CROPS BIBLIOGRAPHY SERIES NO. 4/1985

State of the Art Abstract Bibliography of PEANUT RESEARCHES

PHILIPPINE COUNCIL FOR AGRICULTURE AND RESOURCES RESEARCH AND DEVELOPMENT
National Science and Technology Authority
and the PEANUT COLLABORATIVE RESEARCH SUPPORT PROGRAM — NORTH CAROLINA STATE UNIVERSITY and UNIVERSITY OF GEORGIA, USA

PNAAS-114

OFFICE OF THE EXECUTIVE DIRECTOR

To our valued reader,

The *State of the Art Series* is now complemented by its twin series, the *State of the Art Abstract Bibliographies.* While the former provides an update and analysis of research trends for a particular commodity, the latter documents the basis for this analysis. The Abstract Bibliographies contains capsules of information or abstracts of completed researches on which conclusions in the State of the Art Series are based.

This publication is co-published by PCARRD and the Peanut Collaborative Research Support Program (CRSP)-North Carolina State University and University of Georgia, USA.

Thus, we are glad to present to you the *Abstract Bibliography of Peanut Researches,* the twin volume of the *State of the Art: Peanut Researches.*

Sincerely yours,

RAMON V. VALMAYOR
Executive Director

Please detach along dotted line and mail to:

Philippine Council for Agriculture and Resources Research and Development (PCARRD)
Los Banos, Laguna

Date sent from PCARRD

_____

AB: Peanut Researches

Publication received by:

Name _____
Position _____
Center/Station _____
_____

Please note change of address:
_____
_____

CROPS BIBLIOGRAPHY SERIES NO. 4/1985

State of the Art Abstract Bibliography of PEANUT RESEARCHES

PHILIPPINE COUNCIL FOR AGRICULTURE AND RESOURCES
RESEARCH AND DEVELOPMENT
National Science and Technology Authority
and the PEANUT COLLABORATIVE RESEARCH SUPPORT
PROGRAM — NORTH CAROLINA STATE UNIVERSITY and
UNIVERSITY OF GEORGIA, USA
Los Baños, Laguna, Philippines
1985

1st printing, 1985

This publication may not be reproduced without proper attribution to the publisher.

Bibliographic Citation:

Philippine Council for Agriculture and Resources Research and Development 1985. State of the Art Abstract Bibliography of Peanut Researches. Los Baños, Laguna, Philippines: PCARRD, 1985. 49 p. Crops Bibliography Series No. 4.

Editors:
- **Lolita N. Ragus**, Crops Research Department
- **Zenaida C. Gibe**, Applied Communication Department

Foreword

This abstract-bibliography volume which contains abstracts of peanut researches conducted in the Philippines from 1939-84 aims to complement the State of the Art For Peanut by the Philippine Council for Agriculture and Resources Research and Development (PCARRD) in 1983. The latter reviews the status of research and technology development in varietal improvement, cultural management, crop protection, multiple cropping, postharvest handling, processing and utilization, and socio-economics and marketing. The references used in preparing the write-ups include local journals, bulletins, reports, proceedings of workshops and symposia, terminal reports, student theses and dissertations, and reviews.

For easy references, the entries are arranged by discipline with authors in alphabetical order. Author and subject indeces, organized in a similar manner, are also provided.

This publication was supported in part by the Peanut Collaborative Research Support Program (CRSP), USAID grant number DAN-4048-G-SS-2065-00 through the University of Georgia and the North Carolina State University. However, recommendations do not represent an official position or policy of USAID.

Acknowledgement is due the members of the National Legumes Commodity Research Team headed by Dr. Florendo C. Quebral; Dr David Cummins, Program Director of Peanut-CRSP; and Dr. Johnny C. Wynne, Professor of Crop Science in North Carolina State University, for providing funds; Dr. Thelma S. Cruz, Director of the Applied Communication Department, for overall coordination of production of the publication; Joselito A. Payot and Victoria G. Montaras of the Crops Research Department, PCARRD for compiling and typing the abstracts, respectively.

DPGapasin

DELY P. GAPASIN
Director
Crops Research Department
PCARRD

Editorial Note

This *Abstract Bibliography of Peanut Researches* uses the Research Monitoring System (RMS) code. It is a compilation of pertinent research information included in the *State of Art: Peanut Researches.*

The Commodity Group number for Peanut Researches is Ø5ØØ3.

The fourteen-character code given each abstract entry represents the following:

a) Individual Commodity (IC). The first five characters refer to the individual commodity or specific commodity or specific commodity classification of the research publication.

b) Discipline (DISC). The next six characters represent the particular discipline being dealt with in the publication.

c) Sequence Number. This is an arbitrary number consecutively assigned to every publication title as it is compiled under a specific individual commodity.

CROPS COMMODITY CODES LISTING

Commodity Group Code		Individual Commodity Code	
Ø1ØØØ	Coconut and Oil Palm	Ø1ØØ1	Coconut
		Ø1ØØ2	African Oil Palm
Ø2ØØØ	Corn and Sorghum	Ø2ØØ1	Corn
		Ø2ØØ2	Sorghum
Ø3ØØØ	Fiber Crops	Ø3ØØ1	Abaca
		Ø3ØØ2	Cotton
		Ø3ØØ3	Ramie
		Ø3ØØ4	Jute
		Ø3ØØ5	Kenaf
		Ø3ØØ6	Sericulture
		Ø3ØØ7	Moriculture
		Ø3ØØ8	Buri

		Ø3ØØ9	Henequen
		Ø3Ø1Ø	Kapok
		Ø3Ø11	Maguey
		Ø3Ø12	Mauritius
		Ø3Ø13	Pandan
		Ø3Ø14	Pina
		Ø3Ø15	Sansevierra
		Ø3Ø16	Sisal
		Ø3Ø17	Agave
Ø4ØØØ	Fruit Crops	Ø4ØØ1	Banana
		Ø4ØØ2	Pineapple
		Ø4ØØ3	Mango
		Ø4ØØ4	Papaya
		Ø4ØØ5	Calamansi
		Ø4ØØ6	Lanzones
		Ø4ØØ7	Mandarin
		Ø4ØØ8	Orange
		Ø4ØØ9	Pomelo
		Ø4Ø1Ø	Pili
		Ø4Ø11	Cashew
		Ø4Ø12	Rambutan
		Ø4Ø13	Jackfruit
		Ø4Ø14	Avocado
		Ø4Ø15	Chico
		Ø4Ø16	Durian
		Ø4Ø17	Sour Sop (Guyabano)
		Ø4Ø18	Sugar Apple (Atis)
		Ø4Ø19	Guava
		Ø4Ø2Ø	Star Apple (Caimito)
		Ø4Ø21	Mangosteen
		Ø4Ø22	Grapes
		Ø4Ø23	Strawberry
		Ø4Ø24	Apple
		Ø4Ø25	Tamarind
		Ø4Ø26	Duhat
		Ø4Ø27	Passion Fruit
		Ø4Ø28	Santol
		Ø4Ø29	Limes
		Ø4Ø3Ø	Lemons
		Ø4Ø31	Pears
		Ø4Ø32	Chestnut
Ø5ØØØ	Legumes	Ø5ØØ1	Soybean
		Ø5ØØ2	Mungo

		05003	Peanut
		05004	Beans
		05005	Peas
06000	Ornamental Horticulture and Medicinal Plants	06001	Anthurium
		06002	Chrysanthemum
		06003	Gladiolus
		06004	Indigenous Plants
		06005	Medicinal Plants
		06006	Orchids
		06007	Ornamental Nursery Plants
		06008	Roses
		06009	Sampaguita
		06010	Spring Flowers
		06011	Foliage Plants
07000	Plantation Crops	07001	Rubber
		07002	Cacao
		07003	Coffee
		07004	Tea
		07005	Blackpepper
		07006	Castor Bean
		07007	Citronella
		07008	Ginger
		07009	Tung Oil (Lumbang)
		07010	Nutmeg
		07011	Sesame
		07012	Sunflower
		07013	Vanilla
		07014	Spices
		07015	Petroleum Nut (Hanga)
08000	Rice and Other Cereal Grains	08001	Irrigated Rice
		08002	Rainfed Rice
		08003	Wheat and Other Cereal Grains
		08004	Triticale
09000	Root Crops	09001	Cassava
		09002	Taro (Gabi)
		09003	Sweet Potato
		09004	Yams (Ubi)
		09005	White Potato
		09006	Tugui
		09007	Arrowroot
		09008	Apulid

		09009	Pungapong
10000	Sugarcane	10001	Sugarcane
11000	Tobacco	11001	Cigar-Filler
		11002	Virginia
		11003	Cigar-Wrapper
		11004	Burley
		11005	Turkish
		11006	Oriental
12000	Vegetables	12001	Tomato
		12002	Melons
		12003	Garlic
		12004	Onion
		12005	Eggplant
		12006	Pepper (Sweet and Bell)
		12007	Pechay
		12008	Cabbage
		12009	Watermelon
		12010	Cucumber
		12011	Squash
		12012	Bitter Gurd (Ampalaya)
		12013	Radish
		12014	Bamboo Shoot
		12015	Mushroom
		12016	Jute (Saluyot)
		12017	Horse Radish (Malunggay)
		12018	Ladies Finger (Okra)
		12019	Chayote
		12020	Carrot
		12021	Spinach (Alugbati)
		12022	Sponge Gurd (Patola)
		12023	Lettuce
		12024	Cantaloupe
		12025	Cauliflower

DISCIPLINE CODE

Code	Discipline
CROØØ1	Crop Improvement
CROØØ4	Crop Production and Management
CROØØ5	Crop Protection
CROØØ7	Crop Utilization
MARØØ3	Marketing

THE EDITORS

Contents

Foreword iii
Editorial Note v
Abbreviations and Symbols xi
Varietal Improvement 1
Cultural Management 7
Crop Protection 21
Postharvest Handling, Processing, and Utilization 26
Multiple Cropping 31
Socio-Economics and Marketing 37
Subject Index 40
Researcher Index 42

Abbreviations and Symbols

Agr Ind Life	Agricultural and Industrial Life
Araneta J Agr	Araneta Journal of Agriculture
AUF	Araneta University Foundation
AVRDC	Asian Vegetable Research and Development Center
BSA	Bachelor of Science in Agriculture
BSFT	Bachelor of Science in Food Technology
BPI	Bureau of Plant Industry
BAEcon	Bureau of Agricultural Economics
CLSU Scientific J	Central Luzon State University Scientific Journal
CMU	Central Mindanao University
CPU	Central Philippine University
CSSP	Crop Science Society of the Philippines
CVAC	Cagayan Valley Agricultural College
EAFS	Echague Agricultural and Forestry School
ICRISAT	International Crops Research Institute For the Semi-Arid Tropics
INCA	Iloilo National College of Agriculture
MA	Ministry of Agriculture
MIT	Mindanao Institute of Technology
MS	Master of Science
NFAC	National Food and Agriculture Council
NFA (formerly NGA)	National Food Authority (formerly National Grains Authority)
PADAP	Philippine-Australian Development Assistance Project
PhD	Doctor of Philosophy
Philipp Agr	Philippine Agriculturist
PCA	Philippine Coconut Authority
PCARRD	Philippine Council for Agriculture and Resources Research and Development
Philipp J Agr	Philippine Journal of Agriculture
Philipp J Plt Ind	Philippine Journal of Plant Industry
SMARC	Southern Mindanao Agricultural Research Center
TRSD	Technical Research and Service Directorate
UPCA	University of the Philippines College of Agriculture
UPCHE J	University of the Philippines College of Home Economics Journal

UPLB	University of the Philippines at Los Baños
USDA	United States Department of Agriculture
ViSCA	Visayas State College of Agriculture
ai	active ingredient
Ca	calcium
cm	centimeter(s)
Cl	chlorine
cv	cultivar
et al.	and others
e.g.	example
g	gram(s)
ha	hectare(s)
kg	kilogram(s)
l	liter(s)
Mg	magnesium
mt	metric tonne(s)
ml	milliliter(s)
mm	millimeter(s)
nm	nanometer
N	nitrogen
p	page
ppm	parts per million
P	phosphorus
K	potassium
sp	species
m^2	square meter(s)
t	tonne(s)
viz	videlicet (namely)
/	per
%	percent
₱	peso
+	plus
–	minus

Varietal Improvement

Ø5ØØ3-CROØØ1-ØØ1

Abilay, R.M. 1981. Biochemical, morpho-physiological, and agronomic characters correlated with yield performance of mungbean and peanut under partial shade and sunlight conditions. Ph.D. Thesis. University of the Philippines College of Agriculture, College, Laguna. 1962 p.

The study was conducted at UPLB-CA-CES during the 1980 wet season to 1) determine some biochemical, morpho-physiological, and agronomic changes on the selected mungbean or peanut variety as affected by 40% shading, 2) determine statistical relationships among biochemical, morpho-physiological, and agronomic characters under 40% shading, and 3) establish criteria for selection for shade tolerance.

Results showed that Pag-asa 2, CES 87, Pag-asa 1, and CES 2 G-4 were the high yielding mungbean entries (0.6-0.63 mt/ha) while UPL Pn2 was the highest peanut yielder (0.64 mt/ha) at 40% partial shade conditions.

Higher harvest index and more pods per plant were positively correlated with peanut yield.

Harvest index, leaf area index, leaf protein content, and plant height were desirable characters for predicting high yield for peanut. Thus, specific character for each crop may be used as selection criteria for shade tolerance.

Ø5ØØ3-CROØØ1-ØØ2

Anonymous. 1980. Collection and evaluation of peanut germplasm. Ann. Rep. BPI-Economic Garden, Los Baños, Laguna.

Dry season (DS) planting had higher mean yield of unshelled beans (1.24 mg/ha) than during the wet season (WS) planting (1.22 mt/ha). Eleven entries yielded more than 2 mt/ha during the DS while only four had bean yields of more than 2 mt/ha for the WS. A number of pods per plant with higher seed weight were produced during the DS planting. Maturity data and shelling percentage were not greatly affected by the season. All the varieties/accessions evaluated were infected by peanut rust with varying degrees of severity in both seasons. Eight entries were identified resistant to rust diseases during the WS planting.

Ø5ØØ3-CROØØ1-ØØ3

Ballon, F.B., B.M. Legaspi, R.R. Matias, D.M. Gabucan, E.M. Catipon and M.F. Maligalig. 1971. Bureau of Plant Industry's newly developed varieties of field legumes. Proc. Second Ann. Conf. on Corn, Sorghum, Soybean, Mungo and Peanut. University of the Philippines College of Agriculture, College, Laguna. p. 111-121.

The coordinated research on field legumes undertaken jointly by the Bureau of Plant Industry (BPI) and the UP College of Agriculture was oriented towards varietal improvement, cultural management, and crop protection. Three new peanut varieties: EG Red, EG Brown, and EG Bunch with an average yield of from 1.7-2.5 kg/ha of shelled beans on medium soil fertility level were recommended for commercial production.

Ø5ØØ3-CROØØ1-ØØ4

Cadelina, N.A. 1964. A preliminary yield trial of fifty-six peanut varieties. BSA Thesis. Uni-

versity of the Philippines College of Agriculture, College, Laguna. 18 p.

Of the 56 peanut varieties subjected to preliminary yield trials, Economic Garden Red gave the highest pod yield (1.42 t/ha) during the wet season. Tainan Pei You Tou No. 1 was the highest pod yielder (3.1 t/ha) during the dry season. The dry season planting produced higher yields and better quality seeds compared to the wet season crop.

Correlation of seed diameter and weight per seed to yield was significant. Differences in seed diameter accounted for 14 and 26% of the variations in seed yield during the wet and dry seasons, respectively. An additional 13% of the seed variation during the wet season was attributed to seed weight.

Ø5ØØ3-CROØØ1-ØØ5

Caguioa, F.S. 1949. A field test of four varieties of peanut. UPCA Biweekly Bull. 15(3): 1-2. (1950).

The bunchy type of peanut germinated better than the runner type during the dry and wet seasons. It flowered and matured earlier in the wet season; produced more pods and straw, and showed higher shelling percentage in the dry season. All varieties were seriously damaged by a blackspot disease in both seasons except the Southeast Runner, by a stem rot disease in the wet season. The Spanish White surpassed all the other three varieties in yield of pods in both seasons and straw yield in the dry season.

Ø5ØØ3-CROØØ1-ØØ6

Dadural, R.G. 1968. Performance test of four varieties of peanut under the Central Luzon State University conditions. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija. 31 p.

The study was conducted to determine the growth and yield performance of four varieties of peanut: Virginia Runner, Florispan 334-33, Spanish No. 163283, and Kinorales under the CLSU conditions. Spanish No. 163283 gave the highest yield followed by Virginia Runner, Florispan 334-33, and Kinorales.

Ø5ØØ3-CROØØ1-ØØ7

Darang, E.A. 1969. Comparative study on the growth and yield of two types of peanut (bunchy and runner types) under the Central Luzon State University conditions. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija.

Growth and yield of the bunchy and the runner peanut types were compared under the CLSU conditions. The varieties used were PB-44 and Kinorales (bunchy type) and Virginia and Southeastern runners (runner type). The bunchy type had higher growth rate and yield than the runner type of peanut. There was no significant differences among varieties of peanuts tested.

Ø5ØØ3-CROØØ1-ØØ8

Domingo, C.A. 1966. The yield of three varieties of peanut under the Cagayan Valley Agricultural College conditions. BSA Thesis. Cagayan Valley Agricultural College.

Three varieties of peanut: Kinorales, Zambales, and San Mateo were tried and compared their yields under the CVAC conditions. Kinorales outyielded the other two varieties by 200 kg/ha with an average yield of 120 kg/ha.

Ø5ØØ3-CROØØ1-ØØ9

Empig, L.T. 1975. Peanut: Yield tests. Ann. Rep. University of the Philippines College of Agriculture, College, Laguna.

Yield tests showed three peanut varieties: No. 25 (1.55 t/ha of shelled beans), Moket (1.54 t/ha), and CES 102 (105 t/ha) outyielded the Seed Board varieties BPI-P9, CES-101, and E.G. Bunch with yields of 1.49, 1.46, and 1.29 t/ha, respectively. Moket, a consistent high yielder, early maturing variety, and resistant to Southern blight, was in the new list of Seed Board recommended peanut varieties.

Ø5ØØ3-CROØØ1-Ø1Ø

Guevarra, V.F. 1950. Studies on floral biology and fructification of peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 16 p. Also in Philipp. Agr. 35(3): 127-132. (1951).

Flower production in peanut was regular and continuous. Flowers of each day were in about the same stage of development. They were entirely self-pollinated. Anthers dehisced during the night and before dawn; the flower was fully opened and withered on the same day. Gynophores were positively geotropic. No pegs developed until after fertilization and when outside of the soil. Runner type varieties significantly excelled the bunchy type in vegetative growth and in flower and pod production.

