

UTILIZATION OF RUBBER TECHNOLOGY  
/ AMONG FARMERS OF RAYONG,  
THAILAND

CHAMNONG/ KONGSIN  
//

A THESIS

SUBMITTED TO THE INSTITUTE OF GRADUATE STUDIES,  
CENTRAL LUZON STATE UNIVERSITY, MUÑOZ,  
NUEVA ECIJA, PHILIPPINES IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF

MASTER OF SCIENCE  
IN RURAL DEVELOPMENT

AUGUST, 1985

## TABLE OF CONTENTS

	PAGE
LIST OF TABLES	xi
LIST OF APPENDIX TABLES	xiii
LIST OF FIGURES	xiv
ABSTRACT	xv
I INTRODUCTION	1
Statement of the problem	3
Objectives of the study	4
Hypotheses	4
Significance of the study	5
Scope and limitation of the study	6
II REVIEW OF RELATED LITERATURE	7
Smallholder characteristics	7
Educational attainment	8
Farming experience	9
Household size	9
Size of plantation	10
Family income level	11
III METHODOLOGY	12
Conceptual framework	12
Operational definition of terms	14
Research design	19

	PAGE
Technique of data gathering	22
Method of analysis	22
Level of significance	23
IV RESULTS AND DISCUSSION	24
Demographic characteristics	24
Economic characteristics	29
Extent of utilization of the seven recommended practices on rubber technology	32
Reasons for high-utilization and low-utilization on the recommended practices of rubber technology	35
Characteristics of smallholders and their relationships with certain recommended practices in rubber technology	49
Problems encountered by smallholders in rubber production	56
Suggestions of smallholders for improvement of training program	58
Profile of Adoptors of technology	60
V SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	64
Summary	64
Conclusions	66
Recommendations	67
LITERATURE CITED	68

	PAGE
APPENDICES	72
Appendix A	73
Appendix tables	74
Appendix B	79
Letter to the Director of the Rubber Research Institute of Thailand	80
Letter to the Provincial Governor of Rayong, Thailand	81
Appendix C	82
Interview schedule	83

## LIST OF TABLES

TABLE		PAGE
1	Distribution of respondent-smallholders by district	21
2	Distribution of smallholders according to demographic characteristics	25
3	Means and standard deviations of the demographic variables	26
4	Distribution of smallholders by educational attainment	28
5	Distribution of smallholders by economic characteristics	30
6	Means and standard deviations of economic variables	31
7	High-utilization and low-utilization of the seven recommended practices on rubber technology	34
8	High-utilization and low-utilization of uniform height of opening	36
9	High-utilization and low-utilization of control of rubber diseases	38
10	High-utilization and low-utilization of good rubber sheet making	40
11	High-utilization and low-utilization of fertilizer	42
12	High-utilization and low-utilization of standard tapping system	44
13	High-utilization and low-utilization of latex stimulant	46

TABLE		PAGE
14	High-utilization and low-utilization of group marketing	48
15	Correlation coefficient of demographic characteristics and utilization of some recommended technology practices	51
16	Relationship between demographic characteristics and the utilization of some recommended technology practices using $X^2$	52
17	Correlation coefficient of economic characteristics and utilization of some recommended technology practices	54
18	Relationship between economic characteristics and the utilization of some recommended technology practices using $X^2$	55
19	Problems encountered by smallholders	57
20	Some suggestions of smallholders for improvement of training program	
21	Distribution of respondents according to size of plantation and adoptors of recommended rubber technology	61
22	Distribution of respondents according to family income and adoptors of recommended rubber technology	62
23	Characteristics of high-adoptors and low-adoptors	63

## LIST OF APPENDIX TABLES

TABLE		PAGE
1	Educational attainment and rubber technology	74
2	Household size and rubber technology	75
3	Farm experience and rubber technology	76
4	Family income and rubber technology	77
5	Size of plantation and rubber technology	78

## LIST OF FIGURES

FIGURE		PAGE
1	A conceptual model showing the relationship between independent and dependent variables of the study	13
2	Map of Rayong province showing site of study	20

## ABSTRACT

KONGSIN, CHAMNONG. Institute of Graduate Studies, Central Luzon State University, Muñoz, Nueva Ecija, Philippines, August, 1985. Utilization of Rubber Technology Among Farmers of Rayong, Thailand.

