

**BIBLIOGRAPHIC DATA SHEET**1. CONTROL NUMBER  
PN-AAH-7832. SUBJECT CLASSIFICATION (695)  
AS00-0000-G750

## 3. TITLE AND SUBTITLE (240)

Food and Nutrition Center for Southern Thailand, Prince of Songkla Univ., Pattani, Thailand; annual report, 1977/1978

## 4. PERSONAL AUTHORS (100)

## 5. CORPORATE AUTHORS (101)

Asia Foundation

## 6. DOCUMENT DATE (110)

1978

## 7. NUMBER OF PAGES (120)

157p.

## 8. ARC NUMBER (170)

TH641.1.A832-77/78

## 9. REFERENCE ORGANIZATION (180)

Asia Found.

## 10. SUPPLEMENTARY NOTES (500)

## 11. ABSTRACT (950)

## 12. DESCRIPTORS (920)

Nutrition  
Food habits  
Food preservation  
Child nutrition  
Nutrition surveys  
Thailand

Food supply

## 13. PROJECT NUMBER (150)

## 14. CONTRACT NO.(140)

AID/asia-G-1152

## 15. CONTRACT TYPE (140)

## 16. TYPE OF DOCUMENT (160)

PN-AAH-783

REPORT TO  
THE AGENCY FOR INTERNATIONAL DEVELOPMENT

GRANT AID/ASIA-G-1152

The Asia Foundation  
Grant TH-6059 to the  
Food and Nutrition  
Center, Prince of  
Songkhla University,  
Thailand

The Asia Foundation  
October 1978

CONTENTS

- A. Food and Nutrition Center  
Substantive Report
- B. Food and Nutrition Center  
Financial Report
- C. External Auditor's Report
- D. The Asia Foundation's Evaluation  
of the Project

Grant No. TH-6059

October 1978





**SECOND REPORT  
ON  
FOOD AND NUTRITION CENTER FOR SOUTHERN THAILAND.**

**PRINCE OF SONGKLA UNIVERSITY  
PATTANI, THAILAND**

**AUGUST 1977 - JULY 1978**

**BY**

**WATTANA PRATOOMSINDH, M.S.**

**DIRECTOR OF THE CENTER.**

# TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENT	
1 INTRODUCTION	1
1.1 Summary of the First Year Project	1
1.2 Nutrition in the National Social and Economics Development plan IV	2
1.3 Preparation for the Second and Third year project	3
2 PURPOSES OF THE PROJECT	6
2.1 To train and educate teachers, professional and technical personnel	6
2.2 To detemine through empirical testing and experimentation	6
3 ADMINISTRATION OF THE PROJECT	7
3.1 Project Staff	7
3.2 Participation of the University	10
3.3 Acquisition of Equipment	10
4 FUTHER STUDIES OF PROBLEMS AND NEEDS OF THE LOCAL PEOPLE INRELATION TO GATING HABITS, FOOD PREPARATION AND THE AVAILABILITY OF FOOD	11
4.1 Food and Nutrition Survey (cont.)	11
4.2 Studies of Food Habits and Practices (cont.)	19
4.3 Studies of Existing Resources (cont.)	23

Second Report

on

Food and Nutrition Center for Southern Thailand

Prince of Songkla University

Pattani, Thailand

August 1977 - July 1978

by

Wattana Pratoomsindh

Director of the Center

## ACKNOWLEDGEMENT

Once again, as project director, the writer of this report wished to express her gratitude to many individual and government agents for their very valuable assistance in making the project accomplish its goal.

The writer is indebted to Mr. Graham J. Lucas and Mr. John E. James of the Asia Foundation, for their generous advice in administration the project. During the first two years many problems arose involving purchasing equipment and managing the fund accordingly to the regulation of the Foundation and they helped the project run progressively toward its ultimate goal. A deep gratitude is due to Mr. Saneh Ratchinda the senior program officer of the Asia Foundation, who assisted the program from its beginning and helped greatly to facilitate the operation of the project.

Special thanks are also due to Dr. Pasook Kulvanich, the rector, Mr. Pan Yaumlae the Vice-Rictor, and Dr. Chammarn Pratocmsindh, Dean of the Faculty of Education, Prince of Songkla University, for their encouragement and assistance in developing and conducting the Food and Nutritional project and establishing the Food and Nutrition Center for South Thailand.

Again, special thanks are due to Mahidal University, which provided resource persons in Nutrition to the center: Medical

nutritionist Dr. Sakorn Dhanamitta, Director of Research Center, Rama Thibodi Hospital, who directed the nutrition survey and identified deficiency diseases.

Special thanks and Gratitude are given to Miss Crowley, Regional F.A.O. Home Economics and Social Program Officer, who has provided much of the original inspiration of this program. Her cooperation helped make the program rich and reach rural people widely.

Without the cooperation and generosity of the advisory committee, the Public Health Officer, the Provincial Agriculture Officer, Provincial C.D. Officer, the Department of Agriculture Extension officer, and the Department Public Administration officer, the project could not be operated successfully.

The project director is indebted to friends and staffs in Prince of Songkla University Pattani, who helped contact villagers and to the villagers who were very cooperative in carrying out the community survey and organizing the village leaders to attend the training objectively.

Finally, all the Credit of the project is due to the staff of the Department of Home Economics and the Food and Nutrition Center for their valuable service. In particular, Miss Rachanee Chitavanich, Miss Sumalika Peannmongkon, and Miss Niroml Phinainitisatra who industriously worked round the clock in assisting the director to operate the project and make possible the achievement of its second year goals.

---

## I, INTRODUCTION

### 1.1 Summary of the first year project

According to the project proposal, the first year work (1976-1977) was broken down into 3 small following projects:-

#### Project 1. Investigation of Food Habits

To meet the objectives, a field study was set up in three selected districts in Pattani province to collect data and facts about the geography and climate of the area, agricultural production, ethnic problems affecting food habits and causes of malnutrition.

#### Project 2. Food Analysis and Experimentation

To achieve the project No. 2 objectives, identification and analysis of local foods; experimentation with various ways of utilising local foods, especially those that are high in nutrition value and low in production cost; studies and experimentation with various methods of home food preservation and home food industries were carried out.

#### Project 3. Education and leadership training program

This program was operated mainly in the second year project (1977-78)

Despite of minor problems and limitation due to the delay of purchasing equipment and funding, the first year project achieved the objectives successfully. The training of the program started in the first year instead of the second year as planned.

1.2 Nutrition in the National Social and Economics Development plan VI

Nutrition has never received strong attention until the National Social and Economics Development Plan IV (1977-1981) was work out. Nutrition Committee were planned to be set up at the national level as well as at the subdistrict level to carry out a national wide program to the granroot level.

The main emphasis of the National Nutrition program is to share the responsibilities with each region and to include all the important aspects of nutrition programs in research, training and implementation.

But it can be appreciated that for many reasons including bureaucracies and national responsibilities have been taking an deep concerns.

Our Food and Nutrition center for South Thailand is a good start in the national nutrition campaign and will make important contributions to and provide leadership for national nutrition program of the region.

### 1.3 Preparation for the second and third year project.

#### 1.3.1 Demonstration of house-hold agriculture

The Food and Nutrition center has developed the ground of one acre to be a demonstration ground in House-hold Agriculture. The idea is to use the land to its utmost capacity in order to produce substantial food for one family. With in that acre of land, there are plots for kitchen garden, a fish pond, a poultry case, a pig pen, a small lot for edible plant and fruit trees (See diagram of the ideal village house) The villagers, students and visitors learn and conceive this idea when ever they come and visit the center. At present, it is one of the most valuable demonstration unit in Food and Nutrition Center for South Thailand.

#### 1.3.2 Villager Study tours

The study tours brought effective results; the people were will informed of the community problems and learned to solve them by observing how the other leaders carried out their work and the government used their projects to answer some of the difficulties.

#### 1.3.3 Establishing the villare laboratory

To get villagers involve in community development and aware of the nutritional problems and their immediate needs,

the selected villagers from last year have been used as village laboratories. Students and staff members of the center as well as. The leaders from other villages, teachers, C.D. workers, could observe and learn directly from those laboratories.

#### 1.3.4 The New Home Economics Building

This building is one of the most helpful places for trainees of the second year project. With in the building, there are units of Food and Nutrition Research, Food and Nutrition Laboratory, Food Technology Experiment, Audiovisual, Cloth and textiles, Handicrafts, Industrial Arts or Home Industry Reading Room and Exhibition. This building is a life center of Home Economics, Food and Nutrition Center and Rural Development Center. The center accommodate 120 students or trainees.

#### 1.3.5 The Youth Village Home Economics Department

with the cooperation of the Division of Extension and Continuing established Youth Village which comprises 9 houses and one workshop. This village can accommodate and provide facilities for 40 youths at each training. The youth leaders are between 14-24 who live in various districts of the 14 provinces of South Thailand were welcome. The program is geared for one month of intensive training. The work is carried out 12 hours a day. It is a combination of 6 hours class work and 6 hour field work. During this program the attendants will receive training in House-hold Agriculture,

Vocational courses and Youth leadership. Along with these various trainings Food and Nutrition knowledge are also intergrated and taught.

### 1.3.6 Seminar and Conferences in Country and Abroad

During the first year of the project the defector attended several seminar and conference both in country and abroad the main ones were:

- a. Women Leadership, F.A.O, Rome.
- b. Agrarian Reform, F.A.O, Bangkok.
- c. Food and Nutrition Conference, Bangkok.
- d. Home Economics Conference, Bangkok.
- e. Nutrition for Rural Development, Bangkok.
- f. Others both local and Bangkok.

The main benefit from these seminars and conferences is to wide knowledge and aware of what is going on around the world in Food and Nutrition, Home Economics, and Rural Development.

## II. PURPOSES OF THE PROJECT

The basic purposes of the total three-year project are:

2.1 To train and educate teachers, professional and technical personnel, village leaders and others who will assume responsibility for conducting information and education programs designed to improve food production and food habits and thereby reduce malnutrition, especially among low income families, and

2.2 To determine, through empirical testing and experimentation, various ways for most effective utilization of local foods high in nutritive value but low in production cost and to demonstrate their wider use in various forms.

The second year concentrates on :

2.2.1 To analyse and experiment with local food in order to promote its uses.

2.2.2 To train the center's staff, teachers, community development personnel and local leaders in various areas related to the raising of nutritional levels and standards of living.

2.2.3 To develop teaching media and audio visual aids to be used both in the University and in rural areas.

### III. ADMINISTRATION OF THE PROJECT

#### 3.1 PROJECT STAFF

##### 3.1.1 Recruitment of Personnel

To cope with the objectives of the second year project, the operation is comprised as the following:-

1. To analyse and experiment with local food in order to promote its uses.
2. To train the staff, teachers community development personnel and local leaders in various areas related to raising of nutritional levels and standard of living.
3. To develop teaching media and audio visual aids to be used both in the rural areas.

In order to handle and govern the above objectives, the recruitment of personnel is conducted in the following categories:-

1. The previous year personnel
2. The personnel in Agricultural practices, and teaching agricultural activities.
3. The short term hired personnel;

All of these personnel are assigned one's duties by the director of the Food and Nutrition Center for South Thailand. The activities and training are reported to the Faculty of Education, Prince of Songkla University.

3.1.2 The Distribution of Staff and Personnel

The personnel by class and types involving the project in Food and Nutrition Center for South Thailand, 1977-78

Class Type	Profession	Technician	Students	Worker	Villager
Full Time	1. Food Research(1) 2. Field Agriculture (1) 3. Home Economic(1) 4. Chemist (1)	1. Audio visual 2. Field Agriculture 3. Food & Nutrition Lab.(3) 4. Secretaries (2) 5. Typist (2)	(1) (2) (2)	1.Maid 2.Custodian 3. Food Technology assistant	(1) (1) Area Center Leader (3)
Part Time	1.Food Industry(1) 2.Food & Nutrition (1) 3.Home Economic(2) 4.Agriculture(1) 5.Extension and Training (1) 6.Geography (1)	1. Clerk (2) 2. Typist (1)	-	House-keeper (2)	Village Supervisor (2)
Volunteer	1.Nutrition (2) 2.Agriculture(2) 3.Home Economic(2) 4.Extension Education (1)	-	Grad.Student from Mahidol University (12) Home Economic student (50) Rural Education (30)	-	Village (150)

Full-Time and Part-Time Staff by Qualification and Sex, 1977-1978

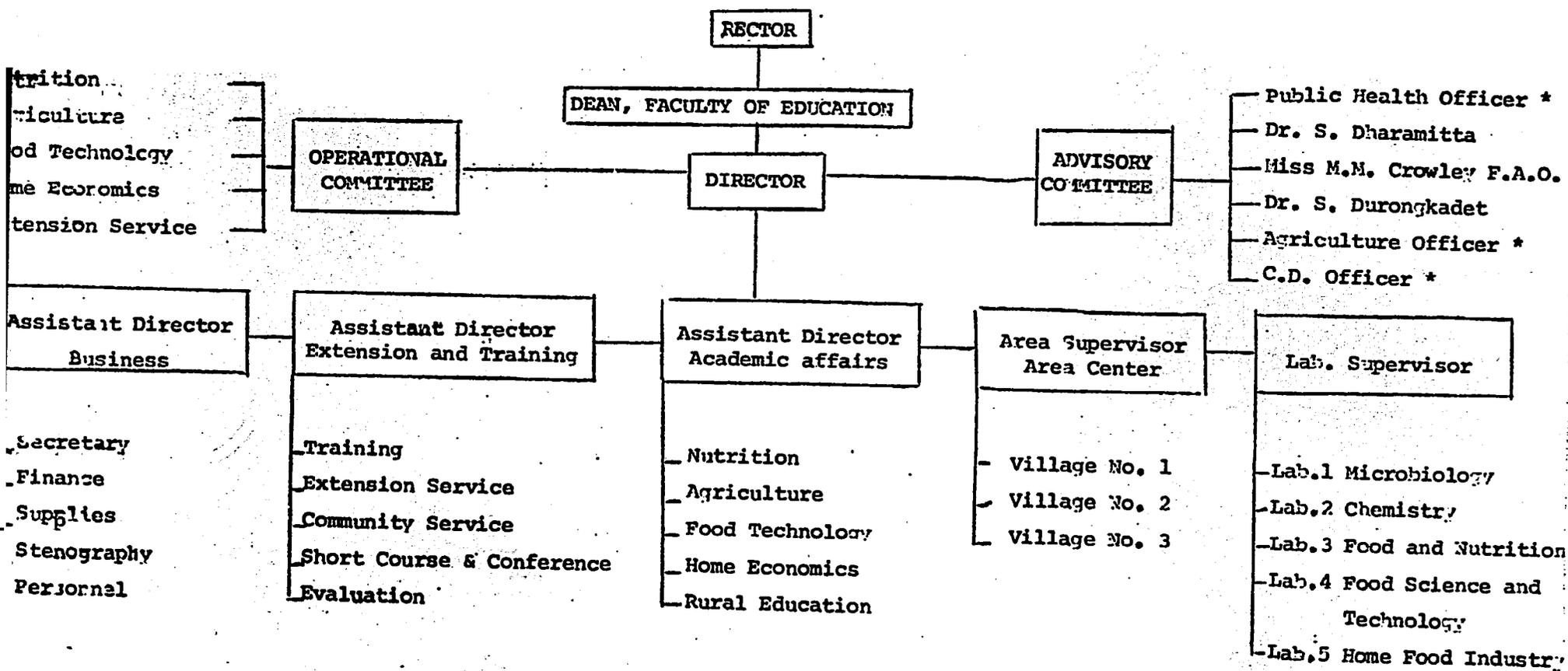
Classification	Qualification					Sex	
	Ph.D.	M.A.	B.A.	cert.	H.School	Male	Female
Full-Time	-	-	3	2	4	4	7
Part-Time	1	3	3	-	-	3	5

The following chart depicts lines of authority and work needed for the full work scheme of the center. About a third belong to the center, a third to the Department, and a third will be recruited from the University and outside. When in full-scheme the center will be ready to expand and assist in the national nutrition plan with its policy to use local institutions as its regional headquarters.

PERSONNEL  
 FOOD AND NUTRITION CENTER FOR SOUTHERN THAILAND  
 PRINCE OF SONGKLA UNIVERSITY  
 PATTANI, THAILAND

NO.	POST	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DUTIES (ASSIGNMENTS)
1	Director	Mrs. Wattana Pratoomsindh	B.S., M.S. (Home Econ.)	1. Food and Nutrition 2. Food Research 3. Extension Service 4. Geography	1. Direct, Supervise, organize Control and Report on the total program to meet the objectives proposed. 2. Conduct Village survey and educational activities pertaining to food research. 3. Supervise food experiment and food research. 4. Take charge of business and finance 5. Take charge of A.V. material development and educational films in the field of Food and Nutrition.
2	Assistant Director	Mr. Therapong Khananuraksa	B.S. (Agri) M.S. (Plant - Sciences)	1. Agriculture 2. Extension Service	1. Assist in village survey. 2. Supervise plant experimentation 3. Assist the director in Extension Service
3	Assistant Director	Miss Rachanee Chittavanich	B.Ed. (Home Econ.)	1. Food Experiment 2. Home Economics	1. Assist in correspondence. 1. Assist the director in Home Economics 2. Supervise food experiment 3. Conduct information Service 4. Assist in general business and Program finance.

FOOD AND NUTRITION CENTER FOR SOUTHERN THAILAND  
PRINCE OF SONGKLA UNIVERSITY, PATTANI, THAILAND.



\* Refers to Provincial Officer

Most of the posts are not yet permanently staffed, some members are holding two or more positions until the Center is ready to expand

NO.	POST	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DUTIES (ASSIGNMENTS)
4	Assistant Director	Miss Sumalica Peamongkon	B.Ed. (Home Econ.)	<ol style="list-style-type: none"> <li>1. Nutrition</li> <li>2. Home Economics</li> <li>3. Extension Service</li> </ol>	<ol style="list-style-type: none"> <li>1. Assist the director in village nutrition survey and nutrition program.</li> <li>2. Take charge of food laboratory.</li> <li>3. Supervise food preservation.</li> <li>4. Assist in extension service.</li> </ol>
5	Scientist	Mr. Suchon Suputtikul	B.Sc. (Agri.)	<ol style="list-style-type: none"> <li>1. Agriculture</li> <li>2. Community Service</li> </ol>	<ol style="list-style-type: none"> <li>1. Conduct mushroom culture and growing program.</li> <li>2. Take charge of poultry raising.</li> <li>3. Assist in Food Research.</li> <li>4. Take part in extension service.</li> </ol>
6	Food Scientist	Miss Oranee Chaovalitworakul	D.Sc. (Food Tech.)	<ol style="list-style-type: none"> <li>1. Food Technology</li> <li>2. Chemistry</li> </ol>	<ol style="list-style-type: none"> <li>1. Supervise Food Research.</li> <li>2. Supervise Food preservation and Home food industry.</li> <li>3. Assist in Community survey.</li> <li>4. Conduct laboratory in food value measurement.</li> </ol>
7	Food Technology	Miss Rachamane Suwangbutra	B.A. (Home Econ.)	<ol style="list-style-type: none"> <li>1. Food Technology</li> <li>2. Extension Service</li> </ol>	<ol style="list-style-type: none"> <li>1. Assist in Food Experiment</li> <li>2. Assist in Community survey.</li> </ol>

No.	POST	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DUTIES (ASSIGNMENTS)
8	Consultant	Dr. Chamarn Pratoomsindh	M.A., (Geography) Ph.D. (Higher and Adult Ed.)	<ol style="list-style-type: none"> <li>1. Community development.</li> <li>2. Community Survey and Studies</li> <li>3. Rural Education</li> <li>4. Adult Education</li> <li>5. Higher Education</li> </ol>	<ol style="list-style-type: none"> <li>1. Act as consultant to the total program to meet the objectives proposed and educational objectives needed.</li> <li>2. Act as Consultant in the development of the project according to the needs of the region and the nation.</li> <li>3. Survey the communities to set the program schedule to be implemented</li> <li>4. Act as Consultant on organizing and controlling the project.</li> <li>5. All aspects dealing with the Project implementation are subject to his concerns and advise.</li> </ol>
9	Resource Persons	Dr. Sakorn Dhanamit	M.D., D.Sc. (Med)	<ol style="list-style-type: none"> <li>1. Nutrition</li> <li>2. Community Medicine</li> </ol>	<ol style="list-style-type: none"> <li>1. Resource person in Nutrition Studies</li> <li>2. Resource person in community nutrition investigation and research.</li> </ol>
10	Resource Persons	Dr. Somchai Durongkadet	Ph.D.	<ol style="list-style-type: none"> <li>1. Nutrition</li> <li>2. Community Health</li> </ol>	<ol style="list-style-type: none"> <li>1. Resource person in Nutrition studies.</li> <li>2. Resource person in Community health program.</li> </ol>
11	Resource Persons	Mr. Banchong Withayametha	B.S. (Nutrition)	<ol style="list-style-type: none"> <li>1. Nutrition</li> <li>2. Community Science</li> </ol>	<ol style="list-style-type: none"> <li>1. Resource person in Nutrition.</li> <li>2. Assist community survey.</li> <li>3. Conduct village nutrition program.</li> </ol>

No.	POST	NAME	QUALIFICATION	AREA OF SPECIALIZATION	DUTIES (ASSIGNMENTS)
12	Resource Person	Mr. Somchan Lertpanapong	B.S., M.S. (Food Science)	1. Food Research 2. Food Industry	1. Resource person in Food Research. 2. Assist community Food Industry. 3. Supervise community Food Products.
13	Resource Person	Mr. Suriyan Loasat	M.A. Industrial Arts	1. A.V. Materials Production	1. Resource person in village household design and improvement. 2. Conducting A.V. materials production
14	Resource Person	Miss Ann Goodall	B.A. (Geography)	1. English 2. Geography 3. Extension Service	1. Resource person in editing 2. Village studies consultant

### 3.2 Participation of the University

The University has continue to play important role in supporting the Center as mentioned in the first year report.

The main support the Center received from the University in the second year is the new building. This allows the Center to obtain two separate unit: Research laboratory and audio visual laboratory with the Center office. There is also a production section in the laboratory that sell any new experimental food products to students, faculty members and others test their acceptibilities. Other facilities were shared with the Department of Home Economics such as new food laboratory, general office, exhibition and sale center. These new facilities will help the expansion of the project.

### 3.3 Acquisition of Equipment

The acquisition of equipment of the second year could be categorized into the following:-

1. What was left over from the first year, mostly died to the delay in completion of the new building, such as food laboratory units, food testing unit and smoke-absorbed hood.
2. What were already acquired by the Foundation in the first year instead of the second year to facilitate the work such as cameras projector and equipment attached.

3. New group of equipments purchased according to the need of the project. These were made possible by the kind cooperation of the Foundation allowing the Center to readjust the expenditure. There were adjust in the following pattern lowering the expenses on travel and per diem for participants by getting counter part fund from the institutions who sent the participants. This adjustment help to the Center to be able to obtain many equipment necessary to help the project to progress accounting to the need of the project such as duplicate machine, more laboratory equipments to cope with large number of participants, more research and experimental equipment to improve the work more expenditure on agriculture, more audio visual equipment to facilitate and improve the work, automobile repair came in because of the unsuitable of the vehicle to the rough road condition. Without this adjustment in the budget expenditure would made the project face great difficulties because of the changing conditions and demand of the people.

The acquisition of some of the equipment was delayed due to the rising in price. The adjustment of budget made it possible, to obtain the required equipment.