Ø5ØØ3-CROØØ1-Ø11

Han, U.T. 1983. Varietal performance of selected peanut cultivars under different tillage and fertilizer management. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 172 p.

Two field experiments on peanut, one during wet season and another at dry season after lowland rice, were conducted at IRRI Farm, Los Banos, Laguna, to study the varietal performance of selected peanut cultivars under different fertilizer and tillage management practices.

In dry season, variety M-10 and Accession 12 gave significantly high dry pod yields of 3.0 and 2.0 t/ha, respectively, compared to CES 103. In wet season, the lower yield level was attributed to correspondingly lower grain weight, decreased shelling percentage, and less number of harvest plants per unit area.

Inorganic fertilizer application and rhizobium inoculation did not significantly influence the dry pod yield, full pods per plant, unfilled pods per plant, pegs per plant, 500 seedweight, and shelling percentage of peanut. However, inorganic fertilizer application influenced the total dry matter production, nodule at very early stage of the crop growth, and hay production at harvest. The shelled seed yield under conventional tillage was significantly higher compared to zero tillage.

Ø5ØØ3-CROØØ1-Ø12

Hilario, B.I. 1981. Adaptability test of four peanut varieties under Pitombayog, Mayantoc conditions. TCA Grad. J. 1(1): 20-26.

UPL Pn-2, CES 101, Native Pink, and Native Red were performance-tested in Pitombayog, Mayantoc conditions. Highly significant differences of the different varieties in the average yield of unshelled pods per plot, average yield of peanut per plot, computed yield per hectare, and the cost and returns analysis per hectare were noted. UPL Pn-2 had the highest mean, followed by CES 101, Native Pink, and Native Red. The returns peso cost of UPL Pn-2 was ₱49.37; CES 101, ₱36.50; Native Pink, ₱5.49; and Native Red, ₱2.43.

Ø5ØØ3-CROØØ1-Ø13

Imperial, C.B. 1981. Peanut regional yield trial. Agr. Res. Abstr. BPI-Bicol Expt. Sta.

CES 1-9 and CES 1-174 outyielded two peanut variety checks (BPI P9 and UPL Pn4) and one local check.

CES 1-9, CES 1-174, CES 1-62, BPI P9, and UPL Pn4 peanut varieties needed further evaluation and/or multiplication.

Ø5ØØ3-CROØØ1-Ø14

Lantican, R.M. 1971. Regional yield tests of peanut. Proc. Second Ann. Conf. on Corn, Sorghum, Soybean, Mungo and Peanut. University of the Philippines College of Agriculture, College, Laguna. p. 188-189.

The study was conducted to determine the seasonal performance of 17 varieties of peanuts at four locations in the Philippines: UPLB, CMU, Ilagan, and La Granja Experiment Stations. The highest yielder during the wet season was Indang White (2.8 t/ha) at the BPI-Economic

Garden while BPI No. 10 led at Ilagan and La Granja Experiment Stations. Variety No. 24 was the highest yielder during the dry season trial at CMU.

Ø5ØØ3-CROØØ1-Ø15

Lantican, R.M. 1972. Regional yield tests of peanut. Proc. Third Ann. Conf. on Corn, Sorghum, Soybean, Mungo, and Peanut. University of the Philippines College of Agriculture, College, Laguna. p. 6.

The objective of the study was to determine the regional and seasonal performance of 17 varieties of peanut at four locations in the Philippines. The Seed Board variety CES-101 gave the highest mean yield of 1.6 t/ha isolated and evaluated at the UP College of Agriculture and BPI-Economic Garden Station. Varieties BPI 9, No. 24, CES 103, and EG Bunch had 0.16, 0.17, 0.18, and 0.19 t/ha difference, respectively, from the CES-101 mean yield. Data on the agronomic characters were presented.

Ø5ØØ3-CROØØ1-Ø16

Lantican, R.M. 1975. Peanut: Screening for disease resistance. Ann. Rep. University of the Philippines College of Agriculture, College, Laguna.

Two hundred and sixty peanut accessions were evaluated for peanut rust, mosaic, black spot, and Sclerotium blight. Another evaluation of 113 varieties in February, 1976 identified that PI 259747, PI 350680, and PI 341876 varieties were resistant to black spot and either immune or resistant to peanut rust. These three varieties came from the United States Department of Agriculture (USDA).

Ø5ØØ3-CROØØ1-Ø17

Lazo, F.D., A. Quededeng and C.M. Caliwag. 1969. Seven-year peanut variety test. Philipp. J. Plt. Ind. 34(3-4): 193-212.

Results of a 7-year (1956-1963) variety test of both bunchy and runner types of peanut showed that of the 38 varieties tested, Virginia Runner G-41, 7334-27, Florispan, PI 2832, F334-32, B177-19, and Spanish 163287 gave the highest production with 2000, 1950, 1900, 1850, and 1800 kg/ha of shelled peanuts, respectively. These were all runner types, except Spanish 163287 which was a bunchy type. All varieties mature at an average of 135 days for the runner type and 120 days for the bunchy type from the time of planting.

Ø5ØØ3-CROØØ1-Ø18

Legaspi, B.M. 1980. Regional performance test of peanut. Ann. Rep. BPI-Economics Garden, Los Baños, Laguna.

The regional performance test of peanut was conducted simultaneously at eight locations during the wet and dry seasons of 1980. Of the 17 entries evaluated at the BPI-Economic Garden during the dry season, none statistically surpassed the bean yield of the two check entries (BPI-P-9 with 2.4 t/ha and UPL-Pn4 with 2.6 t/ha). During the wet trial, only entry CES-1-174 with 2.2 t/ha significantly outyielded the lower-yielding check with 1.9 t/ha. Only UPL-Pn4 was the most resistant to both cercospora leaf spot and peanut rust diseases.

Ø5ØØ3-CROØØ1-Ø19

Manas, M.C. and J.B. Rozul. 1952. Plant introduction and exploration. A half-century of Philippine agriculture. Bur. of Agr. Liwayway Publ. Inc., Manila. p. 154-169.

Fifteen peanut varieties had been introduced into the Philippines which were grouped according to maturity period. These were 1) early maturing varieties (105-125 days): Tennessee Red (US) and Spanish variety introduced from Reduit, Mauritius in 1937; 2) medium-late maturing varieties (150-165 days): Georgia Red introduced from Oneco, Florida, USA in 1933; and 3) late maturing varieties (165-185 days): Virginia Runner and Virginia Bunch, both introduced from Texas in 1909 and 1929, respectively, and Valencia and Virginia Jumbo, both introduced from Oneco, Florida, USA in 1933. These varieties yielded 600-950 kg/ha of shelled nuts. Bukalasa, intro-

duced from Entebbe, Uganda, Africa in 1936, yielded 1225 kg/ha of shelled nuts.

Ø5ØØ3-CROØØ1-Ø2Ø

Navarro, R.S. 1977. Breeding studies of field legumes. Field Legumes Research Program. Ann. Rep. UPLB-NFAC Integrated Food and Agr'l. Res. Training and Ext. Prog.

Germplasm collection of about 5,203 varieties of legumes such as soybean, mungo, cowpea, peanut, pigeon pea, field beans, red beans, chick pea, winged bean, and rice bean was pursued during the year. Varietal screening of the germplasm collection was done during the wet and dry seasons, and in some instances during the summer planting for all crops. Hybridization and selection work on mungo yielded several lines which were high yielding and resistant to both Cercospora leaf spot and powdery mildew. One of these line selections, CES ID-21 was recommended and approved as a Seed Board variety. The promising lines obtained from soybean and peanut breeding are under evaluation to assess their yield potential and stability of resistance to diseases.

Ø5ØØ3-CROØØ1-Ø21

Opulencia, E.M. 1962. A further test on the agronomic performance of six varieties of peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 10 p.

Six peanut varieties were tested at dry and wet seasons. Lao Kung Tzu Tou and Economic Garden Red gave the highest performance during the dry and wet seasons, respectively. Yuan Yung Tou was the highest producer of shelled peanuts. Fanti No. 17 was the highest yielder of marketable peanut. Lung Tao Tou gave the highest yield of straw while Lao Tzu Toy had the highest mean weight of fresh plant in both cultures. Both Lung Tao Yo Tou and Yuan Yung Tou showed better resistance to pests. All the varieties, however, gave relatively higher yields in the dry than in the wet season culture.

Ø5ØØ3-CROØØ1-Ø22

Paterno, E. 1983. Varietal screening of mungbean, peanut, soybean, and yardlong bean for enhanced N-fixation. PCARRD Res. Highlights. p. 75.

Of the varieties and Rhizobia tested, Pag-asa 1-CB 756 and CES 2G-4-TAL 209 combinations fixed the highest amount of N with the application of 30 kg N/ha. In the absence of added fertilizer, CES 2G-4-M5 fixed the highest amount of N. In terms of enthylene production per gram nodule per hour, line CES M 79-25-23 produced the highest amount followed by CES 5G-1. Of the 64 lines of peanut screened for enhanced N-fixation using the acetylene reduction assay, CES 24-2 produced the highest amount followed by CES 3-42-M3 and CES 1-2 M5. Of the soybean varieties tested, CES-SY-128-3 was the most N-fixed followed by CES-SY-144-23.

Ø5ØØ3-CROØØ1-Ø23

Petalino, L.S. 1980. FTS seed multiplication. Ann. Rep. BPI Davao Expt. Sta.

Two soybean varieties, EG Sy 88-2 and EG-Sy 91-7, and one variety each of mungbean and peanut, Pag-asa 2 and CES 2-25, respectively, were planted during the wet season for seed multiplication.

Computed soybean yields were 2.8 and 3.3 t/ha for EG Sy 88-2 and EG Sy 91-7, respectively. Pag-asa had 2.2 t/ha for mungbean and 3.0 t/ha for peanut.

Observed agronomic characters of the crops indicated that on mungbean (Pag-asa 2), no shattering was observed while on the two soybean varieties (EG Sy 88-2 and EG Sy 91-7), shattering was 25%. The rating for seed quality of all the crops tested was good.

Mosaic virus disease and Rhizoctonia rot were observed to occur on peanut and soybean. Incidence of Sclerotium stem rot was also noted during the late stage of both crops.

Ø5ØØ3-CROØØ1-Ø24

Punto, N.G. 1982. Genotype x environment interaction for yield in selected mungbean, soybean, and peanut. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 146 p.

The study was conducted to determine 1) the magnitudes of genotype x environment interaction in yield performances of selected cultivars of mungbean, soybean, and peanut; 2) the genotypic adaptation and phenotypic stability of selected cultivars at several locations in the country and in the wet seasons; and 3) the optimum allocation of resources in conducting yield tests for soybean, peanut, and mungbean.

Combined analyses of variance for the yield of three legumes revealed that environments, entries, and entry x environment mean squares were all significant. None of the variety was stable.

Ø5ØØ3-CROØØ1-Ø25

Redoña, E.D. 1984. Peanut varietal improvement for Thailand and the Philippines. Ann. Rep. Peanut CRSP-PCARRD-UPLB Spec. Proj.

This project was geared towards development of peanut varieties with desirable agronomic traits (high yields, early maturity, and resistance to rust, Cercospora leaf spot, Aspergillus flavus, and Sclerotium wilt diseases) and with wide adaptation to low soil fertility, partial shading, highly acidic and drought stresses.

Eleven thousand one hundred twenty peanut lines were collected and ready for agronomic traits and other evaluations. Of the 74 row peanut accessions screened for late Cercospora leaf spot pathogens, seven exhibited resistance to these microorganisms.

The six IPB-bred lines and four lines bred by the BPI had seed yields ranging from 1.0-1.3 t/ha with the mean of 1.2 t/ha. IPB Pn 12-24 gave the highest yield followed by IPB Pn 12-26, EG 18, and UPL Pn-4.

Ø5ØØ3-CROØØ1-Ø26

Valdez, A.G. 1958. Performance test of three peanut varieties at the Araneta Institute of Agriculture. Araneta J. Agr. 5(2): 65-73

Under the Araneta Institute of Agriculture conditions, the yield of Spanish Red was significantly greater than Spanish White and Cagayan Red.

Ø5ØØ3-CROØØ1-Ø27

Valentin, F.B. 1959. Performance test of four varieties of peanut. BSA Thesis. Araneta University Foundation. 17 p.

Performance test of four varieties of peanut showed Valencia White and Isabela White gave the highest and lowest percentages of germination, respectively. As to the weight of marketable pods, Spanish Red was the heaviest with 12,623 g; Valencia White, 10,455.5 g; Chinese Red, 10,313.5 g; and Isabela White, 3,966 g.

Ø5ØØ3-CROØØ1-Ø28

Villareal, R.L., R.S. Navarro and R.M. Lantican. 1983. Varietal improvement for dryland legume crops for rice-based cropping systems. PCARRD Res. Highlights. p. 74.

Germplasm collections from AVRDC and ICRISAT were screened and yield trials involving pre- and post-rice trials for soybean, mungbean, and peanut were conducted. The materials were also used for hybridization and selection. For a variety to be adapted in a rice-based cropping system, it should possess the following characteristics: drought tolerance, tolerance to waterlogging, early maturity, photo-insensitivity, and early seedling development.

Cultural Management

05003-CRO004-001

Alcala, E.A. 1981. The performance of peanut to tillage practices and calcium levels. USM Res. J. 3 (1): 1-22.

Calcium sulfate ($CaSO_4$) application up to 300 kg/ha significantly influenced the number of pods, weight of 100 dry pods, bean yield, and dry pod yield, but not the plant height, fresh weight, total dry matter yield, and shelling percentages of Spanish Red and UPL Pn-2 (Moket) peanut cultivars. Plants with $CaSO_4$ at the rate of 600 kg/ha showed the highest shelling percentage for both cultivars.

Tillage practices had significantly affected the number of days to flowering and the total dry matter yield of plants. However, it had no significant effect on the other plant characteristics measured. Generally, zero tillage appeared to be best at June planting for both the Spanish Red and UPL Pn-2 cultivars.

UPL Pn-2 obtained higher bean yield of 3,689.4 kg/ha compared to Spanish Red variety (2,264.2 kg/ha).

05003-CRO004-002

Alonzo, L.O. 1966. Effect of different distances of planting on the yield of peanut. BSA Thesis. Cagayan Valley Agricultural College.

The highest yield of peanut was obtained from the 20 cm x 80 cm treatment with an average production of 1732 kg/ha.

05003-CRO004-003

Anyaya, T.C. 1968. Effect of rate of seeding on the growth and yield of Vigan Lupog peanut variety. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija. 31 p. Also in the CLSU Scientific J. 4(1): 99.

The experiment was conducted to determine the effect of six different rates of seeding on the growth and yield of Vigan Lupog peanut variety (1,2,3,4,5, and 6 seeds/hill). Planting of three seeds per hill obtained the highest yield and the best seeding rate, while six seeds per hill obtained the lowest yield.

05003-CRO004-004

Alvarez, R.G. 1981. Peanut farming in Quirino and Pangasinan. Greenfields. 2(7): 32-36.

Methods of peanut production used by farmers from Madella, Quirino and from Pangasinan were described.

05003-CRO004-005

Balleza, N.C. 1955. Effect of different fertilizers on the growth and yield of peanut. BSA Thesis. Central Philippine University, Iloilo City. 20 p.

Of the different fertilizer trials on a peanut variety, plants with magaliglaw fertilizer grew more luxuriantly and produced more pods than those applied with complete fertilizer. The control produced an average of 959 kg/ha; magaliglaw, 1095.5 kg/ha; and complete fertilizer, 945 kg/ha. Difference in yield was not significant, but it was observed that plots with magaliglaw fertilizer and complete fertilizer (12-12-12) were the best yielders.

05003-CRO004-006

Bacol, L.M. 1960. A further study on the influence of rice hull ash in Lipa clay loam soil

planted to peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 22 p.

The incorporation of rice hull ash into the soil had no significant effects on the yields of pods, kernels, hay, and shelling percentages of peanut. Increased application of rice hull ash to a considerable extent did not affect the amount of P, K, Ca contents in the soil and pH. Lime significantly increased soil pH. Surprisingly, after harvest, the pH of unlimed soils was higher than before planting. Soil texture had no significant changes when added with rice hull ash.

Ø5ØØ3-CROØØ4-ØØ7

Bala, J.M. 1966. Effect of different times of cultivation on the growth and yield of Kinorales peanut variety. BSA Thesis. CLSU Expt. Sta. Contrib. No. 217. 27 p.

Kinorales was subjected to six periods of cultivations to compare and determine the method that would give the best yield. The six treatments used were: treatment A (3 weeks after planting); treatment B (at blooming time); treatment C (when plants start to "peg down"); treatment D (3 weeks after planting and at blooming time); treatment E (3 weeks after planting and when plants start to "peg down"); and treatment F (3 weeks after planting, at blooming time, and when plants start to "peg down"). Results showed that plants cultivated 3 weeks after planting gave relatively the highest average increment of growth. Relatively more yield, however, was obtained from treatment F, where plants were cultivated three times starting 3 weeks after planting with subsequent cultivation at blooming time and when plants started to "peg down."

Ø5ØØ3-CROØØ4-ØØ8

Batangan, E. 1976. Response of peanut to various levels of nitrogen. CLSU Expt. Sta. Contrib. No. 1317.

The number of nodules and seeds per plant at harvesttime significantly increased with the addition of nitrogen. Significant effect was noted on the weight of seeds as affected by the different levels of nitrogen.

The rate of 17.0 g/plot (125 kg/ha) produced the most remarkable effect.

Ø5ØØ3-CROØØ4-ØØ9

Blanca, A.D. 1981. Effect of lime and inoculant on the nodulation and yield of legumes on acid soils. BS. Reg. 6. Iloilo City. 22 p.

Generally, the soil type significantly affected peanut yields both in the dry and wet seasons in terms of inoculation and liming.

Ø5ØØ3-CROØØ4-Ø1Ø

Bonilla, P.C. and J.C. Verzosa, Jr. 1980. Yield response of peanut to organic matter fertilization under the Dasol conditions. TCA Res. J. 2(3): 202-208.

The bunchy variety of peanut was planted using different levels of organic matter fertilizer (hog manure) to evaluate their effects on the plant height, forage and pod yields per hill, and forage and pod yields per plot. The treatments include control, 10-10-10, 20-20-20, and 30-30-30 kg NPK/ha.

Highly significant differences among the treatments on plant height, forage and pod yield per hill, and forage and pod yields per plot were reported. Plants with 30-30-30 kg NPK/ha obtained the highest pod yield per plot while the control, the lowest. Of the treatments studied, plants with 20-20-20 gave the highest returns per peso cost of ₱2.83.