Major Adviser: Thelma S. Bernardo

This study was conducted with 158 rubber smallholders as samples in four districts of Rayong, Thailand. The study primarily aimed to investigate the utilization of the rubber technology developed by the Rubber Research Center. In particular, it sought to find the factors related to the utilization of the said technology.

The respondents were found to have a mean age of 33 years and that they were predominantly females. They had low levels of educational attainment (an average of four years in school), small household sizes (6 and below) and relatively short farming experiences.

Their mean annual family gross income was 55,214.11 bahts (\$2,045), 66 percent of which came from rubber farming, with mean plantation size of 15.27 Rais (2.44 ha).

Four of the seven recommended practices were high utilized namely; uniform height of opening, use of fertilizer, good rubber sheet making and control of rubber disease. The low utilized practices were: use of standard tapping system, group marketing and use of latex stimulant.

Most frequently mentioned problems include the following: price fluctuation, disease, financial, scarcity of skilled tappers, marketing, costly in-puts such as high cost of fertilizer.

Some demographic and economic characteristics were associated with the high utilization or low-utilization of the recommended practices. For the high utilization practices particularly uniform height of opening, use of fertilizer, good rubber sheet making and control of rubber disease, were used by farmers who had large plantation size and high annual income. Use of latex stimulant was low-utilized by young farmers and those with high educational attainment. Group marketing was utilized by farmers with short farming experience. Use of standard tapping system was utilized by rubber smallholders with large plantation and large income.

For effective implementation of future training, younger smallholders should be encouraged to participate. The benefit of adopting the recommended practices should be experienced fully by those who are older and those with low educational attainment since they are more likely to resist the technology. Some misconceptions of rubber smallholders should be corrected through proper information dissemination campaign.

## LITERATURE CITED

- ALCOBER, D.L. 1978. "Innovative performance of coconut farmers in the province of Leyte and Southern Leyte, Philippines." Unpublished Ph. D. dissertation, UPLB, College Laguna. p. 165.
- ANIEVAS, T.C. 1968. "Adoption of Improved Farm Practices in Rice Production in Guimba and San Jose, Nueva Ecija," Unpublished MS Thesis, CLSU.
- BATTAD, F.A. 1973. "Factors associated with the adoption of rice technology in Cotabato." Unpublished Ph. D. dissertation, UPLB, College, Laguna. p. 140.
- BELASCO, J.A. and H.M. TRICE. 1969. The Assessment Of Training and Theraphy. New York. McGraw-Hill Book Co. pp. 141-146.
- BORTON, R.E. (ed.). 1966. Getting Agriculture Moving. New York: A.D.C., p. 584.
- BROOKSON, C.W., M. EDD. REED and D.C. SCHWAAR. 1973. Rubber development project, Thailand. Phase II Agricultural Economic studies of rubber industry- A survey of rubber growing areas. Technical Report No. 1 AGP: DP/THA/70/534, Rubber Research Center, Hat-Yai, Thailand. p. 63.
- BYRNES, F.C. 1964. "Resistance to change: Fact or Fiction." Agency for International Development, Manila, Philippines. November 6, p. 13.
- CASTILLO, G.T. 1982. "Changing rural institutions and participatory development: A review of the Philippines experience." Part III, Manila: Philippine Institute for Development Studies. pp. 35-42.
- CHAO, K. 1972. Economic effect of land reform in Taiwan, Japan and Mainland China: A comparative study. LTC No. 80. The land tenure centre, University of Wisconsin, Madison, Wisconsin, U.S.A. pp. (326-351).

