

## TABLE OF CONTENTS

	PAGE
LIST OF FIGURES	viii
LIST OF TABLES	ix
LIST OF APPENDICES	xi
ABSTRACT	xiii
INTRODUCTION	1
Statement of the Problem	4
Objectives of the Study	4
Hypothesis of the Study	5
Significance of the Study	5
Scope and Limitation of the Study	6
REVIEW OF RELATED LITERATURE	
Socio-economic Factors and Productivity	8
Production Factors and Productivity	11
Farming Support and Productivity	14
METHODS OF RESEARCH	18
Conceptual Framework	18
Operational Definition of Terms	21
Location of the Study	29
Sampling	30
Instrumentation	31

**PRODUCTIVITY OF RICE SEED GROWERS IN  
NUEVA ECIJA AS INFLUENCED BY  
SELECTED FACTORS**

**EVELINDA F. CASIMIRO**

A thesis submitted to the Faculty of the Institute of  
Graduate Studies, Central Luzon State University,  
Munoz, Nueva Ecija, Philippines in partial  
fulfillment of the requirements  
for the degree of

**MASTER OF SCIENCE  
(Rural Development)**

**April 1997**

Data Gathering Procedure and Method of Analysis	33
<b>RESULTS AND DISCUSSION</b>	
Socio-economic Characteristics of the Respondents	35
Production Factors	45
Farming Support	60
Correlation between the Respondent s Socio-economic characteristics and Productivity	68
Correlation between Production Factors and Productivity	70
Correlation between Farming Support and Productivity	73
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS</b>	
Summary	78
Conclusions	83
Recommendations	85
<b>LITERATURE CITED</b>	86
<b>APPENDICES</b>	91

## LIST OF FIGURES

FIGURES		PAGE
1	Conceptual model showing the relationship between independent variables and dependent variables	19
2	Map of Nueva Ecija showing the two study sites (Municipalities of Munoz and Sto. Domingo)	32

## LIST OF TABLES

TABLE		PAGE
1	Recommended technologies on seed production by Philrice	23
2	Number of seed growers by barangay	30
3	Socio-economic status of the respondents	36
4	Farming experience of seed growers	39
5	Farm size of seed growers	40
6	Net income of seed growers	43
7	Productivity per hectare	45
8	Adoptors and Non-adoptors of the recommended technology on seed production	47
9	Cost of inputs and operations for ordinary farming and seed production	60
10	Inputs availability	61
11	Type of credit availed by seed growers	62
12	Amount borrowed by the respondents from formal and informal sources	63
13	Agencies giving technical assistance to seed growers	64
14	Frequency of monitoring	65
15	Information on seed disposal	66
16	Certification of seed produced	68
17	Relationship between socio-economic characteristics of seed growers and productivity	69

18	Relationship between production factors and productivity of seed growers	72
19	Relationship between accesss to farming supports and productivity of seed growers	74
20	Problems faced by seed growers and suggested solutions	77

## LIST OF APPENDICES

	PAGE
Appendix tables	92
Interview schedule	98

## LIST OF APPENDIX TABLES

TABLE		PAGE
1	Source of water for farming activities	92
2	Rice varieties used by the respondents	92
3	Criteria used in selecting rice varieties	93
4	Source of rice seeds	93
5	Time and method of weed control used by the respondents	94
6	Methods of pest and insect control	95
7	Number of times and methods of roguing used	95
8	Methods of drying rice seeds	96
9	Particular used of the money borrowed	96
10	Marketing of rice seeds	97
11	Opinion on price offered for rice seeds	97

## ABSTRACT

CASIMIRO, EVELINDA F., Institute of Graduate Studies. Central Luzon State University, Munoz, Nueva Ecija, April, 1997. PRODUCTIVITY OF RICE SEED GROWERS IN NUEVA ECILJA AS INFLUENCED BY SELECTED FACTORS.