Ø5ØØ3-CROØØ4-Ø11

Cabacungan, S.N. 1965. Effect of varying levels of complete fertilizer (2-8-4) on the growth and yield of Kinorales peanut variety on Maligaya clay loam. BSA Thesis. CLSU Expt. Sta. Contrib. No. 132. Central Luzon State University, Muñoz, Nueva Ecija. 32 p.

Kinorales peanut variety was tested with different levels of complete fertilizer (2-8-4 NPK) to determine their effects on the best level of hay and pod production.

Treatments used were control (no fertilizer application), 200, 300, 400, 500, and 600 kg/ha of complete fertilizer.

Plants with 200 kg/ha of complete fertilizer yielded the best hay and pod production under the different conditions studied.

Ø5ØØ3-CROØØ4-Ø12

Cabiltes, C.P. 1963. Effect of various time and rates of ammonium sulfate application on the growth and yield of Kinorales peanut variety. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija. Also in the CLSU Scientific J. 4(1): 96. 35 p.

The study was conducted to determine the best time and rate of ammonium sulfate application that favored the growth and yield of Kinorales peanut variety under the CLSU conditions. Ammonium sulfate application at 20 days after planting gave the highest number of pods, heaviest weight of pods yield per hectare, and production of hay.

Ø5ØØ3-CROØØ4-Ø13

Coloma, S.C. 1970. Effect of different levels of lime and phosphorus on the growth and yield of peanut. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija. 35 p.

Differences observed as affected by lime ($CaCO_3$) were significant. Time application at the rates of 1,000 and 1,500 kg $CaCO_3$/ha significantly gave better growth of peanut under the CLSU conditions. No significant differences was observed on plants treated with different phosphorus application. Different rates of lime and phosphorus application did not significantly affect the peanut yield. However, significant differences were observed on the number of filled pods.

Ø5ØØ3-CROØØ4-Ø14

Cruz, D.V. 1977. Response of peanut to different time and rates of Agrowell liquid fertilizer. CLSU Expt. Sta. Contrib. No. 1468.

The study was conducted to determine the effect of time and rate of Agrowell (15-7-7) on the growth and yield of peanut. Significant differences on plant height at maturity, number of filled pods per plant, and yield per plot were obtained. The yield increased as the rate of Agrowell fertilizer applied was increased regardless of the time of application. Application of Agrowell fertilizer 46 days after planting (flower formation) at the rates of 3.0 and 3.5 l/ha produced the highest yield.

Ø5ØØ3-CROØØ4-Ø15

Dacumos, R.Q. 1964. Effect of phosphorus, potash, and lime on growth and yield of peanut. BSA Thesis. Araneta University Foundation. 19 p.

Four treatments used were control (no fertilizer and lime); 55.6 g of superphosphate + 500 g of lime; 75 g of muriate of potash + 500 g of lime; and 500 g of lime alone. The control, phosphorus and lime, and lime alone, gave better response on yields of grain than those plants with potash and lime, and phosphorus/potash and lime.

Ø5ØØ3-CROØØ4-Ø16

David, W.P., A.A. Caoili, E.P. Pacardo and M.C. Bueno. 1977. Drainage requirements of mungbean (CES 55) and peanut (CES 101) at various stages of growth. Ann. Rep. Water Management Research Program. UPLB-NFAC Integrated Food and Agr'l. Res. Training and Ext. Prog.

Growth responses of mungbean (CES-55) and peanut (CES 101) to different water tables were investigated using the field drainage lysimeters. Water table depths at 30, 61, and 91 cm were imposed on mungbean plants and 15, 46, and 76 cm and nature drainage on peanut. Treatment levels were maintained 2 weeks after seeding until maturity.

No optimum yield was obtained at 61 cm water table depth on peanut . At early stage of growth (up to 14 days after seeding), mungbean was susceptible to soil saturation. The yield quality showed signs of deterioration of pods.

Ø5ØØ3-CROØØ4-Ø17

David, W.P. A.A. Caoili, M.B. Garcia and E.P. Pacardo. 1977. Effect of occasional flooding on the growth and yield of mungbean and peanut. Ann. Rep. Water Management Research Program. UPLB-NFAC Integrated Food and Agr'l. Res. Prog.

An experiment was conducted to study the susceptibility of mungbean and peanut to occasional floods at various durations. The degree of yellowing depended on the duration of flooding in days.

Growth rates of mungbean and peanut displayed a linear rate of growth before each flooding period (DAS) and at the first 40 days of the plants, respectively. In general, mungbean was susceptible to flooding at 50-70 DAS.

No significant effects on yield was observed on DAS plus control on peanuts. However, a highly significant effect on yield was observed on the duration of flooding plus control and the interaction of both factors.

Ø5ØØ3-CROØØ4-Ø18

David, W.P., A.A. Caoili, E.P. Pacardo and M.C. Bueno. 1977. Irrigation requirements of mungbean (CES 55) and peanut (CES 101) at various stages of growth. Ann. Rep. Water Management Research Program. UPLB-NFAC Integrated Food and Agr'l. Res. Training and Ext. Prog.

Mungbean (CES-55) and peanut (CES 101) were grown under controlled soil moisture regimes drainage type lysimeters with 2.44 m x 2.44 m x 1.2 m to measure evapotranspiration at different stages of growth. The treatments used were different depths of water tables controlled by underground irrigation. Results showed marked contrast in the irrigation requirements and significant differences in yields. The optimum water used and yields of mungbean and peanut planted with zero tillage after a wet season rice crop were observed when the water tables were at 61 and 76 cm below the ground surface, respectively.

Ø5ØØ3-CROØØ4-Ø19

De Jesus, M.A. 1968. Response of peanut to N and P fertilizers. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija. 36 p. Also in the CLSU Scientific J. 4 (4): 225.

The study was conducted to determine the effects of the different combinations of nitrogen and phosphorus fertilizers applied in furrows before planting of peanut on Maligaya clay loam soil. Significant differences were found on the rate and growth among treatment combinations of 20 kg N/ha and 40 kg P_2O_5 /ha which gave the highest computed yield of 2,284 kg/ha.

Ø5ØØ3-CROØØ4-Ø2Ø

Dumlao, E.S. 1977. Effect of different levels of phosphorus on the growth and yield of peanut (CES 101). CLSU Expt. Sta. Contrib. No. 1389.

The study was conducted to evaluate the growth and yield performance of peanut at different levels of phosphorus. Nonsignificant differences on the growth and yield of peanut as affected by different levels of phosphorus were reported.

Ø5ØØ3-CROØØ4-Ø21

Follante, R.P. 1966. Effect of complete fertilizer on the yield of peanut. BSA Thesis. Cagayan Valley Agricultural College.

Plants applied with 350 kg/ha of complete fertilizer, spaced at a distance of 40 cm between hills in a row, and 80 cm between furrows proved to be the highest yielders with 1234.5 kg/ha in the dry season culture.

05003-CRO004-022

Enriquez, E.A. 1957. Nodulation of peanut by Rhizobia isolated from different species of legumes. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 18 p.

Peanut was susceptible to the nodule bacteria isolated from peanut and roots of other species of legumes. Of the bacterial strains from peanut, the isolate obtained from the top root nodules induced better nodulation than that from the lateral root nodules. Except N, which the bacteria can get from the atmosphere, other plant nutrients must be supplied to the soil to enhance plant growth, bacterial activities, and root nodulation. Peanut seeds planted 1 month after inoculation developed few nodules; those planted 3 months after did not produce any nodule. Cross-inoculation of peanut with bacterial isolates from mungo, *Crotalaria* sp, soybean, and tapilan resulted in poor nodulation. However, the cowpea nodule bacteria gave a fairly good nodulation.

05003-CRO004-023

Estillore, R.B. 1970. Effect of different levels of lime and potassium on the growth and yield of peanut. CLSU Exp. Sta. Contrib. No. 683.

Different levels of lime ($CaCO_3$): 0, 500, 1000, 1500, and 2000 kg/ha and potassium (10, 30, and 60 kg/ha) were applied to a peanut variety to determine their effects on the growth and yield of the crop. However, variations observed on the different potassium rates were statistically insignificant. Application of 500 and 1000 kg lime/ha further improved the pod yield. Effects of different levels of potassium on the pod yield were not different.

05003-CRO004-024

Galve, C.G. 1948. A study on the effects of potassic fertilizer on the N-fixing power of legumes. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 4 p.

Potassium sulfate at the rate of 100 kg/ha was best on Lipa clay loam soil. This rate increased the N-fixing power of the bacteria on mungo, tapilan, soybean, cowpea, and peanut. Addition of potassic fertilizer facilitated the removal of phosphoric acid and lime from the soil, thus increased the amount of readily available phosphoric acid and lime.

05003-CRO004-025

Galvez, J.A. 1968. Effects of various levels of readily available soil moisture on peanut. CLSU Scientific J. 4(2): 119.

The study was conducted to investigate the effects of various levels of readily available soil moisture (RAM) on the growth and yield of peanut. RAM did not affect the rate of the plants' growth, however, it significantly influenced the yield of both the hay and pods. Best results were obtained from RAM ranges of 50-60%, 50-70%, and 70-80%.

05003-CRO004-026

Gloria, R.T. 1971. Response of peanut cultivar CES 201 to calcium, nitrogen, and plant population. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 125 p.

Two similar experiments conducted at UPCA Central Experiment Station and MIT, Kabacan, Cotabato in 1970 wet season and in 1971 dry season, determined the combined effects of plant population density, nitrogen and calcium levels, their interaction on the yield of peanut cultivar CES 101, and their influence on the agronomic characters of the crop.

Plant density treatment did not significantly alter the bean yield. However, it statistically modified the leaf area index and the number of days from seeding to first bloom during the 1971 dry season (UPCA). Significant differences were also detected in the number of filled pods per plant, number of pods per plant, number of filled pods per plant, number of pod-bearing nodes, and number of days from seed-

ing to first bloom during the wet season (UPCA). Plant height at harvest was significantly affected by plant population density (MIT).

Nitrogen application did not significantly influence the bean yield and other agronomic components, except on the number of nodules during the 1970 wet season (UPCA).

Calcium treatment did not influence the bean yield and other plant attributes studied.

Ø5ØØ3-CROØØ4-Ø27

Gutierrez, J.C. 1966. A comparative study of planting shelled, unshelled, and broken pods on the growth and yield of Kinorales peanut variety. BSA Thesis. CLSU Expt. Sta. Contrib. No. 220. 23 p.

Kinorales peanut seeds, shelled, unshelled, and broken pods were planted to compare their effects on the growth and yield of peanut. Yields of plants from the different treatments were not statistically significant. The period and percentage germination of seeds from the different treatments differed significantly. Shelled seeds had high germination percentage and emerged the earliest.

Ø5ØØ3-CROØØ4-Ø28

Hernandez, S.D., V. Dosado and E. Lalap. 1971. The response of peanut to different spacings and nitrogen applied singly and in combination of phosphorus and potassium. Abstr. of Res. Central Mindanao University, Musuan, Bukidnon. 1970-71. p. 4.

The general appearance, vigor, height, and maturity of the plants did not show distinctive differences in both seasons. Differences in yields between spacings and fertilizer levels did not show statistical significance. Significant interaction between spacings and fertilizer levels in the dry season indicated that peanut may be planted at 15 cm row with four plants per hill and applied with 45-30-30 kg NPK/ha of fertilizer.

Ø5ØØ3-CROØØ4-Ø29

Ilag, L.L. 1984. Utilization of microbial associations in peanut production. I. Mycorrhizae in peanut cultivars. Ann. Rep. Peanut CRSP-PCARRD -UPLB Spec. Proj.

This study aimed to collect and identify the mycorrhizal fungi in peanut rhizospheres from various parts of the country; determine the influence of vesicular-arbuscular mycorrhizal (VAM) fungi in the efficiency of peanut uptake of various elements in the soils, as well as in establishing peanut tolerance to salt stress, drought, waterlogging, and extremely low and high soil pH; and assess the effectiveness of combined VAM fungi and rhizobia in increasing peanut production.

Of the 15 locations in the Philippines tested, soils of Davao planted to 'Saba' variety of banana and San Marcelino Zambales soils had high population of VAM fungi. Among the nine peanut varieties/lines tested with various VAM fungi, Tainan 9 obtained the highest VAM colonization rating with 27-50% of the roots colonized.

No root colonization by VAM fungi occurred in acid Louisiana clay with a pH of 4.8. The nine peanut varieties/lines performed better in the slightly alkaline Binangonan soil.

Ø5ØØ3-CROØØ4-Ø3Ø

Lalap, E.T., M. Claudio and A. Josue. 1971. Monthly planting of peanut. Abstr. of Res. Central Mindanao University, Musuan, Bukidnon. 1970-71. p. 4.

October planting of peanut (var. CES 101) gave the best yield. September, December, November, and July plantings produced appreciably high yields. Low yield in January planting was owing to lack of rainfall. Stunted growth was apparent in the December and January plantings. High percentage of immature pods in the November planting was due to grubs.

Ø5ØØ3-CROØØ4-Ø31

Lalap, E.T. 1973. Lime x fertilizer experiment on peanut. Proc. Fourth Ann. Conf. 10-14 Apr. p. 304-305.

Fertilizer and lime did not affect the plant yield. However, further experiments are needed

to evaluate the long term effect of liming and fertilization.

Ø5ØØ3-CROØØ4-Ø32

Lanuza, A.Q. 1958. A preliminary liming study of some Philippine soils using soybeans and peanuts as indicators. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 17 p.

Soybean and peanut plants grown in soils receiving the equivalent of 6 t/ha had higher dry matter production than those grown in soils receiving the equivalent of 12 t/ha. Soil pH tended to decrease with cropping; the decrease was greater after the first crop than after the second. The change in pH tended to be much greater where dry matter production was at maximum. The Lipa clay loam from Canlubang had a slightly higher buffering capacity than that from Batangas. These two types of soil had a higher buffering capacity than the Pilar silt loam from Samar and the Guimbalaon clay loam soils from N. Occidental.

Ø5ØØ3-CROØØ4-Ø33

Leal, W.L. 1967. Study of the effect of lime, phosphate and potash fertilizers on the growth and yield of peanuts. BSA Thesis. Iloilo National College of Agriculture. 33 p.

Application of 1.5 kg superphosphate + 0.5 kg muriate of potash + 10 kg agricultural lime gave the best effect on peanut growth with the longest main vine and the biggest number of sideshots.

Ø5ØØ3-CROØØ4-Ø34

Liboon, S.P. 1967. Response of peanut to methods of culture at varying plant populations. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 16 p.

A two-season test was conducted to determine the influence of planting method and spacing on the yield and other agronomic characters of peanut. The yield of shelled and unshelled peanut, number of pods per plant, and number of marketable pods per plant were significantly higher in the drill than in the hill method of planting. Yields were also affected by method, row and plant spacing, or density in both seasons. Highest yield was obtained in the drill method at a row spacing of 40 cm and 20 plants per meter-row (500,000 plants/ha).

Significant increase in the number of pods per plant with increasing plant spacing was also found. Most number of pods per plant and number of marketable pods per plant were obtained in the drill method at a row spacing of 20 cm with six plants per meter-row (75,758 plants/ha).

Plant height increased with an increase in plant population. Shelling percentage was not influenced by methods of planting, row and plant spacing, or density.

Ø5ØØ3-CROØØ4-Ø35

Magracia, H.B. 1965. Comparative effect of wood ash and chicken dung on the yield of peanut. BSA Thesis. Mindanao Institute of Technology. 17 p.

Plants fertilized with wood ash gave a greater number of pods and weight of shelled peanut than those treated with chicken dung and the control. Plants were more vigorous when fertilized with wood ash or chicken dung than those without fertilizer.

Ø5ØØ3-CROØØ4-Ø36

Mamerto, A. 1968. Response of peanut to N and P fertilizers. CLSU Scientific J. 4 (4): 225.

The study was conducted to determine the effects of the different combinations of nitrogen (0, 10, 20, and 30 kg N/ha) and phosphorus (0, 20, 40, and 60 kg P_2O_5/ha) fertilizers applied in the furrows before planting peanut on Maligaya clay loam soil.

Significant differences were found in the rates of growth on the treatment combination of 20

kg N/ha and 40 kg P_2O_5/ha. This combination gave the highest computed yield of 2,284 kg/ha.

Ø5ØØ3-CROØØ4-Ø37

Manzano, V. 1965. The response of peanut production on various manures as influenced by plant spacing. Agr. Ind. Life. (1): 16-34.

Application of chicken manure resulted in higher yield than carabao and hog manures at 20-cm spacing of plants. The result was attributed to the high plant food value of chicken manure and the close spacing adopted.

Ø5ØØ3-CROØØ4-Ø38

Manguiat, I.J., F.G. Torres and S.M. Tilo. 1980. Preinoculation of field legume seeds with rhizobia. Kalikasan Philipp. J. Biol. 9 (2-3): 303-308.

The decline in rhizobium population of the seed after inoculation was exponential as indicated from the regression analysis on the relationship of the log number of cells and clay after inoculation.

In another experiment done at 4°C, the rhizobium population on mungo, peanut, and soybean seeds did not change significantly until the 2nd, 4th, and 8th day after inoculation, respectively. However, seed germination percentages declined exponentially after inoculation and significant changes in rhizobium population for each field legume occurred 2 days after inoculation. Preinoculation will be done within 2 days after inoculation.

Ø5ØØ3-CROØØ4-Ø39

Marasigan, V.S. and C.M. Marasigan. 1971. Effects of plant population and nitrogen on the yield and agronomic characteristics of peanut (CES 101). Mindanao Institute of Technology, Kabacan, North Cotabato.

The yield and other agronomic characters of peanut CES 101 as influenced by plant population density and levels of nitrogen interaction were studied at MIT on April 1-July 7, 1970. Under the Kabacan climatic and soil conditions, nitrogen application at different levels did not affect the yield of dried pods at different plant populations. Plant height was neither affected by plant density nor the application of nitrogen fertilizer. However, more pods were produced per plant with lesser plant density.

Ø5ØØ3-CROØØ4-Ø4Ø

Marqueza, M.L. 1983. Response of peanut to nitrogen, phosphorus, and lime applications on Adtuyon clay. PCARRD Res. Highlights. p. 76.

Yield response of peanut (CES 101) on limed and unlimed soils in combination with different rates of nitrogen and phosphorus was studied.

Yield of CES 101 increased on limed and unlimed plots at all levels of N. The highest yield (2.1 t/ha) was obtained from unlimed plot with 60 kg N and 0 kg P_2O_5/ha. The result of the combined effect of N, P, and lime indicated that N efficiency on the limed soils increased only with relatively high amount of P. Net returns of ₱3,105.47 and ₱3,572.67 from the unlimed and limed plots, respectively, were obtained. A comparative economic analysis showed that liming with the application of 60 kg N and 40 kg P_2O_5/ha was economically more advantageous than 60 kg N and 0 kg P_2O_5/ha and without liming.