IV. FURTHER STUDIES ON THE PEOPLE'S AND NEEDS OF THE LOCAL PEOPLE IN RELATION TO EATING HABITS, FOOD PREPARATION, AND THE AVAILABILITY OF FOOD

4.1 Food and Nutrition Survey (cont.)

In cooperation with the Nutrition Research Center, Mahidol University Ramathitodi Hospital a continuation and expansion of the first year survey was conducted in many new locations. Work carried out were two comparative studies of the nutritional studies between town and village people and between a slum and a well-to-do section of the town. The studies included both pre-school and school children.

The findings confirmed the first year's work. There is a high incidence of malnutrition (PCM.) in all areas. It is almost as high as the Northeast Region which is supposed to be the poorest part of Thailand. The findings of the studies surprised the people who still think that Southern Thailand is the land of plenty of trees and sea. This second-year study also confirmed crucial health problems especially in the fishing villages. An urgent measure to solve the problems should be taken, in order to improve the present situation and prevent further deterioration.

The main problem confronting the majority of the villager is sanitation. Worm infestation spreads around.

The lack of latrines is due to both economic and cultural reasons. Low incomes made the villagers spend their money on what they consider necessities, such as on food and clothing. They also lack knowledge and understanding of bad effects from not having latrines.

---

1. See chart on page 14 - 18

What accounts for poor sanitation and poor nutrition is the lack of water. Even a small kitchen garden needs water.

Prevalence of Malnutrition in Thai  
Pre - School Children : A Comparative Study  
by Region

Degree of Malnutrition	Bangkok Slum 2512-2513	Central 2515	North 2521	North East N.E. 2520-2521	Pattani	Average Total
1	31	31	46	42	41	38
2 Moderate	36	21	38	21	14	33
3 Severe	6.6	21	38	21	14	33
Total	73.6	54.4	85	64.3	57	73.7

Nutritional Status of Preschool Children

in Pattani, May-June 1978

sex	Degree of Malnutrition	% Prevalence			
		Thai Std.		US. Std.	
		Weight	height	weight	height
Male	Normal	65.4 (106)	59.2 (96)	37.0 (60)	58.0 (94)
	1	30.2 (49)	28.4 (46)	50.6 (82)	29.0 (47)
	2	3.1 (5)	9.9 (16)	11.1 (18)	11.1 (18)
	3	1.2 (2)	2.5 (4)	1.2 (2)	1.8 (3)
Female	Normal	67.2 (127)	54.0 (102)	19.0 (35)	41.3 (78)
	1	30.2 (57)	36.0 (58)	59.8 (111)	42.8 (81)
	2	2.6 (5)	8.5 (16)	18.5 (35)	14.3 (27)
	3	0 (-)	1.6 (3)	2.6 (5)	1.6 (3)
Total M&F	Normal	66.3	56.6	28	49.6
	1	30.2	32.2	55.2	35.9
	2	2.9	9.2	14.8	12.7
	3	1.2	2.05	1.9	1.7
Total	Three Degree	34.3	43.4	71.9	50.3

Nutritional status of pre. school children

Voracamin school

ภาวะโภชนาการของเด็กวัยก่อนเรียน

ร.ร.วราคามิน

เพศ Sex	บทพ้องทางโภชนาการระดับ Degree of Maln	น.น. Weight		ส่วนสูง Height	
		ไทย Thai	สหรัฐ US.	ไทย Thai	สหรัฐ US.
Male	Normal				
ชาย ๔๘	ปกติ Normal	๔๗.๐	๑๘.๘	๒๘.๒	๑๗.๖
	ปกติ Normal	๓๕.๓	๒๘.๗	๔๒.๘	๔๔.๔
	๑ ๑	๑๖.๕	๔๔.๕	๒๘.๗	๒๘.๒
	๒ ๒	๑.๒	๗.๑	๕.๗	๕.๗
	๓ ๓	-	-	-	-
หญิง ๑๐๐	ปกติ Normal	๓๘.๐	๗.๐	๑๗.๐	๕.๐
Female	ปกติ Normal	๔๑.๐	๑๖.๐	๔๑.๐	๔๒.๐
	๑ ๑	๒๑.๐	๖๕.๐	๓๘.๐	๔๐.๐
	๒ ๒	-	๐๓.๐	๕.๐	๕.๐
	๓ ๓	-	-	-	-

**Prevalance of Malnutrition in  
School Children in Pattani**

ชื่อหมู่บ้าน Village	อายุ age	Degree of PCM										จำนวนคน ทั้งหมด Total	หมายเหตุ Remark
		Over	7	N	%	1	%	2	%	3	%		
ทราไคอ Traikao Village	6-12			64	42.4	34	22.5	41	27.2	12	7.9	151	
Low income School เทศบาล เทศบาล	6-12			12	40	9	30	9	30	-	-	30	
วอราคามิน Voracamin (Better income School)	6-12			84	86.6	16	15.5	3	2.9	-	-	103	
รวม 3 Total 3 Schools	6-12			160	56.34	59	20.8	53	18.7	12	42	284	

The surveys were carried out by a team of Nutritionist from the Nutrition Research Center, Rama Thibodi Hospital, Mahidol University in cooperation with Economics Department and Food and Nutrition Center, Prince of Songkla University, Pattani, Thailand. (Pattani survey)

Nutritional status of pre. school children

Banpanare'

ภาวะโภชนาการเด็กวัยก่อนเรียน

บ้านปานาเระ

เพศ	บกระดับของโภชนาการระดับ	น้ำหนัก Weight		ส่วนสูง Height	
Sex	Degree of Malnutrition	ไทย Thai	สหรัฐ U.S.	ไทย Thai	สหรัฐ U.S.
Male ชาย	ปกติ Normal	๒๐	๒๐	๒๐	๒๐
	ปกติ Normal	-	-	-	-
	๑	๖๐	๔๐	๔๐	๖๐
	๒	-	๒๐	๔๐	๒๐
	๓	๒๐	๒๐	-	-
Female หญิง	ปกติ Normal	-	-	๑๑.๑	๕.๖
	ปกติ Normal	๓๘.๘	-	๒๖.๒	๕.๖
	๑	๕๕.๖	๕๕.๖	๕๖.๖	๖๑.๑
	๒	๕.๖	๓๘.๘	๑๑.๑	๒๗.๘
	๓	-	๖.๖	-	-

## 4.2 Studies of Food Habits and Practices (cont.)

### 4.2.1 Economic and Health Conditions

Our recent study of five additional villages in located in five different areas throughout the province of Pattani shows that the income of the people has risen about 20 percent. At the same time the cost of living has also gone up about 20 percent. Most of the family's income is spent on food. The biggest expenses are on clothing and medical care. This shows that health is still an important problem for the family, which is a great drawback to the progress of the family. The main cause of poor health is sanitation (see 4.1) and poor food habits and practices in everyday living.

### 4.2.2 Food Availability

Food is comparatively abundant in southern Thailand, especially sea foods and seasonal fruits, which are only available to a minority with high incomes. The low income group can only afford to buy a small portion of these products. The major portion of these products are sent to foreign markets where high prices are demanded.

### 4.2.3 Ignorance of the Prevailing Dangerous Food

Ignorance and the prevailing dangerous foods create poor food consumption. Now, all over Thailand, even in the most remote areas, dangerous foods and additives find their way into the

villages. People began to use additives without knowing their effects. Colored food is especially attractive to young children. Colors are used in snacks, sweets, desserts and even in main dishes to start with children have poor health, because they have only a little to eat, and do get worse because of these harmful foods. The colors used are cloth dyes which contain zinc and many other dangerous chemicals. They are widely used because people are ignorant of the danger. The Food and Nutrition Center for Southern Thailand, in cooperation with the Science Department, Ministry of Industry tested these colored foods and found that almost all of them had dangerous colors.

Besides food colorings there are many other harmful food additives such as : artofocoa; vinegar which contains some dangerous mixtures such as hydro cloric acid and most preserved foods also contain items that are hazards to people's health, such as D.D.T. in some salty dried fishes, nitrate and nitrite in dried meats and finally pack colorings in shrimp pastes, dried shrimps and fish sauces.

#### 4.3.4 Poor Food Choice and Practices

Little education and lack of knowledge of nutrition and health lead to poor choice and selection of food. Low income people already have poor health due to an inefficient and in balanced intake of food. Ignorance again leads them to spend their very small income in the wrong way.

4.2.4.1 Main Meals As mentioned in the first year report the major part of a village meal is composed of rice and some kind of curry or sauce. This meal contains small amount of protein.

Vegetables such as cucumber which are eaten, are generally low in nutritive value. The nutritious vegetable that is more often used is swamp cabbage. But the insufficient intake of oil and improper food preparation reduce the nutritious value of these food.

Dessert are not generally served but when they are, they are mostly starch and sugar. Worse are dangerous food colorings which are poisonous.

4.2.4.2 Snacks and Drinks Generally snacks play an important role in substituting main meals. But here present in Thailand almost everywhere there is a wide spread sale of ready-made snacks made from flours and dangerous colorings. Another harmful group is preserved fruits, which are full of dangerous additives. Most of these snacks are produced in Bangkok and were sent all over the country. If the National Board of Food and Drugs would take a strong and prompt action, this problem could be quickly eliminated. Mrs. Pratoomsindh, director of Food and Nutrition Center for Southern Thailand, made a strong plea to the Representatives of the National Food and Drug Board (at the Seminar on Food Research at the

National Research Council last May 1977 to take prompt action in a few factories produce these harmful snacks. It is hoped that the Board will take a quick action.

Snacks and drinks in Thailand, especially in small towns and villages contain only sugar and dangerous colorings, which children are getting. For adults, popular drinks are tea or coffee with sweetened milk. Coffee is generally made from roasted rice and tamarind seeds. Though there are hardly any nutrients in these things, they are still better than tea which is mostly dried.

In short, it can be said that most snacks and drinks available to low income groups of people are commonly poisonous. Some calories gained from these snacks and drinks are not worthwhile because of the harmful substances they contain. Therefore action and cooperation from all concerned is needed to solve this urgent problem.



A team of Nutritionists from the Rama Thibordi Hospital Nutrition Research Center, in cooperation with the Food and Nutrition Center, is interviewing village Headmen at Sakun District, after already conducting a nutrition survey.



Interviewing Villagers at Ban Traikao Village, Pattani.

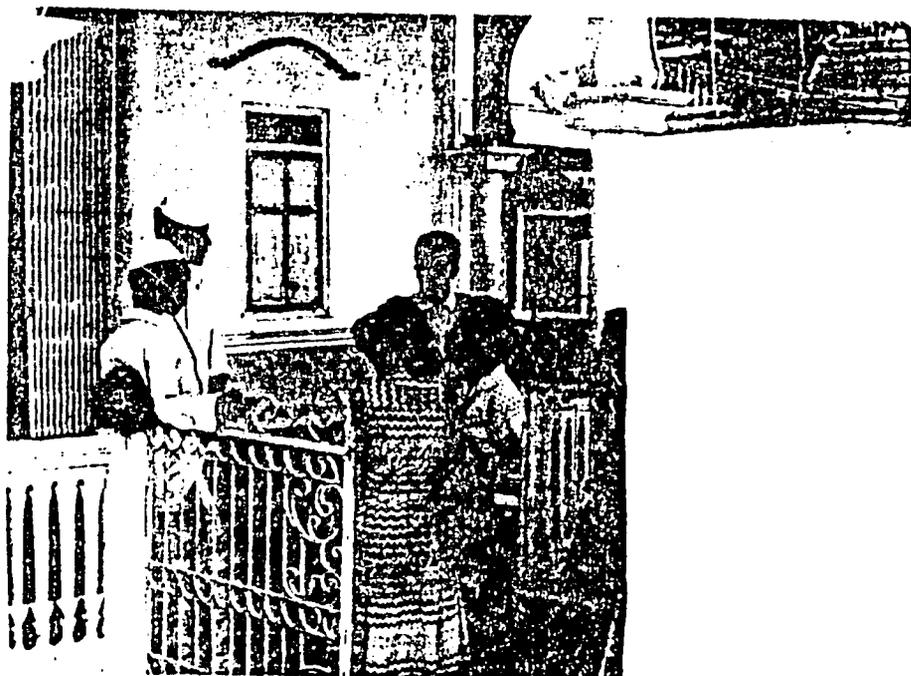


Many cases of anemia are found among both pre-school and school-age children at Park Bang Village.





Interview and friendly talk with local religious leaders and village headmen at Sakhum District.

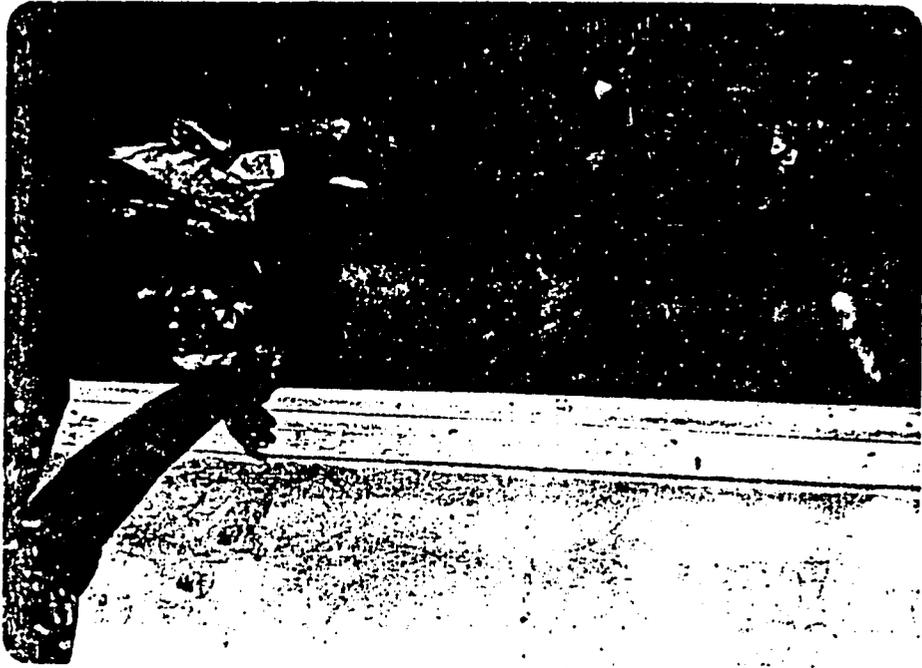


Director of the Food and Nutrition Center surveys the suitability of location for Nutrition Survey at Panarhet Moss.



Discussion with local people to find out problems and needs in various villages.





A severe case of malnutrition at Panarae district  
dued to poverty, igranace and availability of  
hazardous foods in the market.





Special scale for infant weight measurement is used during the field survey weight and height.





School and local leaders from Park Bang Village School cooperate fully with our nutrition survey, which is right in the center of the Village.





Nutrition Survey at Park Bang Village, directed  
by Dr. Sakorn Thanamita



### 4.3 Study of Existing Resources (cont.)

#### 4.3.1 Natural Plants

More extensive studies of natural food sources have been carried out in many areas. Many wild, edible plants can be found along the road sides, in the fields and swampy land. These plants have been identified and studied. Analysis have been carried out to find their nutritive values. Most are found to have valuable nutritive contents. These new food sources have even been more outstanding when compared to the popular foods eaten at present.

Popular vegetables such as cucumbers, wax-gourd, cabbage and bamboo shoots are quite low in nutritive values. Less popular but well known vegetables such as yard long beans and swamp cabbage are higher in nutritive value. But even this second group, is fewer in comparison with the regular group consumed.

1. They are easily and quickly grown in almost any soil or climatic conditions.
2. They are perennial and can supply food for the family all year round.
3. Almost all of them contain a good amount of Vitamin A and even better, a high percentage of protein, which is rather unusual for vegetables.

#### 4.3.1.1 Well known but less used Plants Cork Wood Tree

The young leaves contain an unusually high percentage of protein and vitamin A (See chart page 28)

One of the most outstanding vegetables in this group is the cork wood tree. It grows very fast in most soils, even saline soil. The tree produces young leaves and flowers the whole year. Our study shows that their beans are edible and they are high in protein and vitamin A. This great food source has not been tapped by the Southern people, but is well known among some groups of Northeastern people. Its newer red variety is even more outstanding, because the flower contains higher nutritive content of both protein and vitamin A. Moreover, the flowers can be made into quite attractive drinks. So if the families grows a few trees they will have an unlimited supply of vegetables and nutritive drinks throughout whole year. The leaves, flowers and beans are not only for human foods, but also are good and favorable for animal feeding, especially cattle. The tree, when old can be used to grow few-ear mushrooms which are very popular and command high prices in both their raw and dried states.

Finally, the cork wood tree, once grown, needs no more attention and does not require water as often as vegetables. Lack of water, a universal problem for those poor people who need to grow their foods is thus solved.

CASHEW NUT TREE

Cashew - nut trees have long been known for their nuts, but they should also be known for their other parts such as young leaves and fruits. Both the young leaves and the fruits are high in "Vitamin C and A". The tree produce young leaves all year round. The fresh leaves can be used with different native sauces. The fruits can be made into many products such as fruit drinks, wines and vinegar. They are also good for making different types of preserves. Our new research finding on cashew nut shells reveals that they can be used for making oil paint thus cashew-nut trees become more valuable and worthwhile. They can be sources of food and income for the family.

INDIAN PEPPERCOR LEAVES (CEUTILLA ASIATICA)

These leaves are especially high in their vitamin A content. (10000 I.U.) The tree can be grown in wet and shady areas throughout the year. It is very good for making drinks, salad dressings, and also as additional ingredient.

CHANRU (CHAMRANG SAKE MORING)

Chanru leaves are outstanding sources of vitamin A (8,824 I.U.) and protein (5.4 mg.) They flourish in most types of soils, but especially well in damp areas. Once grown they spread out very fast. Up to now they have had limited use. They are popular in one southern dish - rice salad. Multiple uses of this plant should be promoted.

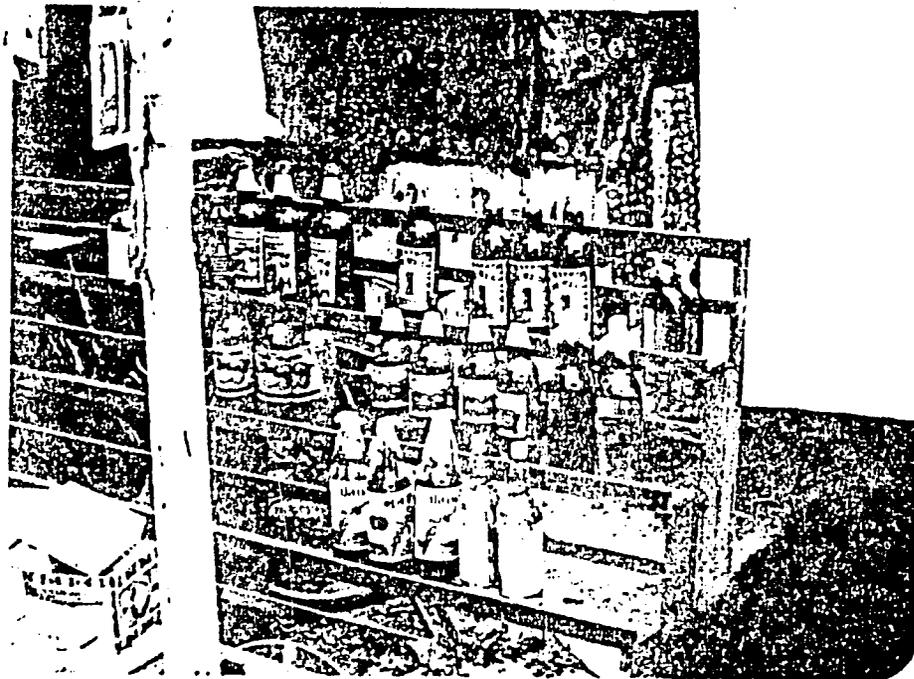
DANGEROUS FOOD ADDITIVES

25 a.

One of the most striking hazard to people's health is



the wide spread use of dangerous coloring everywhere, even in remote parts of the country

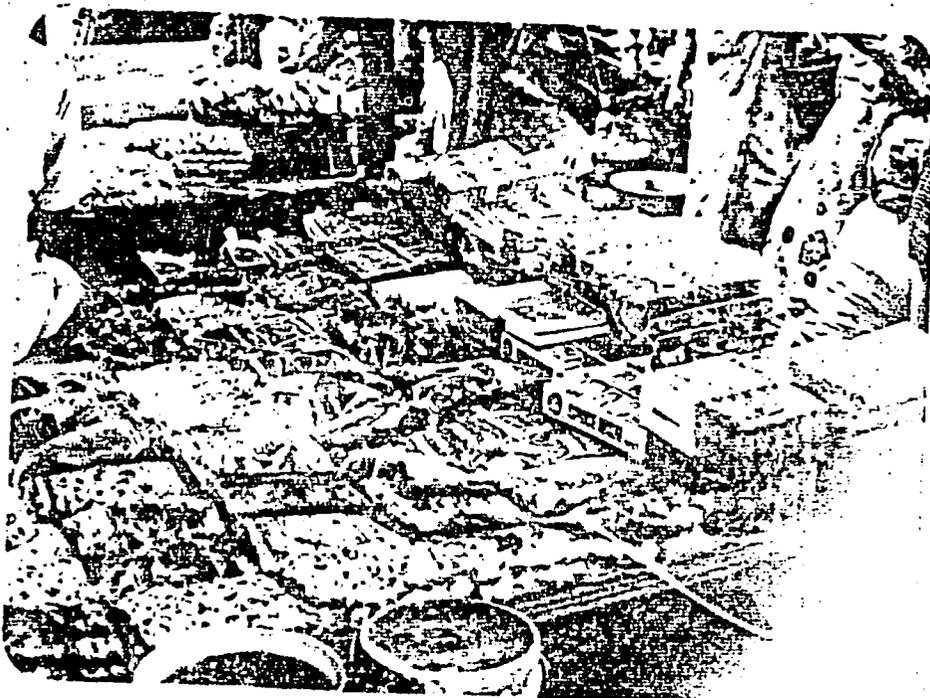




Snachs sold at Park Bang School contain dangerous colorings, and additives. This is due to ignorance, so our main task is one of education. The school master from this school recently completed his training in our program, and we are hopeful that this type of food will be disappearing from the school facilities.

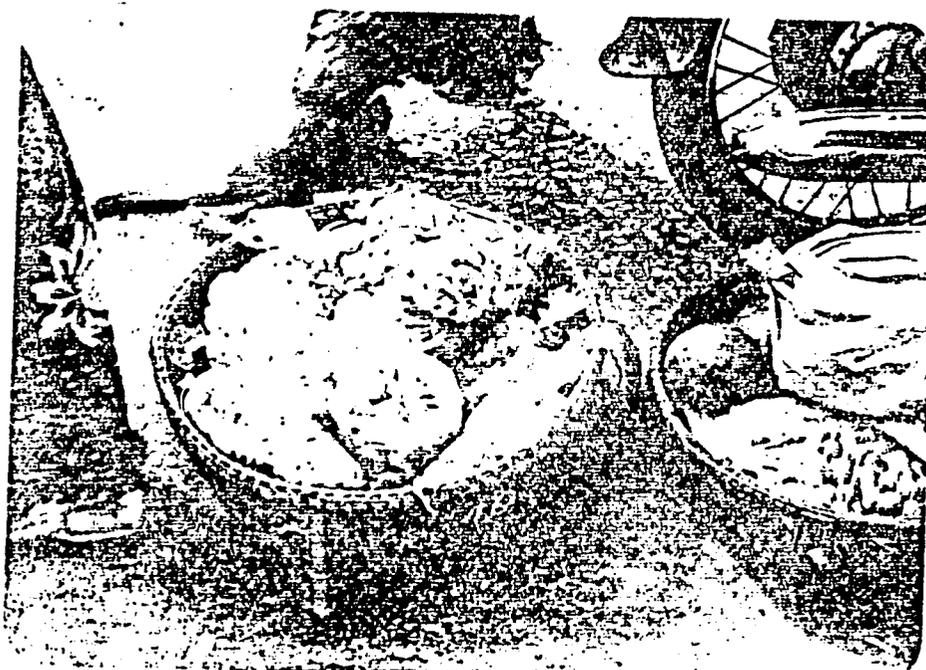


Enacks containing dangerous coloring and additives are wide spread through out the country they are generally produced in large quantities in Bangkok and sold cheaply to all regions. During a recent seminar on Food Research arranged by The National Research Council, Mrs. Pratoomsindh, director of the Food and Nutrition Center had requested the Food and Drug Department to take quick action on this problems.





