mango Shoot Caterpillar
- Melon Aphid or Cotton Aphid
- New Guinea Sugarless Weevil
- Okra Leafhopper
- Orange Spiny Whitefly
- Papaya Root Rot
- Papaya Ringspot Virus
- Philippine Lady Beetle
- Powdery Mildew
- Red Banded Thrips
- Root Knot Nematodes
- Southern Blight
- Striped Mealybug
- Sweet Potato
- Scab Sweet Potato Whitefly
- Tangantangan Psyllid
- Taro Hornworm
- Taro Planthopper
- Taro Root Aphid
- White Rust of Kangkong
- Woolly Whitefly

## Aquaculture

- Aquaculture: Most commonly asked questions about aquaculture on Guam and a description of some species commonly grown on Guam. (booklet)\*
- Chinese Carp (Information and Recipe flyer)\*
- Fish Need Air, Too! (flyer)\*
- Fresh-Water Prawn Farming (flyer)\*
- Giant Malaysian Prawn (Information and Recipe flyer)\*
- Milkfish (Information and Recipe flyer)\*
- Tilapia (Information and Recipe flyer)\*

## Clothing and Construction

- The Perfect Fit
- A Planned Wardrobe for Guam
- Accent on Colors
- Building Blocks of Design
- Color Wheel

## Clothing Care

- Uniwear Label Alert

## Community Development

- A Limited Preliminary Assessment of Guam's Social Service Needs
- A Social Assessment of Public Reactions and Input to the Bureau of Reclamation's Guam Potential Water Resources Development Planning Study Educational Information Center
- An Introduction to Community Development Institute
- Behavioral Risk Assessment Survey Related to the AIDS Prevention and Education: The 1989 KAB Survey
- Chamorro Family Structure and Childbearing Practices with Implications for Services to Families and Children
- Characteristics & Housing Preferences of the Elderly on Guam
- Family Community Leadership Brochure
- Health Needs Assessment of Northern Guam
- Health Status of the Population of Guam: Dental Needs and Care
- Health Status of the Population of Guam: Health Care Accessibility, Utilization, Satisfaction and Responsibility
- Health Status of the Population of Guam: Salient Social and Economic Characteristics
- Health Status of the Population on Guam: An Analytical Discussion of Selected Lifestyle Patterns
- Health Status of the Population: Morbidity
- Helping Pacific Island Youth Cope In Today's World
- Immunization Status on Guam's Children Under Ten Years of Age: A Statistical Report
- Lifestyles and Welfare Among Low-Income Families on Guam: A Study of AFDC Clients
- Resources Development Planning Study (May '85)
- Salient Characteristics of Unemployed, Underemployed and Economically Disadvantaged Residents on Guam: A Statistical Report
- Survey on Knowledge, Attitudes, and Beliefs Related to AIDS Prevention and Education: The 1989 KAB Study
- Volunteers - Guam's People Helping People
- Waste Management

## Conservation

- Every B.T.U. Counts
- Save Water Heating Dollars
- Conservation with Major Appliances

## Cooking

- Christmas Gifts from the Kitchen
- Pots & Pans

## Crops / Fruits and Vegetables

- A Guide to Growing Bananas (booklet)\*
- Chamorro and Scientific Names of Common Fruits and Vegetables (booklet)
- Classification of Selected Vegetable & Fruit Crops (pamphlet)\*
- Fields and Garden Plants of Guam (book)\*\*
- Guam Planting Calendar (pamphlet)\*
- Growing Pineapples in Guam (booklet)\*
- Home Gardening on Guam (booklet)
- Insect Pests of Cucurbitaceous Crops and Their Control on Guam (booklet)\*
- Mango Tree care
- Plants of Guam (book)\*\*
- Vegetable Cultivar Trials on Guam (pamphlet)\*

## Crop-Related Publications By Guam Agricultural Experiment Station

- Common Weeds of Guam (booklet)
- Growing Bell Peppers in Guam (booklet)\*
- Growing Tomatoes in Guam (booklet)\*
- Insects of Cruciferous Crops and Their Control on Guam (booklet)\*
- Sampling Soils - For Fertilizer and Lime Recommendations (flyer)\*
- When and How to Harvest Vegetables (booklet)\*

## Extension General

- Extension Proceeding 1990
- Extension 75th Anniversary 1989
- Guam Cooperative Extension Annual Reports
- 1988-1992 Teletips Directory