Ø5ØØ3-CROØØ4-Ø41

Monzon, L.S. 1970. Effect of the number of harrowings and N fertilization on the NPK uptake of peanuts. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 34 p.

Harrowing the soils (1, 3, and 5 times) did not affect the NPK content of both peanut seeds and hay. The N content of peanut hay was significantly increased with N fertilization. P and K contents were not affected by addition of N. The NPK uptake of both peanut seeds and hay was not affected by the size of clods brought about by the number of harrowings. The N

uptake in seeds and hay of peanut was significantly increased with N application. The mean ratio of NPK uptake in peanut seed was about 20-1-6; in peanut hay, about 4-1-12.

Ø5ØØ3-CROØØ4-Ø42

Monte, P.Z. and J.B. Bagaoisan. 1966. Calcium uptake of peanut at varying levels of calcium sulfate. CLSU Scientific J. 2(2): 83-92.

Various levels of calcium sulfate were applied at flowering and at maturity to determine the distribution of calcium in peanut tissues and to determine the effect of calcium on the yield.

Calcium was highest in the leaves, followed by the stem, root, shell, and kernel in descending order. The average concentration of calcium in the peanut plant tissues increased at maturity. These data indicated that addition of calcic materials to soils initially high in available calcium did not increase the yield of peanut.

Ø5ØØ3-CROØØ4-Ø43

Nuevas, Jr., J.G. 1968. Effect of inoculation and varying levels of N fertilization on the yield and other agronomic characters of peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 10 p.

Nonsignificant effect of the source of inoculum on all characters was found. Noninoculated plants gave better performance than the inoculated. Under conditions where the field had the right kind of infective Rhizobium, N fertilization significantly affected the seed yield and weight. Seed yield and seed weight per plant were higher in fertilized plants than those unfertilized. The best rate of N added seemed to be 30 kg/ha with or without inoculation. The number of marketable and nonmarketable pods and plant height was not greatly affected by N fertilization.

Ø5ØØ3-CROØØ4-Ø44

Neypes, E.A. 1959. Effect of rice hull ash on the physical and chemical property of the soil and on the yield of peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 26 p.

Application of rice hull ash had a transitory effect on the N status of the soil. Application of 15 kg of N on the 10-t rice hull ash treatment significantly increased the shelling percentage. Addition of rice hull significantly increased the K and P contents of the soil. Rice hull ash increased the percentage of sand-sized particles. A slight decrease in the percent of particles with the size of clay and silt was observed as a result of ash application.

Ø5ØØ3-CROØØ4-Ø45

Onia, A.B. 1968. Fertilizer placements on peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 12 p.

Field and pot experiments were conducted to determine the effect of fertilizer placement on the yield and other agronomic characters of peanut. Seed yield and its components (number of pods per plant and number of marketable pods per plant) were significantly affected by fertilizer placement. Fertilizer when placed 5 cm below the seeds resulted in higher yields compared to other placements for both the field and pot experiments. Other agronomic characters of peanut were not significantly affected by fertilizer placement.

Ø5ØØ3-CROØØ4-Ø46

Ortiz, L.B.R. 1973. Effect of foliar spray at different rates of liquid fertilizer (30-15-15) on the growth and yield of two peanut varieties. CLSU Expt. Sta. Contrib. No. 933.

The height and the number of unfilled pods of the runner and bunchy types of peanuts remained unaffected by the different rates of liquid fertilizer applied as foliar spray.

Foliar spray application of 15 ml of 30-15-15 NPK/4 l of water gave significantly more yield in terms of number and weight of filled pods.

Ø5ØØ3-CROØØ4-Ø47

Pacia, R.B. 1971. Effects of nitrogen applied singly and in combination with P and K on the yield and NPK uptake of peanut grown on bulldozed Lipa clay loam. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 36 p.

The experiment was conducted to determine the effects of nitrogen applied singly or in combination with P and K on peanut variety CES 101 grown on a Lipa soil, the surface of which had been scraped.

Different combinations of fertilizer materials did not affect significantly the yields of unshelled peanut hay and the shelling percentage in both the 1968 and 1969 croppings. Likewise, the percentages of NPK in the different peanut components were not affected by N, P, and K fertilizers both in the 1968 and 1969 croppings. The NPK contents of peanut seeds, shell, and hay were not significantly affected by applying N either singly or in combination with P and K.

Ø5ØØ3-CROØØ4-Ø48

Paterno, E.S., N. Armones and V. Perdido. 1983. Legume inoculation with Rhizobia. Field trials. Term. Rep. UPLB-PCARRD Proj. No. 34-314-21. 30 p.

At the farm fertility level, grain yield was increased from 24-39% by inoculation, while N application increased yield by only 6-25%. Increase in peanut yield at the maximum fertility level was 15-19% when inoculated and 2-28% when fertilized with nitrogen.

Ø5ØØ3-CROØØ4-Ø49

Paterno, E.S., B.M. Espiritu, F.G. Torres and M.L. Quizon. 1982. Effects of different methods of inoculation on the yield and nodulation of peanut (*Arachis hypogaea* (L.). Paper presented during the 13th CSSP Ann. Scientific Meeting, Cebu City. Apr. 28-30, 1982.

A field experiment on Tagaytay clay loam using split plot design was conducted during the dry season to examine peanut nodulation and yield as influenced by seed and liquid inoculation methods at comparable rates of inoculum. Effects of the addition of fertilizer N and molybdenum were also studied.

Inoculation of peanut cv. BPI-P9 with *Rhizobium* sp. strain CB 756 significantly increased the shoot weight, N uptake, and grain yield. Liquid inoculation at 10^6 cells/g of seed increased grain yield by 46% over those of uninoculated plots compared to only 6% by seed inoculation. A 27% increase in yield was produced by liquid inoculation at 10^5 cells/g of seed.

Addition of fertilizer N at 30 kg/ha without inoculation increased grain yield by only 14%. No significant differences in terms of nodule number among treatments was noted. Molybdenum application had no effect on nodulation and yield of peanut.

Ø5ØØ3-CROØØ4-Ø50

Paterno, E., V. Perdido and N. Armones. 1983. Legume inoculation with Rhizobia. Field trials. PCARRD Res. Highlights. p. 44.

Several Rhizobial strains from Hawaii and local strains were tested at different farm fertility levels and different soil types. Generally, inoculation-30 P_2O_5-30 K_2O treatment gave significantly higher peanut, mungbean, and soybean yields in Guimbalaon clay loam (La Carlota), San Manuel silt loam (Ilagan, Isabela), and Carmona clay loam (Binan, Laguna) at farm fertility levels. Increase in yield by 12-14%, 7-25%, and 24-30% were observed from mungbean, soybean, and peanut, respectively. Soybean was most responsive to the inoculum Rhizobial strain used. Inoculum at minimum levels produced higher soybean yield than those inoculated at maximum fertility levels. The same trend was also observed in mungbean and peanut.

Ø5ØØ3-CROØØ4-Ø51

Paterno, E.S. 1984. Utilization of microbial associations in peanut production. II. Inoculation requirements of peanut cultivars. Ann. Rep. Peanut CRSP-PCARRD-UPLB Spec. Proj.

Different Rhizobium strains were inoculated to selected peanut cultivars to identify strains effectively symbiotic to local peanut cultivars.

Heavier nodule weights were produced by Virginia than either Robut 33-1 and UPL Pn4.

In general, the good root nodule formers on peanut varieties tested were TAL 1000, TAL 1371, and NC 92.

Rhizobium strains CB 756 and P3 used as seed inoculants in peanut-rice cropping were generally effective in forming root nodules on peanut as the first crop.

The nitrogenase activity of peanut plants inoculated with strains CB 756 and NC 92 reached as much as 95 and 87 umole C_2H_4 dry nodule per hour, respectively, compared to the control with only 66 umole C_2H_4 dry nodule per hour.

Ø5ØØ3-CROØØ4-Ø52

Pava, H. 1971. Response of soybean and peanut to nitrogen, phosphorus, and potassium fertilization. Abstr. of Res. Central Mindanao University. 1970-71. p. 5.

Best fertilizer treatment for soybean was 30-30-60 kg NPK/ha. Likewise, peanut bean yield was highest at 30-30-60 kg NPK/ha. About 30 kg of phosphorus alone also gave appreciably high yield.

Ø5ØØ3-CROØØ4-Ø53

Pecho, V.M. 1958. Effects of fertilization on the yield of peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 8 p.

Addition of P increased the yield of shelled peanut. Addition of K increased the yield inconsistently. Addition of lime did not increase the yield significantly.

Ø5ØØ3-CROØØ4-Ø54

Quitos, R.R. 1970. Peanut yield as influenced by varying rates of N-P-K application. CLSU Expt. Sta. Contrib. No. 690.

Kinorales peanut variety was tested with different rates of N-P-K fertilizer in kilogram per hectare: (0-0-0), (10-30-30), (20-60-30), (20-80-40), (30-60-30), and (40-100-50).

Based on growth and yield analysis, results revealed that treatment application of 40-100-50 kg NPK/ha seemed to be the best rate of fertilizer.

Ø5ØØ3-CROØØ4-Ø55

Rabang, F. 1968. Effect of time of hilling-up on the growth and yield of peanut. CLSU Scientific J. 4(4): 226.

The study was conducted to select the most appropriate time of hilling-up of peanut in the CLSU conditions. Hilling-up done before flowering resulted to relatively higher yield over those hilled-up after flowering. The difference obtained, however, did not reach a level of significance.

Ø5ØØ3-CROØØ4-Ø56

Ramos, S.R. 1971. Effect of population and calcium levels on the yields of peanut (CES 101) planted during the late rainy season. BSA Thesis. Mindanao Institute of Technology. 16 p.

Plant density and application of calcium did not significantly affect peanut yield. Also, there was no significant effect noted in dry pod yield, percentage weight of unfilled pods, and bean yield per plot.

Ø5ØØ3-CROØØ4-Ø57

Ramos, B.B. 1970. Study on the fertilizer placement for peanut grown on desurfaced Lipa clay loam soil. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 50 p.

Fertilizer placement neither affected the yield and yield components of peanut nor the shelling percentage. However, fertilizer placed 5 cm

below the seeds significantly increased the N content of peanut seed, shell, and hay as well as the total N uptake of the plant. The same placement also produced significant increase in the protein content of peanut seed. Setting the peanut seeds on the fertilizer band at planting seriously affected seed germination.

Ø5ØØ3-CROØØ4-Ø58

Relator, R.Z. 1955. A study of relationship of seed selection on the yield of Spanish Red peanut. BSA Thesis. Mindanao Institute of Technology. 26 p.

Two-trial plantings during the dry season were conducted at the MIT Experiment Station to find out if there is a positive relationship of selecting the seeds of Spanish Red peanut to be planted with increased yield. The study was based on the premise that three-seeded or four-seeded pods when planted would possibly bear also three-seeded or four-seeded pods. There was no significant relationship of selecting the seeds to be planted with the yield of Spanish Red peanut.

Ø5ØØ3-CROØØ4-Ø59

Rodrigo, P.A. 1949. Peanut culture in the Philippines. Philipp. J. Agr. 14(2): 165-180.

The study discussed the cultural requirements, harvesting, and production of peanut.

Ø5ØØ3-CROØØ4-Ø6Ø

Roxas, R.P. 1959. Effect of different methods of culture on the yield of runner and bunchy types of peanuts. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 17 p.

The bunchy type of peanut outyielded the runner type in fresh and dry weights of the whole plant and straw regardless of the methods of culture followed during the dry season. No significant differences between the two types during the wet season was found. Of the three methods of culture studied (level, ridge, and furrow), the level method gave the highest fresh and dry weights of both types during the wet season. Different methods of culture did not vary significantly in the average pod yield, straw, and seeds of both types in either season.

Ø5ØØ3-CROØØ4-Ø61

Santos, R.B. 1970. Effects of inoculation and liming on the growth and yield of peanut planted at different spacings. M.S. Thesis. Araneta University Foundation.

There was no significant increase in plant height of both inoculated and limed CES 101 peanut variety. However, there was a significant increase in the number of marketable pods per hill.

Those planted at 20-cm spacing were taller and had higher yields per hectare. Plants inoculated, limed, and spaced at 20 cm consistently yielded more marketable pods and seeds per hectare. Inoculation and liming had no adverse effects on the growth and yield of peanut.

Ø5ØØ3-CROØØ4-Ø62

Santos, R.B. and E.G. Santos. 1984. Effects of calcium, sulfur, and nitrogen on the development and yield of peanut. ISU Res. J. 12 (1-2): 6-30.

Different levels of calcium, sulfur, and nitrogen were applied to Red Spanish peanut plants to study the possible effects of these elements on the pod yield of peanut. Calcium gave the highest pod yield among the nutrients applied singly. Combination of calcium and sulfur yielded higher than those either calcium or sulfur applied singly. Significant interactions between calcium and nitrogen and calcium and sulfur were also observed.

Ø5ØØ3-CROØØ4-Ø63

Samonte, H.P. 1982. Screening of corn, mungbean, peanut, sweet potato, and ipil-ipil for tolerance to acid soil conditions. Ann. Rep. UPLB-PCARR Proj. No. 89-216-21. p. 1-91.

Different number of lines and varieties of mungbean, corn, peanut, and sweet potato were screened for acid tolerance on selected soils.

Of the 783 corn entries screened for tolerance to acid soils and compared to IPB Var. 1, few elite lines showed moderate to high tolerance to acid soils.

There were 202 peanut entries initially screened on Antipolo clay (pH 4.92) and extremely acidic Adtuyon clay (pH 4.2). On the shallow or eroded Antipolo clay, 11 out of 59 entries showed moderate acid tolerance. Yields ranged from 1. 02-1.41 t/ha of shelled peanut; the highest yield exceeded that of UPL-Pn4 by 139%. On uneroded, friable Antipolo clay, 10 out of 59 entries showed relatively moderate acid tolerance. On extremely acidic Adtuyon clay, 7 out of 143 entries had relatively moderate tolerance to acidity which yielded 1.01-1.9 t/ha. BPI-P9 was the most tolerant variety.

For sweet potato entries tested in acidic soils, Biseron, Kinabakab, C-1481-8, and 18-498 were found promising.

Ø5ØØ3-CROØØ4-Ø64

Silayar, H.S. 1917. Culture and fertilization as they affect the oil content of peanut. Philipp. Agr. 6(2-3): 84-97.

Fertilization with ash, manure and ash, or manure alone increased the oil content. The ash, in the majority of the cases, gave the highest increase in yield produced by liquid inoculation at 10^5 cells/g of seed.

Nitrogen fertilization at 30 kg/ha without inoculation increased the grain yield by only 14%. No significant differences in terms of the number of nodule among treatments was noted. Molybdenum application had no effect on nodulation and yield of peanut. This study supported the possibility that the performance of selected inoculum strains is enhanced by the liquid inoculation method.

Ø5ØØ3-CROØØ4-Ø65

Sinampaga, R.R. 1968. Effect of four methods of cultivation on the growth and yield of Vigan Lupog variety of peanut. BSA Thesis. Central Luzon State University. Muñoz, Nueva Ecija. 24 p. Also in the CLSU Scientific J. 4(4): 226.

The experiment was conducted to study the effect of four methods of cultivation on the growth and yield of Vigan Lupog peanut variety under the CLSU conditions. Plants subjected to different methods of cultivation did not vary in their growth performance. However, yield was greatly influenced by the different treatments used. Combinations of off-barring and hilling-up and flat and hilling-up cultivations gave getter results compared to other treatments.

Ø5ØØ3-CROØØ4-Ø66

Tabunar, C.N. 1969. Effect of varying rates of seeding on the growth and yield of peanut. BSA Thesis. Cagayan Valley Agricultural College.

Treatment with four seeds per hill gave the tallest plants (60.4 cm). However, plants that were planted three seeds per hill were the highest yielder with 1319 kg/ha during the wet season.

Ø5ØØ3-CROØØ4-Ø67

Teodosio, M.M., H.M. Pava and L.J. Curayag. 1983. Effect of population density and P fertilization on the growth and yield of peanut in limed and unlimed soils. CMU J. Agr. Food and Nutr. 5(4): 697-738.

Different rates of population (200, 300, 400, and 600 thousand plants/ha) and phosphorus (0, 30, 60, and 90 kg P_2O_5/ha) were tried on CES 101 peanut variety, planted in limed and unlimed soils to determine their effects on the growth and yield of peanut. In limed and unlimed soils, the number of pods and dry matter yield per plant decreased significantly as population density increased. Seed yield was higher in limed (1.9 t/ha) than in unlimed (1.3 t/ha) soils. Application of 90 kg P_2O_5/ha produced the tallest plants, highest dry matter, pod, and seed yield per hectare.

Ø5ØØ3-CROØØ4-Ø68

Tolentino, D.A. 1965. Comparative effects of varying the amount of seeding on the yield of Kinorales variety. BSA Thesis. CLSU Expt. Sta. Contrib. No. 178. 19 p.

Different seeding rates (1, 2, 3, 4, and 5 seeds/hill) were tried on Kinorales peanut variety to determine their effects on the pod yield. Three seeds per hill gave the highest yield of dried, developed pods per hectare. In terms of soilage production, five seeds per hill gave the highest yield.

Ø5ØØ3-CROØØ4-Ø69

Tulusan, R.T. and B.T. Cajigal. 1967. Effect of varying amounts of mixed superphosphate and muriate of potash fertilizers on the growth and yield of Kinorales peanut variety. CLSU Scientific J. 2(3): 149-154.

The study was conducted to determine the best amount of mixed superphosphate and muriate of potash fertilizer in a 1:1 nutrient ratio on Kinorales peanut variety. Application of 200 kg/ha of mixed superphosphate and muriate of potash gave the best response in hay and pod production.

Ø5ØØ3-CROØØ4-Ø7Ø

Ulep, I.P. 1967. Comparative study on the yielding capacity of peanut using three-seeded, two-seeded, one-seeded pods as planting materials. BSA Thesis. CLSU Expt. Sta. Contrib. No. 334. 27 p.

The study was conducted to determine the effect of using seed materials from three-seeded, two-seeded, and one-seeded pods on the growth and yield of peanuts under the CLSU conditions.

Data indicated that yield of dry pods and shelled kernels of peanuts was improved by using three-seeded pods as planting materials.

Ø5ØØ3-CROØØ4-Ø71

Valle, M.P. 1963. Response of peanut to fertilizer N, P, and K spread in the furrow before planting on Lipa clay loam soil. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 7 p.

Yields of unshelled and shelled pods per plot were significantly affected by the fertilizer treatments. Application of 15-60-60 kg of NPK per hectare gave the highest plot yield of pods. Yields of straw and the number of pods dry out of whole plants, all on the plant basis, were significantly affected by fertilizer treatments. However, all exhibited high individual yields on plots treated with 15-60-60 kg combination of NPK per hectare. Plant height, fresh weight of plants per plot, and shelling percentage were not significantly influenced by fertilization.