Adviser : Dr. Soledad S. Mina-Roguel

This study investigated seed growers' productivity and the factors that influenced it. Data were gathered through an interview schedule in which a total enumeration of 64 seed growers in two municipalities of Nueva Ecija was done. Data were analyzed using means, frequencies, percentages and Pearson Product Moment Correlation. Actual production practices were compared with the recommended technology in seed production by Philrice.

Results showed that majority of the seed growers were college graduate whose average number of years of experience in seed production was 7.05 and 19.74 years of experience in ordinary farming. Most of the respondents were farmer-operators. They had an average farm size of 2.26 hectares and 4.16 hectares for ordinary farming and seed production, respectively. Their average total net income was P33,639.13 and P86,667.13 from ordinary farming and seed production, respectively. All of the respondents attended trainings related to seed production and were members of local organizations. These data suggest that seed growers are farmers who were better educated, experienced, and affluent.

Results further revealed that seed growers were owners of big landholding and high income earners.

Respondents were rational decision-makers; they adopted some of the recommended management practices for seed production by Philrice, specifically first and second harrowing in land preparation, plant spacing, irrigation, side dress application of fertilizer and harvesting. As regards other practices, they tended to use more than the recommended rate. In seed production, the average yield per hectare was 142.81 cavans during dry season and 95.53 cavans during wet season. In ordinary farming the average yield per hectare during dry season and wet season was 104.28 cavans and 75.7 cavans, respectively.

Total income and income derived from seed production, both during the dry and wet seasons had significantly contributed to the seed growers' productivity. This means that the higher their income, the higher their productivity.

Several production factors significantly contributed to seed growers' productivity, namely first and second harrowing in land preparation, plant spacing, irrigation, side dress application of fertilizer and time of harvesting. This means that adoption of some of the recommended technologies increases the seed growers' productivity.

Except for marketing, farming support was found to have no significant relationship with seed growers' productivity.

Results further revealed that seed growers were owners of big landholding and high income earners.

Respondents were rational decision-makers; they adopted some of the recommended management practices for seed production by Philrice, specifically first and second harrowing in land preparation, plant spacing, irrigation, side dress application of fertilizer and harvesting. As regards other practices, they tended to use more than the recommended rate. In seed production, the average yield per hectare was 142.81 cavans during dry season and 95.53 cavans during wet season. In ordinary farming the average yield per hectare during dry season and wet season was 104.28 cavans and 75.7 cavans, respectively.

Total income and income derived from seed production, both during the dry and wet seasons had significantly contributed to the seed growers' productivity. This means that the higher their income, the higher their productivity.

Several production factors significantly contributed to seed growers' productivity, namely first and second harrowing in land preparation, plant spacing, irrigation, side dress application of fertilizer and time of harvesting. This means that adoption of some of the recommended technologies increases the seed growers' productivity.

Except for marketing, farming support was found to have no significant relationship with seed growers' productivity.

Among the problems encountered by the respondents were: 1) competition with non-accredited seed growers; 2) existence of gate growers; 3) marketing; 4) delayed release of tags and result of seed analysis; and 5) seed supply