## Farm Management

- Cost of Production Estimates on Selected Vegetables and Fruits: A Working Paper (updated periodically)\*
- Guam Farm Record Book
- Values of Selected Fruit Trees and Farm Animals: A Working Paper (updated periodically)\*

## Fertilizers

- Assessing Alternate Sources for Commercial Inorganic Nitrogen Fertilizers on Guam

## Finance

- Financial Manager

## Food and Nutrition

- Freezing your Vegetables
- Getting the Most for your Foods
- Guam's Favorite Foods (EHE Cookbook)
- A Guide to Nutritious Snacks
- Breadfruit "Lemai" Is Nutritious
- Homemade Jams, Marmalades & Jellies - A Special Treat
- Pickles & Relishes put Zip in Meals & Snacks
- What's on the Label
- What Will You Do with All the Mangoes
- WHAT is EFNEP?
- Expanded Food and Nutrition Education Program Poster

## Furniture

- Rattan, Wicker, Burl and Bamboo...Good Choices for Island Decor

## Home Economics General

- Extension Home Economics
- Home Economics Careers
- Home Economics Gets it all Together
- How to get more from your Lawnmower
- Home Economics Calendar

## Home Gardening

- Vegetable Minigardens
- Introduction to Home Gardening Fruit and Vegetables
- Home Gardening on Guam

## Human Development Adult

- Fact Sheets for Women on Guam
- Adult What Goes into Guidance?
- Parents are Teachers Too
- Nutrition for Older People

## Child

- ABC's for Parents of Young Children
- Breastfeeding your Baby
- Choosing Baby's Diapers
- Effective Discipline
- To Spank or Not to Spank
- Why is my Child Sometimes Naughty?

## Teenager

- Teen Parenting



## **I Lin Chok (College of Agriculture & Life Sciences Newsletter)**

• Vol. I, No. 1 July 1988 through present

### **Marketing**

• Roadside Advertising Bulletin

### **Pest / Pest Control**

- Cockroaches and Their Control (pamphlet)\*
- Federal and Local Registered and Restricted Use Pesticides on Guam (booklet)\*
- Guam Vegetables and Fruits Pesticide Guide (binder) \$20 per binder
- Playing It Safe with Pesticides
- Protective Clothing and Safety Requirements for Commonly Used Pesticides on Guam (booklet)
- Sprays, Sprayers and Spraying (pamphlet)\*
- Termites and Their Control (pamphlet)\*

### **Poultry and Livestock**

- Animal Waste Management on Guam (pamphlet)
- Common Poultry Diseases (flyer)
- Goat Management (pamphlet)
- Poultry Manure Management (flyer)
- Poultry Production Guide to 500-Layer Operation (booklet)
- Swine Management (pamphlet)
- Water-saving Devices and Practices for Piggery Farms to Improve Water Quality (pamphlet)

### **Production Cost and Market-Related Studies**

- An Economic Assessment of Growing Bell Peppers on Guam
- An Economic Assessment of Producing and Marketing Fresh Pineapples on Guam
- An Economic Assessment of the Market Structure of the Food Industry on Guam\*
- Cost and Returns of Hog Production on Guam\*
- Cost and Returns of Producing Bananas on Guam\*
- Production Cost and Pricing of Pineapples on Guam\*
- Roadside Marketing of Agricultural Products on Guam\*

### **Public Policy Education**

- Defining Guam's Development Policy Issues: The Community's Values within the Debate Governing Boards: Fact Sheet
- Public Policy Education, Fact Sheet 1: Summary of Planned Units on Guam's Major Development Boom, 1987-89.

### **Safety**

- Be Prepared for the Typhoon
- Protect Kids use Car Seats

### **Soil**

- Soil Taxonomy & Agro-technology Transfer

### **Waste Management**

- Oyster Mushrooms: Turn your Trash into Cash!

### **Youth Development**

- 4-H Gardening Program
- 4-H Program on Guam
- 4-H Volunteer Brochure
- Guam's One-on-One 4-H Basketball
- Guide for 4-H Clubs, Members and Officers of Guam
- Installation of New Officers for 4-H Club
- Volunteer as a 4-H Leader
- What is 4-H?

\*Out of Print. Available in photocopy form only.

\*\*Out of Print. Available for reference use only.

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