Ø5ØØ3-CROØØ4-Ø72

Vera, M. 1976. Effects of interaction between seed inoculation *(Rhizobium japonicum)* and P fertilization on the growth and yield of peanut. CLSU Scientific J. 12(1): 71.

Plots inoculated with *R. japonicum* and 30 kg P/ha produced significantly taller plants, higher number of developed pods, higher shelling percentage, and higher seed yield.

Ø5ØØ3-CROØØ4-Ø73

Villegas, L.M. 1958. Effects of P and K fertilizers on the yield of legumes. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 12 p.

Varying amounts of P and K affected the legumes differently. Soybean responded significantly to 15-90-90 kg NPK. Green mungo showed highly significant response to K alone. Cowpea and peanut were not affected by P and K fertilizers applied singly and in combination. Tapilan, on the other hand, showed a negative response. Soil analysis showed significant increases in the amount of available P and K and exchangeable Mg. Ca was not affected by the different treatments and by various types of legumes.

- 21 -

Crop Protection

05003-CRO005-001

Bajet, N.B. 1973. Identification and pathogenecity of *Rotylenchulus* sp. isolates on mungo, peanut, and soybean. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 12 p.

Rotylenchulus nematodes attacking mungo, peanut, and soybean at the UPCA-CES were identified as isolates of *R. reniformis* based on the distinguished morphological characters of juvenile females. The existence of *R. reniformis* biotypes was indicated when different crop reactions to separate inoculations of the three isolates were observed. On mungo, the root weight, top weight, and yield were reduced by 48, 31, and 42%, respectively. Significant difference between the inoculated and uninoculated plants was observed in yields. Peanut and soybean had inconsistent reactions to the inoculation of peanut isolate. No significant differences between the inoculated and uninoculated plants was noted.

05003-CRO005-002

Cadapan, E.P. 1984. Management of Peanut Insect Pests. I. Yield Potential and Resistance of Promising Lines. Philippine Seed Board Recommended Varieties and Native Varieties of Peanuts Against the Major Insect Pests. Ann. Rep. Peanut CRSP-PCARRD-UPLB Spec. Proj.

Twenty different varieties were tested for yield at the UPLB experiment station. Their mean seed yields exposed to different insect pests ranged from 571-2,185 kg/ha. In general, local varieties grown by peanut farmers all over the country produced less than the Philippine Seed Board recommended varieties except those grown in Mindoro and Calauan, Laguna. These two varieties were comparable to other recommended varieties. Of the North Carolina State University varieties, only NC7 and NCGP 343 gave higher yields than most recommended varieties.

05003-CRO005-003

Cadapan, E.P. 1984. Management of Peanut Insect Pests. II. Effects of Different Degrees of Leaf Damage at Different Stages of Plant Development On the Yield of Peanut. Ann. Rep. Peanut CRSP-PCARRD-UPLB Spec. Proj.

Different degrees of damage were done at different growth stages of development by mechanically cutting the leaflets with a pair of scissors.

The reproductive stage from beginning pod to beginning seed was the stage most susceptible to leaf damage.

05003-CRO005-004

Cadapan, E.P. 1984. Management of Peanut Insect Pests. III. Effects of Different Planting Dates and Plant Density on the Yield of Peanut. Ann. Rep. Peanut CRSP-PCARRD-UPLB Spec. Proj.

Peanut variety UPL Pn2 produced the highest seed yield when planted in October compared to the September and November, 1983 plantings and to the January, 1984 planting. The highest yield in 1983 was obtained when plants were planted close, i.e., 540,000 plants/ha while that of the January, 1984 planting was at

300,000 plants/ha.

The density of insect pests and their damage were positively correlated with the density of plants in the 1983 planting. The population of the different insect pests as well as their damage increased as the date of planting was delayed.

Ø5ØØ3-CROØØ5-ØØ5

Calilung, V.J., L.F. Fabro, O.S. Opina, F.C. Quebral, R.P. Robles and V.E. Banasihan. 1983. Field legumes pest management. PCARRD Res. Highlights. p. 78.

Legume viruses commonly attacking cowpea, peanut, mungbean, and soybean were cowpea mosaic virus (CMV), peanut mottle virus (PMV), mungbean mottle virus (MMV), and soybean mosaic virus (SMV), respectively. CMV and MMV were present in all the seed parts while peanut rust and Cercospora leaf spot were prevalent. Dithane M-45 and Delsene Mx were most effective when applied 3-4 times, which increased the yield to as high as 65-68%. A maximum profit of ₱1.69/peso of production cost would be attained with application of fungicides.

Ø5ØØ3-CROØØ5-ØØ6

Castillo, M.B. 1975. Plant parasitic nematodes associated with mungbean, soybean, and peanut in the Philippines. Philipp. Agr. 59(3-4): 91-99.

Plant parasitic nematode genera *Rotylenchulus, Helicotylenchus, Tylenchorhynchus, Pratylenchus, Hoplolaimus,* and the known fungus feeder, *Aphelenchus,* were found associated with stunted mungbean, soybean, and peanut in 15 provinces. The *Rotylenchulus* isolates attacking mungbean, and peanut in UPLB, College, Laguna were identified as *R. reniformis.* Except in few sampling areas, nematode population densities were generally lower, less than 100/400 cc of soil.

On peanut, *Helicotylenchus, Rotylenchus,* and *Aphelenchus* were the most widespread.

Ø5ØØ3-CROØØ5-ØØ7

Hill, L.V. and P.W. Santillan. 1969. Competitive effects of annual weeds on Spanish peanut. Weed Sci. 17(1): 1.

Mechanical method of weed control become impractical after peanut have begun pegging since developing pods would be injured. Effective and economical herbicides could minimize these drawbacks of mechanical method of weed control.

Ø5ØØ3-CROØØ5-ØØ8

Opina, O.S. 1978. Consequences of intensive and sequential cropping on *Sclerotium rolfsii* and other pathogens associated with field legumes and sorghum. Ph.D. Thesis. University of the Philippines College of Agriculture, College, Laguna. 149 p.

Intensive cropping of soybean, mungbean, and peanut for four consecutive plantings resulted in serious decline in grain yield and reduction of plant height and crop stand. This was mainly attributed to the increase incidence of stem and root rot owing to *Sclerotium rolfsii* coupled with early and severe incidence of foliar diseases.

Intensive cropping of soybean, peanut, and mungbean on the same plot was allowable up to 3rd, 2nd, and 1st consecutive plantings without significant reduction in yield, respectively, while sorghum was allowable up to the 4th cropping.

Sclerotial density was high on plots planted continuously with soybean, mungbean, and peanut. Minimal density was recorded on plots planted continuously with sorghum.

Ø5ØØ3-CROØØ5-ØØ9

Opina, O.S. 1981. Management studies for the control of legume diseases. University of the Philippines at Los Baños, College, Laguna. PCARR Proj. No. 652. 27 p.

Application of fungicides Delsene MX and Dithane M-45 and cultural practices such as depth of planting, seeding rate, mulching density, and fertilization were studied for the effective control of important legume diseases.

Under greenhouse and field experiments, Delsene MX proved effective against Cercospora leaf spot of mungbean. Delsene MX and Dithane M-45 were the best against Cercorpora leaf spot-rust complex of peanut. Zincopol also controlled the disease complex under field conditions.

Slurry method of seed treatment reduced the incidence of pre- and post-emergence damping-off. Cultural practices such as depth of planting, seeding rate, mulching density, and fertilization influenced the incidence of pre- and post-emergence damping-off.

In peanut yield, uredospore was the most predominant fungus spore present in the air and its increase in concentration was correlated with the increase in rust pustule on the host plant.

Ø5ØØ3-CROØØ5-Ø1Ø

Pascua, I.P. 1958. Soil and seed treatments with aldrin and chlordane for the control of insects affecting peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 9 p.

In the seed treatment, seeds were placed in a bottle with excess insecticides and agitated until all the seeds were coated uniformly. In the soil treatment, insecticides were applied uniformly on the soil surface at the rate of 33.33 kg/ha. Chlordane treatment on the soil and seed and aldrin treatment on the seed were significantly effective in controlling *Leucopholis irrorata* Chev. grubs. There was no significant differences in yield between the chemical treatment and the control in both season. Insecticides were nontoxic to the plant.

Ø5ØØ3-CROØØ5-Ø11

Pedrosa, Jr., A.M. 1977. Correlation of disease severity and reduction in yield of peanuts infected with Cercospora leaf spot. MIT Res. J. 7 (1): 59-70.

Three disease levels of Cercospora leaf spot were successfully produced in experimental plots of peanuts using three rates of fungicide. Imposed treatments produced highly significant differences in the amount of disease among the treatment plots resulting in significant differences in yields of all plot sizes used except for 82-m-row plots and yield of 10 plants. High negative correlation values were obtained between yield and disease severity levels. Although negative correlations were also obtained between pod analyses and measures of disease severity, the three disease severity treatment levels did not result in significant differences for the number of pods, % immature, intermediate, and mature pods from 10 plants. Nonsignificant differences were also observed for % sound mature kernels from 2-16 samples of pods from two 82-cm-row and one 164-m-row plots.

The expected mean squares (EMS) and cultivar for yield from different plot sizes showed 82-m-row plots were suitable for yield studies on peanut. It is suggested, however, that two 164-m-row plots should be planted and 82-m-row sections can be later designated along the row for gathering data.

Ø5ØØ3-CROØØ5-Ø12

Pua, D.R. 1978. Effects of peanut rosette and peanut mottle viruses on the yield, protein, and oil content of peanut. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 62 p.

Two viruses of peanut, peanut rosette virus (PRV) and peanut mottle virus (PMV) were isolated and studied to determine their effects on yield, nutritive value (protein and oil contents), transmissibility, and pathologic reactions to different peanut cultivars. PRV drastically reduced plant height, number of pods per plant, weight of seeds, and number of seeds per pod when the plants were inoculated either at vegetative or reproductive stage. However, both the PMV and PRV impaired seed quality, but not the germination of peanut seeds.

Three accessions were found immune to PVM, Acc. III, 112, and 135. Of the two virus studied,

the PMV yielded positive seed transmission.

Seeds from plants infected with PMV and PRV showed higher protein analysis than the control group but had lower oil content. Under the electron microscope, flexous rodlike particles averaging 670-700 mm long and isometric particles with a diameter ranging from 28-30 mm from the purified preparation of PMV and PRV, respectively, were observed.

Ø5ØØ3-CROØØ5-Ø13

Punzalan, F.L. 1971. Weed control in peanut. Proc. Second Ann. Conf. on Corn, Sorghum, Soybean, Mungo, and Peanut. University of the Philippines College of Agriculture, College, Laguna.

Weeds in peanut, if left uncontrolled, may result in 50-95% reduction in yield. Weeding must be done not later than 6 weeks and should start as early as 2 weeks after planting.

The following herbicides were applied 56 days after planting (DAP) with their rating for weed control and rates of application. Amiben applied at the rate of 5.0 kg ai/ha and trifluralin (1.5 kg ai/ha) were rated fair and poor, respectively. PTK (3.0 kg ai/ha), prometryn (2 kg ai/ha), and linuron (2.0 kg ai/ha) were rated satisfactory in controlling weeds. Linuron, though a good herbicide, was very toxic to peanut plants which resulted in low yield.

Ø5ØØ3-CROØØ5-Ø14

Punzalan, F.L. and R. Vega. 1972. Weed control in peanut: Evaluation of herbicides. Proc. Third Ann. Scientific Meeting of the Crop Sci. Soc. of the Philipp. University of the Philippines at Los Baños, College, Laguna. p. 164-169.

Nutrifen at the rate of 3.0 kg ai/ha and trifluralin at 1.0 kg ai/ha appeared most promising for peanut weed control in College, Laguna and Ilagan, Isabela, respectively.

Ø5ØØ3-CROØØ5-Ø15

Quebral, F.C., D.A. Garcia. F.L. Punzalan and I.C. Cagampang. 1976. Evaluation of fungicides for leaf rust and leaf spot control of peanut. Philipp. Agr. 59(7-8): 313-316.

The effectiveness of benlate and carbendazole, plantvax 75W, dithane M-45, and pyracarbolid combinations were evaluated for the control of both the peanut leaf spot and leaf rust All treatments were effective in controlling leaf spot but only benlate and carbendazole, plantvax, and pyracarbolid combinations were effective against leaf rust. However, the favorable performance of benlate-pyracarbolid, carbendazole-plantvax. and pyracarbolid against rust and leaf spot was not reflected in yield. Pyracarbolid at the rate of lg/378 l of water was still phytotoxic as shown by the slight yellowing of the leaves.

Ø5ØØ3-CROØØ5-Ø16

Robles, R.P. and L.E. Fabro. 1979. Survey of weeds and weed control practices in legumes in different regions. Weed Sci. Rep. 1978-79.

Different legume-producing regions of the Philippines were surveyed to acquire benchmark information on weeds and their control in legumes, peanut, mungbean, and soybean.

Data were taken from area size ranging from small gardens in Batangas, Davao, and North Cotabato to 1-3 ha in Pangasinan, Ilocos, and Isabela.

Ø5ØØ3-CROØØ5-Ø17

Robles, R.P., L.E. Fabro and Z.N. Telosa. 1979. Weed control in legumes: Dry season, 1979. Weed Sci. Rep. 1978-79.

The effectiveness of trifluralin and butralin as preemergence sprays and bentazon as postemergence spray, in combination with handweeding for weed control in mungbean (*Vigna radiata* L.), soybean (*Glycine max* (L.) Merr.), and peanut (*Arachis hypogaea* L.) was evaluated.

Peanut yield was significantly highest in the following treatments: trifluralin (0.5 kg/ha) fb handweeding fb bentazon, butralin (at the 2

rates used) fb bentazon fb handweeding, and butralin fb handweeding fb bentazon. Treatment with trifluralin at 0.5 kg/ha fb bentazon gave significantly higher yield than when trifluralin was applied at 1.0 kg/ha fb bentazon. The rest of the treatments gave significantly higher yield than the unweeded check.

Ø5ØØ3-CROØØ5-Ø18

Robles, R.P., L.E. Fabro and Z.N. Telosa. 1979. Legume pest management and monitoring. 1. Weeds. Weed Sci. Rep. 1978-79.

The study was conducted to identify weeds infesting legumes and determine the extent of infestation under the Los Baños conditions during the wet season of 1978.

In peanut, *D. sanguinalis* and *E. indica* predominated. The same trend was evident in cowpea. Overall, the most predominant weed species in this area was *D. sanguinalis* followed by *E. indica* and *C. rotundus.*

Ø5ØØ3-CROØØ5-Ø19

Roldan, E.F. and A.F. Querijero. 1939. Black spot of peanut. Philipp. Agr. 27(8): 669-682.

The black spot disease caused by *Cercospora personata* (B. and C.) was the most prevalent and destructive disease of peanut in the Philippines and in different parts of the world. The fungus, which was not seedborne, lived between seasons in the soil in the form of stroma in peanut refuse. Infection in the field was due to spores carried by the wind from the soil or from leaves of diseased plants.

None of the eight varieties of peanut tested for susceptibility and resistance to blackspot showed significant differences in reaction to the disease. All were infected with the disease in practically the same degree of severity. Attempts should be directed towards breeding and selecting strains or varieties that showed increase resistance to the disease.

Ø5ØØ3-CROØØ5-Ø2Ø

Tandingan, I.C. 1980. Occurrence and development of peanut diseases as affected by time of planting and weather factors. Ann. Rep. PCARR Proj. No. 837.

At SMARC experimental area, five fungal diseases occurred: damping-off was observed at seedling stage; fusarium wilt and peanut rust, from vegetative to maturity stage; and fusarium leaf blight and Cercospora leaf spot, from seedling until maturity stage.

Damping-off had its highest incidence in the November planting. It was also observed in January and March-October. Peanut rust was first observed specifically in May. Higher incidence of fusarium wilt occurred in October and November plantings at vegetative stage but its occurrence was highest during the flowering stage in February planting. At maturity stage, Cercospora leaf spot and fusarium leaf blight infection seemed higher from December-February plantings.

Ø5ØØ3-CROØØ5-Ø21

Villaflores, M.F. 1958. Seed and soil treatments for the control of soil insects affecting peanut. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 12 p.

Soil and seed treatments with dieldrin and heptachlor were significantly effective against *Leucopholis irrorata* Chev and earwig. Dieldrin and heptachlor applied as seed coatings were significantly effective in reducing injury to pods by wireworm. Injury to pods due to small grubs was significantly reduced by the dieldrin soil treatments. The two insecticides did not show any toxic effect on the plants.

Commodity Group No. Ø5ØØØ

Postharvest Handling, Processing, and Utilization

Ø5ØØ3-CROØØ7-ØØ1

Abilay, T.A. 1964. Comparative study of ipil-ipil and violeta leaf meals and soybean, peanut, zamboangita, and mani-manihan vine leaf meals in chick rations. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 17 p.

The feeding value of 0, 3, 5, and 10% ipil-ipil and violeta leaf meals and soybean, peanut, zamboangita, and mani-manihan vine leaf meals were compared. Eight-week-old fed basal ration (control) chicks were heavier (532.9 g) than those fed experimental ration (496.6 g). Mani-manihan (120-day period) gave the heaviest chicks. No statistical differences was found among the leaf meals except in mani-manihan (120-day period) which was significantly superior to ipil-ipil and violeta as feed supplement. Mani-manihan (for both periods) together with peanut and zamboangita can be used as supplements up to 10% while ipil-ipil and violeta only up to 5%. Soybean can be used only at least between 5 and 10% levels for satisfactory results. Ten percent of ipil-ipil and violeta gave a relatively poorer growth.

Ø5ØØ3-CROØØ7-ØØ2

Arida, V.P. and F.C. Borlaza. 1969. Ozonolysis of peanut oil. NIST Govt. Agency Res.

Coconut oil may also be subjected to oxidation by a strong oxidizing agent like ozone. However, most reports indicated that ozonolysis would be more successful with oils having a high degree of unsaturation than that present in coconut oil. Preliminary trial was conducted using peanut oil. By providing the optimum conditions of ozonolysis, 26% yield was obtained from peanut oil. The product was made up of five white crystals. Further studies on ozonolysis are considered.

Ø5ØØ3-CROØØ7-ØØ3

Bulilan, N.T. and E.P. Lozada. 1979. Deep-bin drying characteristics of unshelled peanuts. Ann. Trop. Res. 1(2): 82-90.

Variations in the temperature and moisture of unshelled peanut dried at three drying temperatures (35, 37.8, and 43.3°C) and two air flow rates (0.0043 and 0.0052 m^3/second per 0.028 m^3 load) were studied.

Large temperature and moisture content (MC) gradients were observed between the upper and lower levels of peanut in the bin during the first 20 hours of drying after which these gradients gradually decreased.