## LITERATURE CITED

- ALVAREZ, R.C. 1976. Growing Tomatoes in Northern Mindanao. Greenfields, vol. 6.
- ARAGONES, S.G. 1977. Barrio-based Farmers Organization and Agricultural Development in Selected Social Laboratory Pilot Centers in the Philippines, UPLB.
- ATRIGENIO, E.N. 1993. Productivity of Tomato Farmers and its Correlates in Misamis Oriental. Unpublished Dissertation. CLSU. 1993
- BATTAD, F.A. 1973. Factors Associated with the Adoption of Rice Technology in Cotabato. Unpublished Ph.D. Dissertation. UPLB, Laguna.
- BAUTISTA, A.F. 1980. Confluence of Factors Affecting Innovative Behavior of Rubber Farmers in Southern Mindanao. Unpublished Ph. D. Dissertation, UPLB, Laguna.
- BHANDARI, AN SINGH. 1990. Credit Intermediation as Affected by Different Factors in Two Rice Ecosystems at Central Luzon Philippines: A Comparative Analysis. Unpublished MS Thesis, CLSU.
- BEST, B. 1979. Some Socio-economic Causes for Low Repayment Rates of Non-Collateral Institution Rice Loans in the Philippines. Paper presented at IRRI Saturday Seminar, Los Banos, Laguna. p. 12
- CHAPMAN, S.R. and L.P. CARTER. 1976. Crop Production Principles and Practices. San Francisco: W.H. Freeman & Company.
- DAVID, C.C. , R. BARKER, A. PALACPAC. Countries Studies on Agricultural Productivity Measurement and Analysis Asian Culture, Nordice International Ltd. for Asian Productivity Organization.
- DE DATTA, S.K., R.A. MORRIS and R. BARKER. 1978. Land Preparation and Crop Establishment for Rainfed Lowland Rice. In. Rainfed Lowland Rice: Selected papers from that 1978 International Rice Research Conf. IRRI, 1979.
- DE DATTA, S. K. and R. BARKER 1978. Land preparation for Rice Soils. pages 623-648 in International Rice Research Institute. Soils and Rice. Los Banos, Philippines.

- DE LEON, E.C. 1991. Factors related with Adoption of Corn Technology and its Effects to Farmers in Selected Areas of Cagayan. Unpublished Ph.D. Dissertation. CLSU, Munoz, Nueva, Ecija.
- DEROGONGAN, M.B. 1973. The Rice Production Program in a Maranao Community. Unpublished M.S.Thesis. UPLB, Laguna.
- DESTURA, P. D. 1978. The Utilization of Human Material Resources in Agricultural Schools and Colleges in Eastern Visayas. Unpublished Ph. D. Dissertation. UPLB College, Laguna.
- DUA, K.O. 1982. The Role of Agricultural Extension in the Adoption of Innovativeness by Cocoa Growers in Ghana. *Rural Sociology*, University of Kentucky, Lexington. 43 (1):73.
- FERNANDEZ, F.G. 1992. A University Seed Program to Promote Sustainable Agriculture in the Philippines. *The Philippine Agriculturist*. vol. 75, n. 3 & 4, 91-118. July - December, 1992.
- GOMEZ, A. A. 1978. Multiple Cropping, An Approach to Rural Development. SEARCA, College, Laguna.
- HILL, F.F. 1964. Developing Agricultural Institution in Underdeveloped Countries. *Agricultural Science for Developing Nations*. American Associations for the Advancement of Science. Washington D.C. p. 141.
- HOSSAIN, MD. Ismail. 1990. Farm Productivity and Income of Farmers under three Communal Irrigation Systems in Bulacan, Philippines. Unpublished Ph. D. Dissertation. CLSU, Munoz, Nueva, Ecija.
- IFTIKAR, A. 1981. Technological Change and Agrarian Structure. A study of Bangladesh International. Labour Office, Geneva.
- IRRI 1993. Annual Report 1992. IRRI, Los Banos, Laguna.
- JACOBI, B. 1974. Some Aspects of Soil Tillage for Lowland Rice in Orissa (India) pages 87-92 International Institute of Tropical Agriculture. Report on the Expert Consultation.Meeting on the Mechanization of Rice Production. Ibadan, Nigeria.
- JULIANO, R. A. 1977. Farmers Characteristics, Adoption of Recommended Rice Technology and Tenure Status Among Laguna Farmers. Unpublished Ph. D. Dissertation, UPLB, Laguna.