- CHU, E.C. 1973. "High Yielding Rice Varieties at the Crossroads: Three post-trial alternatives Decision Among Farmers," Unpublished MS Thesis, UPCA. p. 102.
- COPP, J.H., M.L. SILL and E.J. BROWN. 1958. "The Function of Information Source in Farm Practices Adoption Process," Rural Sociology. Vol. 23, June. pp. 146-157.
- COVAR, P.R. 1960. The Masagana/Margate System of Planting Rice: A study of Agricultural innovation. UPCDRC Study Series No. 5 Quezon City. p. 12.
- CRAIG, P.L. 1976. (ed). Training And Development Handbook: A Guide To Resource Development. New York: McGraw-Hill Book Co. pp. 135-138.
- CRUZ, T.C. 1981. "A communication analysis of rice-fish technology dissemination and utilization." Unpublished Ph. D. dissertation, UPLB, College Laguna.
- DINAMPO, E.C. 1980. "Some factors associated with the adoption of rice farming innovations by farmer-cooperators of the Central Mindanao University Social Laboratory." Unpublished MS Thesis, UPLB. College Laguna. p. 158.
- FELICIANO, G.D. 1968. The farm and home development project and evaluation. UPRDC Study Series.
- FERGUSON, G.A. 1981. Statistical Analysis In Psychology and Education. Quezon City, Philippines, JMC Press, Inc. p. 49.
- FLIEGEL, F.C. 1959. "Aspiration of low-income farmers and their performance." Journal of Rural Sociology. Vol. 24, No. 3: 284-292.
- HAVEN, A.E. 1962. "A Review of Factors Related to Innovativeness." Columbus: Ohio Agricultural Experiment Station, A.E. 329.
- HSIEH, S.C. 1966. Management decisions on small farm in Taiwan, ADC. Reprint.

- JONES, J.F. 1962. "Factors affecting the adoption of new farm practices, with particular references to Central Wales and Midlands of England." Journal of Agricultural Economics, Vol. 15, No. 3. (73-78).
- JULIANO, P.A. 1977. "Farmer Characteristics Adoption of Recommended Rice Technology and Tenure Status Among Laguna Farmers," Ph. D. Dissertation, UPLB.
- LIAO, S.H. 1968. "Factors affecting productivity of rice farms and adoption of improved farm practices." Unpublished MS Thesis, UPLB, College Laguna. p. 128.
- LIONBERGER, H.F. 1960. Adoption of New Ideas and Practice, Iowa: Iowa State University Press, p. 198.
- MADIGAN, F.C., S.J. 1968. The Farmer Said No. UPRDC (Second Printing). p. 12.
- MARSH, C.P. and COLEMAN, A.L. 1955. "The relationship of farmer characteristics to the adoption of recommended farm practices," Rural Sociology, 20 (Sept-Dec). pp. 289-296.
- MORRISON, D.E. and W.K. WARNET. 1971. "Correlation of farmers' attitude toward public and private aspects of agricultural organization." Journal of Rural Sociology. Vol. 36:1, March.
- NATURAL RUBBER NEWS. Malaysia Rubber Bureau. Malaysian Research and Development Board, July, 1975.
- PAHUD, S.L. 1969. "Some factors associated with the adoption of recommended rice practice." Unpublished MS thesis, UPLBCA. p. 34.
- PAL, A.G. 1969. "The adoption of new rice variety IR-8 in a Philippine Community." Unpublished MS Thesis, UPLBCA. p. 22.

- ROGERS, E.M. 1969. Modernization Among Peasants: The Impact of Communication. N.Y., Holt. Rinehart and Winstrong, Inc. pp. 352-360.
- ROGERS, E.M. and F. FLOYD SHOEMAKER. 1975. Communication of Innovations: A Cross-Cultural Approach, New York: The Free Press. pp. 329-335.
- SITISARA, A. 1972. "Factors Associated with the Adoption of Rice Farm Practices in Kampangsaan, Thailand." M.S. Thesis, UPLB. p. 148.
- STIFEL, L.D. 1975. "Imperfect Competition in a Vertical Market Network. The Case of Rubber in Thailand." American Journal of Agricultural Economic. Vol. 57 No. 4 (15-18) November.
- WANG KUEN. 1967. "Relationship of Adoption of Recommended Farm Practices with Selected Variables in Three Korean Communities." Korean: Dept. of Agr. Eco., Seoul National University, p. 33.
- WILKENING, E.A. 1953. "Acceptance of Improved Farm Practices in Three Coastal Plain Countries." Raleigh: North Carolina Experiment Station Bulletin, No. 98, May.