Drying peanut from 40 to 13% moisture (safe for storage) could be accomplished at least 48 hours with air temperature of about 43.3°C and air flow rate of 0.0052 m^3/second (cmps) per 0.028 m^3 load. Under specific drying conditions, the rate of drying decreased with an increase in the height of the peanut column. Drying peanut at a depth of 182.9 cm was most economical (requires least energy) without gradient in moisture at the end of the drying process.

Ø5ØØ3-CROØØ7-ØØ4

Dela Cruz, L.R. 1971. Protein N content of some leguminous seeds. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 14 p.

The N fractionation was affected by treatment with trichloroacetic acid. All N determinations were made using the micro-Kjeldahl method. Soybean had the highest content of total N, nonprotein N, and protein N. Peanut had the lowest content of total N and protein N. Cowpea had the lowest nonprotein content. The % nonprotein N varied from 6.03-18.24% of the total N content; that of protein N, from 82.48-93.96%.

Ø5ØØ3-CROØØ7-ØØ5

De Leon, S.Y. 1973. Testing and development of low cost nutritious items from indigenous raw materials. UPCHE J. 1(1): 1-35.

Proximate analysis of the different flours tested revealed that for moisture, peanut flour had 8% and mungo flour, 10%. For fat, peanut flour had 4% and mungo flour, 2%. For acid, peanut flour had 4% and mungo flour, 2%.

Storage studies on the flour blends showed an increasing level of fat acidity for mungo wheat blend as storage prolonged.

Sensory evaluation showed that for cookies, mungo cookies were of high acceptability; for chiffon cake, 5% of mungo-wheat flour blend was the most preferred. For the peanut-wheat blend, no significant differences in the flavor of the cakes was detected at 0, 5, 10, and 15% levels.

Storage tests on the products showed that for cookies, 37 days of storage did not affect the acceptability; for cakes, 3 days of storage resulted in a stale product.

Ø5ØØ3-CROØØ7-ØØ6

De Leon, S.Y. and L.N. Panlasigue. 1975. Formulation evaluation of protein-calorie products from indigenous sources. BSFT Thesis. University of the Philippines College of Home Economics, Diliman, Quezon City.

Mungo and peanut flours were blended with wheat flour at the rate of 15 and 20% and stored. At the end of 1, 2, and 3 months, the composite flours were analyzed. The optimum development time of the gluten of peanut flour blends increased as the storage time increased but with lesser stability. The same trend was observed for the mungo-wheat blends, but stability of the dough increased as storage time increased.

Peanut flour can be blended with wheat flour at 15% level in butter cookies, 15% level in chiffon cakes, 15% level in loaf bread, 25% in cupcakes, 30% level in golloria, and 50% level in bunuelos. Golloria, bunuelos, peanut figs, and mungo pie were conceived to make optimum used of the nonwheat flours (peanut and mungo).

As calorie sources, the products can be ranked according to increasing ingredient cost: buns, butter cookies, loaf bread, golloria, peanut figs, mungo pie, cupcakes, bunuelos, and chiffon cakes.

As protein sources, the products can be ranked according to increasing ingredient cost: loaf bread, bun, mungo pie, peanut figs, cupcakes, golloria, bunuelos, butter cookies, and chiffon cakes.

Ø5ØØ3-CROØØ7-ØØ7

Enciso, J.A. and B.O. Rillo. 1977. Improvement of peanut milk. BSFT Thesis. University of the Philippines College of Home Economics, Diliman, Quezon City.

Based on the results of sensory evaluation and protein determination, the unflavored milk from roast-peeled peanut was the best sample.

Also, based on the results of sensory evaluation, protein dispersibility, and appearance of the product, the milk added with CMC (carboxymethyl cellulose) as stabilizer was the best sample.

Ø5ØØ3-CROØØ7-ØØ8

Escueta, E.E. 1984. Consumption of peanut as food and appropriate technology for storage/utilization. I. Inert-Gas Packaging and Storage of Shelled Peanut. Ann. Rep. Peanut CRSP-PCARRD-UPLB Spec. Proj.

This project aimed to develop low-cost storage methods for reduction of seed aflatoxin and preservation of seed germination. Germination, physico-chemical sensory properties, and aflatoxin were monitored for edible peanut. For seed peanut, the aflatoxin level was not monitored.

Initial results showed that storage of peanut under CO_2 atmosphere improved the germination, physico-chemical, and sensory properties of peanut at both ambient and refrigerated temperatures.

Ø5ØØ3-CROØØ7-ØØ9

Gamboa, V.C. 1979. Study on the postharvest processing of peanut. Res. Div. TRSD. NGA, Quezon City.

Sample stocks were procured from Santiago, Isabela and experimental trials on harvesting, threshing, drying, and shelling were conducted. Labor requirement per hectare for hand-harvesting, which was less critical than mechanical method, was conveniently accomplished in a day by six persons. Half-dried peanut was threshed at a rate of 30 kg/hour per person. Threshing wet peanut, on the other hand, was accomplished at a rate of 11 kg/hour per person. Sundrying revealed an average recovery of 63% from an initial MC of 35% to a final MC of 6%. Flatbed drying gave a relatively lower recovery of 58% from 32 to 6% MC.

Manual shelling of sundried and flatbed drier samples showed the same average recoveries of 68%. Mechanical shelling, which was observed at Delta Corp., revealed a recovery of 63%.

Ø5ØØ3-CROØØ7-Ø1Ø

Fandialan, I.M. and L.L. Ilag. 1973. Aflatoxin production of *Aspergillus flavus* isolates from rough rice, corn, soybean, peanut, and copra. Philipp. Agr. 57(5-6): 254-263.

Comparison of aflatoxin contents of the fungal growth and the potato dextrose broth filtrate, in which the isolates were grown for 8 days at 28°C, revealed that the mycellium with spores contained more aflatoxin than the broth filtrate. Cross inoculation studies showed that each isolate grew equally well in its native substrate and in the four other substrates. Aflatoxin production varied with each particular inoculum-substrate combination. Rice appeared to be the best substrate for aflatoxin formation. Soybean supported good fungal growth but yielded from nil to minute amounts of aflatoxin.

When inoculated in their respective native substrates, the most favorable temperature for aflatoxin production by the isolates from rough rice and corn was 30°C; peanut and copra isolates, 25°C, and soybean isolate, 20°C.

Ø5ØØ3-CROØØ7-Ø11

Lim, E.L. and S.Y. de Leon. 1973. Extraction of milk from peanut. BSFT Thesis. University of the Philippines College of Home Economics, Diliman, Quezon City.

Raw peanut was subjected to three methods of preparation: hand-peeled (P), lye-peeling (L), and soaking for 12 hours but unpeeled (U).

Subjective and objective tests showed sample L-II (lye-peeled extracted at pH 8.2) was the best in terms of color (creamy white), protein content ranging from 2.9-3.1 g/100 g of milk, and preference test. To conclude, milk can be extracted from raw peanut.

Ø5ØØ3-CROØØ7-Ø12

Llamas, N.M. and S.Y. de Leon. 1977. Curd product from peanut milk. BSFT Thesis. University of the Philippines College of Home Economics, Diliman, Quezon City.

Milk recovery increased from 89.50 to 89.70, 90 and 92.60%, respectively, for the 0, 6, 12, and 24-hour samples as time of soaking was increased. Protein content of the milk was maximum at a 12-hour soaking time and 2.4 g/100 ml of milk. Further increases in soaking period tended to decrease the protein content. Milk

sample with 5% $CaSO_4$ gave the highest yield of curd, best moisture content, and highest general acceptability.

Ø5ØØ3-CROØØ7-Ø13

Mendoza, E.R., S.C. Andales and E.P. Lozada. 1980. Drying and storage of field legumes. 1. Fundamental and optimum drying characteristics of field legumes. Term. Rep. UPLB-PCARR Proj.

The best drying temperature for peanut, soybean, and mungbean was 38°C.

The rate of pod split for soybean and mungbean increased with time. MC below 9-12% resulted in pod splits.

The regression equation curve showed a shorter drying time for the three legumes.

Ø5ØØ3-CROØØ7-Ø14

Mendoza, E.R., S.C. Andales and E.P. Lozada. 1980. Drying and storage of field legumes. II. Design, development, and testing of a legume dryer. Term. Rep. UPLB-PCARR Proj.

Analysis of dried products from the low-cost UPLB legume dryer showed that 50- and 100-kg capacity dryers had met optimum engineering design requirements.

Aside from being used as a heat source for the legume dryer, the rice hull furnace can be a good back-up heater for solar dryer during night drying operations.

Ø5ØØ3-CROØØ7-Ø15

Mendoza, E.R., S.C. Andales and E.P. Lozada. 1980. Drying and storage of field legumes. III. Legumes storage. Term. Rep. UPLB-PCARR Proj.

Moisture content alone did not constitute adequate index of anticipated stability. The equilibrium moisture content was a more satisfactory criterion of stability.

Conditions for safe storage in peanut should be 12-14% MC exposed to an environment ranging from 70-80%.

Ø5ØØ3-CROØØ7-Ø16

Paguiregan, F.L. 1971. Microbial assay of peanut and some peanut products. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 22 p.

Bacterial counts of peanut butter ranged from 0-650 ppm with an average count of 276. Those of peanut brittle ranged from 310-12,250 ppm with a mean count of 2,867 ppm. Gram negative bacilli bacteria were found in both products.

The 5-month stored peanuts had 100% fungal invasion; less infestation was observed in the 1-month stored peanut. The *A. glaucus* and *A. fumigatus* groups of *Aspergilli* were the most common fungi on stored raw peanut. *A. tamarii* and *A. flavus* were found on boiled and fried samples.

Dried shelled kernels harbored more fungi than the newly harvested fresh kernels. *A. niger* was the predominant fungus found on both samples followed by *A. flavus*, which was commonly isolated on dried than on fresh kernels. *A. ochraceus* was frequently found on fresh samples but was absent on dried unstored kernels.

Ø5ØØ3-CROØØ7-Ø17

Pronto, A.G. 1976. Soybean-peanut brittle. CLSU Scientific J. 12 (1). 77.

The study was conducted to find out the acceptability of brittles prepared from varied proportions of soybean and to find out the eye appeal, texture, and flavor character of the finished products. Brittles prepared from varied proportions of soybean did not differ significantly as to eye appeal characteristics. However, analysis of variance for flavor and texture showed significant results.

Ø5ØØ3-CROØØ7-Ø18

Santos, E.G., C.V. Cammayo and R.B. Santos. 1984. Peanut meal in doughnut making. ISU Res. J. 12(1-2): 37-44.

Doughnuts containing peanut meal were evaluated for acceptability. Doughnuts made from wheat flour served as the control.

Doughnuts containing mixtures of meal from both toasted and untoasted peanuts received fine texture rating. Doughnuts containing 30% meal from untoasted peanut received very strong aroma rating by 9% of respondents. Those containing 10% peanut meal were the most desirable doughnuts with meal from toasted peanut having a slight advantage. More respondents were in favor of doughnuts containing mixtures of meal from either toasted or untoasted peanut. The meal from toasted peanut resulted in a more acceptable mixture than from the untreated peanut.

Multiple Cropping

Ø5ØØ3-CROØØ1-Ø29

Aquino, A.A. 1982. Underplanting food legumes in coconut plantation. TCA Res. J. 4(1-2): 37-40.

Soybean, cowpea, peanut, and mungbean were planted in open fields and under coconut trees to compare the effects of planting scheme on their yields. Legumes in the open field yielded better than those planted under coconut trees.

Ø5ØØ3-CROØØ1-Ø3Ø

Bautista, A.M. 1983. Influence of spatial arrangement and peanut intercrop population density on cigar-filler tobacco. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 103 p.

A study on spatial arrangement of single, double, and triple row spacings of peanut (distanced at 0.5 m between the double and triple rows) at interval row combinations of 1.0, 1.5, and 2.0 m; and the 1.0 m distance for the monoculture tobacco were evaluated to develop a tobacco-peanut intercropping scheme. Population densities of peanut were two and three seeds per hill.

All the spatial arrangements significantly increased the total land productivity, except the triple row spacings at 2.0 m triple row combination. Intercrop peanut, likewise, significantly affected tobacco yield.

Tobacco in all spatial arrangements had an average yield reduction of 21% population equiratio different (PERD). As influenced by intercrop peanut, the average yield loss of tobacco was 21% PERD from both population densities. Peanut had a minimal average yield reduction of 5% PERD from the different spatial arrangements with a row ratio of 3:3 registering the highest PERD value of 12%. The high population density suffered the highest yield loss of 11 % PERD.

The double row spacing at interval low combination of 1.5 m indicated to be the optimum spatial arrangement for tobacco-peanut intercropping. The yield reduction of 11% PERD on tobacco was more than compensated by 55% yield of intercrop peanut. For peanut population density, higher profit was derived from two seeds per hill.

Ø5ØØ3-CROØØ1-Ø31

Bayuga, D. 1976. Intercropping cotton with peanut. CLSU Scientific J. 12(2): 124.

Peanut as an intercrop considerably increased cotton yield. The height of peanut at harvest was influenced by cotton as intercrop. Competition for sunlight and plant feed nutrients adversely affected the height of peanut and resulted in the decrease of the weight of filled pods per hill and per plot. Economic comparison of treatment favored higher gross returns when cotton was intercropped with peanut within row, hence more income in terms of yield per unit area was attained when intercropping was employed.

Ø5ØØ3-CROØØ1-Ø32

Berico, R.P. 1969. Comparative study of intercropping mungo, peanut, and soybean on the growth and yield of yellow flint corn (UPCA

Var. 1). BSA Thesis. Aklan Agricultural College, Aklan.

Peanut was the best among the intercrops used. Intercropped plots required less labor and gave an additional yield per unit area. Intercropped plants were planted 25 cm between hills, set between rows of corn plants which were planted 80 cm x 100 cm apart.

Ø5ØØ3-CROØØ1-Ø33

Boado, N.G. 1965. Patterns of intercropping peanut with corn and their overall influence on the agronomic yields as well as growth characteristics of these crops. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 10 p.

Percentage of filled and unfilled groundnuts was not affected by intercropping peanut with corn. Peanut planted alone favored the production of more groundnuts, heavier shelled peanut, and straw yield; alternating rows of peanut and corn resulted in greater leaf area and heavier straw yield. Best yield of shelled peanut was obtained using monoculture at one plant per hill and spaced 2 cm apart. Among the intercropped plants, the yield of peanut was highest in corn alternated with peanut rows, one plant per hill for peanut spaced 25 cm apart, and two plants per hill for corn spaced 25 cm apart.

Ø5ØØ3-CROØØ1-Ø34

Carcallas, C.D. 1981. Effects of fertilization on yield and yield components of peanut intercrop and on leaf nutrient concentration of dwarf coconut cultivars. Ph.D. Thesis. University of the Philippines College of Agriculture, College, Laguna. 99 p.

Seed yield of peanut intercrop was not influenced by NPK fertilization per planting time, however, considerable differences in seed yield were observed among plantings. Lowest yield was obtained from the 3rd cropping. In all other yield components measured, only plant height was affected by NPK fertilization. Nitrogen concentration in dwarf coconut leaves was increased after the 2nd and the 3rd croppings of peanut. Leaf N in dwarf coconut with intercrop was higher than in those without intercrop. Chlorine concentration was increased by NPK fertilization after the 3rd cropping of peanut intercrop. Seasonal variations did not influence chlorine concentration.

Calcium concentration was influenced by seasonal variations but was not affected by NPK fertilization. Leaf P, K, and magnesium were neither affected by NPK fertilization nor by seasonal variations.

Ø5ØØ3-CROØØ1-Ø35

Cariaga, E. 1976. Effects of weeding and intercropping with rows on the growth and yield of sunflower and peanut. CLSU Scientific J. 12(2); 124.

The study was conducted to determine the need for weed control in sunflower and peanut grown alone or as intercrop within rows and to relate the effects of intercropping on the yield of peanut and sunflower. Weed growth was greatly suppressed when sunflower and peanut were grown together within rows resulting in higher yields per unit area. Removal of weeds was necessary.

Ø5ØØ3-CROØØ1-Ø36

Dela Rosa, Z.M. 1978. Plant population density and cultural management scheme for grain sorghum and legume intercrops. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 99 p.

A field experiment was conducted on grain sorghum under different population densities and cultural management schemes. These included monocropping or intercropping with peanut and mungbean, either with inoculum alone or with inoculum plus different levels of N applied basal or sidedress at the Central Experiment Station, UP at Los Banos, during the dry cropping season.

Increase in sorghum plant population density from 200,000-300,000 plants/ha correspond-

ingly increased leaf area index (LAI), dry matter yield, plant height, and grain yield of sorghum but decreased the dry matter yield, weight of 1000-grain yield of intercrop mungbean (MG-50-10-A), and pod (unshelled) and bean (shelled) yields of intercrop peanut (BPI-8).

Height of peanut, shelling percentage, pod and bean yields, nodule count, number of one-seeded and pods were not significantly affected by different population densities of sorghum. Higher combined yields were obtained from the crop combinations of sorghum + mungbean and sorghum + peanut than the yield of each crop when planted alone either with inoculum alone or with inoculum plus different levels of N applied as basal or side-dress.

Ø5ØØ3-CROØØ1-Ø37

Elemo, K.A. 1980. Effects of sowing date, crop proportion, and seed rate on rice-peanut intercrop. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 152 p.

Two field experiments were conducted at the Central Experiment Station of UPLB, College, Laguna, June-December, 1979 to determine if rice-peanut intercrop could give substantial yield advantage. Rice-peanut intercrop, with components sown at the same day early in the season, in a crop proportion 1:1 (rice/peanut) using replacement series technique, gave 21% yield advantage based on the land equivalent ratio. This was superior to 13 and 1% yield advantage given by crop proportions 2:1 and 1:2, respectively, which were at higher seed rate.

Delayed sowing date reduced yields of component crops. For rice, shorter plants at maturity, lower straw yield, lower number of panicles per square meter, lower number of filled grains per panicle, and higher percentage of unfilled grains resulted.

For peanut, delayed sowing date decreased yield of kernel, pod, and haulm, and reduced maturity period and plant height. On the yield components, delayed sowing reduced the number of matured pods per plant, but the 100-kernel weight increased.

Increasing component crop proportion increased the yield as intercrop. Higher rice proportion gave less panicle number per square meter while that of peanut gave taller plants.

Ø5ØØ3-CROØØ1-Ø38

Escamos, S.M. 1981. Effects of planting configuration, inoculation, and N fertilization on corn-peanut intercrops. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 102 p.

A field experiment was conducted to determine the effects of planting configuration, inoculation, and N fertilization on corn-peanut intercrop.

Planting configuration did not affect both the individual and combined yields of corn and peanut. However, combined yields of corn and peanut were significantly increased by inoculation of intercrop peanut. N fertilization up to 60 kg N/ha also increased combined grain yield.

