

25 mcg/tab OD. The initial TSH levels as determined by the Philippine Newborn Screening Laboratory directly correlates with the confirmatory TSH levels done in other endocrine laboratories (Spearman's $\rho=0.57$, P value= 0.0002 , at $\alpha=0.05$). However, the time of heelprick on the newborn is independent of the TSH levels, (Spearman's $\rho= -0.16$, P value= 0.377 at $\alpha=0.05$) hence there is no significant difference with respect to the initial TSH level of blood sample taken at 48 hours: less than one week; one to two weeks; or even more than two weeks after birth (Kruskall Wallis test, P value= 0.064 at $\alpha=0.05$). Using Fisher's exact test, there is no sufficient evidence to say that there is an association between gender and the incidence of CH among screened newborns whose TSH levels are initially elevated ($P_{2\text{-tailed}}=0.183$, $P_{1\text{-tailed}}=0.113$ at $\alpha=0.05$).

Keywords: newborn screening, TSH, congenital hypothyroidis

SOCIAL SCIENCES

SSD No. 1

POPULATION STRUCTURE OF THE HIGAONON TRIBE OF ROGONGON, ILIGAN CITY

D'Vincent Quijoy, Mark Anthony J. Torres and Cesar G. Demayo*

Department of Biological Sciences
College of Science and Mathematics
MSU – Iligan Institute of Technology
Iligan City, Lanao del Norte
email: c_demayo@biocsm.msuiit.edu.ph

This study was conducted to learn the population structure of the indigenous peoples of Rogongon, Iligan City – the Higaonons. The group consisted of true-blooded Higaonons and those who are the children of a Higaonon -- Christian/Muslim marriage, the Kulibugans. Survey of nine Mendelian traits, demographic factors, diseases prevalence, and reproductive health of women were conducted. Results show homozygous recessive genotypes are prevalent in the populations of both pure Higaonons and the Kulibugans based on nine traits. Expected heterozygous genotypes were also high in all the

populations of both men and women that served as basis for the high degree of recessives in all the populations. Disorders and susceptibility to diseases like tuberculosis and high infant mortality were also observed in the tribe and pedigree analysis indicates genetic control of the disorders and predisposition of the individuals to the disease. Based on the result of the survey on the reproductive capability of the women where they were observed to produce large number of children, it is feared that the frequency of the disorders will increase based on the high reproductive potential of the women of the populations. It is argued that with a population like this, it is appropriate that something should be done about the plight of this indigenous group

Keywords: population structure, Higaonon tribe, Kulibugan, Mendelian traits

SSD No. 2

ENHANCING FARMERS' CAPACITY TO MANAGE RESOURCES: THE SOCIAL IMPACT OF FARMERS FIELD SCHOOL (FFS) APPROACH IN WESTERN VISAYAS

Eleuterio Noel G. Bernardo*, Corazon A. Arroyo, and Roger C. Esclero

Panay State Polytechnic College, Mambusao, Capiz,
Western Visayas Integrated Agricultural Research Center (WESVIARC) –
Department of Agriculture, Hamungaya, Jaro, Iloilo City and
Municipal Agricultural Office, Dao, Capiz
email: bunny_bernardo@hotmail.com

Women participation in the season long training program (Farmer Field School) in Dao, Capiz and Zarraga, Iloilo Western Visayas, Philippines increased through time (15% to 45% from 1995-2000). Their role in managing rice, generally increased in both sites in terms of allocating cash for inputs (i.e. quality seeds, fertilizers), decision not to use pesticides in the field and greater influence in deciding how proceeds will be spent/invested. However, diffusion of knowledge by IPM graduates is strongly divided by gender, men diffusing mostly to men and women mostly to women. These findings indicate the importance of gender balance in information dissemination among FFS participants and non-participants taking into consideration equal communication flow between men and women. Also, younger farmers (20%) were not well represented in the training. Generally, older graduates did not generally pass on what they have learned to them. These affected the diffusion pattern within the farming community wherein knowledge is shared.