Village people who leave very little to eat add poisons into their already weak bodies. This is a situation requiring urgent solution which should concern us all.





Many food colorings and food additives



Most cheap, plastic food containers are also dangerous.



Fishes are available in the market and are the cheapest source of animal protein for the southern people. But a lot of housewife makes a poor selection of food spending more money on dessert made from flours than on fishes.



4.2.1.2. Less Well-Known Plants (their nutritive values and varieties of using there, newly found)

Palnson (Theri ginsai)

Palnson, a small perennial plant, native to Southern Thailand. It flourishes very well in almost any type of soil, even in saline soil. Once it is grown it requires very little attention.

It is edible as well as being decorative. It has purple flowers which are also edible. If each household would grow two or three of this plant, they will supply the household sufficient supply of vegetables. The vegetables are good both for quick pan-frying and for making soup.

Par Deh (Sea Vegetable)

Par Deh is a kind of sea grass, grown along muddy seashores. It also grows well in other soils, and can be cultivated in every season. It is edible as well as decorative. Native people occasionally cook and make salads out of them, but our experiments show that it has many uses including salads and preserved in brine or pickled.

This plants are widely grown, and, most importantly, they contain a high nutritive value content. (4-8 gm.)

This vegetable can be used in various kind of soups and also in many other dishes. The plant is particularly high, even when composed with the more well-known yard-long bean, in protein and vitamin A.

OVALTINE BEAN (Local name)

This new variety of bean has many outstanding qualities. It is easily and quickly grown, in any season. It flourishes well in both dry and wet seasons.. The beans are large. They can be used both when young and mature. Its name is derived from the fact that it is used in making ovaltine and other similar drinks. When our experiments are completed, we hope to treat this bean as it contains a very high percentage of protein (28.9 mg.) which is higher than peanuts (26.0 mg.) or mung beans (24.4 mg.) and only slightly lower than the soya bean (34.1 mg.)

Comparative Value Between Wellknown and Less Wellknown Food Sources  
Wellknown and Popular Food Sources

No.	Thai	Name of foods English	Scientific	Moisture gm.	Cal	Fat gm.	Chof Fiber gm.	Fiber gm.	Protein		Cal mg.	F mg.	Fe mg.	Vitamin					Remark
									A gm.	B gm.				A mg.	B <sub>1</sub> mg.	B <sub>2</sub> mg.	B <sub>6</sub> mg.	C mg.	
1.	กะหล่ำปลี	Cabbage, raw	B.oleracea, var. capitata	92.4	24	0.2	5.4	0.8	--	1.3	49	29	0.4	1.30	0.05	0.05	0.3	47	
2.	หน่อไม้	Bamboo shoot	Bambusa Spinosa	92.2	27	0.7	4.5	0.7	--	2.0	19	26	0.2	0	0.03	0.05	0.2	3	
3.	แตงกวา	Collards, raw leaves inclu- ding stem	Do	86.9	40	0.7	7.2	0.9	--	3.6	203	63	1.06	500	0.20	0.31	1.7	92	
4.	ผักบุ้ง	Swamp cabbage	Impomoea aquatica	90.0	29	0.5	4.2	1.1	--	3.9	60	66	5.6	4475	0.09	0.25	1.2	59	
5.	ดอกแคขาว	Sesban carria- sloer cook wood tree		87.4	44	0.6	9.6	1.0	--	1.8	23	29	0.9	105	0.13	0.08	2.8	41	

No.	Thai	Name of foods English	Scientific	Mois- ture gm.	Cal- Unit	Fat gm.	CHO gm.	Fiber gm.	Protein		Ca mg.	P mg.	Fe mg.	Vitamin					Remark
									A gm.	V gm.				A	B1	B2	Nia	C	
									mg.	mg.				mg.	mg.	mg.	mg.	mg.	
6	ถั่วเขียว	Yard - cong bean	Oigna sinensis var: sesquispe- dalis	88.1	38	0.2	8.2	1.5	-	2.8	42	46	0.9	570	0.12	0.13	1.2	22	
7	ถั่วพู	Goa or winged bean or four an- gled beas	Psophocarus te- tragonolobus	90.7	29	0.3	5.6	1.3	-	2.7	64	36	0.1	545	0.24	0.09	1.2	15	
8	ถั่วงอก	Mungbean, sprout	Phaseolus aureus	88.8	35	0.2	6.6	0.7	-	3.8	19	64	1.3	20	0.13	0.13	0.8	10	
9	ถั่วลิสง	Peanuts, raw, with skin	Aracgus hypogaes	5.6	564	47.5	18.6	2.4	-	26.0	69	401	1.1	-	1.1	0.1	1.1	0	
10	ถั่วเหลือง	Soybean mature	Glycine	10.0	407	17.7	7.55	4.9	-	34.1	554	3.4	80	1.1	0.2	1.1	-		

LESS WELL-KNOWN BUT HIGH NUTRITIVE VALUE CONTENT

THAI	Name of Food English	Scientific	Moisture gm.	Cal Unit	Fat gm.	CHO gm.	Fiber gm.	Protein		Ca. mg.	P mg.	Fe mg.	Vitamin					Ref.
								A gm.	V gm.				A mg.	B1 mg.	B2 mg.	B12 mg.	C mg.	
* ดอกแค(แคง)	Flower of Caturai		89.53	34.15	0.07	5.84	1.29	-	2.54	29.2	51.0	0.95	211.6	0.08	0.16	0.61	7.2	
ผักเฒ	Phag Sam		84.44	48.05	0.33	7.36	1.73	-	3.91	373.1	73.6	9.03	8994.7	0.20	0.39	1.28	16.9	
ผักขม	Phag Smue		72.79	93.09	0.25	16.79	2.41	-	5.92	196.6	72.7	3.17	7953.1	0.10	1.09	1.13	44.4	
ผักหวาน	Phag Wan		80.86	67.50	1.14	6.47	1.71	-	7.84	153.6	97.3	3.09	-	0.13	-	-	-	
ผักหวานจีน	Phag Wan (Chinese)		85.74	43.94	0.46	4.78	1.22	-	5.17	137.5	55.7	9.75	12136.2	.13	0.46	1.24	5.1	
หางกระรอก	Squarrel Tail		84.45	54.08	1.30	6.89	1.89	-	3.48	371.6	58.2	13.80	-	0.10	0.4	1.23	1.2	
ผักเปาะ	Phag Pae		88.33	31.51	8.19	6.04	1.25	-	1.42	59.2	23.1	6.10	**	-	-	-	-	
ผักโสม	Phag Som		93.51	17.21	8.37	2.19	0.94	-	1.28	71.2	14.1	7.78	**	-	-	-	-	
ผักคตแดง	Seabania Carria, (red bean)		85.15	0.22	0.10	8.15	1.38	-	4.18	59.30	82.9	1.19	487.85	5.36	0.66	0.70	23.1	
ถั่วโถวัลดิน	Ovaltine Bean		16.73	18.42	0.98	18.50	1.30	-	28.9	108.23	08.0	5.77	-	0.68	0.15	1.25	-	

\* The nutritive value of these plants are newly made by the Science Department, Ministry of Industry through th request of Food and Nutrition Center. The Center did some part of these finding but. inadequate equipments hinder the full scale work.

\*\* The vitamin content of these two vegetable have not yet been studied.

## V. FOOD ANALYSIS AND EXPERIMENTATION

5.1 Identify the less well known and neglected Food Source:  
Many activities begun in the year were continued this year and many new activities were initiated.

5.1.1 Further investigation of local foods producee new varieties of previously neglected local foods. Special attention was paid to the various ways and means of making use of these local foods. All of this information was compiled on films, in slides, in pictures charts and poster and in pamphets.

5.1.2 More emphasis was placed on the integrating of high nutritive-value-foods sources into the daily diet. Our approach to this investigation was directed toward snack food, including drink.

5.1.3 Experiments were done on various local edible plants and roots, on cheap sea foods, and on waste products in order to increase sources of food, and on waste products in order to increase sources of food supply to enrich and improve daily diets and to prevent the use of dangerous, artofoca; food additives and food seasonings which are now so wide spread in both town and villages.

Table  
 Distribution and Expansion of Crops  
 To Improve Food and Nutrition Programme in Villages

Recipient	Papsya	Cashew	Asparagus	Mulberry	Corkwood tree	Mushroom	Tapioca plant	Sweet potato	Bitter gourd	Taro	Jack fruit	Leucaena	Water bamboo shoot	Soy bean	Vivantme bear	Vegetable garden
Rusamilae villagers	120	120	15	10	30	-	340	60	40	20	7	50	6	-	-	40
Prulumpri villagers	100	50	-	-	50	-	40	30	30	-	-	-	5	5	10	20
Prachan villagers	20	30	-	-	20	-	-	-	-	-	-	-	-	-	-	20
Commumty Schools from 14 Southern Provinces	-	-	80	-	-	-	-	-	-	-	-	-	70	-	-	-
Local schools	20	40	150	80	200	-	-	-	-	-	-	-	-	-	50	30
University staffs and students	60	50	10	10	105	10	-	-	-	-	-	-	5	-	-	-
	30	10	5	10	25	10	-	-	-	-	5	-	-	-	-	-

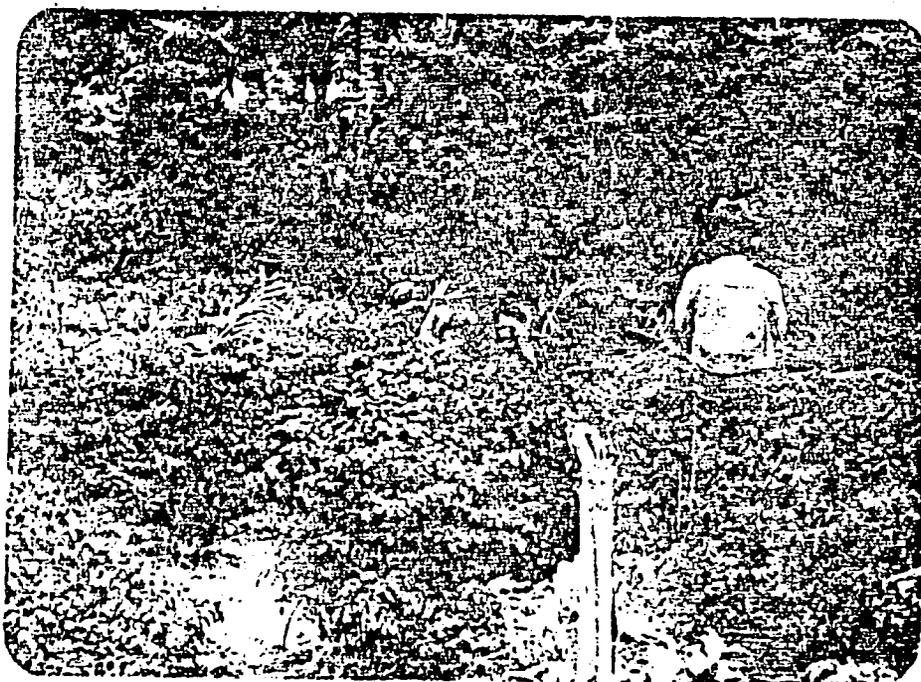
One of the quickest ways to increase food supply is to encourage the use of native edible plants.

319.



Sadow

Though many edible plants are found throughout the region, they are usually neglected and wasted.





More attention should be paid to these long neglected native edible plants. From the research we know these plants are high in nutritive value.





Mahoud

Some Native Edible Plants are good not only as food source, but also as decoration and shelter.



Many varieties of edible native plants have long been neglected.



Many of these edible plants are now known only by a small number of people. Their value needs to be publicized and promoted.



can be grown as decorative plants for they produce lovely flowers.

## 5.2. Increase Sources of Food Supply

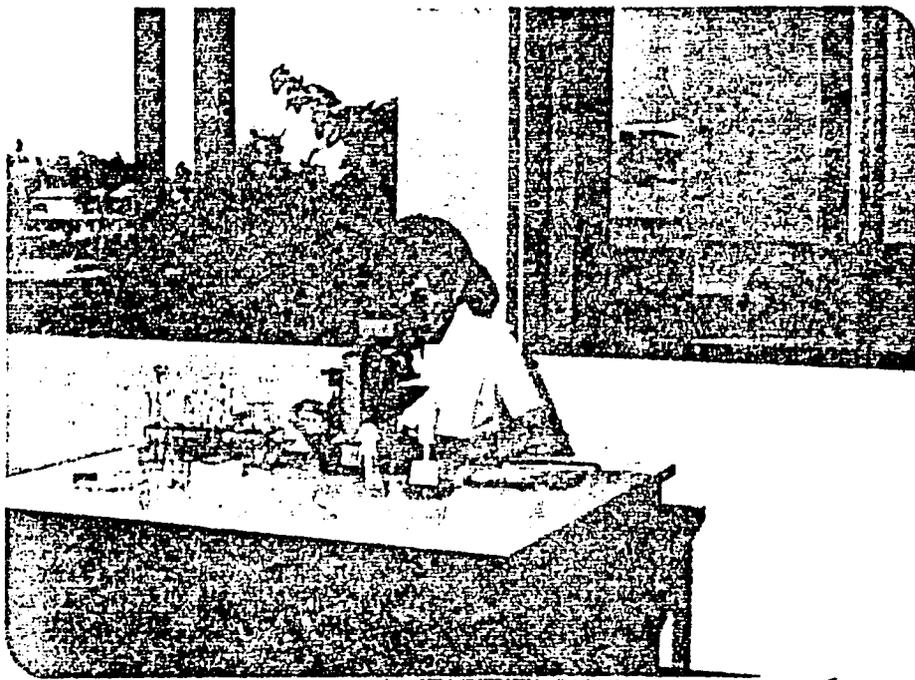
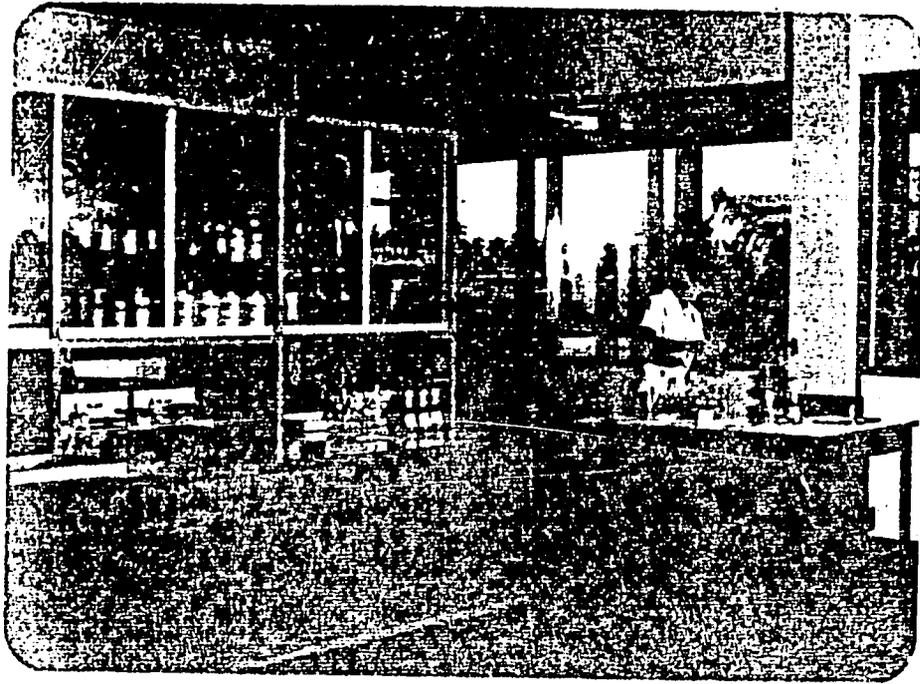
Many edible, local, largely neglected plants were identified and experimented on for more extensive uses in the daily diet. These plants and vegetables have been used only in limited quantities and few areas. It was discovered that they are easily grown and used. Measures have been taken to promote their uses.

5.2.1 Experiments were made to find ways, means, and locations for growing these plants. It was found that most of these plants can be grown easily in most places throughout the year, and without much attention. If all families would grow some of these plants in their gardens or even in pots and trays they would have sufficient supply of vegetables which would in turn give them almost total requirement of vitamins and minerals of the human body. Besides, these plants could be used for animal feed such as chickens, ducks, and other fowls. This would naturally cut down family expenditures.

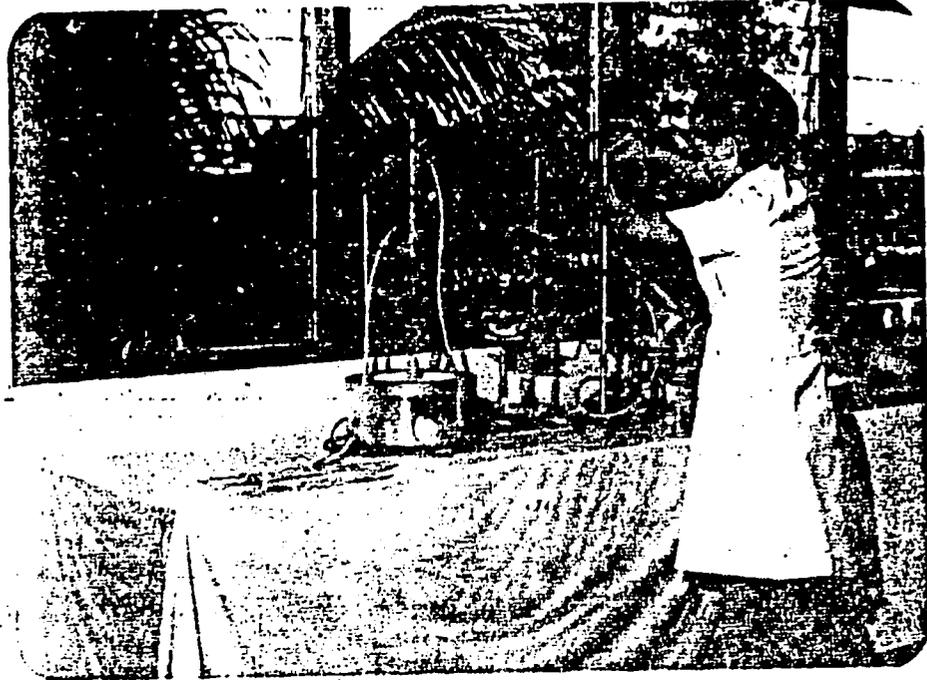
5.2.2 Growing of more well-known plants were encouraged around each home.

5.2.2.1 Tumlung, an outstanding source of vitamin A and iron, can easily be grown on poles and fences of many kinds and shapes. It can supply young shoots and fruits for the family diet the whole year round without taking up much space.

5.2.3 Cashew nut trees furnish young leaves all year round. They can be served raw with different dishes. The fruits, when in season, supply a good income. If each family would grow from 2-20 trees, a village of 150 families would earn about ₪ 21,000 - ₪ 42,000 (\$ 105 - \$ 2,100) a year, according to our calculation, in making use of fruit pulses, which are now mostly neglected a lot more money could be earned for each family. In the near future when new methods of cracking cashew nuts are introduced, shells could be preserved for oil and board-making. Thus cashew-nut trees could further increase family income.



Part of research and experiment on food  
micro-organisms.

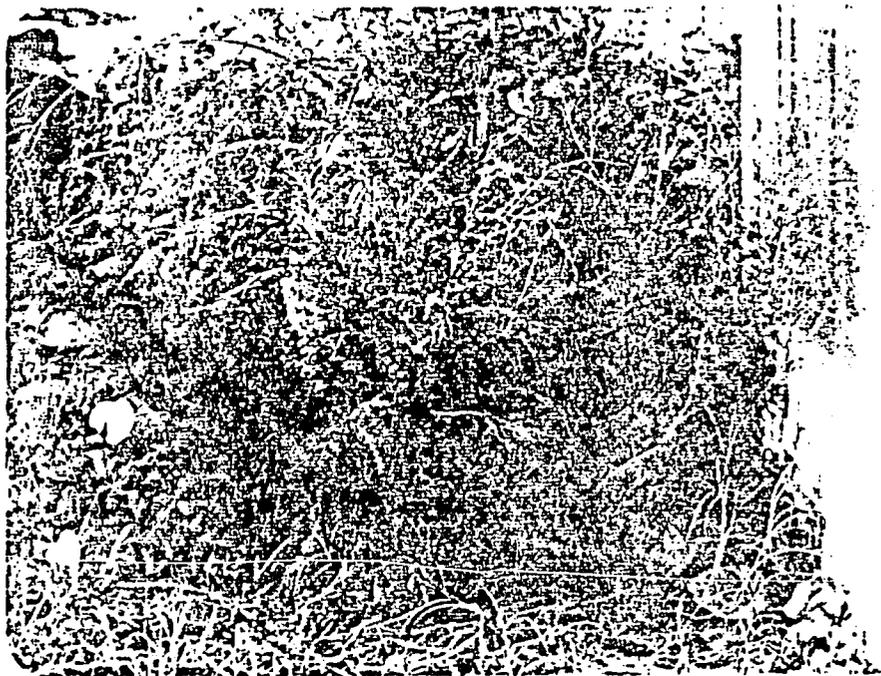


A Part of research on local food sources. Here a staff of the Center is finding the amount of protein from olvaltime bean.





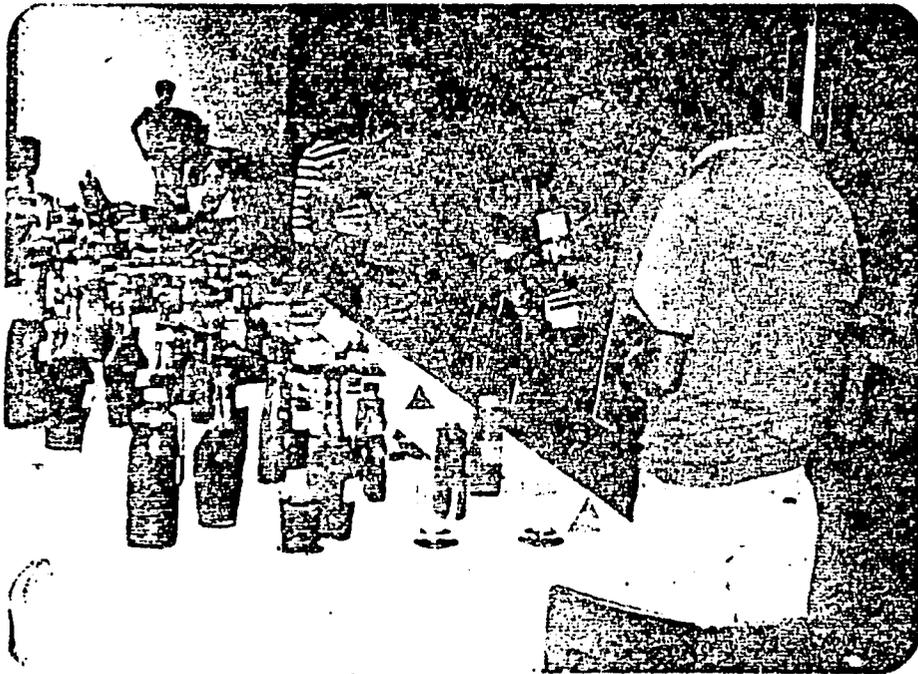
Different ways of making use of local edible plants.