Ø5ØØ3-CROØØ1-Ø39

Herrera, W.T., R.K. Pandey, A.N. Villegas, and J.W. Pendleton. 1983. The response of four food legumes to drought using line source sprinkle system. Multiple Cropping Dept. International Rice Research Institute, Los Baños, Laguna.

The response of mungbean, peanut, cowpea, and soybean to drought using line small sprinkle system was studied.

Water use was consistently higher in the wet than in the dry regimes for all the crop species. In the dry regime, peanut had the highest water use followed by cowpea, soybean, and mungbean. Total water use showed a linear relationship with seed yield. Comparison of grain yields in the wet and dry regimes showed greatest yield reduction for mungbean (83%), least for peanut (46%), and intermediate for cowpea and soybean (65%). Among yield components, the number of pods per square meter was most affected by drought in all crops species followed

by the number of seeds per pod; seed weight was least affected. Increasing drought intensity resulted in a progressive reduction of leaf area, leaf area duration, and shoot dry matter. Dimunition was least in peanut and greatest in mungbean.

Ø5ØØ3-CROØØ1-Ø4Ø

Madrid, P.V. 1981. Response of corn, peanut, mungbean, and bush sitao to distillery wastes application. M.S. Thesis. University of the Philippines College of Agriculture, College, Laguna. 83 p.

Among the crops tested, corn exhibited the greatest tolerance to slops. Unlike the other crops, it can recover from the damage with application of slops at emergence. However, corn exhibited the greatest sensitivity when slops was applied at the onset of flowering or 47 days after planting. In terms of tolerance to row slop application, the crops can be ranked as follows: corn > peanut > mungbean > bush sitao.

Results indicated the feasibility of applying distiliery wastes as irrigation water in sugarcane intercrop with peanut.. Spray drift should be contained in cane areas adjacently grown to crops such as mungbean and bush sitao.

Ø5ØØ3-CROØØ1-Ø41

Mangaser, V.T. 1979. Effects of intercropping legumes (mungo, peanut, soybean) in the growth and yield of corn (var. downy mildew resistant-1) under the DMMMSC conditions. DMMMSC Res. J. 1(1): 1-13.

Corn yield intercropped with different legumes did not vary much with plots planted with corn as monocrop. But considering the income derived from the yield of both corn and legume intercrops, corn intercropped with peanut produced the highest net profit.

Ø5ØØ3-CROØØ1-Ø42

Mendoza, T.C. 1979. Optimum spatial arrangement in sugarcane-legume intercropping. MS Thesis. University of the Philippines College of Agriculture, College, Laguna. 61 p.

Two narrow rows spaced at 0.5 m with interval row-spacing of 2 m was optimum in sugarcane annual legume intercropping. The spatial arrangement indicated minimal yield reductions for the intercrops and comparable yield level for sugarcane to its pure culture at conventional equidistant row (1.0 m) planting scheme.

The total land productivity (LER) increased due to intercropping. Higher computed LER was obtained in the double rows compared to the quadruple row arrangement. The LER among the quadruple rows was the direct effect of the lower yield of sugarcane with intercrops relative to the monoculture stand. This was enhanced by great reduction in yield of the intercrop essentially owing to the lower seeding rate compared to their pure culture and the adverse shading effect impressed by the taller main crop.

Ø5ØØ3-CROØØ1-Ø43

Molina, E., L. Soriño and P.J. Cogger. 1983. Effect of row spacing, intra-row plant population, and weed competition on the yield of soybean and peanut. Betinan Res. Sta., Zamboanga del Sur.

Four experiments were carried out on a brown volcanic soil at Betinan Research Station, Zamboanga del Sur. Row spacings used were 25, 50, and 75 cm with intra-row spacing at 5, 10, and 20 cm. Populations achieved ranged from 67,000-200,000 plants/ha.

Peanut yields and other agronomic characteristics were not consistently affected by population. Weed competition had greatest effect at lower population, especially at wider intra-rows spacing.

Ø5ØØ3-CROØØ1-Ø44

Pamplona, P.P. and J.S. Imlan. 1976. Prospect and problems of intercropping corn with legumes in South Mindanao, Philippines. MIT Res. J. 6(1): 1-9.

Corn yield intercropped with one or two rows of either mungbean, peanut, and soybean did not vary significantly with those planted as a monocrop.

In the 1974 planting, peanut intercropped between the rows of corn did not differ significantly with the yield obtained in the monocrop when planted in double rows, but was significantly reduced to 54% when intercropped in single rows. In the 1975 planting, peanut yield intercropped in double and single rows between the rows of corn were significantly reduced to 18 and 9%, respectively.

Ø5ØØ3-CROØØ1-Ø45

Rivera, A.G. 1964. Effect of intercropping legumes (bush sitao, cowpea, mungo, and peanut) on the yield and other agronomic characteristics of sugarcane. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 16 p.

Intercropping with legumes reduced the vigor of sugarcane causing it to have low yield millable stalks which resulted in reduced tonnage per hectare. Intercropping with cowpea for pods slightly increased the purity of the cane juice thus, giving a higher quality ratio (PS/TC). However, intercropping with cowpea for seeds and bush sitao for pods and for seeds adversely affected the cane juice purity. Among the legume intercrops, bush sitao planted for seeds gave the highest income of ₱1,770/ha. For overall gross income from the sugarcane-legume intercrops, sugarcane-mungo combination had the highest value of ₱5,763.10, second to the control (₱6,952,66). Intercropping legumes with sugarcane reduced weed prevalence between the cane rows.

Ø5ØØ3-CROØØ1-Ø46

Soriano, N.B. 1963. Comparative study of the growth and yield of bush sitao, cowpea, mungo, and peanut grown under broad daylight, cheese cloth shade, and coconut shade. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 8 p.

Mungo and peanut gave more yield when grown in broad daylight, followed by those partially shaded, and those under cheese cloth shade. Tallest peanut plants were those grown under coconut shade, followed by those under cheese cloth, and at broad daylight. Plants grown in broad daylight maintained normal growth rate throughout the growing period. Those grown under shade treatment tended to be viny and lanky as the degree of light intensity was reduced. In general, all plants receiving the greatest amount of light were most vigorous and showed normal color of leaves, pods, and seeds.

Ø5ØØ3-CROØØ1-Ø47

Tamondong, T. 1976. Phenology and life-span observation of weeds associated with peanut, sunflower, and sesame. CLSU Scientific J. 12(1): 75.

Phenological data showed that weeds in plots of sunflower with peanut as intercrop had delayed maturity. However, data obtained from the weekly measurement of height showed that sunflower clone had the tallest weeds than those in plots planted to peanut and sesame.

There were 19 weed species associated with upland crops grown distributed into 11 families and 17 genera. Of these, *Trianthema portulacastrum* and *Cyperus rotundus* were the most dominant species. The same was also observed for *Digitaria sanguinalis* and *Echinocloa colonum*. Weed species such as *Celosia argentia, Rottboellia exaltata, Corchorus capsularis, Ipomoea triloba, Phaseolus lathyroides,* and *Calopogonium muconoides* had the longest life-span. Results relating the number of weeds, number of seeds produced, and fresh weight of each weed species per quadrant indicated no effect obtained from the associated crop plants.

Ø5ØØ3-CROØØ1-Ø48

Tandang, E.M. 1972. Intercropping sorghum with peanut, soybean, and mungo. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 27 p.

Sorghum had a significant increase in yield when intercropped with field legumes. Peanut

(CES 101) and soybean (CES 434) yields, however, decreased significantly. Only mungo (CES 14) was not affected significant increase in height when intercropped with sorghum. Field components and agronomic characters were significantly affected by intercropping except the number of days from planting to flowering of all crops and the weight of 100 shelled and unshelled peanut. Mungo appeared to be the last intercrop for sorghum, giving the highest net returns per hectare for both the wet and dry seasons.

Ø5ØØ3-CROØØ1-Ø49

Testado, R.C., A.R. Magbanua and T.R. Gloria. 1978. Effect of N levels applied to peanut and corn on the growth of both rubber and peanut or corn intercrops. USM Res. J. 1(1): 65-72.

Intercrops increased in height with application of N fertilizer. The difference among treatments of fertilized peanut was not significant although it was significant with the corn intercrop.

In terms of yield, increase rates of N significantly increased yield on corn. Peanut yield was not affected by fertilization.

Ø5ØØ3-CROØØ1-Ø5Ø

Waing, B.D. 1974. Cultural management practices in multiple cropping: Effect of different methods of land preparation on fertilized and unfertilized peanut after rice. CLSU Expt. Sta. Contrib. No. 1052.

Different methods of land preparation (normal),dry land with ridges, and wet land, fertilization (fertilized vs control) were applied on peanut planted after rice on Maligaya clay and Quingua silt loam.

On Maligaya clay, the different methods did not give significant differences in yield and other components. Fertilized plants yielded better than the unfertilized.

Different types of land preparation and fertilizer treatments produced significant differences in yield.

-37-

Socio-Economics and Marketing

05003-MAR003-001

Gregorio, A.J. 1969. Trend analysis of production, area, yield and prices in the Philippines, 1948-1966. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 64 p.

Graphical and different statistical methods were employed in analyzing the annual rate of growth, relative influence of changes in the area, yield in production, and calculation of the impact of shifts in hectarage distribution on peanut yield.

Cyclical and seasonal patterns of wholesale and retail prices of peanut were also analyzed.

05003-MAR003-002

Huelgas, R.R. 1978. Production and marketing of peanut in Luzon, 1976. UPLB-PCARR Proj. No. 363.

Information from 334 peanut farmers, 56 middlemen, and 12 processors from Cavite, Tarlac, Pangasinan, Isabela, and Metro Manila were collected in describing and analyzing the existing practices in the production and marketing of peanut in Luzon.

05003-MAR003-003

Ignacio, M.C. 1972. Management of peanut farms in some selected municipalities of Isabela. BSA Thesis. University of the Philippines College of Agriculture, College, Laguna. 45 p.

A study on the management of peanut farms in some selected municipalities of Isabela was conducted to determine the farm management practices in peanut production, cost and returns of producing peanut, problems associated with peanut production, and formulate solutions necessary for the improvement of the business. The average capital investment of peanut farm was ₱3,869/ha. Investments on land, farm building, and work animals were 76,4, and 18%, respectively. A hectare of peanut farm required 90% man-days to accomplish all the needed operations during the dry season; 102% man-days, in the wet season. Yield per hectare in the wet season was 750 kg and 1,200 kg in the dry season. Total farm receipt per hectare was ₱1,347. Average cost of production per hectare was ₱712. Net returns per hectare average ₱635.

Peanut farmers still adhered to the traditional method of farming. Peak labor days occurred during weeding and harvesting operations. Significant differences existed among labor requirements in Cavite, Tarlac, and Pangasinan.

Net returns per kilogram of dried peanut produced was ₱1.08 in Cavite, ₱1.04 in Tarlac-Pangasinan, and ₱1.38 in Isabela or an average of ₱1.17/kg in the areas studied.

Significant associations were found to exist between the net income and variables such as farm size, labor input, experience in peanut farming, and educational attainment of the farm operator.

High mark-ups realized by middlemen indicated that peanut marketing can be simplified and made more efficient by having a marketing association to deal directly with major buyers.

Ø5ØØ3-MARØØ3-ØØ4

Lizarondo, M.S., J.M. Ilao and A.M. Mariano. 1982. A study on the costs and returns and management of peanut farms in Antique. BAEcon Agr'l. Marketing Rep. 4(3): 72-75.

An average peanut farm (0.62 ha) in the province had a total production cost of ₱285 or ₱1,324/ha. Operating small farms and large farms incurred losses of ₱392 and ₱199/ha, respectively. By status of tenure, farm tenants suffered the biggest net loss of ₱472/ha while farm owners registered the least net of ₱206/ha. Leases incurred a net loss of ₱311/ha.

Recommendations on the improvement of peanut farmers' yields and income were mentioned.

Ø5ØØ3-MARØØ3-ØØ5

Lizarondo, M.S. and T.C. Valdellon. 1982. Peanut farming in Zamboanga del Sur: Cost structure and management aspects. BAEcon. p. 65-67.

Survey made on 87 farmers, the majority of which were owner-operators showed an average peanut farm of 0.8 ha and a cropping period lasting from 3-6 months. Peanut production averaged 331 kg/ha.

Peanut production had a profit-cost ratio of 3. By farm size, small farmers garnered the biggest returns of ₱1,675/ha, medium farmers, ₱807/ha, and larger farmers, ₱525/ha.

Low levels of technology characterized peanut farming with only 10% using fertilizers. However, farmers were motivated to produce the crop by the PADAP/PCA through their multiple cropping program.

Solutions were suggested to help peanut farmers improve their yields for more income.

Ø5ØØ3-MARØØ3-ØØ6

Lizarondo, M.S., M.Y. Maron and J.M. Mejia. 1982. Peanut farming in Davao del Sur: Cost structure and management aspects. BAEcon. p. 46-50.

Analysis was made on costs and returns and management practices of peanut farmers in Davao del Sur the profitability of raising peanut. During the reference period, an average peanut farmers netted ₱0.81/kg. The average production was 1,693 kg/ha of unshelled peanut. About 61% of the total production was marketed.

Farm technology was still low. Farmers mentioned problems in high cost of seeds, plant pests and diseases, and poor rural conditions.

Ø5ØØ3-MARØØ3-ØØ7

Lizarondo, M.S., V.C. Padua and L.L. Loterena. 1982. A study on the costs and returns and management of peanut farms in Bohol. BAEcon Agr'l. Marketing Rep. 4(2): 30-34.

An average peanut farm (0.4 ha) in Bohol grossed ₱1,751/ha. Farmers who grew peanut for 4 months obtained higher gross returns of ₱2,251/ha compared with farmers with only 3 months cropping cycle (₱1,674/ha). By tenure status, farm tenants registered the biggest gross returns of ₱2,172/ha while farm leasees the least at ₱1,496/ha.

Peanut farms in Bohol had an average yield of 449 kg/ha. Farmers who practiced the 4-month cropping cycle had bigger output of 581 kg/ha. Those with 3-month cropping recorded an average output of 429 kg/ha. By tenure status, farm tenants were top producers with an average of 595 kg/ha; farm leasees had the least volume of 305 kg/ha.

Reports on the sources of inputs for the farm, local existing marketing scheme, and recommendations to improve farmers' income were included.

Ø5ØØ3-MARØØ3-Ø8

Quirino, R.V. 1966. A study on the costs and returns of producing peanut in Talavera, Nueva Ecija. BSA Thesis. Central Luzon State University, Muñoz, Nueva Ecija. CLSU Expt. Sta. Contrib. No. 295. 26 p.

A total of 151 farmers in seven barrios of Talavera, Nueva Ecija, were surveyed to study the costs and returns of producing peanut.

In the 1964-65 crop year, the average area for all farms was 0.7 ha and the average total cost of production for all farms was ₱150.16. Peanut was the secondary crop grown and the secondary source of income. The cost of producing peanut per hectare was ₱0.22 and ₱226.74 on a kilogram per hectare basis.

Individual farmers encountered the following problems in peanut production: lack of capital, seed, and irrigation; low price; and lack of knowledge regarding peanut cultivation and plowing. Remedial measures were suggested.

Subject Index

A

Aflatoxin 28
Ash
rice hull 7, 15
wood 13
Aspergillus flavus 28
Assay
microbial 29

B

Biology
floral 3
Black spot 25

C

Calcium uptake 7, 9, 11, 12, 13, 14, 15
Characters
biochemical 1
morpho-physical 1
agronomical 1
Clay 11, 12
Clay loam
Lipa 7, 17, 20
Maligaya 10
Correlation with yield 23
Costs 37, 33, 39
Cropping systems 31
coconut-based 32
corn-based 32, 33
cotton-based 31
rice-based 6, 36
ruber-based 36
sorghum-based 32
sugarcane-based
sunflower-based 32
Cultivation
methods 19
time 8
Culture 18, 19
Curd 28

D

Drainage 9
Disease
Leaf rust 24, 25
Leaf spot 5, 22, 23, 24, 25
Peanut mottle 22, 23
Rosette 23
Drying
Deep bin 26
Dryer
Design 29
Testing 29
Dung
chicken 13

E

Exploration 4

F

Farming
Fertilization 17, 19
Fertilizer
calcium 7, 9, 15, 17, 18
combination 11, 17, 20
complete 7, 8, 10
liquid 9, 15
nitrogen 8, 9, 10, 11, 12, 13, 14, 16, 18
organic 8
phosphorus 9, 10, 13, 19, 20
potash 9, 11, 20
sulfur 18
Fertilizer application 34
Fertilizer effect
Growth 7, 8, 9, 10
Method 17
Yield 8, 10, 11, 15
Fertilizer Management
Flooding 10
Food 27, 29, 30
Fructification 3
Fungicide 24

G

Germplasm
Collection 1, 5
Evaluation 1, 5

H

Harrowing 14
Hilling-up 12, 17

I

Indigenous materials 27
Inoculant 8
Inoculation
Effects 14, 15, 16, 18
Methods 16
Insect 21, 23, 25
Interaction
Genotype x environment 6
Inoculation x fertilization 14, 15, 20
Intercropping 33, 34
Introduction
Plant 4
Ipil-ipil
Leaf meals 25
Irrigation
Methods 10, 33
Requirements 10, 33

L

Land preparation 14, 17
Leaf meals
Ipil-ipil 26
Violeta 26
Leaf rust 22, 24
Leaf spot 23, 24
Lime 8, 13

M

Management 37, 38
Manures 14
Marketing 37
Milk
Formulation 27, 28
Evaluation 27, 28
Moisture
seed 11
soil 11
Mosaic 22
Mycorrhizae 12

N

Nematodes 21, 22
N-fixation 5
Nodulation 10, 11

O

Ozonolysis 26

P

Planting
Date 21, 25
Density 19, 21, 32
Distance 7, 12, 13
Materials 20
Seed Types 12
Performance
Tillage practices 14, 17

Pest
Management 21, 22, 25
Monitoring 25
Pods 12
Population 11, 13, 14, 17
Postharvest processing 28
Production 37

R

Resistance 4, 21
Rhizobia 11, 14, 16
Rosette 23
Rotylenchulus sp. 21

S

Sclerotium rolfsii 22
Seeding rate 7, 19, 20

Seed 5, 18
Soil
Acid 18
Limed 18
Unlimed 18
Spray
Foliar 9, 15
Spatial arrangement 31, 34
Storage 27, 29

T

Test adaptability
varieties 3
Tillage management 7
Treatments
Seed 23, 25
Soil 23, 25
Trend Analysis 37
Trial
Inoculation 14, 15, 16, 18
Yield 3
Types
Bunchy 2
Runner 2
Yield 1, 2