Keywords: IPM, FFS, communication diffusion, gender

SSD No. 3

**MARKET STRUCTURE, CONDUCT AND PERFORMANCE
OF THE RICE MILLING AND TRADING INDUSTRIES
IN THE PHILIPPINES**

Jesusa M. Cabling^{1*} and Flordeliza Lantican²

¹Philippine Rice Research Institute
Science City of Muñoz, 3119 Nueva Ecija

²University of the Philippines at Los Baños, 4031 College, Laguna

*email address: jmcabling@philrice.gov.ph

This study analyzed the market structure, conduct, and performance of the rice milling and trading industries in the Philippines. It used data from the survey of rice millers and traders in Ilocos, Cagayan Valley, Central Luzon, and Southern Tagalog.

The market structure of the rice milling and trading industries was imperfect based on descriptive analysis, four-firm concentration ratio (CR4), Lorenz curve, and gini-coefficients. Except for the rice retailing industry, market concentration increased and a high degree of inequality was observed in the rice milling, wholesaling, and wholesaling-retailing industries. Paddy and rice traded in the market were highly differentiated with no proper grading and standardization systems used. There was a high level of barriers to entry and exit in both industries. Market information was regarded as imperfect because of the lack of credibility of the source and unreliability of the information disseminated among the participants in the market.

Results of the market conduct analysis showed that different price and product policies were used by both industries to adjust and coerce their market opponents. Rice milling and trading industries were price-inefficient because of the weak degree of market integration between market levels brought about by inadequate infrastructure and high transportation costs. Rice mills were underutilized and economies of scale only exist in large-capacity rice mills. The large-scale rice mills generated higher net returns than the small ones. Rice wholesalers received much net return based on volume sold. Big millers and rice traders with enough capital were progressive.

Findings of the study suggested that there is a need to encourage more private traders in the rice market; simplify the licensing procedures; strictly en-

force proper grading and standardization systems; spot check rice adulteration; improve the delivery of market information; reduce transportation costs; improve farm-to-market roads; and increase the capacity utilization of rice mills.

Keywords: rice, marketing, rice pricing efficiency, market integration, rice milling

SSD No. 4

**FOOD-CARRYING AND INCOME-GENERATING CAPACITIES
OF RICE-PRODUCING PROVINCE OF NUEVA ECILJA, PHILIPPINES**

Grace Cataquiz¹ and Jose M. Yorobe Jr.²

¹Philippine Rice Research Institute
Science City of Muñoz, 3119 Nueva Ecija

²University of the Philippines Los Baños, 4031 College, Laguna
email: gccataquiz@philrice.gov.ph

This study assessed the food-carrying and income-generating capacities of the rice sector of Nueva Ecija. Food-carrying capacity (FCC) is the number of human population that can be supplied with minimum rice requirement that would meet their recommended dietary allowance for energy. Income-generating capacity (IGC), on the other hand, is the profit from producing optimum level of quantity at equilibrium price.

Linear programming model was used in determining the FCC and IGC of the province. The model used the input-output coefficients generated from the cost and return survey. Resource constraints were also provided. Moreover, sensitivity analyses were done to see the effects of different policies on the base model results. The income generated from the model was compared with the regional poverty threshold level to get the IGC ratio. A ratio greater than one indicates that the province has income-generating capacity. Results showed that Nueva Ecija has IGC ratio of 0.40. This means that income of its rice sector cannot support the minimum basic expenditure of its population represented by regional per capita poverty threshold.

On the other hand, FCC ratio was computed by comparing the optimal production of milled rice generated from the model with the total rice requirement of the province. Total rice requirement is per capita consumption multiplied with the province's total population. Computations showed that Nueva Ecija's FCC ratio is 2.99, thus, it can support the rice requirement of its populace.

Sensitivity analysis showed that to improve their capacities they must use yield-enhancing and cost-reducing technologies. It was then recommended that: 1) R & D should focus on cost-minimizing technologies; 2) increase investments in promotion of yield-enhancing technologies such as use of quality seeds; 3) lower price of inputs through efficient marketing; and lastly, 4) development of infrastructure such as irrigation, farm-to-market roads, and access to credit.