An example of local edible plants which are rich in vitamin A and contain reasonable good amount of protein.

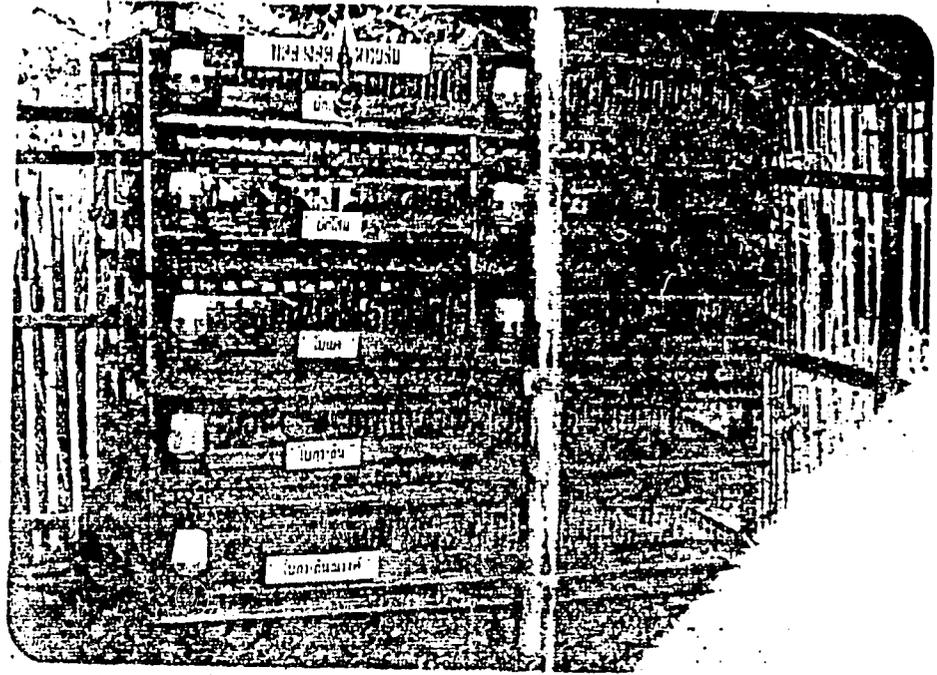


School children are tasting our new varieties of nutritive drinks made from local fruits and leaves.

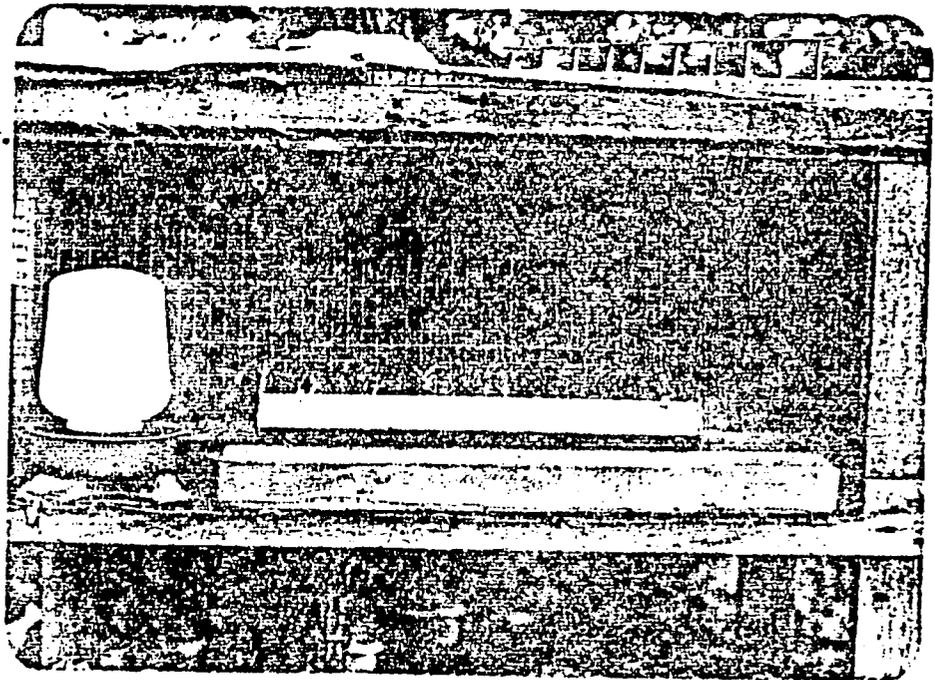


Nutritive drinks are being tasted by various groups of people including government officials, housewives and food store and restaurant owners.





Experiment of different new varieties of cheap local food source for animal feeding. And natural the study on the effect of new food source on animal.



## VI. EDUCATION AND LEADERSHIP TRAINING

Since the problems and needs of the people have been identified, education and training have to play important roles in solving some of the others encouraging problems and to seek further solutions themselves. Training is accomplished in cooperation with other institutions which are directly responsible for particular groups. The expenses are shared. This has helped to reduce the cost and make the training more effective.

### 6.1 Trainings

#### 6.1.1 Short and Long Term Training for the Center's Staff

In order to build up efficient staff so that the Center will be able to work effectively in meeting the needs of the people, special training was arranged for each group or individual. The training was carried out at the center, in the fields, in the institutions, or wherever suitable experiences could be gained. The education and training included.

6.1.1.1 Food and Nutrition Survey in different villages.

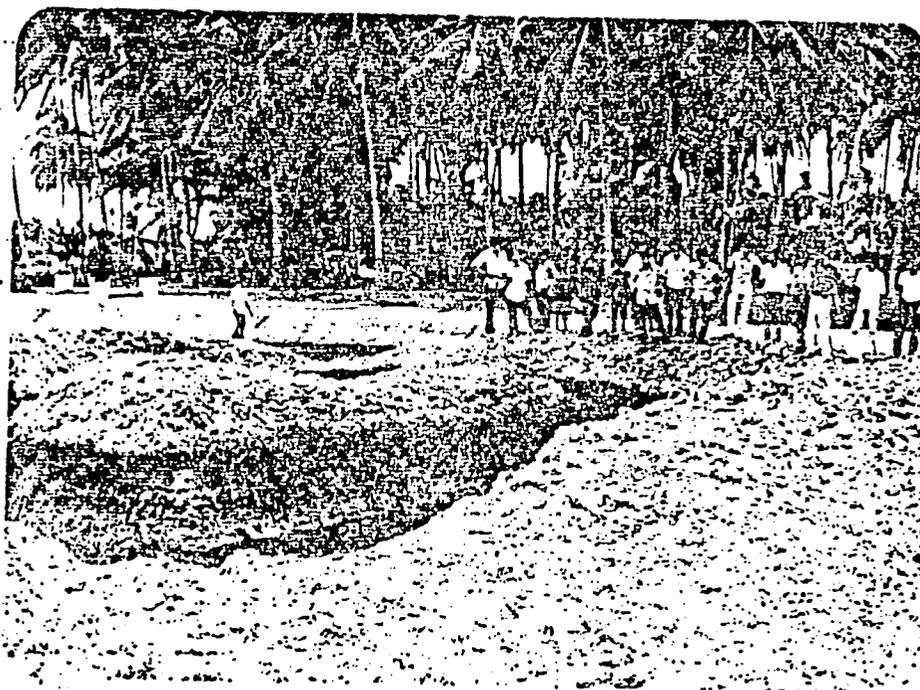
6.1.1.2 Food Analysis at Science Department, Ministry of Industry.

6.1.1.3 Food Experimentation at the Food and Nutrition Center.



Products from the first year training by Food and Nutrition Center in cooperation with University Extension.

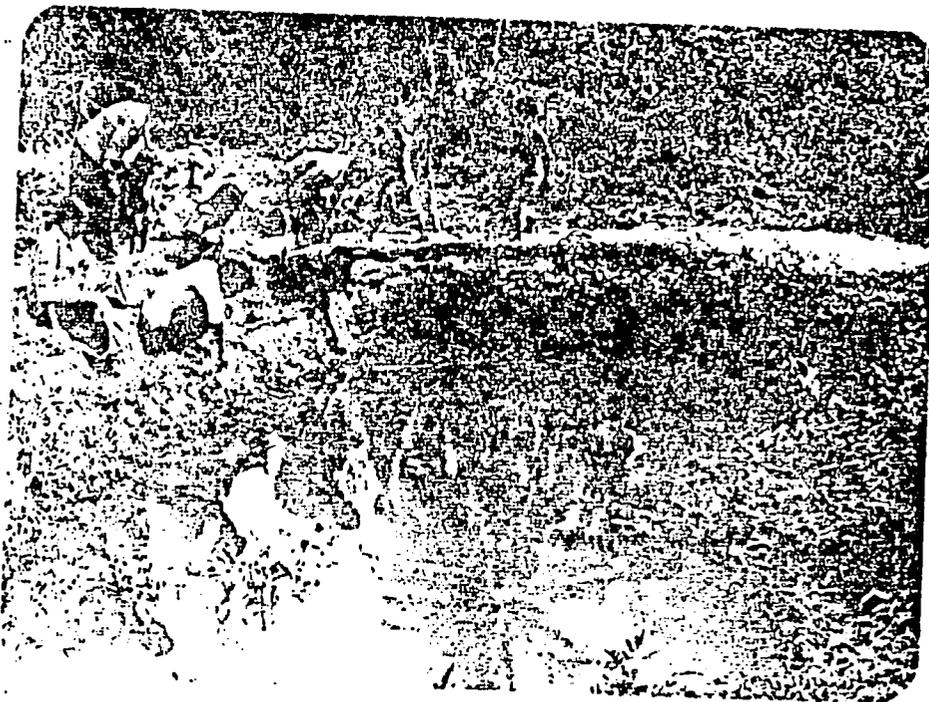




Lusamilae villagers, seeing good sample of fish pond at Food and Nutrition Center started to dig their own ponds.



This family at Tapa District began new life with fish ponds and fruits fields after visiting our Food and Nutrition Center.





Food and Nutrition Center provide opportunity for village leaders to visit and learn from each other.



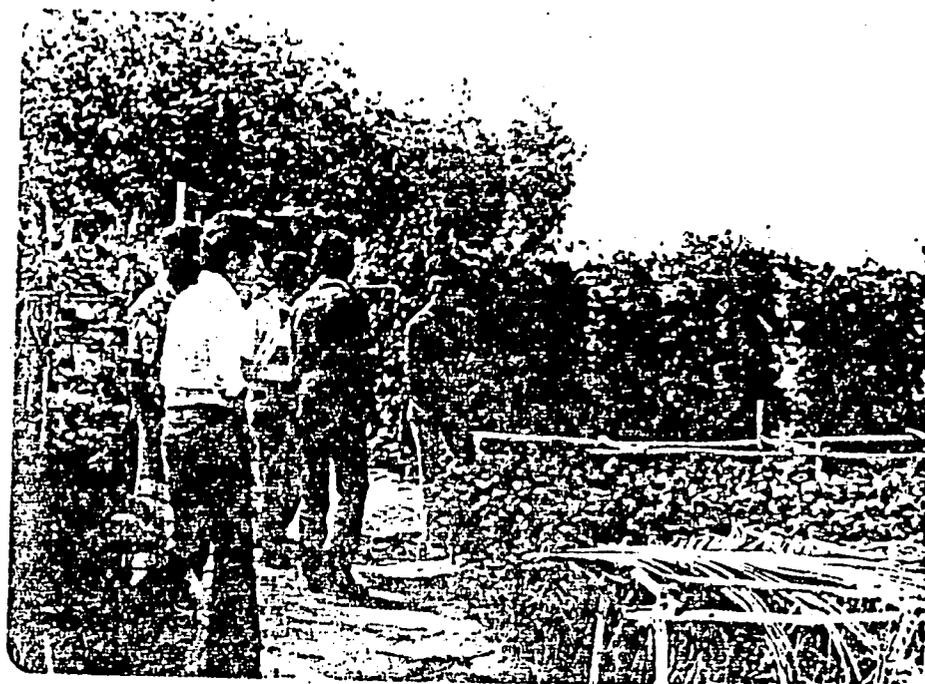
Here bringing ideas and producing his own crops with the aid of family members.



. Food and Nutrition Center provide study tour for various interested groups to the Center and other successful families



under our Food and Nutrition Training Program.



Studying the various possible ways of growing different crops at the Center's demonstration plots,

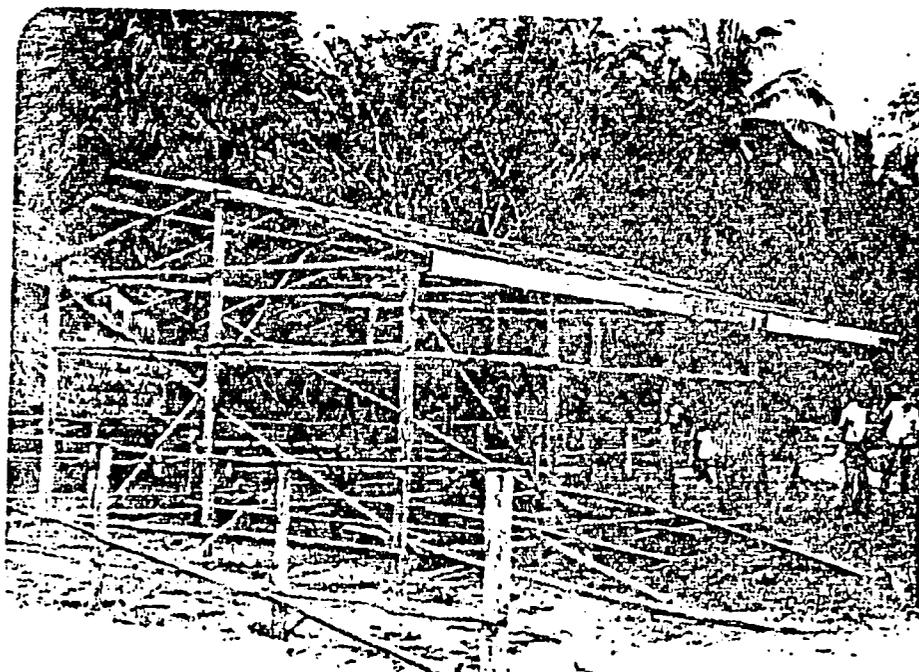


Prulumpre village headman is showing his products to the Director of the Center after 6 months study tour to the Center.

Out come of study tour



Prulumpre village headmen started building community center in his yillage after visit Lusamilae Training Center.



6.1.1.4 Short seminars and meetings concerning the work of the Center.

6.1.2 Short and Long Term Training for Various Groups

6.1.2.1 Seminar Workshop on: "School Lunch Program" for 175 School Masters and Teachers from fourteen southern provinces for five days.

6.1.2.2 Seminar Workshop on : "Home Economics and Community Development" for 80 Community Development and Home Economics Extension Personnel, School Teachers, Village Headmen and Village Leaders from various southern province for five days.

6.1.2.3 Lecture Seminar with Demonstration on: "Food Preservation and Home Food Industry" for and food store and restaurant owners and housewives. These groups were subdivided into smaller groups and training was given at various regions in the three southern provinces. These trainings lasted 2-3 days.

6.1.2.4 Lecture-Discussion with films and slides show on : "Food and Nutrition for School and Community Programs" for 70 Leader groups of Community School Headmasters of the fourteen southern provinces lasting 1½ days.

6.1.2.5 Lecture-Discussion with demonstration on: "Food Preparation and Preservation" for 120 housewives and teachers at a community school in Pattani for one day.

TRAINING FOR VARIOUS GROUPS

-31a-

Type & Method of Training	Audience		Subject	Time	Place	Cooper-ative Unit	Result	Remark
	Type	Number						
Lecture-Seminar	Community School Head Masters, School Lunch Program Teachers from 14 Southern provinces	175	School Lunch Program	5 days		Dept. of Provincial Administration		Dept. of P. Ad. Contributed toward the budget.
Lecture-Seminar Workshop	Home-Economics Extension, Agri. Dept. and Community Development Personnel (Ministry of Interior) School Teachers	80	Home Economics and Community Development	July 5 days	Prince of Songkha University, Pattani	Agr. Dept. of Ministry of Agr.	Participants gained good concepts in community development especially in income generating activities. Some of the leaders have already returned with groups of local leaders to visit the Center	Agr. Dept. Contribute some of the budget
Seminar-Workshop Demonstration Laboratory Work Field Work Field Trip	Food & Nutrition Center's and Home Economics' staffs	12	Community, Nutrition Food Experimentation	60 days		Mahidol University Science	Became more efficient in important aspects of nutrition work and some parts of food experimentation	
Lecture-Seminar Demonstration Laboratory work Field Practice	Community School & Local School Teachers (Now are students majoring in Home Economics & Rural Education	60	Community Nutrition Food Science and Food Industries	15 days		Mahidol University Science Dept. Ministry of Industry & Agr.	Became efficient teachers and extended their skills and knowledge to their communities	

Type & Method of Training	Audience		Subject	Time	Place	Coopera- tive Unit	Result	Remark
	Type	No.						
5. Lecture- Demonstration	Food Vendors, Food Stores Keepers Restaurant Owners Some School teachers Local Health Personnel and Government Officers						Participants became aware of health problem dued to dangerous food additive therefore they eagerly accepted they better ways of food preservation and learned how to sub- stitute for dan- gerous items.	Public Health Center Arranged 3 days train- ing on Food Hyginene & requested Production part 1-2 days they talked about be avoided & let us tell about what should be done
	1st Group	75	Food Preserva- tion Home Food Industry	9 May 9-10	Pattani Town Hall	Public Health Center Region		
	2nd Group		Mostly on Nutritive	2 May 11-12	Yaha Provincial Hall	"		
	3rd Group	137	Drinks, fruits preserves Soya bean milk & various ways	May 15-16 2	Tachi Lumai School	"		
	4th Group	163	of making use of the products from the making					
5th Group	83	of soya bean milk	May 18-19 2	Banung Sata Narathivart				

Type and Method of Training	Audience		Subject	Time	Place	Coopera- tive Unit	Result	Remark
	Type	Number						
6. Lecture Dis- cussion Exhi- bition	Housewives School Teachers	85	Food Prepa- ration Pre- servation	1	Ban Nok	Local Health Unit Local Leaders	Participants be- came most inter- ested in various ways and method of making use of local food sources many of which have been wasted in the part.	School Masters visited their Center and become interested in our work and arranged special activities.
7. Lecture-Seminar	Community School Head Master (Selected Group Leaders)	75	Nutrition Food Pre- servation School Lunch Program Home and School Agriculture	April 14	Prince of Songkla Univer- sity, Pattani	Dept. of Pro- vincial adminis- tration.	Participants be- come most in- terested in the subjects espec- ially in home & school agricul- ture. Most of them asked for samples of some special plants to bring back with them returned and brought a group of teachers and local leaders with them and asked for special presentations and tours of the center.	It is a part of a long training arranged by Dept. of Ed.

Type & Method of Training	Audience		Subject	Time	Place	Cooperative Unit	Result	Remark
	Type	Number						
8. Lecture-Discussion Demonstration Field Trip	Local Leaders from Lusamilae and Lusamilae and Pru Lumpre	45	Home Food Production (Home Gardening, Animal Raising, Fish Ponds Home Agriculture	10 days Sept.-Feb. Local Agri. Office				Training one day at a time
9. Field Trip - Lecture	Rusamilae Villagers Pru Lumpre Villagers	9 13	Observation The Fishery Station and Quail Gas Production from manure Demonstration unit, Songkla	May	Fishery Station of Songkla Province		Stimulation of their perception into Home Agricultural Principl	
10. Field Trip-Lecture	Sakam Villagers	30	Observation Home Gardening at the Dept. of Home Economics	JUNE 9, 78		Personnel of Home Economics Department	To percept a typical land used in Home Agricultural principles.	

## 6.2 Education with Study Tour

### 6.2.1 Short Talk with Study Tour

In order to initiate some ideas of development for local leaders, and to participate in it was arranged for various village leader groups to visit Food and Nutrition Center for Southern Thailand. Here they reserved a brief on various subjects such as home gardening; fish, shrimp, and mushroom cultures; food preservation; and some other income generating activities. These briefs were accompanied by tours and demonstrations on those subjects. The Center also gave those people an opportunity to see some successful activities where in the near by regions. This helped to generate a lot of spontaneous ideas and activities.

## 6.3 Exhibitions

### 6.3.1 At the Center

An Exhibitions is one of the most economical and effective means of educating and motivating people. For this reason the Center has given emphasis to this method of teaching and has arrange a special demonstration unit for each activity at the Center. These activities include: home gardening; fish, prawn and mushroom cultures; and fowl raising.

An edible decorative plants, native edible plants, home food preservation, and home food industries. Also

constituting an important part of this exhibition are the following:-

These demonstration units have been arranged permanently at the Center and one updated from time to time.

#### 6.3.2 At Various Places

Every training arranged outside the Center or has some exhibition demonstrations accompanying the talks to support and reinforce the ideas presented.

Special exhibitions are also arranged for various occasions such as at various schools where our Home Economics students do their practice teaching. In the village after student program in community nutrition. Students often remain in these villages or communities and work on this program.

At Eadyai last July, a special exhibition was arranged. Over 15,000 people, including groups of school children and their teachers received this exhibit.

#### 6.4 T.V. And Radio Program

In order to reach a greater number of people television and radio programs have been used. Television programs up to now have been limited to only a few due to short of time. It takes two days to produce one television program because the stations are quite a distance from the Center and the only available convenient have been run in cooperation with the University Extension Program.

The subjects have thus far included Food and Nutrition, agricultured Activities, and income generating activities. Next year there will be regular radio and television programs from pamphlets, films and slides that have been prepared this past year.

### 6.5 Curriculum Support and Development.

The curriculum of the Home Economics has been modified to help support Department of Home Economics, the Food and Nutrition program.

#### 6.5.1 Improve the Existing Courses

This has been done by giving more emphasis on practical work in some existing courses and made these courses more relevant to the problems and needs of the local people. These courses are Community Nutrition, Experimental Cookery Food Preparation, School Lunch Program, Food Preservation, Home Industry and Home Gardening.

#### 6.5.2 Modifying the Existing Courses

Many courses have been reorganized to make them more relevant to rural life. We have tried to the students more familiar with village life to take them and understand the needs of the village people. Some examples of this type of course are Home Management, Home Improvement (emphasis on rural houses); Home Equipment and Improvement (emphasis on producing equipment from local materials); Household Physics (emphasis on using physics benefit every day life); Chemistry in Home Economics (emphasis on

production of chemical products for everyday use such as glue from latex and insect protectors from various natural products).

Most important are the courses related to the Teaching of Home Economics, Field Work Special Studies are usually geared toward giving field experiences to the students so that they are familiar with village life and are capable of performing duties obligations which can benefit the entire community beyond their normal teaching.

This has been done by emphasizing practical work and by improving existing courses by making them more relevant. Courses which particularly meet the needs of the people include .