- KARNA, R.L. 1985. The Adoption of High Yielding Varieties and Fertilizer Application Among Rice Farmers in Nepal. Unpublished M.S. Theses. CLSU, Munoz, Nueva, Ecija.
- KHOSO, Y.M. 1989. Impact of Use of Production Technology Package on Standard of Living of Rice Farmers in Sind Province of Pakistan. Unpublished Ph. D. Dissertation. CLSU, Nueva, Ecija.
- KIM, J.H. 1985. Bio-physical Environments and Adoption of Modern Rice Varieties in Rainfed Lowland of Cagayan province. Unpublished Ph. D. Dissertation, UPLB, Laguna.
- KONGKAEW, W. 1978. The Adoption of Farmers Association Among Farmers in Pila, Laguna, Philippines. Unpublished M.S. Thesis, UPLB, College, Laguna.
- LALNILAWNA. 1996. Factors Associated with Nutritional Status of Rural Women in Three Barangays of Munoz, Nueva Ecija, Philippines. Unpublished MS Thesis, CLSU.
- LIBRERO, F. 1983. Profile and Performance of Agricultural Extension Clientele in the Philippines, PCARRD-BAEx Funded Research Program. UPLB, Laguna.
- MALVAR, J.D. 1988. Determinants of Tobacco Farmers Productivity in Isabela. Unpublished Ph. D. Dissertation. CLSU, Munoz, Nueva, Ecija.
- MALVAR, F.P. 1983. The Socio-economic Aspects of Farmers Group/Association Operated Post-harvest Facilities. Proceedings in the Seminar Workshop on Postharvest Operation and Management of Postharvest Facilities in Village Farmers Group/Association. ISU- IPRC. p. 54.
- MANDAC, A.M. and J.C. Flinn. 1983. Socio-economic Constraints in Bicol Rainfed Rice Production. Revised Version of paper presented for the Workshop to Review Selected Research to Increase Rice Production in Bicol River Basin Area, 19 May 1983 BRBDP Office, Pili, Camarines Sur, Philippines, IRRI Agricultural Economic Development paper no. 83-31.
- MANDAC, F.B. 1984. Evaluation of the Technology Dissemination Programs Under the Cagayan Integrated Agricultural Development Project. Unpublished Ph. D. Dissertation, UPLB, Laguna.

- KARNA, R.L. 1985. The Adoption of High Yielding Varieties and Fertilizer Application Among Rice Farmers in Nepal. Unpublished M.S. Theses. CLSU, Munoz, Nueva, Ecija.
- KHOSO, Y.M. 1989. Impact of Use of Production Technology Package on Standard of Living of Rice Farmers in Sind Province of Pakistan. Unpublished Ph. D. Dissertation. CLSU, Nueva, Ecija.
- KIM, J.H. 1985. Bio-physical Environments and Adoption of Modern Rice Varieties in Rainfed Lowland of Cagayan province. Unpublished Ph. D. Dissertation, UPLB, Laguna
- KONGKAEW, W. 1978. The Adoption of Farmers Association Among Farmers in Pila, Laguna, Philippines. Unpublished M.S. Thesis, UPLB, College, Laguna.
- LALNILAWNA. 1996. Factors Associated with Nutritional Status of Rural Women in Three Barangays of Munoz, Nueva Ecija, Philippines. Unpublished MS Thesis, CLSU.
- LIBRERO, F. 1983. Profile and Performance of Agricultural Extension Clientele in the Philippines, PCARRD-BAEx Funded Research Program. UPLB, Laguna.
- MALVAR, J.D. 1988. Determinants of Tobacco Farmers Productivity in Isabela. Unpublished Ph. D. Dissertation. CLSU, Munoz, Nueva, Ecija.
- MALVAR, F.P. 1983. The Socio-economic Aspects of Farmers Group/Association Operated Post-harvest Facilities. Proceedings in the Seminar Workshop on Postharvest Operation and Management of Postharvest Facilities in Village Farmers Group/Association. ISU- IPRC. p. 54.
- MANDAC, A.M. and J.C. Flinn. 1983. Socio-economic Constraints in Bicol Rainfed Rice Production. Revised Version of paper presented for the Workshop to Review Selected Research to Increase Rice Production in Bicol River Basin Area, 19 May 1983 BRBDP Office, Pili, Camarines Sur, Philippines, IRRI Agricultural Economic Development paper no. 83-31.
- MANDAC, F.B. 1984. Evaluation of the Technology Dissemination Programs Under the Cagayan Integrated Agricultural Development Project. Unpublished Ph. D. Dissertation, UPLB, Laguna.