Keywords: rice, food-carrying capacity, income-generating capacity, dietary allowance, linear programming, poverty threshold

SSD No. 5

**DECOMPOSITION OF RICE PRODUCTION COSTS AND
MARKETING MARGINS: CASE OF NUEVA ECILJA, PHILIPPINES**

Cheryll B. Casiwan*, Jesusa M. Cabling and Flordeliza C. Hidalgo

Philippine Rice Research Institute
Science City of Muñoz, 3119 Nueva Ecija
email: cbcasiwan@philrice.gov.ph, jmcabling@philrice.gov.ph
fhidalgo@philrice.gov.ph

This study attempts to decompose the costs and margins from rice production to consumption. It sought to identify which stage or activities in the production and marketing process can innovations be done to improve competitiveness in the rice industry. Results for Nueva Ecija showed that on a per unit basis, a rice farmer gets 60 to 65% of the gross margin, while the paddy trader and rice miller get 20% to 25%, and the rice wholesalers and retailers get 15%. During the dry season, farmers get a net profit per unit similar to traders, which is around P4 per kg milled rice equivalent. However, during the wet season, traders are able to maintain their net profit while farmers get less than half at more than P1 per kg.

On the production side, results showed that the major cost items are labor, land rental, fertilizer and seed cost. Labor cost for harvesting and threshing, which is normally imputed based on prevailing rice prices has the highest cost share at around 20%. Seed cost is still high at P0.50 per kg paddy. On the marketing side, bulk of the cost incurred is drying and transportation costs. No sufficient

evidence was found to show that the marketing margins of the market players are excessive on a per unit basis. In general, the high profits of rice traders are largely owing to the large volume handled and swift turnover of transactions.

Simulations showed that when production cost is reduced to P4 per kg through technological advancement, and assuming reasonable mark-ups for farmers and traders, the price of rice would still be higher than the current world price. A strong policy to support R&D, technology promotion and infrastructure development are still the best options for the rice industry to be competitive.

Keywords: rice, production cost, marketing margin, rice trading

SSD No. 6

ECONOMIC ANALYSIS OF HYBRID SEED (AXR) PRODUCTION IN THE PHILIPPINES

**Flordeliza C. Hidalgo*, Jesusa M. Cabling, Ruth H. Francisco,
Aileen C. Castañeda, Cheryll B. Casiwan and Bethzaida M. Catudan**

Philippine Rice Research Institute
Science City of Muñoz, 3119 Nueva Ecija
email: fchidalgo@philrice.gov.ph, jmcabling@philrice.gov.ph,
rhfrancisco@philrice.gov.ph, ac_castañeda@philrice.gov.ph,
cbcasiwan@philrice.gov.ph, bmcatudan@philrice.gov.ph

This paper aims to analyze the profitability status of hybrid seed multiplication and compare it with the returns from inbred seed production, which is a more popular alternative activity. The data used in the analysis is obtained from a survey of 25 hybrid and 30 inbred seed growers in Isabela and Davao del Sur, the major hubs of hybrid seed production in the country. Farm-budget analysis, breakeven and sensitivity analysis were employed in the analysis.

Results showed that the average yield for F1 seed production was 0.75 mt/ha. Labor input for hybrid seed multiplication was about 120 person-days/ha, which is 40 person-days higher than the labor requirement of inbred seed multiplication. In contrast, nitrogen application of the former is 23% lower than that of the latter. Chemical application of hybrid seed production amounts to 4 kg/ha of active ingredient, almost double of the amount applied to inbred seeds.

In general, the net income from hybrid seed production is about 30% higher than that of inbred seed production. However if the hybrid seed production support were removed, this net profit advantage would be reduced to 16%. This is because the price of hybrid seeds is eight times of the price of certified inbred seeds. At the current average yield of hybrid seeds, the breakeven price would be Php76.00/kg. However to induce inbred seed growers to shift to hybrid rice production by having a marginal benefit-cost ratio of two, the yield level must be at least 900 kg/ha.

Given the current economic status of hybrid rice production, the introduction of yield enhancing and cost reducing technologies is still needed in order to improve its profitability vis-à-vis inbred seed production.

Keywords: hybrid, inbred, seed production, farm-budget, breakeven, sensitivity, marginal benefit-cost ratio