## VII . ACHIEVEMENT OF THE TRAINING.

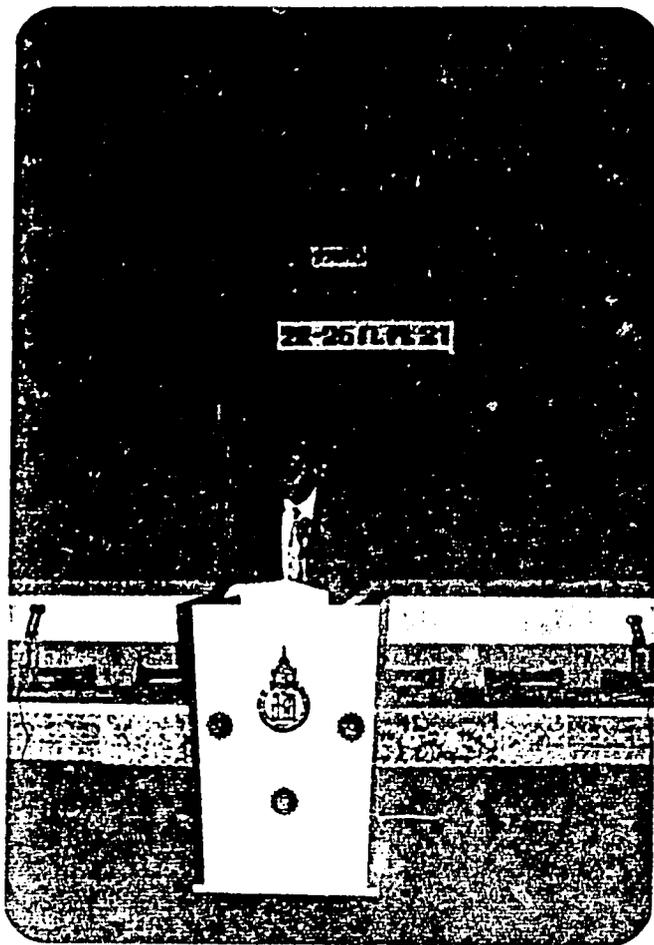
### 7.1 Special Training

#### 7.1.1 Seminar Workshop on : School Lunch Program

for 175 School Masters and Teachers.

Direct Results Most of them are operating effective school lunch service for anywhere from 150-500 school children, some of whom would otherwise be without any lunch, or, at least, have poor and inadequate lunches.

Besides operating the school lunch program many of them have developed some programs that have helped to support and expand the lunch and health programs of their schools, such as school garden, food preservation, improved school health and sanitation program.



Dr. Pasuk Kulavanich, Rector of the University gave an opening speech to the participant at the Seminar on Home Economics and Community Development.





Dr. Pasuk Kulavanich, Rector of the University led the honorable guests and participants into the Home Economics Department and Food and Nutrition Center's new building.

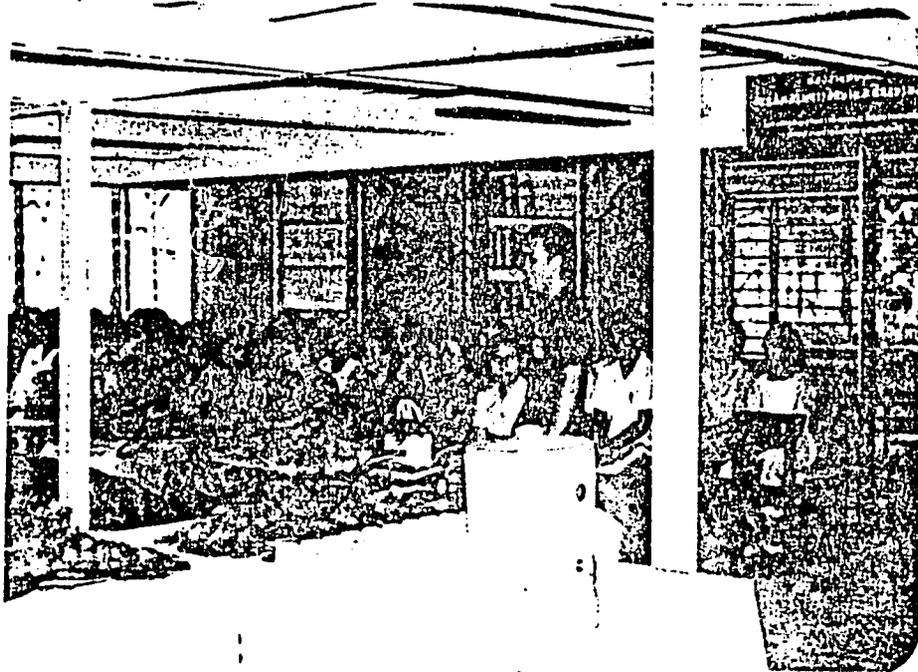


A discussions among the participants, one of the vital parts of the seminar, on "Home Economics and Community Development".





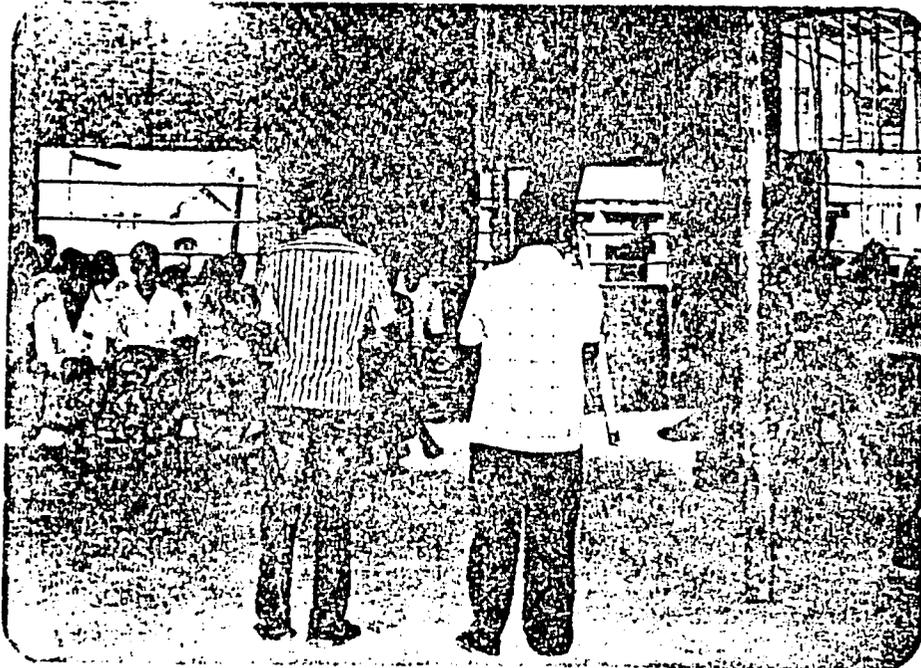
Everyone seemed interested in the revedations of the seminar.



A leader of the Commuinty Development group expressed his appreciation of the séminar on the closing day.

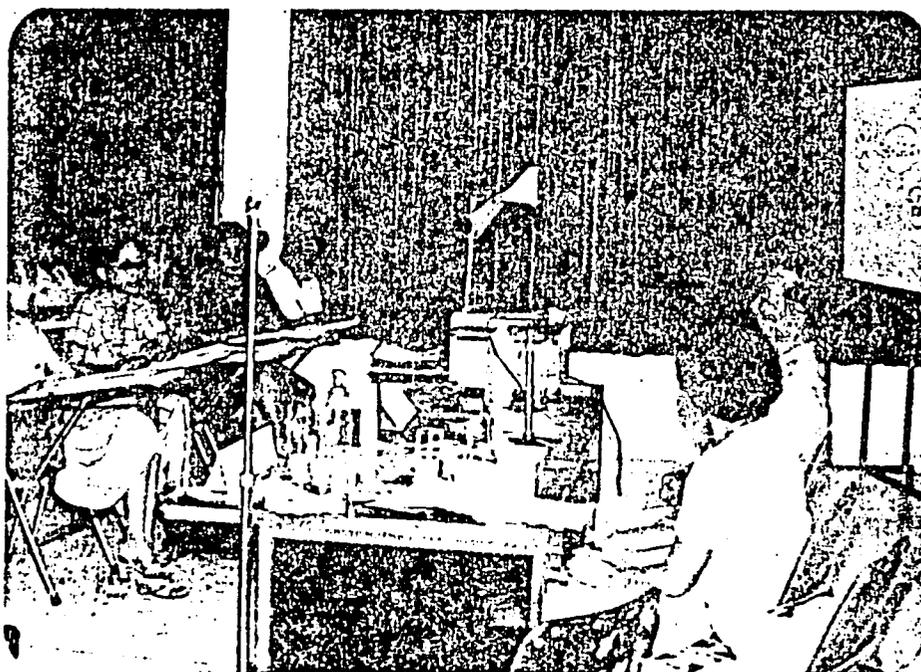


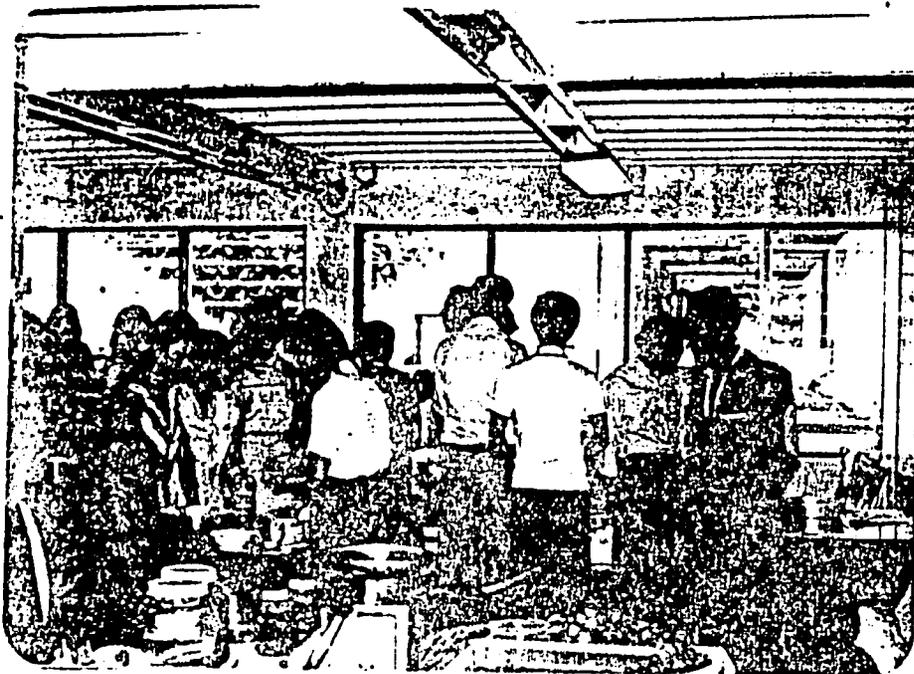
Various personnel from different government departments were invited to join our village program.



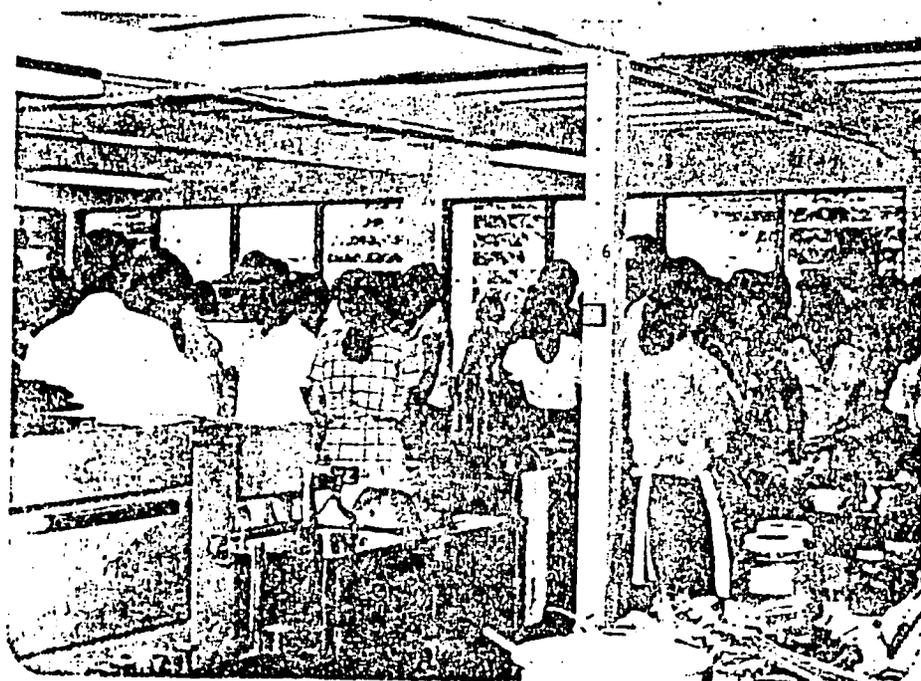


Lecture demonstration on Food additives and food containers by the Head of Science Department, Ministry of Industry.





Every one enjoyed his practical work in the food laboratory, supervised by our staff.





Watching a demonstration of how to make soyer bean curd.



A group of villagers, including a village headman, learn to make soyer bean milk by themselves.

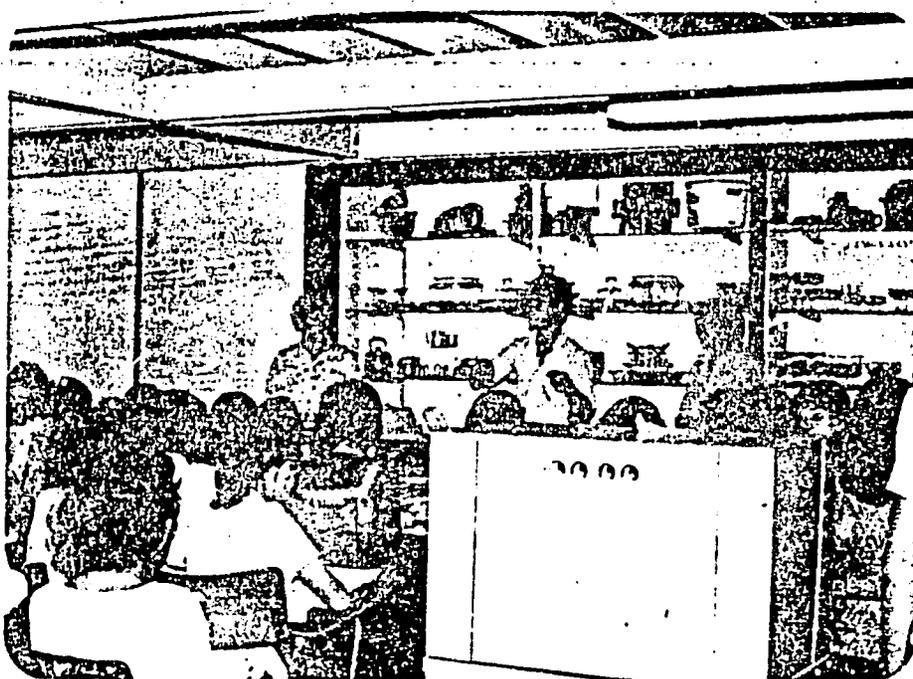


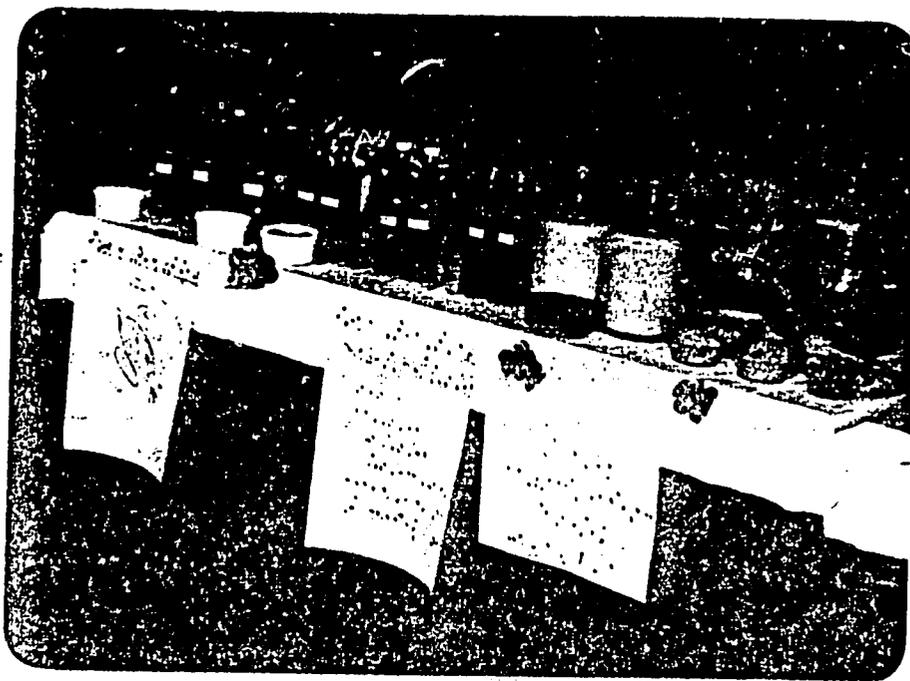
A talk and demonstration for housewives and teachers at Ban Nok School.



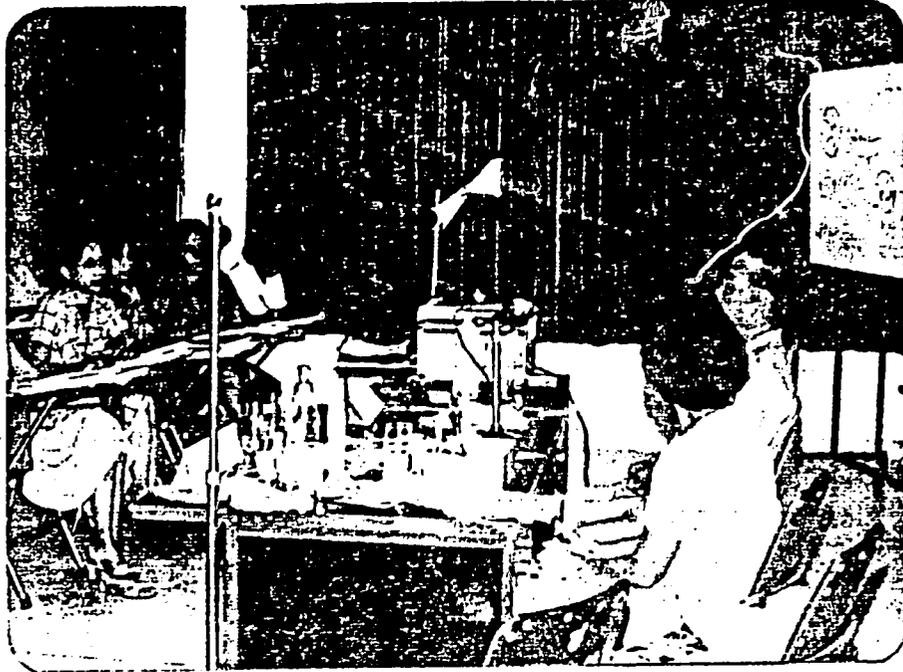


After different practical work assignments, each group shared its experiences and ideas with the others.





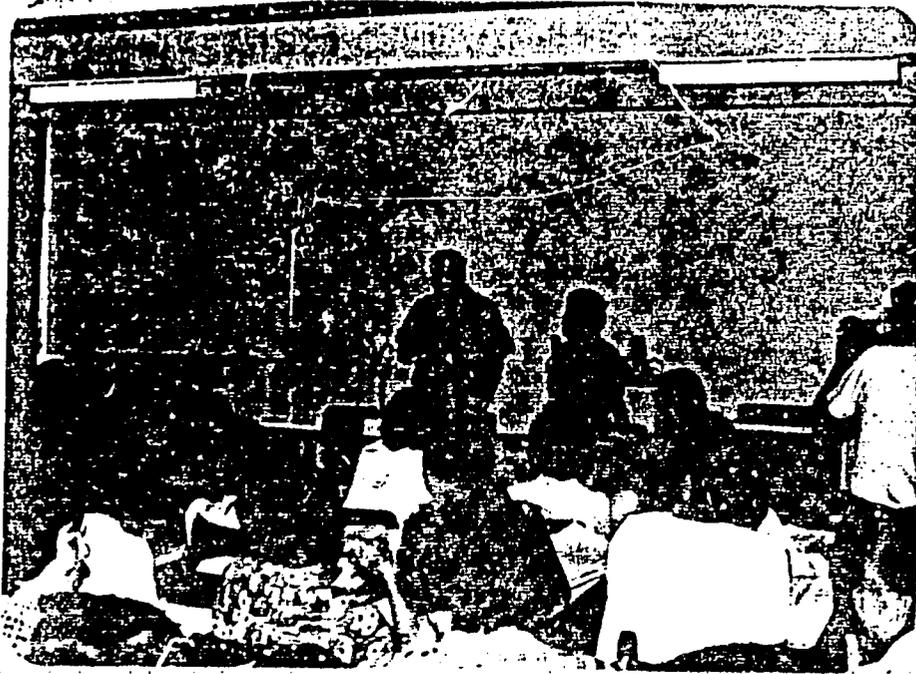
At the end of the semester, home economics students, with support from the Food and Nutrition Center, exhibit and sell nutritious products to teachers school children, parents and educational officers.



Mrs. W. Pratoomsindh, director of the Food and Nutrition Center, was invited to participate in the seminar.



Mrs. Pratoomsindh presented work done by the Food and Nutrition Center which concerned the improvement of health and status of women, children, and teenagers.



Mr. James, Representative of the Asia Foundation, gave a short talk to the group on ways and means of reaching success through self-help.



Mr. James viewing the laboratory work of the group under training.



Dr. Sakorn Thanamit, Director of the Nutrition Research Center, Rama Thibordi Hospital, gives a special lecture on Community Nutrition to a group of Community School Teachers (now students majoring in Rural Education, intaking course in Community Nutrition).



After the lecture and discussion, the students get practical field work at Park Bang Village, Songkla.



Height measurement

Home Economics students are getting practical training from nutritionists, including Dr. Somchai and Dr. Spocker from the Nutrition Research Center, Rama Thibordi Hospital, during their nutrition survey at Park Bang Village, Songkla.



Weight measurement

Indirect Results Some school children who were exposed to new concepts took ideas home to their parents which contributed to improved food practices at home.

Teachers in school became more aware of nutrition and some of them volunteered to assist in the program.

7.1.2. A Seminar Workshop on Home Economics and Community Development for 80 Community Development and Home Economics Extension personnel school teachers, village headmen, and village leaders in July 1978.

Direct Results Participants learned new concepts and approaches to Home Economics and Extension Work. They also gained some knowledge about new research and experiments related to their work and some new practical knowledge of income generating activities.

Indirect Results Resources from research institutions and funding agencies were brought together with participants which is beneficial for both sides. First it made the research institutions more aware of practical approaches to research and implementation of their programs in remote regions. At the same time, participants, especially community development and home economics extension personnel and teachers, became more alert to and enthusiastic about ways to improve themselves professionally and ways to perform their jobs effectively and efficiently.

Funding agencies were introduced to participants to assure them of assistances when real needs arise, and thus encourage them to move forward.

Also, funding agencies came to understand more of the local problems and needs. Informal meetings and informal discussions produced a friendly atmosphere which in turn engenders cooperation among participants.

Following the training, some of the participants, especially Community Development workers brought groups to learn different ideas for income - generating activities at the Center. Since then we started training programs for groups from many of those villages have already used their new knowledge about home food preservation and new food products in providing special trainings for these groups in the near future are needed. The most outstanding group is from Pra Chun Village where approximately 60 villagers are now actively participating in the program.

### 7.1.3 Other Short Trainings

Food Store and Restaurant Owners Most of them have improved the quality of their products at least in deminishing the use of dangerous food additives and improving some aspects of food sanitation. Some of these restaurant and food store owners are already producing and selling some nutritive drinks and snacks to replace the harmful products they had been selling. The people benefiting from this improved service will be about twenty thousand.

Housewives Most of them immediately use the knowledge gained by improving their food selection, preparation, and preservation. Some of them are already started to produce some foods for sale in their villages and markets.