U

Underplanting 31
Utilization 27, 29, 30

V

Varietal Development
Hybridization 5
Selection 1, 3, 4, 5, 19
Varieties 1, 2, 3, 6, 5, 8, 21

W

Weather factors 32
Weed
Competition 22
Control 24
Life-span 24
Phenology 24
Weeding 24, 32

Y

Yield
Partial shade 1
Sunlight conditions 1
Tests 3, 4

Researchers Index

A		Page
Abilay, R.M.	Ø5ØØ3-CROØØ1-ØØ1	1
Abilay, T.A.	Ø5ØØ3-CROØØ7-ØØ1	26
Alcala, E.A.	Ø5ØØ3-CROØØ4-ØØ1	7
Alonzo, L.O.	Ø5ØØ3-CROØØ4-ØØ2	7
Alvarez, R.G.	Ø5ØØ3-CROØØ4-ØØ4	7
Andales, S.C.	Ø5ØØ3-CROØØ7-Ø13	29
	Ø5ØØ3-CROØØ7-Ø14	29
	Ø5ØØ3-CROØØ7-Ø15	29
Anonymous	Ø5ØØ3-CROØØ1-ØØ2	1
Anyaya, T.C.	Ø5ØØ3-CROØØ4-ØØ3	7
Aquino, A.A.	Ø5ØØ3-CROØØ1-Ø29	31
Arida, V.P.	Ø5ØØ3-CROØØ7-ØØ2	26
Armones, N.	Ø5ØØ3-CROØØ4-Ø48	16
	Ø5ØØ3-CROØØ4-Ø5Ø	16
B		
Bacol, L.M.	Ø5ØØ3-CROØØ4-ØØ6	7
Bagaoisan, J.B.	Ø5ØØ3-CROØØ4-Ø42	15
Bajet, N.B.	Ø5ØØ3-CROØØ5-ØØ1	21
Bala, J.M.	Ø5ØØ3-CROØØ4-ØØ7	8
Balleza, N.C.	Ø5ØØ3-CROØØ4-ØØ5	7
Ballon, F.B.	Ø5ØØ3-CROØØ1-ØØ3	1
Banasihan, V.E.	Ø5ØØ3-CROØØ5-ØØ5	22
Batangan, E.	Ø5ØØ3-CROØØ4-ØØ8	8
Bautista, A.M.	Ø5ØØ3-CROØØ1-Ø3Ø	31
Bayuga, D.	Ø5ØØ3-CROØØ1-Ø31	31
Berico, R.P.	Ø5ØØ3-CROØØ1-Ø32	31
Blanca, A.D.	Ø5ØØ3-CROØØ4-ØØ9	8
Boado, N.G.	Ø5ØØ3-CROØØ1-Ø33	32
Bonilla, P.C.	Ø5ØØ3-CROØØ4-Ø1Ø	8
Borlaza, F.C.	Ø5ØØ3-CROØØ7-ØØ2	26
Bueno, M.C.	Ø5ØØ3-CROØØ4-Ø16	9
	Ø5ØØ3-CROØØ4-Ø18	10
Bulilan, N.T.	Ø5ØØ3-CROØØ7-ØØ3	26
C		
Cabacungan, S.N.	Ø5ØØ3-CROØØ4-Ø11	8
Cabiltes, C.P.	Ø5ØØ3-CROØØ4-Ø12	9
Cadapan, E.P.	Ø5ØØ3-CROØØ5-ØØ2	21
	Ø5ØØ3-CROØØ5-ØØ3	21
	Ø5ØØ3-CROØØ5-ØØ4	21

Cadelina, N.A.	Ø5ØØ3-CROØØ1-ØØ4	1
Cagampang, I.C.	Ø5ØØ3-CROØØ5-Ø15	24
Caguioa, F.S.	Ø5ØØ3-CROØØ1-ØØ5	2
Cajigal, B.T.	Ø5ØØ3-CROØØ4-Ø69	20
Calilung, V.J.	Ø5ØØ3-CROØØ5-ØØ5	22
Caliwag, C.M.	Ø5ØØ3-CROØØ1-Ø17	4
Cammayo, C.V.	Ø5ØØ3-CROØØ7-Ø18	30
Caoili, A.A.	Ø5ØØ3-CROØØ4-Ø16	9
	Ø5ØØ3-CROØØ4-Ø17	10
	Ø5ØØ3-CROØØ4-Ø18	10
Carcallas, C.D.	Ø5ØØ3-CROØØ1-Ø34	32
Cariaga, E.	Ø5ØØ3-CROØØ1-Ø35	32
Castillo, M.B.	Ø5ØØ3-CROØØ5-ØØ6	22
Catipon, E.M.	Ø5ØØ3-CROØØ1-ØØ3	1
Claudio, M.	Ø5ØØ3-CROØØ4-Ø3Ø	12
Cogger, R.J.	Ø5ØØ3-CROØØ1-Ø43	34
Coloma, S.C.	Ø5ØØ3-CROØØ4-Ø13	9
Cruz, D.V.	Ø5ØØ3-CROØØ4-Ø14	9
Curayag, L.J.	Ø5ØØ3-CROØØ4-Ø67	19

D

Dacumos, R.Q.	Ø5ØØ3-CROØØ4-Ø15	9
Dadural, R.G.	Ø5ØØ3-CROØØ1-ØØ6	2
Darang, E.A.	Ø5ØØ3-CROØØ1-ØØ7	2
David, W.P.	Ø5ØØ3-CROØØ4-Ø16	9
	Ø5ØØ3-CROØØ4-Ø17	10
	Ø5ØØ3-CROØØ4-Ø18	10
De Jesus, M.A.	Ø5ØØ3-CROØØ4-Ø19	10
Dela Cruz, L.R.	Ø5ØØ3-CROØØ7-ØØ4	26
Dela Rosa, Z.M.	Ø5ØØ3-CROØØ1-Ø36	32
De Leon, S.Y.	Ø5ØØ3-CROØØ7-ØØ5	27
	Ø5ØØ3-CROØØ7-ØØ6	27
	Ø5ØØ3-CROØØ7-Ø11	28
	Ø5ØØ3-CROØØ7-Ø12	28
Domingo, C.A.	Ø5ØØ3-CROØØ1-ØØ8	2
Dosado, V.	Ø5ØØ3-CROØØ4-Ø28	12
Dumlao, E.S.	Ø5ØØ3-CROØØ4-Ø2Ø	10

E

Elemo, K.A.	Ø5ØØ3-CROØØ1-Ø37	33
Empig, L.T.	Ø5ØØ3-CROØØ1-ØØ9	2
Enciso, J.A.	Ø5ØØ3-CROØØ7-ØØ7	27
Enriquez, E.A.	Ø5ØØ3-CROØØ4-Ø22	11
Escamos, S.M.	Ø5ØØ3-CROØØ1-Ø38	33
Escueta, E.E.	Ø5ØØ3-CROØØ7-ØØ8	27

Espiritu, B.M.	Ø5ØØ3-CROØØ4-Ø49	16
Estillore, R.B.	Ø5ØØ1-CROØØ4-Ø23	11
F		
Fabro, L.E.	Ø5ØØ3-CROØØ5-Ø16	24
	Ø5ØØ3-CROØØ5-Ø17	24
	Ø5ØØ3-CROØØ5-Ø18	25
Fabro, L.F.	Ø5ØØ3-CROØØ5-ØØ5	22
Fandialan, I.M.	Ø5ØØ3-CROØØ7-Ø1Ø	28
Follante, R.P.	Ø5ØØ3-CROØØ4-Ø21	10
G		
Gabucan, D.M.	Ø5ØØ3-CROØØ1-ØØ3	1
Galve, C.G.	Ø5ØØ3-CROØØ4-Ø24	11
Galvez, J.A.	Ø5ØØ3-CROØØ4-Ø25	11
Gamboa, V.C.	Ø5ØØ3-CROØØ7-ØØ9	28
Garcia, D.A.	Ø5ØØ3-CROØØ4-Ø15	24
Garcia, M.B.	Ø5ØØ3-CROØØ4-Ø17	10
Gloria, R.T.	Ø5ØØ3-CROØØ4-Ø26	11
Gloria, T.R.	Ø5ØØ3-CROØØ1-Ø49	36
Gregorio, A.J.	Ø5ØØ3-CROØØ3-ØØ1	37
Guevarra, V.F.	Ø5ØØ3-CROØØ1-Ø1Ø	3
Gutierrez, J.C.	Ø5ØØ3-CROØØ4-Ø27	12
H		
Han, U.T.	Ø5ØØ3-CROØØ1-Ø11	3
Hernandez, S.D.	Ø5ØØ3-CROØØ4-Ø28	12
Herrera, W.T.	Ø5ØØ3-CROØØ1-Ø39	33
Hilario, B.I.	Ø5ØØ3-CROØØ1-Ø12	3
Hill, L.V.	Ø5ØØ3-CROØØ4-ØØ7	22
Huelgas, R.R.	Ø5ØØ3-MARØØ3-ØØ2	37
I		
Ignacio, M.C.	Ø5ØØ3-MARØØ3-ØØ3	37
Ilag, L.L.	Ø5ØØ3-CROØØ4-Ø29	12
	Ø5ØØ3-CROØØ7-Ø1Ø	28
Ilao, J.M.	Ø5ØØ3-MARØØ3-ØØ4	38
Imlan, J.S.	Ø5ØØ3-CROØØ1-Ø44	34
Imperial, C.B.	Ø5ØØ3-CROØØ1-Ø13	3
J		
Josue, A.	Ø5ØØ3-CROØØ4-Ø3Ø	12

L

Lalap, E.T.	05003-CRO004-028	12
	05003-CRO004-030	12
	05003-CRO004-031	12
Lantican, R.M.	05003-CRO001-014	3
	05003-CRO001-015	4
	05003-CRO001-016	4
	05003-CRO001-028	6
Lanuza, A.Q.	05003-CRO004-032	13
Lazo, F.D.	05003-CRO001-017	4
Leal, W.L.	05003-CRO004-033	13
Legaspi, B.M.	05003-CRO001-003	1
	05003-CRO001-018	4
Liboon, S.P.	05003-CRO004-034	13
Lim, E.L.	05003-CRO007-011	28
Lizarondo, M.S.	05003-MAR003-004	38
	05003-MAR003-005	38
	05003-MAR003-006	38
	05003-MAR003-007	38
Llamas, N.M.	05003-CRO007-012	28
Loterena, L.L.	05003-MAR003-007	38
Lozada, E.P.	05003-CRO007-003	26
	05003-CRO007-013	29
	05003-CRO007-014	29
	05003-CRO007-015	29

M

Madrid, P.V.	05003-CRO001-040	34
Magbanua, A.R.	05003-CRO001-049	36
Magracia, H.B.	05003-CRO004-035	13
Maligalig, M.F.	05003-CRO001-003	1
Mamerto, A.	05003-CRO004-036	13
Manas, M.C.	05003-CRO001-019	4
Mangaser, V.T.	05003-CRO001-041	35
Manguiat, I.J.	05003-CRO004-038	14
Manzano, V.	05003-CRO004-037	14
Marasigan, C.M.	05003-CRO004-039	14
Marasigan, V.S.	05003-CRO004-039	14
Mariano, A.M.	05003-MAR003-004	38
Maron, M.Y.	05003-MAR003-006	38
Marqueza, M.L.	05003-CRO004-040	14
Matias, R.R.	05003-CRO001-003	1
Mejia, J.M.	05003-MAR003-006	38
Mendoza, E.R.	05003-CRO007-013	29
	05003-CRO007-014	29
	05003-CRO007-015	29

Mendoza, T.C.	Ø5ØØ3-CROØØ1-Ø42	34
Molina, E.	Ø5ØØ3-CROØØ1-Ø43	34
Monte, P.Z.	Ø5ØØ3-CROØØ4-Ø42	15
Monzon, L.S.	Ø5ØØ3-CROØØ4-Ø41	14
N		
Navarro, R.S.	Ø5ØØ3-CROØØ1-Ø2Ø	5
	Ø5ØØ3-CROØØ1-Ø28	6
Neypes, E.A.	Ø5ØØ3-CROØØ4-Ø44	15
Nuevas, Jr. J.G.	Ø5ØØ3-CROØØ4-Ø43	15
O		
Onia, A.B.	Ø5ØØ3-CROØØ4-Ø45	15
Opina, O.S.	Ø5ØØ3-CROØØ5-ØØ5	22
	Ø5ØØ3-CROØØ5-ØØ8	22
	Ø5ØØ3-CROØØ5-ØØ9	22
Opulencia, E.M.	Ø5ØØ3-CROØØ1-Ø21	5
Ortiz, L.B.R.	Ø5ØØ3-CROØØ4-Ø46	15
P		
Pacardo E.P.	Ø5ØØ3-CROØØ4-Ø16	9
	Ø5ØØ3-CROØØ4-Ø17	10
	Ø5ØØ3-CROØØ4-Ø18	10
Pacia, R.B.	Ø5ØØ3-CROØØ4-Ø47	16
Padua, V.C.	Ø5ØØ3-MARØØ3-ØØ7	38
Paguiregan, F.L.	Ø5ØØ3-CROØØ7-Ø16	29
Pamplona, P.P.	Ø5ØØ3-CROØØ1-Ø44	34
Pandey, R.K.	Ø5ØØ3-CROØØ1-Ø39	33
Panlasigue, L.N.	Ø5ØØ3-CROØØ7-ØØ6	27
Pascua, I.P.	Ø5ØØ3-CROØØ4-Ø1Ø	23
Paterno, E.S.	Ø5ØØ3-CROØØ1-Ø22	5
	Ø5ØØ3-CROØØ4-Ø48	16
	Ø5ØØ3-CROØØ4-Ø49	16
	Ø5ØØ3-CROØØ4-Ø5Ø	16
	Ø5ØØ3-CROØØ4-Ø51	16
Pava, H.M.	Ø5ØØ3-CROØØ4-Ø52	17
	Ø5ØØ3-CROØØ4-Ø67	19
Pecho, V.M.	Ø5ØØ3-CROØØ4-Ø53	17
Pedroza, Jr., A.M.	Ø5ØØ3-CROØØ5-Ø11	23
Pendleton, J.W.	Ø5ØØ3-CROØØ1-Ø39	33
Perdido, V.	Ø5ØØ3-CROØØ4-Ø48	16
	Ø5ØØ3-CROØØ4-Ø5Ø	16
Petalino, L.S.	Ø5ØØ3-CROØØ1-Ø23	5
Pronto, A.G.	Ø5ØØ3-CROØØ7-Ø17	29
Pua, D.R.	Ø5ØØ3-CROØØ5-Ø12	23
Punto, N.G.	Ø5ØØ3-CROØØ1-Ø24	6

Punzalan, F.L.	Ø5ØØ3-CROØØ5-Ø13	24
	Ø5ØØ3-CROØØ5-Ø14	24
	Ø5ØØ3-CROØØ5-Ø15	24

Q

Quebral, F.C.	Ø5ØØ3-CROØØ5-ØØ5	22
	Ø5ØØ3-CROØØ5-Ø15	24
Quededeng, A.	Ø5ØØ3-CROØØ1-Ø17	4
Querijero, A.F.	Ø5ØØ3-CROØØ5-Ø19	25
Quirino, R.V.	Ø5ØØ3-MARØØ3-ØØ8	38
Quitos, R.R.	Ø5ØØ3-CROØØ4-Ø54	17
Quizon, M.L.	Ø5ØØ3-CROØØ4-Ø49	16

R

Rabang, F.	Ø5ØØ3-CROØØ4-Ø55	17
Ramos, B.B.	Ø5ØØ3-CROØØ4-Ø57	17
Ramos, S.R.	Ø5ØØ3-CROØØ4-Ø56	17
Redoña, E.D.	Ø5ØØ3-CROØØ1-Ø25	6
Relator, R.Z.	Ø5ØØ3-CROØØ4-Ø58	18
Rillo, B.O.	Ø5ØØ3-CROØØ7-ØØ7	27
Rivera, A.G.	Ø5ØØ3-CROØØ1-Ø45	35
Robles, R.P.	Ø5ØØ3-CROØØ5-ØØ5	22
	Ø5ØØ3-CROØØ5-Ø16	24
	Ø5ØØ3-CROØØ5-Ø17	24
	Ø5ØØ3-CROØØ5-Ø18	25
Rodrigo, P.A.	Ø5ØØ3-CROØØ4-Ø59	18
Roldan, E.F.	Ø5ØØ3-CROØØ5-Ø19	25
Roxas, R.P.	Ø5ØØ3-CROØØ4-Ø6Ø	18
Rozul, J.B.	Ø5ØØ3-CROØØ1-Ø19	4

S

Samonte, H.P.	Ø5ØØ3-CROØØ4-Ø63	18
Santillan, P.W.	Ø5ØØ3-CROØØ4-ØØ7	22
Santos, E.G.	Ø5ØØ3-CROØØ7-Ø18	30
	Ø5ØØ3-CROØØ4-Ø61	18
Santos, R.B.	Ø5ØØ3-CROØØ7-Ø18	30
	Ø5ØØ3-CROØØ4-Ø61	18
	Ø5ØØ3-CROØØ4-Ø62	18
Silayan, H.S.	Ø5ØØ3-CROØØ4-Ø64	19
Sinampaga, R.R.	Ø5ØØ3-CROØØ4-Ø65	19
Soriano, N.B.	Ø5ØØ3-CROØØ1-Ø46	35
Sorino, L.	Ø5ØØ3-CROØØ1-Ø43	34

T

Tabunar, C.N.	Ø5ØØ3-CROØØ4-Ø66	19

Tamondong, T.	05003-CRO001-047	35
Tandang, E.M.	05003-CRO001-048	35
Tandingan, I.C.	05003-CRO004-020	25
Telosa, Z.N.	05003-CRO005-017	24
	05003-CRO004-018	25
Teodosio, M.M.	05003-CRO004-067	19
Testado, T.C.	05003-CRO001-049	36
Tilo, S.M.	05003-CRO004-038	14
Tolentino, D.A.	05003-CRO004-068	20
Torres, F.G.	05003-CRO004-038	14
	05003-CRO004-049	16
Tulusan, R.T.	05003-CRO004-069	20

U

Ulep, I.P.	05003-CRO004-070	20

V

Valdellon, T.C.	05003-MAR003-005	38
Valdez, A.G.	05003-CRO001-026	6
Valentin, F.B.	05003-CRO001-027	6
Valle, M.P.	05003-CRO004-071	20
Vega, R.	05003-CRO004-014	24
Vera, M.	05003-CRO004-072	20
Versoza, Jr., J.C.	05003-CRO004-010	8
Villaflores, M.F.	05003-CRO005-021	25
Villareal, R.L.	05003-CRO001-028	6
Villegas, A.N.	05003-CRO001-039	33
Villegas, L.M.	05003-CRO004-073	20

W

Waing, B.D.	05003-CRO001-050	36