- MARTIN, LEONARD and STAMP. 1976. Principles of Field Crop Production. 3rd edition. U.S.A.: McMillan publishing company.
- MOODY, K., ESTORMINOS L.E. 1978. Effect of Inter-row Cultivation on Weed Growth and Yield of Dry-seeded Rainfed Conference. Pest Control Council of the Philippines, Manila, May 2.
- MOSHER, A.T. 1966. The Extension Process. In: Getting Agriculture Moving: Essentials for Development and Modernization. R.E. Burton (ed). New York: The Agricultural Development Council, Inc.
- NAPPHIRE. 1994. Technical Reference Guide on Grains Postharvest Operations. Munoz, Nueva, Ecija.
- PAHLWAN, A.A. 1986. Determination of Rice Farmers Productivity under National and Communal Irrigation System in Nueva, Ecija, Philippines. Unpublished MS Thesis, CLSU, Munoz, Nueva, Ecija.
- PRABAWO, P. 1977. The Educational Effects on Farmers of the Pilot Extension Program on Direct Seeding of Rainfed Rice in Bulacan province, Philippines. Unpublished Ph. D. Dissertation . UPLB, Laguna.
- PHILRICE. 1989. Philrice Newsletter. vol. 2 no.1. January-June, 1989.
- , 1993. Rice Production Technoguide
- , 1995. Philrice Newsletter vo. 8 no. 5. November, 1995
- , . Primer - Philippine Rice Seed Industry and the National Rice Seed Production Network.
- RAHARDJO, WAHYUDI. 1988. Farmer groups and sugar productivity in selected sugar mills in the province of East Java, Indonesia. Unpublished PhD Dissertation. CLSU, Munoz. N.E.
- REISING, W.H. E.A. HEINRICHS, H.A. LITSINGER, K. MOODY, L. FEIDLER, T.W. MEW, and A.T. BARRION. 1986. Illustrated Guide to Integrated Pest Management in Rice in Tropical Asia. IRRI, Los Banos, Laguna, Philippines.

- SAMONTE, V. PB, L.A. PERAZ and R.M. MACASAET. 1976. Social Communication Factors and Agricultural Innovativeness of Coconut Farmers. Unpublished Staff Research Paper. Department of Communication, UPLB, College, Laguna.
- SANDOVAL, P.R. 1980. Agricultural Credit in Small Farms. *Journal of Agricultural Economics and Development*. (1) : 75.
- SATTAR, S.A. 1978. Land Preparation for Transplanted Rice. paper presented at a Saturday Seminar, 8 July 1978. Bangladesh Rice Research Institute, Dacca, Bangladesh. 10 pp. (Unpublished mimeo.)
- SEN, L.K. 1974. Seminar on the Role of Irrigation in the Development of India's Agriculture, Bangalore paper no. 11, IRRI, Los Banos.
- SMITH, E.D. 1976 . Handbook for Use in Studying Possible Effects of Land Tenure Systems on Cropping Systems. Discussion paper LS. Economic International Research Institute.
- UDDIN, M.S. 1988. Adoption and Productivity of the Technology Generated by Cropping System Program - Two Districts in Bangladesh. Unpublished Ph. D. Dissertation. CLSU, Munoz, Nueva, Ecija.
- VLADIMIR and IGNATIERR. 1978. Efficient Use of Fertilizers: FAC Agricultural Studies No. 43. Fifth printing.
- WEN, T.C. and H. HSI-HUANG CHEN. 1980. Agricultural Development Planning: Taiwan Experience. Extension Bulletin No. 144. Food and Fertilizers Technology Centre, Taiwan, p. 9.