VIII. PROBLEM ENCOUNTERED

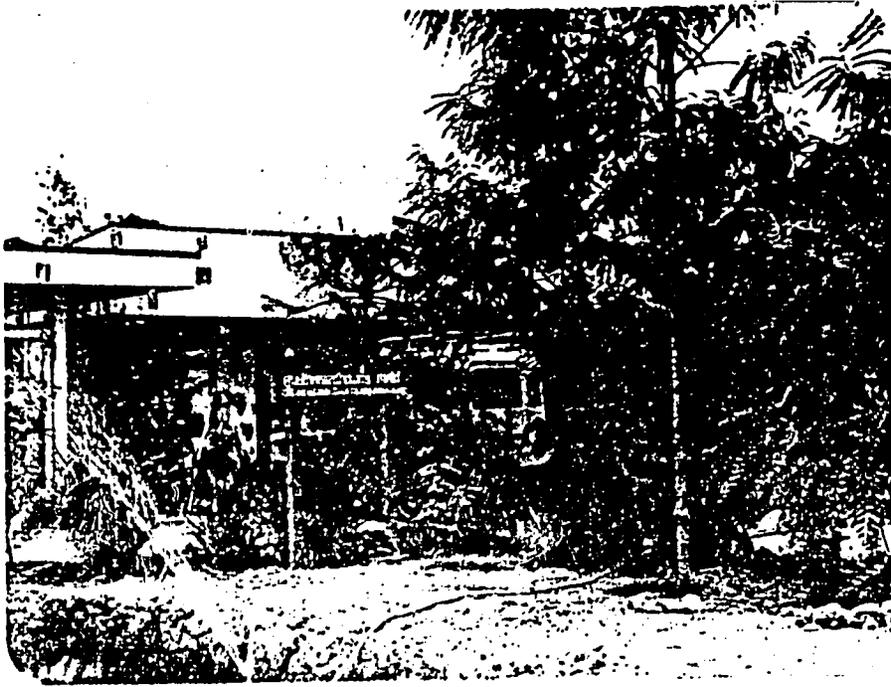
Along with some progresses of the project, many problems were encountered. Most of those problems are typical and beyond control. However, their effects are a great deal due to the delay of the project schedule. Among the main problems encountered are:-

1. The delay of the Construction of the Home Economics Building at the University At least three months were delayed in the preparation of training as scheduled. The building was finished on time in February 1978 but water and light were not finished by July 1978. However, there were two training sessions at the new building during the month of June and July 1978.
2. Staff Recruitment Due to fact that the university is located in the sensitive area of Southern Thailand and it is 500 miles away from Bangkok, it is very hard to recruit staff. The short age of qualified staff is always prevailing. The existing staff have been overworked in order for the project to achieve its objectives. Day and night work for months including weekends and holidays were common in the Center. To bring benefits recruitment of staff is a "must".
3. Lack of Extensive Food Experiment Due to the limited staff and some needed equipments, food experiment is not extensive enough. In the third year of the project, this problem will be overcome, as the building and food experiment rooms will have been equipped and furnished much better than in the second year.

4. Food Research and Experiments Needed During the Third Year The lack of schedule in food researches and experiments mentioned earlier is to be caught up. Further study in the third year project is the main requirement. The study would be emphasized even more strongly as this type of research has not been carried out for South Thailand. Food research and experiment should be most comprehensive and intensive in the third year of the project.

5. The Expansion The Food and Nutrition Center for South Thailand has been well accepted. Hence it has expanded its roles in rural development. Therefore, the rural development concepts and practices are always involved in the project, it brought extra work and more responsibilities to the staff members who are very limited in number.

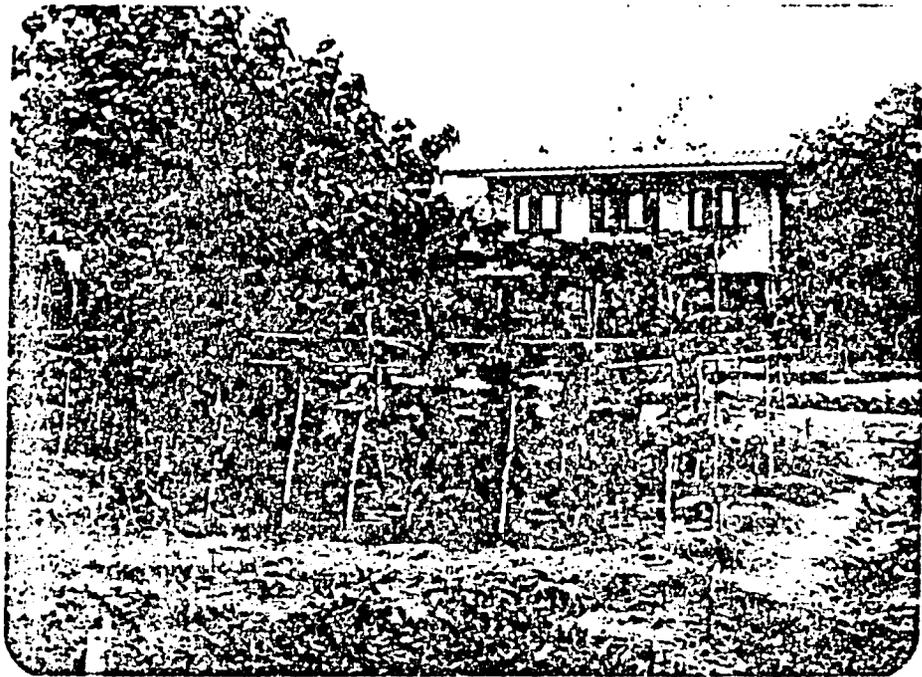
6. The Insecured Position Most of the newly hired staff still feel insecured in their position as they are employed on short term basis. Therefore the Center is facing the difficulty in hiring new staff. The University post is an encouragement to look forward to for these professional staff members.



Experiment ponds for fresh water  
lobsters rearing.

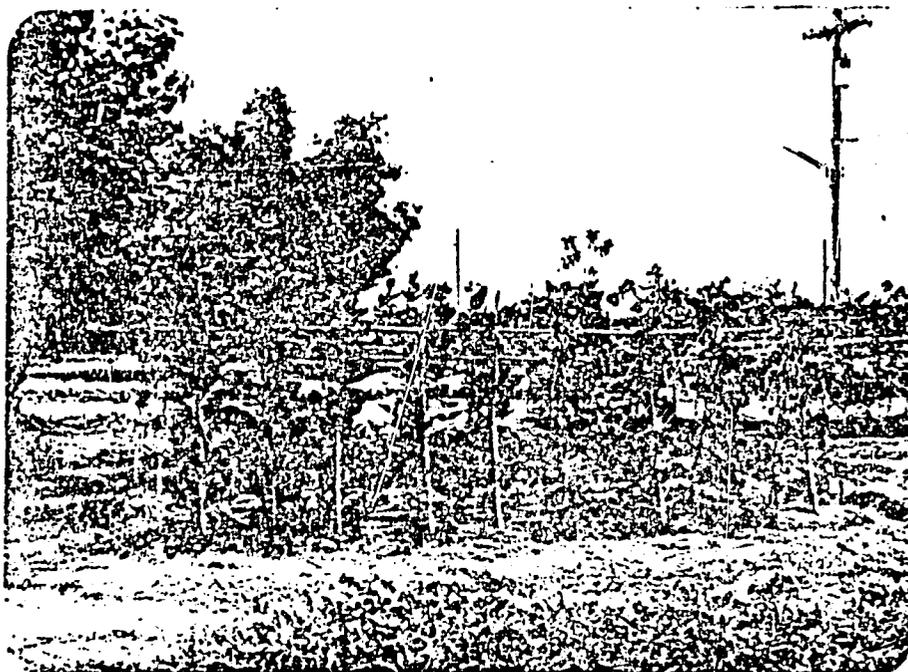


Some native plants are presently under experiment.





Experiments in growing some commercial high-price crops, such as asparagus, have been quite successful.



Some new types of bean have also flourished well. They are strong, able to tolerate much, and yeild a large crop.



The Food and Nutrition Center is a great learning place for school children and students from various institutions.





Center's Staff is explaining to various village leaders from surrounding areas about Fish Culture,



and Food Preservation



A group of Community Development staff members from Pattani bring village leaders to see different ways and means of income generating activities and home food production. Here they see mushroom Cultures.





A group of New Community Development Staff members from Pattani of Province get special briefing work of Home Economics Department and Food and Nutrition Center



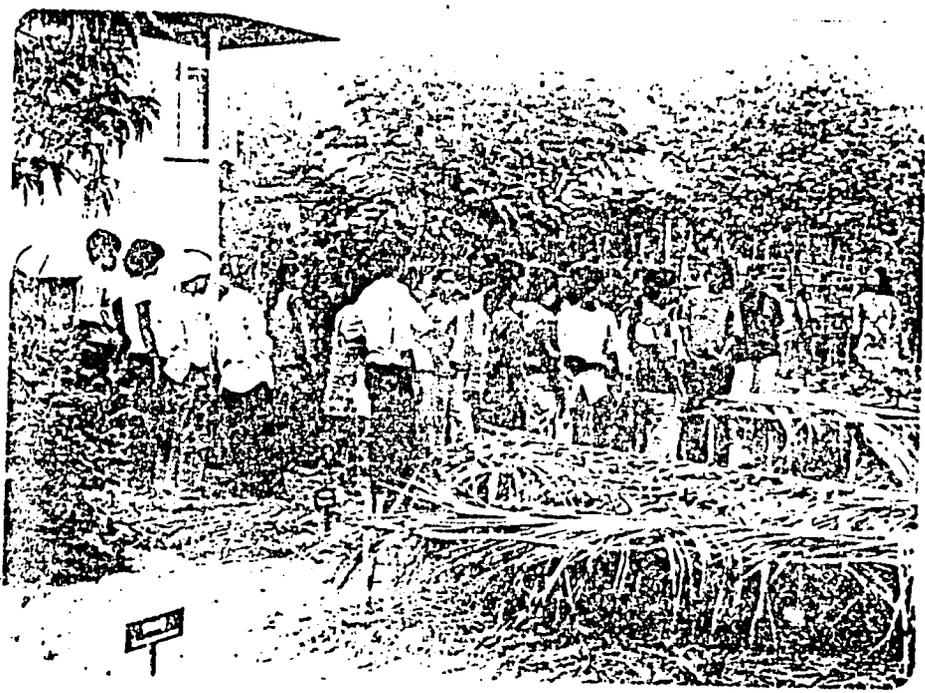


Some of the new Community Development Staff of Pattani make a special tour of Food and Nutrition Center





The director of Food and Nutrition Center is explaining the value of pak-pet which can be grown anywhere even in saline soil.



Community school students from Phuket Province visit the Center

To everyone's astonishment, soyer beans flourish quite well in our garden. This give new idea and knowledge to both our staff and visitors



Pruglumpri village head-man and villagers are very much interested in soyer beans and other edible plants grown around the Center





Vocational school girl are learning community nutrition from actual field visit made possible by funding from the Food and Nutrition Center. This is an entirely new and effective experience for them.



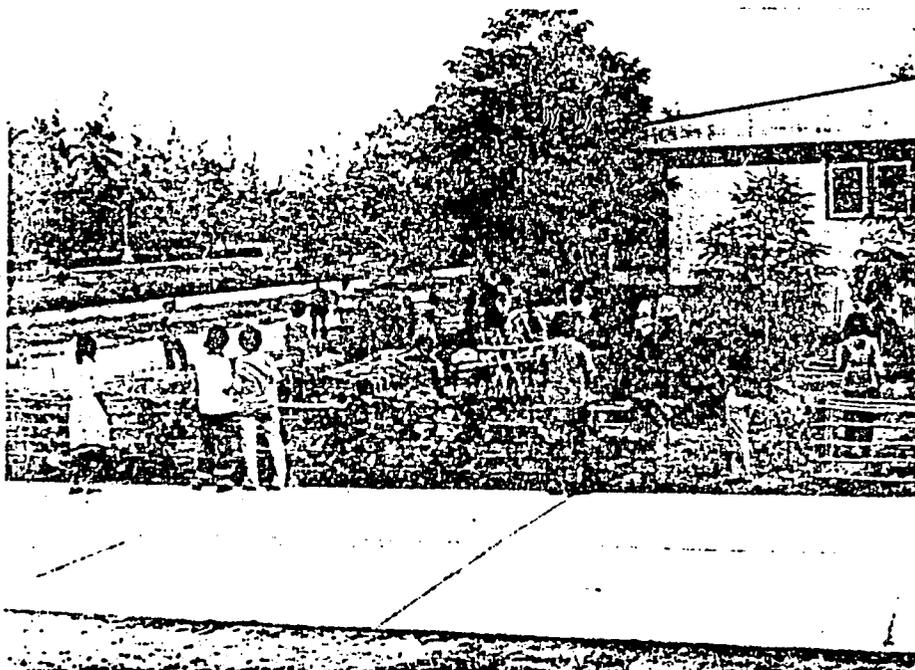


Vocational school girls are very interested in various experimental food made from local products.





A group of students from the community college in Puget visit the Food and Nutrition Center. Here the director of the center is explaining to everyone how to grow edible, decorative plants.



Varieties of crops both known and unknown draw great attention from visitors to the Center.



A group of Community Development personnel and local leaders visit Home Economics Department and Food and Nutrition Center.



Home Economics students plays important role in giving knowledge to people who visit the exhibition.

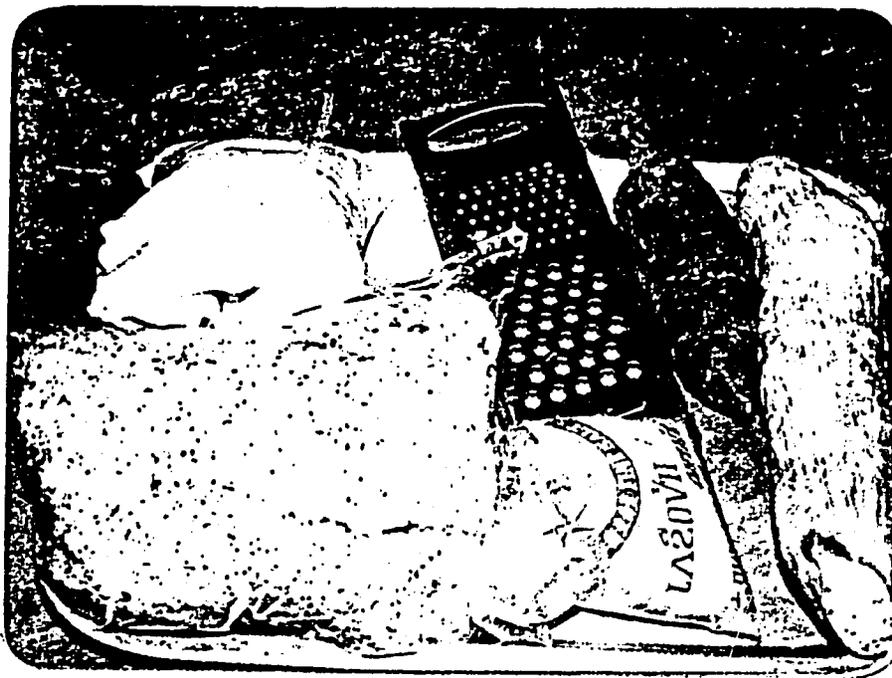




Home Economics students were teaching principles of food preservation to villagers at village.



Home Economics students and a staff of the Center are teaching Rusamilae villages to make nutritive drinks.



Simple ways and means of earning income  
for the family.





Exhibition on Food and Nutrition at Prince of Songkla University, Hadyai.

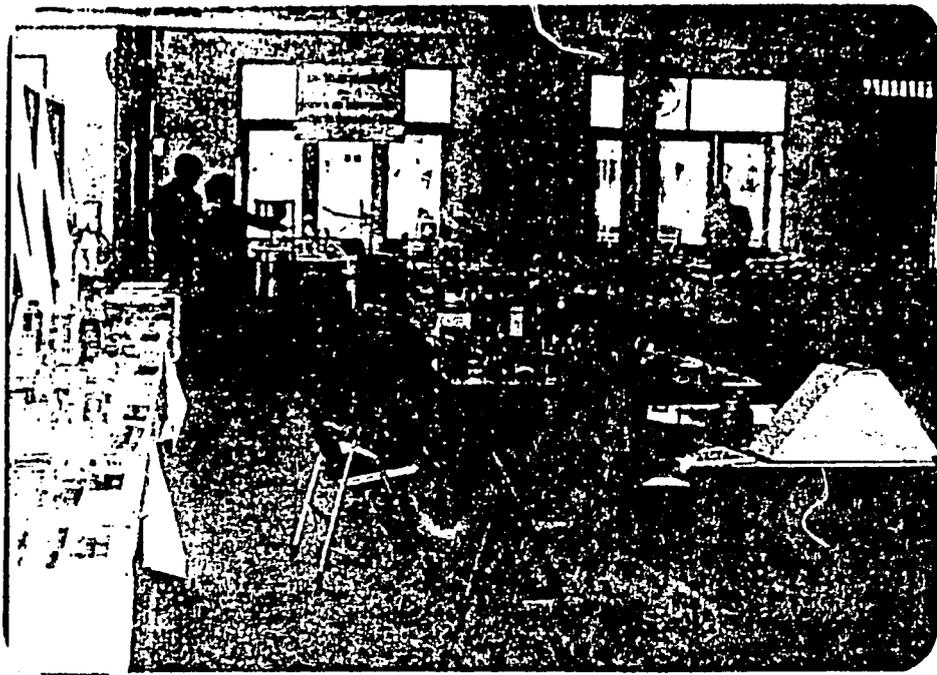




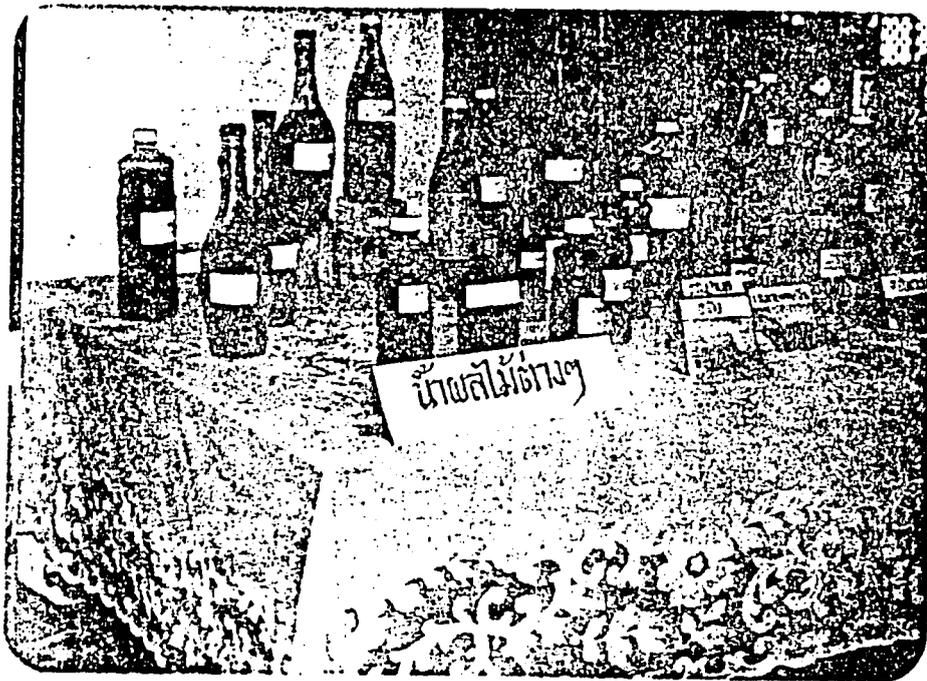
Exhibition of the effect of malnutrition at Prachon village.



Simple teaching to villagers about danger of wrong kind of food coloring.



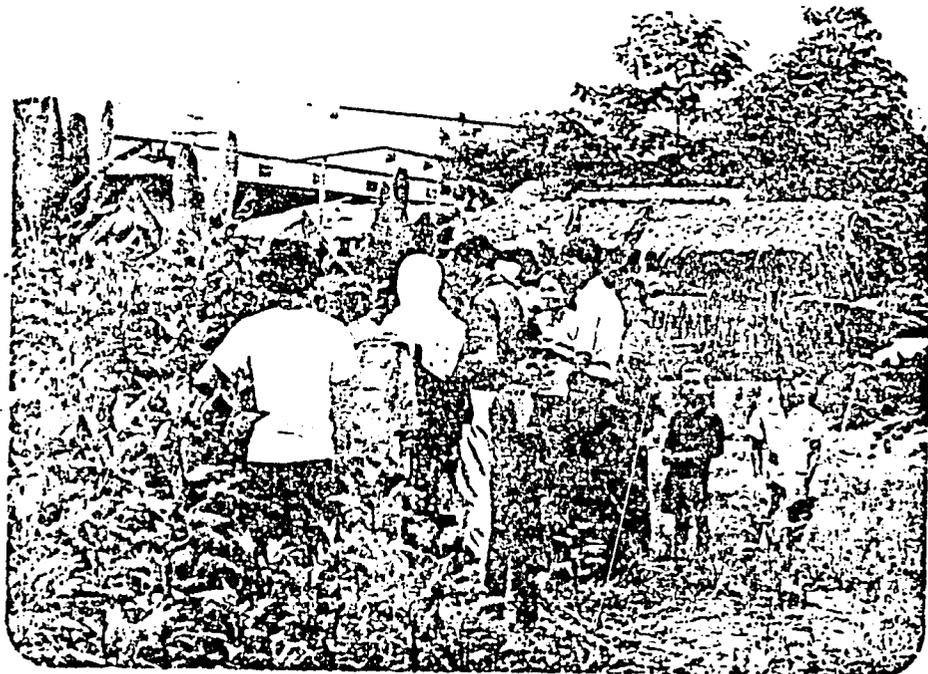
Exhibition in Pattani Town Hall during the seminar on Food Preservation and Home Food Industry for Food Store and Restaurant Owners in cooperation with the Regional Health Center.



Study Tour



Large groups of visitors from various institutions and localities visited and studied the work of Faculties from various Universitys around the country visited the Center Food and Nutrition Center for Southern Thailand all the year around.



A group of village leaders from near by village.

EXHIBITION

Subject	Place	Time	Audience	Number	Related and Simultaneous Activities	Remark
			Type			
1. Food Preservation Food Sanitation	Pattani Town Hall	Aug. 5	Community School Teacher Local Officers from Various Departments	200	Seminar Workshop	
2.	Ban Nok School	1	Teachers School Children Housewives	200	Seminar	
3. Food Preservation Food Sanitation	Pattani Town Hall	3	Food Vendor Food Stores and restaurants' owner Teacher Local Leaders	100	Seminar	
4. Food Preservation Home Food Industry Home Food Industry	Pattani Girls School	Dec. 1 day	Teachers School children	800		
	Pattani Vocational School	1 day	Parents, Government Officer	500		
Food Preservation Home Gardening	Pattani Pattani	3 days 1 day		500 500		

Subject	Place	Time	Audience		Related and Simultaneous Activities	Remark
			Type	Number		
Nutrition Health Sanitation Agriculture Food Preservation Food Sanitation and Food Hygiene	Rusamilae Village	March 1 day	Local people within and surrounding village areas	500	Lecture Demonstration Competitions of Products	
Food Research Food Experimentation Food Preservation Food Hygiene	Prince of Songkla U. Haad Yai Compas	July 28 July 30	Teachers, Instructors Community Development Extension Personnel	10,000	Demonstration Sale of Products	
Food Preservation Food Experimentation Food Research Food Sanitation	Food and Nutrition Center for Southern Thailand Prince of Songkla University Pattani		Teachers, Students Faculty members from various Universities community development personnel, local leaders, distinguished guests from various institutions both within the country and abroad.	2,000	Briefing Products tasting	

List of Teaching Media and Audio Visual Aids

-47-	Films	Films mins	Filmstrip (set)	Pictures (set)	Poster (Set)	Frip cherts set	Pamphlets (set)	Hand-out sheet (set)	Real Examples (set)
	1. Food and Nutrition Center for southern Thailand	5	1	1	1	1			
	2. Leadership Training								
	2.1 Village Development	10	1	1	1				
	2.2 School Lunch Program	5	1	1			1	1	
	2.3 Home Economics and Community Development	5	1	1			1	1	
	3. High Nutrition Value Foods								
	3.1 Nutritive Drink from Local Fruits and Plants	5	1	1	1			1	1
	3.2 Products from the Soy Bean and its Left-overs	5	1	1	1	1+1		1	1
	4. Local Edible Plants	5	1					1	1
	5. More Foods and Money from Local Wasted or Neglected Products								
	5.1 Vinegar from Coconut Juice	5	1	1	1	1+1			1
	5.2 Products from Cashew Nut Fruits 3 mins	5	1	1	1	1			1
	6. Food Additives	5	1	1					1
	7. Food & Nutrition			1					



Coconuts are being cracked everywhere. The water inside is wasted by the tons everyday.

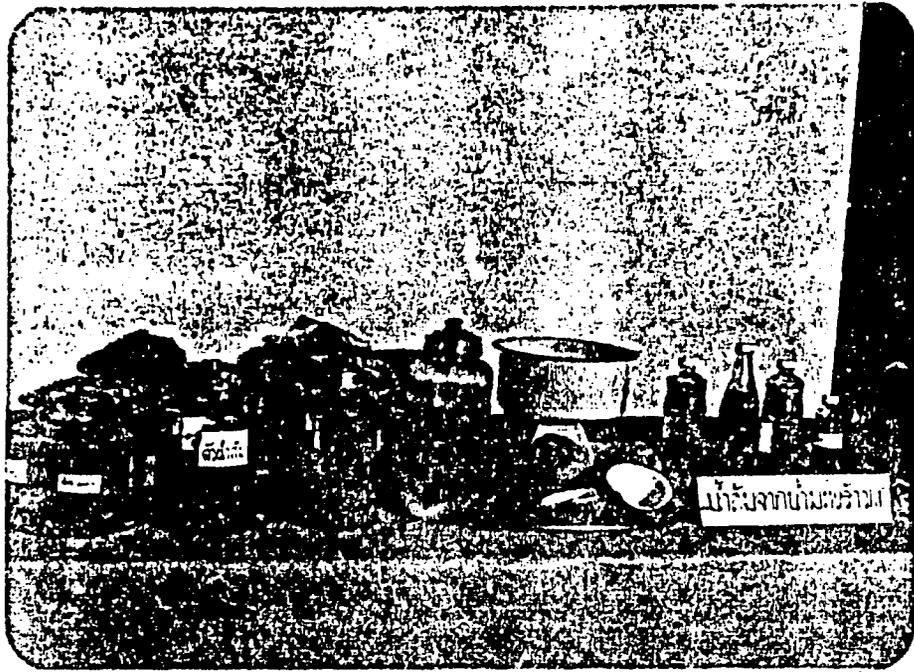


Saving the coconut water even from one market, can supply a great source of good and safe vinegar. Usually one market will contain up to 10 sellers each with about 50 coconuts to sell.



A lot of wasted coconut water can be turned into good quality vinegar.





Simple methods of vinegar making from old coconut water.





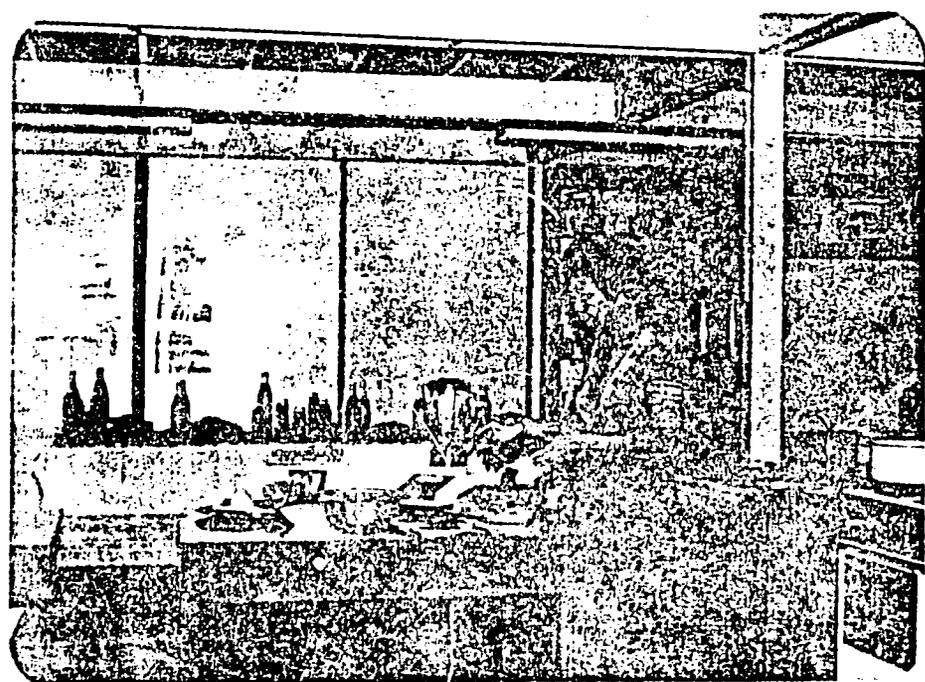
The process of making vinegar from coconut water.

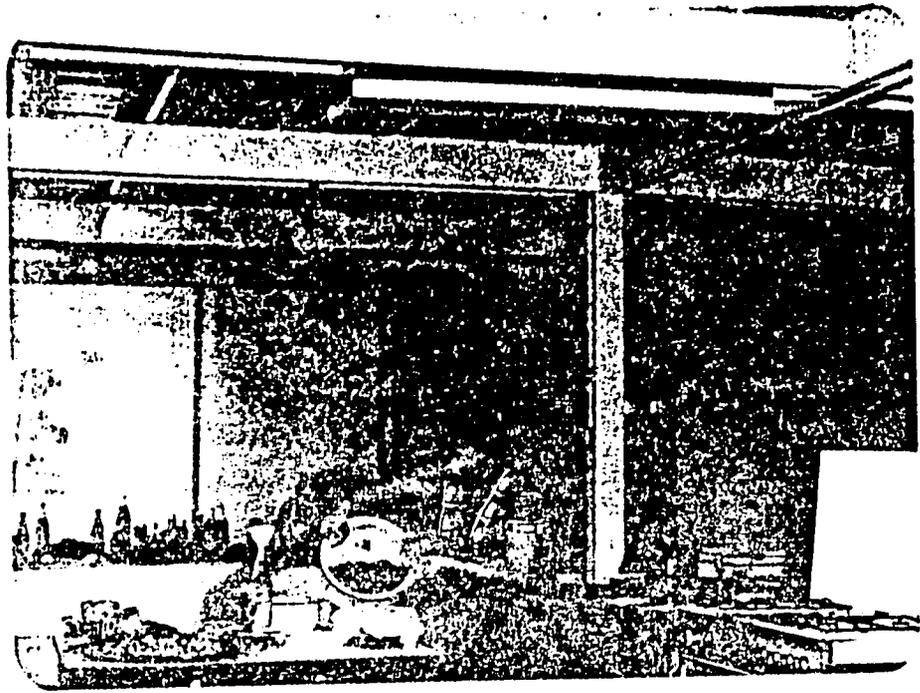


Mather of vinegar can be cultured from larger jars to smaller bottles. These mather of viniger can be used as simple and safe sources of vinegar making.

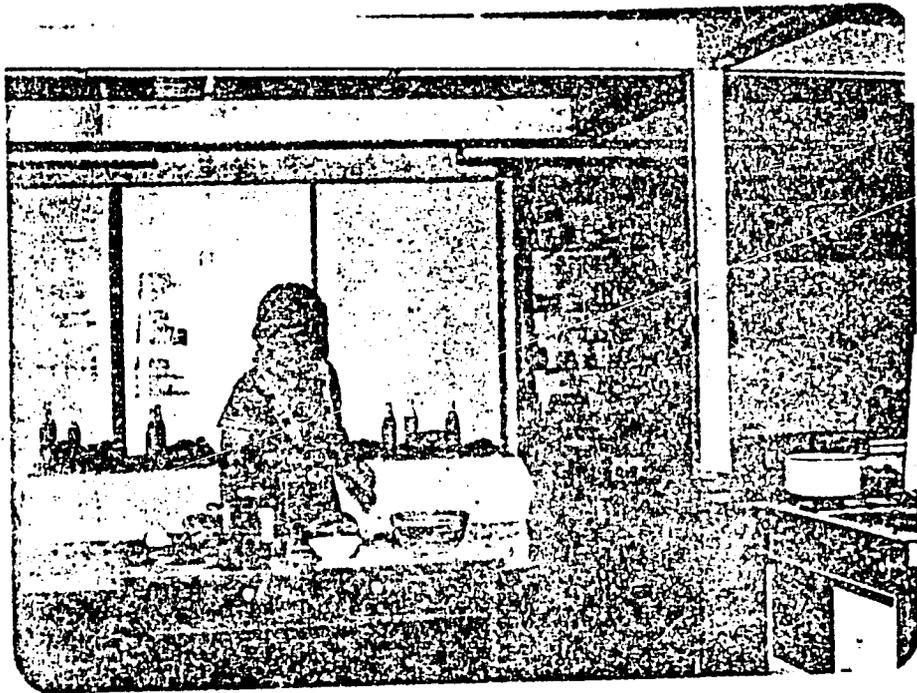


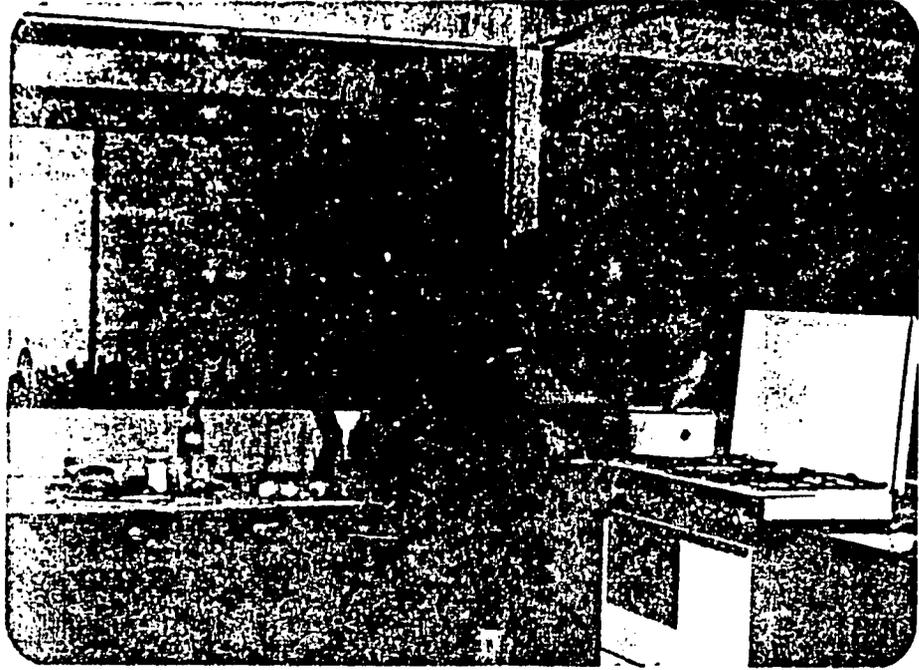
Many local berries are Successfully turned into valuable products.



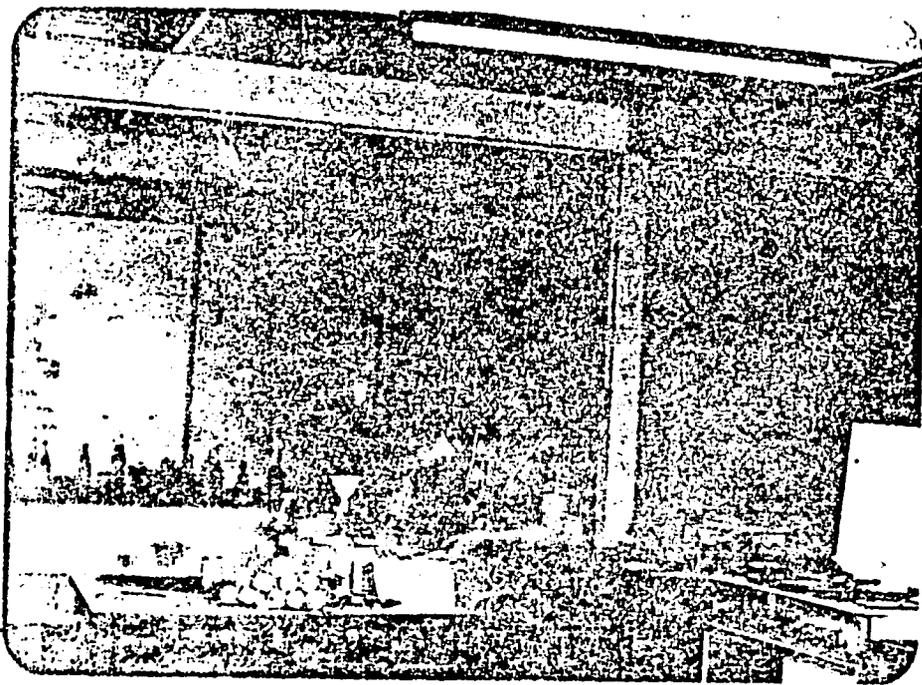


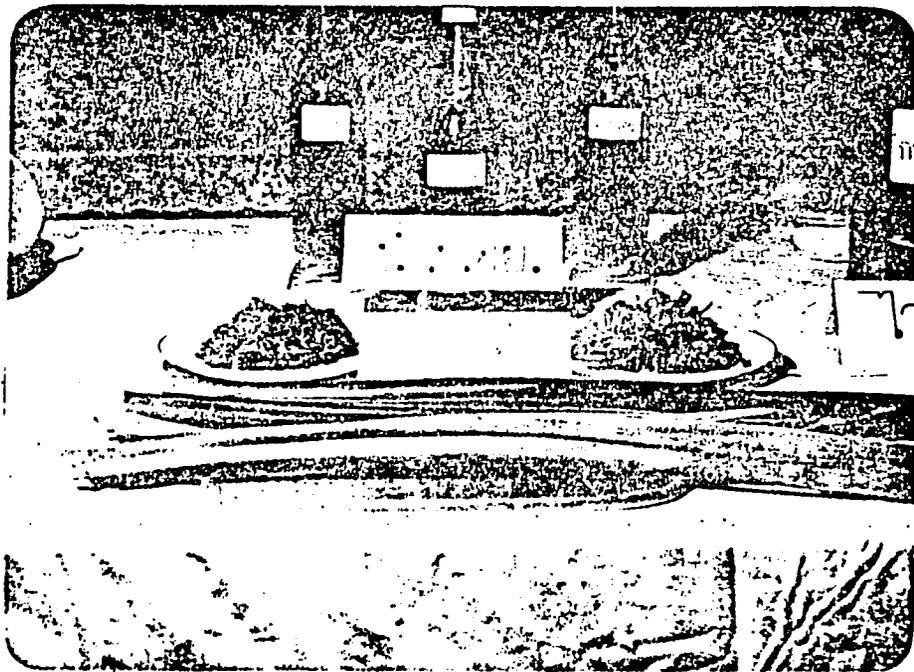
Mayom, another widely grown plant is successfully turned into both drinks and preserves.



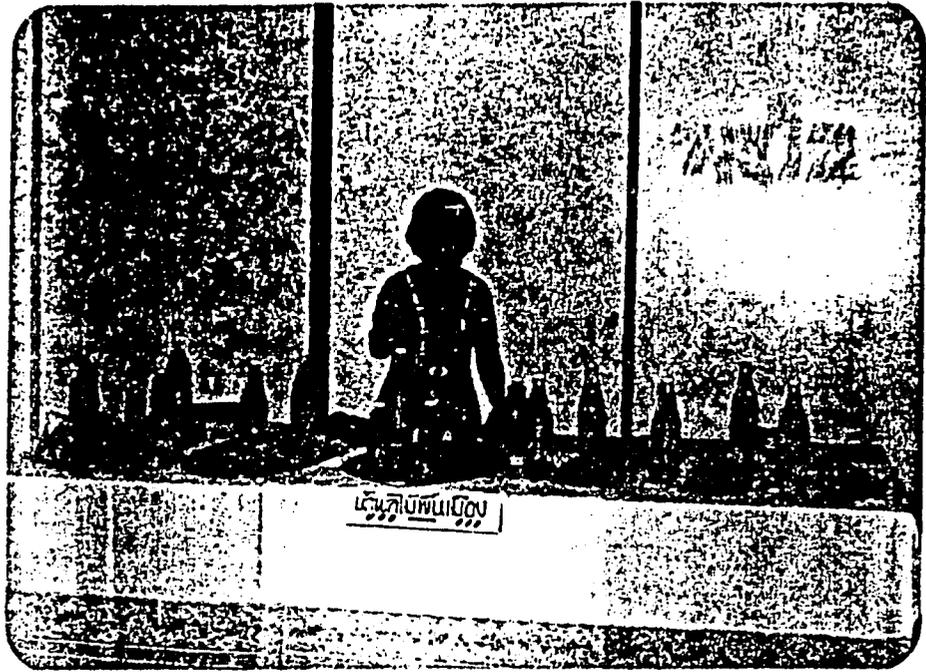


Water from cooking corn is also good for making  
tasty drinks.

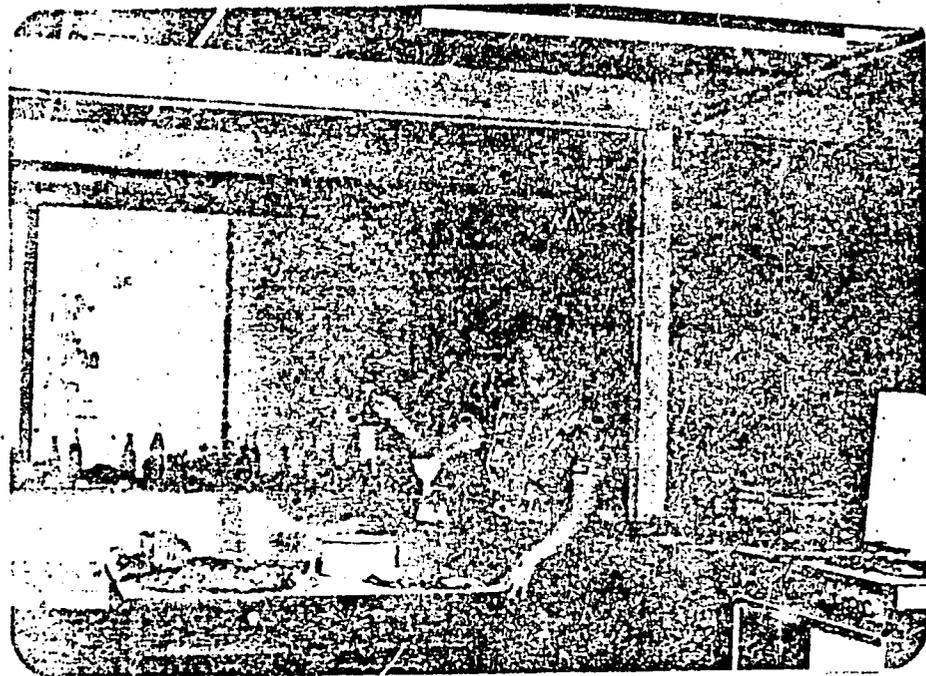


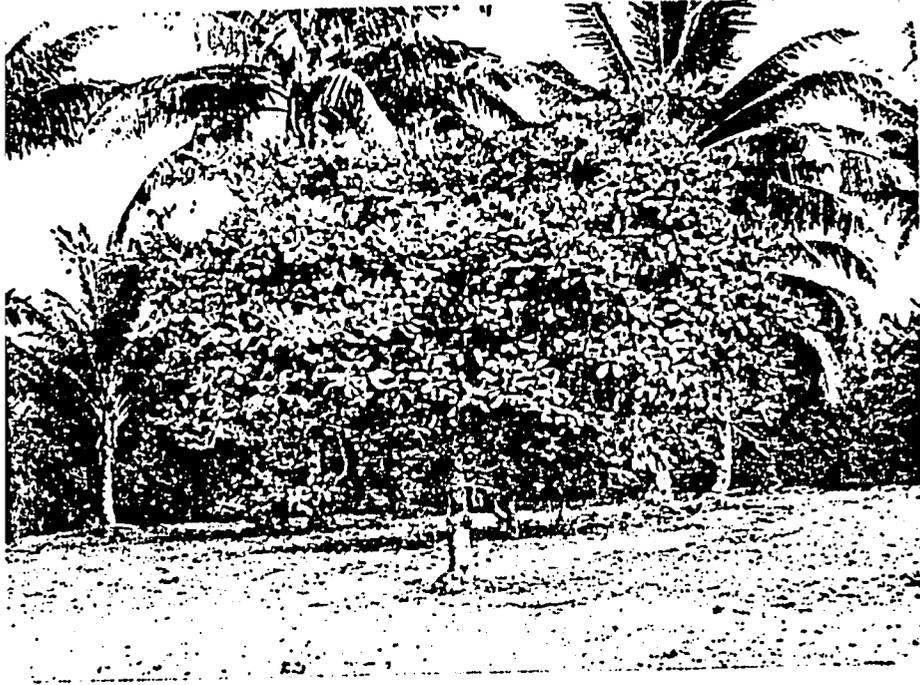


Even leaves are good for making drinks.



Many local berries are successfully turned into valuable products.





Cashew Nut trees are widely grown through out Southern Thailand.



Cashew nut fruits which have been mostly wasted up until now.

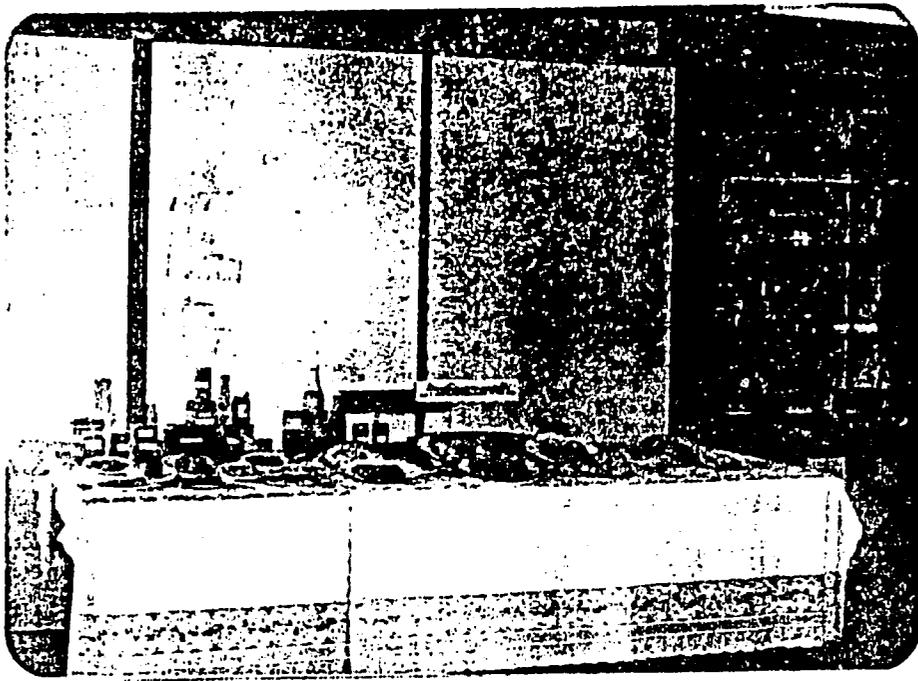
47k



The fruits can be made into drinks, wine, and vinegar.



Preverses  
and  
Jams

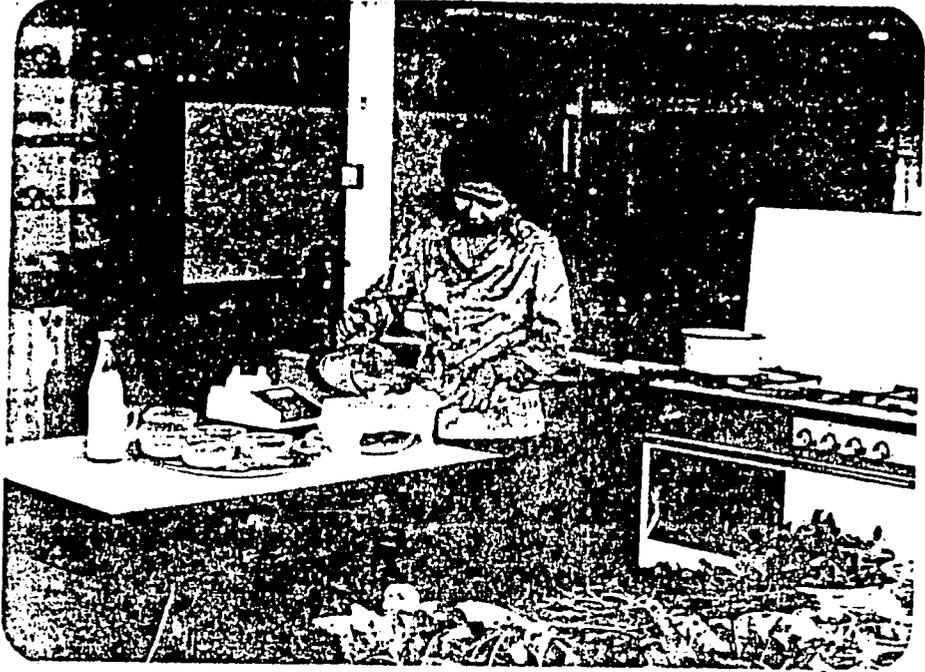


Soy beans and soy-bean by products can be made into many thing.

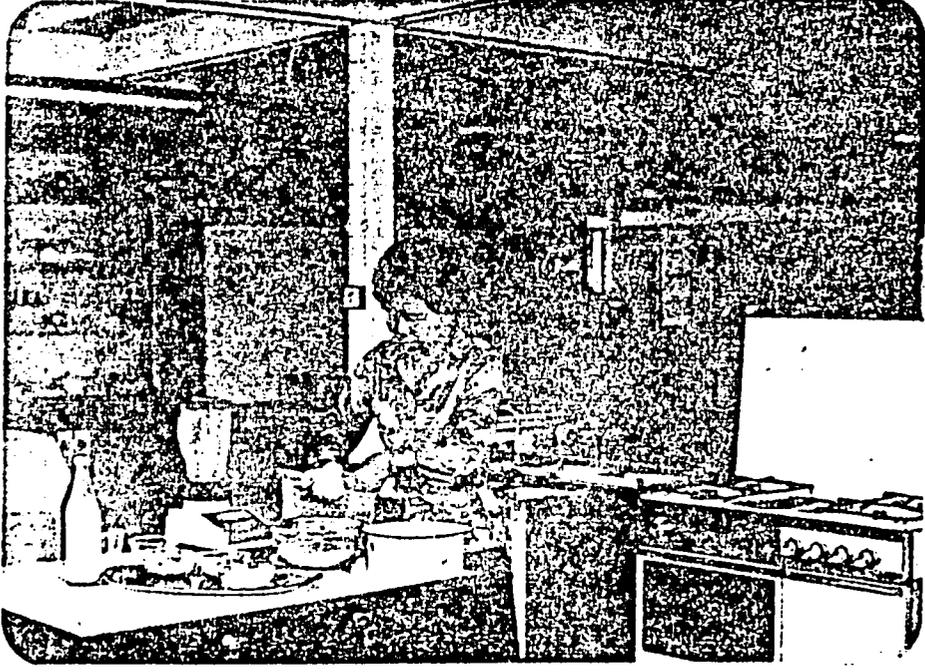


Soy milk can be made easily with a blender.  
But the native mortar or pounder can also be used quite well.

process in making soy bean milk



After being blended, ground or pounded, soy bean milk is drained out.





Soy beans can be made into soy bean coffee by simple roasting than in a pan and then grinding them.



## VIII SUMMARY

The second year was concentrated on

1. The analysis and experiments of local food in order to promote its uses.
2. Training the Center's staff, teachers, community development personnel, and local leaders in various areas in order to raise their nutritional levels and standards of living.
3. To develop teaching media and audiovisual aids to be used both in the University and in the rural areas.

1. The analysis and experiment of local food Findings are:

- 1.1 There is a high incidence of malnutrition in all areas. The main problem confronting the majority of the villages is sanitation and shortage of water for agriculture.
- 1.2 Poor food habits and poor sanitation are the main causes of poor health.
- 1.3 People spend most of their money on food, medical care and clothes.
- 1.4 Sea food and fruits are comparatively abundant in South Thailand but mainly available to a minority with high income. The left over and the lower quality are consumed by the owners and people of lower income.

1.5 Ignorance and the prevailing dangerous foods creates poor food consumption.

1.6 People began to use additives without knowing their effects. Colored food is most attractive to young people.

1.7 The colors used are cloth dyes which contains zinc and many other dangerous heavy metals.

1.8 Beside food coloring many other food additives and food mixture are hazards to people's health.

1.9 Little education and lack of knowledge of nutrition lead to poor choice and selection of food.

1.10 The main meal is composed of rice, some curry or sauce, which contain small amount of protein.

1.11 Worse are dangerous food coloring which are poisonous.

1.12 Harmful are preserved fruits which are full of dangerous additives.

1.13 It is hoped that the Board of National Research Council will take a prompt action on enforcing the laws and regulations on food.

1.14 Most snacks and drinks available to low income groups are commonly poisonous.

1.15 Many wild edible plants have been studied and found nutritious.

1.16 Popular vegetables such as cucumbers, wax-gourds, cabbages and bamboo shoots are very low in nutritive values.

1.17 Less popular but well-known vegetables such as yard-long bean and swamp cabbages are higher in nutritive value. They are perennial and can be food supply for the family all year round.

1.18 Most of them contain a good amount of vitamin A and high protein.

1.19 Well known but less used plants such as cork wood tree, cashew nut tree, Indian Pennywort leaves, (*Centella asiatica*) and Chapru (*piper samentorsum*) are good high in nutritive values.

1.20 Less well-known plants which are rich in nutritional values, are PALNSOM (Theri ginsen) PAG PEH (Sea vegetable) and OVALTINE BEAN (Local name).

1.21 The experimentation was made on integrating food of high nutritive value into daily diet. The approach was directed toward snacks and drinks.

1.22 Information was compiled in films, slides, pictures and in pamphlets.

1.23 Experiments were made to find ways, means, and locations for growing many edible, local but neglected plants. These plants are TURLUNG, CASHEW NUT TREE and many others (See table. 1.23.)

2. Education and Leadership Training

2.1 The education and training of staff included:-

2.1.1 Food and Nutrition survey in different villages.

2.1.2 Food analysis at the Science Department, Ministry of Industry.

2.1.3 Food Experimentation at the Food and Nutrition Center.

2.1.4 Short seminars and meeting concerning the work of the center

2.2 Short and Long Term Training for various groups included:-

2.2.1 School Lunch Program for 175 school masters from fourteen Southern changwats for five days.

2.2.2 Home Economics and Community Development for 80 teachers, officials and village leaders.

2.2.3 Lecture, seminar with demonstration on "Food Preservation and Home Food Industry."

2.3 Education with Study Tour

2.4 Exhibition is the most economical and effective means to educate and motivate people.

3. The development of teaching media and audio visual aids were made comprehensively. Educational films in promoting local sources of food, slides and pictures were made for training, exhibition and display to educate audiences and villagers. These material provide such informations as:

1. Village background, village investigation, method of interviewing.

2. Methods and procedures in examining and assessing nutritional status of children and methods in finding symptoms of nutritional diseases.

3. Food Experimentation: This includes the processes of food experimentation, food preservation and home food industries. Parts of the movie films have been used for a local T.V. program at Haad Yai, which serves the whole southern region.



FINANCIAL EXPENDITURE OF THE FOOD AND NUTRITION CENTER

PRINCE OF SONGKLA UNIVERSITY, PATTANI, THAILAND

SEPTEMBER 1977 - JULY 1978

**I. COMMODITY COSTS**

**(a) Equipment:**

	Sept.- July 1977 - 1978 ฿
1. Type-writer (Thai)	9,800
2. One canning machine	18,000
3. One set of Gas stove	5,820
4. Micro Kjeldohl Digesting	12,000
5. One set of Food Experimental equipment:	2,500
6. Type-writer (English)	10,900
7. Flash for camera	4,644
8. Sterilized oven	5,500
9. Frying stove and Ice-cream shaker	2,270
10. Plastic sealer	3,500
11. Smoke - absorbed hood	9,000
12. Food display table	3,000
13. Three laboratory tables	3,000
14. Four laboratory table	5,920
15. Two food - lab. tables	2,000
16. Food - tasted table	3,600
17. Elmo Twin Movie Light	1,650

	Sept. - July 1977 - 1978 ₪
18. Film cutter machine	4,750
19. Film measurement device	3,950
20. Slide Viwer	864
21. Vaccum pauge	1,700
22. Adding Machine	220
Sub - total	114,478

(b) Supplies:

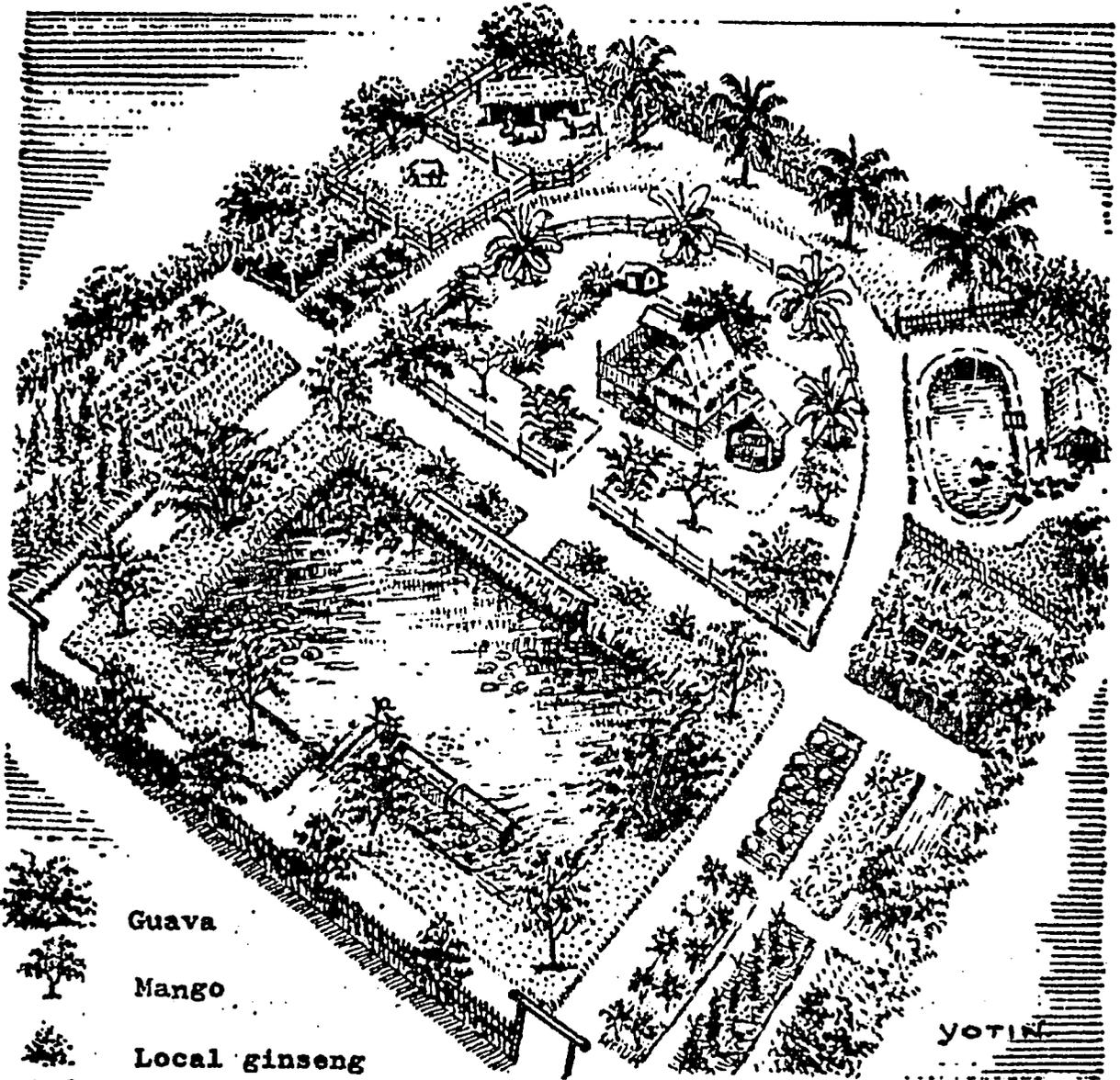
	Sept. - July 1977 - 1978 ₪
1. Experimental equipment	3,699.75
2. Kitchen utensils	9,140
3. Food containers	4,344.10
4. Office supplies	16,970.75
5. Chemicals and food stuff for experimentation	23,712.25
6. Educational materials	6,307.97
7. Audio - Visual supplies	55,290
8. Improvement of the center	30,663.25
9. Agricultural Experimental field	8,866
10. Fuel and Chemicals	2,341
11. Musharoom house	2,660
12. Water filter in the Village	2,128
13. Drugs and medicine for Villagers	214
14. Kitchen Improvement	4,327.88
Sub - total	170,664.95
Total - Commodity costs	₪ 285,142.95

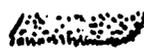
		Sept. - July 1977 - 1978
<b>II <u>PERSONNEL COSTS :</u></b>		
1. Director		22,000
2. Assistants director		24,300
3. Professional staff, Specialist and Travel expenses		68,879.50
4. Two secretaries and typist		35,407
5. Working students		10,482
6. Laboratory Assistants		14,482
7. Personnel costs of the mobile unit		16,422
8. Other		11,635
	Total	204,760
<b>III <u>TRANSPORTATION COSTS :</u></b>		
1. Travel and Perdiem expenses		67,325.08
	Total	67,325.08
<b>IV <u>TRAINING COSTS :</u></b>		
1. Travel expenses for resource personnel		46,879
	Total	46,879
<b>V <u>MAINTENANCE OF AUTOMOBILE</u></b>		
1. Maintenance of automobile		23,822
	Total	23,822

GRANT RECEIPTS

Funds received from The Asia Foundation	
1st grant	₱ 136,201.24
2nd grant	₱ <u>527,191</u>
Total grant	₱ <u>663,392.24</u>
Total Expenses	₱ <u>627,928</u>
BALANCE	₱ <u>35,464.24</u>

# AN IDEAL VILLAGE HOUSE



-  Guava
-  Mango
-  Local ginseng
-  Banana
-  Leucaena
-  Home vegetables
-  Sea vegetable

-  Tamarind
-  Star gooseberry
-  Corkwood Tree
-  Cashew

YOTIN



REF : TH-SX-299

THE ASIA FC

TH-6059)

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

July 31, 1978

EXPRESSED IN

Thailand Baht

and  
U.S. Dollars

SGV-NA THALANG & CO.,LTD.  
CERTIFIED PUBLIC ACCOUNTANTS



THE SGV GROUP  
THAILAND  
PHILIPPINES  
TAIWAN  
INDONESIA  
MALAYSIA  
SINGAPORE  
KOREA  
HONGKONG

## SGV-NA THALANG & CO., LTD.

CERTIFIED PUBLIC ACCOUNTANTS

P.O. BOX 812, BANGKOK  
THAILAND

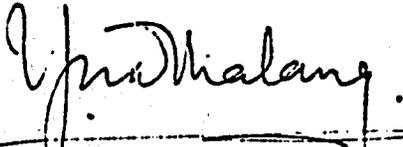
CABLES : CERTIFIED BANGKOK  
TELEX : CERTBKK TH 2805  
ADDRESS  
3RD AND 4TH FLOORS  
THE OCEAN INSURANCE BLDG.  
175, SOI ASOKE, SUKHUMVIT 21  
BANGKOK  
TEL. 251-8727, 251-8729  
251-8890, 251-9731-2

The Asia Foundation  
Bangkok, Thailand

We have examined the statement of cash receipts and disbursements of the Food and Nutrition Center maintained for the grant provided by The Asia Foundation (Serial No. 92, Grant TH-6059) for the year ended July 31, 1978. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying statement of cash receipts and disbursements referred to above presents fairly, on the cash basis, the recorded cash receipts and disbursements of the Food and Nutrition Center - The Asia Foundation Grant for the year ended July 31, 1978.

The translation of Baht amounts into United States Dollar amounts is arithmetically correct on the basis described in Note 2.

  
YURTA NA THALANG  
C.P.A. (THAILAND)  
Registration No. 1

September 14, 1978

FOOD AND NUTRITION CENTER  
 THE ASIA FOUNDATION GRANT (SERIAL NO. 92, GRANT TH-6059)  
 STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS  
 FOR THE YEAR ENDED JULY 31, 1978

	<u>In Baht</u>	<u>In U.S. Dollars (Note 2)</u>
Cash Balance, July 31, 1977	177,557	8,747
Receipts - representing portion of the grant designated for the second year program	<u>527,191</u>	<u>25,970</u>
Total Cash Available	<u>704,748</u>	<u>34,717</u>
Disbursements		
Personnel costs	223,747	1,022
Commodity costs		
Food experimentation and testing equipment	123,393	6,078
Food experimentation and testing supplies	163,857	8,072
Office equipment and supplies	19,273	949
Travelling and transportation	69,612	3,429
Training costs	46,879	2,309
Repairs and maintenance	<u>23,822</u>	<u>1,173</u>
Total Disbursements	<u>670,583</u>	<u>3,032</u>
 Cash Balance, July 31, 1978	 <u>34,165</u>	 <u>1,685</u>

*J. Nathalang*  
 \_\_\_\_\_

See accompanying Notes to Financial Statement.

FOOD AND NUTRITION CENTER  
 THE ASIA FOUNDATION GRANT (SERIAL NO. 92, GRANT TH-6059)  
 NOTES TO FINANCIAL STATEMENT  
 JULY 31, 1978

1. THE ASIA FOUNDATION GRANT,  
 SERIAL NO. 92, GRANT TH-6059

Under the terms of the Grant (Serial No. 92, Grant TH-6059), The Asia Foundation will provide Baht 2,047,661 (US\$100,870) for a period of three-years to the Food and Nutrition Center to enable the Center to undertake an expanded program to improve food production and food habits in rural areas of South Thailand.

The total grant to be provide follows:

	<u>In Baht</u>	<u>In U.S. Dollars</u>
First year	630,235	31,046
Second year	534,311	26,321
Third year	<u>883,115</u>	<u>43,503</u>
Total	<u>2,047,661</u>	<u>100,870</u>

TRANSLATION OF LOCAL CURRENCY  
 INTO U.S. DOLLARS

The Center maintains its accounts in Baht, the currency of the country where it operates. The accompanying statement is likewise stated in Baht. The translation of Baht amounts into United States Dollar amounts was made at the rate of Baht 20.30 to US\$1.00, the approximate bank buying rate prevailing at July 31, 1978.



## SECOND YEAR REPORT

on

FOOD AND NUTRITION CENTER FOR SOUTHERN THAILAND

PRINCE OF SONGKHLA UNIVERSITY

During the second year of the Food and Nutrition Project, the Representative and Senior Program Officer made two visits to the Center, for approximately two days each time, and in addition had numerous conferences with the Director during her visits to Bangkok as well as by telephone and letter.

As always, there were problems, the chief one being delays in construction of the Home Economics building which provides the Center's headquarters, and on a shared basis, laboratory and practical teaching facilities. The building was not completed until the summer of 1978. However, the energy, enthusiasm and acumen of the Director and her staff made up for physical deficiencies and in our opinion enabled the project to achieve, or exceed most planned goals. The impression we have of the staff is one of ability flexibility and willingness to adjust and of high morale despite the fact that some staff face an uncertain job future because the Center is not yet formally a part of the university structure.

Particularly impressive has been the Director's ability to gain cooperation from many other sources. On the Pattani campus, the cooperation is so close that it is sometimes difficult to tell where Center projects leave off and others, say those of the university extension service, begin. Government laboratories in Bangkok have carried out tests that could not be completed in the less-well-equipped laboratories at Pattani. Radio and TV stations have provided coverage of Center activities. Specialists and experts from government agencies have given up their weekends to instruct at workshops and seminars. This cooperation has been an important factor in the Center's progress. It should also be pointed out that while the original project envisaged the need to pay expenses of trainees, in many cases the trainee's agency has paid these costs.

Another impressive aspect of the Center's second year progress is the small demonstration garden at the Center. Fish, shrimp and quail husbandry are displayed. Mushroom, vegetables, leguminous plants, trees and shrubs are grown, all in an area not much bigger than an average city lot. The total effect is attractive as well, something the average Thai farm is not. The agricultural staff is very well-prepared and dedicated to their work.

In research done on local foods, a spin-off was the discovery of improper additives in a wide variety of processed foods, especially in snacks sold widely to children, often through schools. The worst examples were in food coloring. Unscrupulous or ignorant manufacturers were discovered to be using textile dyes as food coloring. The small amount of metallic or

synthetic substances ingested by the children may not be immediately harmful but in the long run will hardly be helpful. The Director has become a crusader in the cause of eliminating the practice.

In addition to this, the Center continued its experiments on development of new food processes and new uses for neglected or little used plants, and in instruction of extension workers. During one visit to the Center, when a training session for community development workers was going on, we were amused to see a group of men squatting on the floor, pressing out soya milk. Essentially that is women's work, if it is done at all, in Thailand. We could not tell whether they enjoyed the experience, but they were at least participating.

In searching for alternative snack foods the Center has created at least one soft drink and a variety of wine and vinegars from previously wasted food by products. We tested the soft drink for taste and found it very good. It is high in Vitamin A. We also tested the wine for alcoholic content and managed to get back to our hotel without mishap.

But it is in the training of personnel that the Center's outreach is most apparent. More than 1,000 people attended training courses of from one to 15 days. We cannot, of course, evaluate the full effect after so short a time, but one example may help visualize the impact. Early in the second year of the program 175 primary school headmasters attended a course on school lunch programs. We visited two schools where the program had been initiated, and found more than 600 students benefiting. If that is an average then the potential beneficiaries would be more than 50,000 children. Even if only half manage to initiate the program the number will exceed 25,000.

The program now enters its third year, approximately on schedule and certainly on course. Its accounts are in good shape, as attested by an independent audit. We do, however, see one problem ahead and that is continuance of the Center with adequate funding so that its momentum may be maintained after the project is terminated.

In assisting the Center, we have helped create a vital institution in the heretofore educationally underprivileged southern region of the Kingdom. We do not yet have assurance that it will be given full budgetary support by the Rector.

We have discussed this with the Rector, who has assured us that the University will include the Center in its FY 1980 budget, but budgets are often cut. If we were to hazard a prediction, we would anticipate that the Center and its staff will be continued, but that support for many of its activities will need to come from other sources, at least for a few years.

Prepared by: John E. James, Representative,  
The Asia Foundation, Thailand

Received: As attachment to cover memorandum  
TH-SX-299, October 18, 1978