



2019

PHILRICE R&D HIGHLIGHTS

SCIENCE-BASED POLICIES IN ADVANCING RICE COMMUNITIES PROGRAM

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Science-based Policies in Advancing Rice Communities (SPARC)

Program leader: Alice B. Mataia

Executive Summary

The SPARC Program provides science-based policies and creates a supportive environment to effectively guide decisions relevant to the Philippine rice industry. Specifically, the program aims to: (1) scrutinize existing rice-related issues; (2) translate research findings into relevant policies; and (3) advocate for rice-related policies.

The program operates within the pillars of (1) rice research for development to provide the science-based evidence; (2) communication to help create a strong network of partners; and (3) legislation and policy making to serve as the context of policy agenda.

This year, the SPARC program through its two projects, conducted relevant and responsive policy researches and strengthened its advocacies to influence legislative agenda to improve the efficiency of the rice value chain – from the input sector to production, processing, marketing, and the consuming public. Project FIRE (Fostering Improved Rice Research Environment in Policy) analyzed the existing and emerging policy issues surrounding the rice industry from production to utilization, conducted policy researches, and recommended policy options for consideration. This includes technical support provided to the Department of Agriculture on the effect of TRAIN law, in which the computed estimations were used as basis of Pantawid Saka Program's direct financial assistance to farmers to cushion the effect of the law. The project also published a reading material on "Understanding the Philippine Rice Industry", which can be used for making policy. Project BURN (Building Unified Rice Network through Campaign and Advocacy), on the other hand, packaged and disseminated the research results to stakeholders, especially the policy makers, to help them make informed decisions and eventually create a favorable policy environment for the rice industry. Major activities and findings include production of a policy brief related to Rice Tariffication Law (RTL) that appeals to the government to

provide immediate measures to farmers affected by RTL including the provision of unconditional cash transfer. The project also spearheaded the National Rice Awareness Month (NRAM) unified campaign “Buy Local. Eat Local. Support Our Rice farmers” to support farmers amid the new rice trade regime. It also lobbied for truthful labelling in rice sold in the market in support of the campaign. Similarly, it leads DA and DA attached agencies in the conduct of various activities in aid to the celebration of NRAM.

The outputs of SPARC largely contribute to Outcomes 4 (science-based and supportive rice policy environment), 6 (enhanced partnerships and knowledge management for R4D), and the RiceBIS components of the PhilRice Strategic Plan.

Fostering Improved Rice Research Environment (FIRE) in Policy

AC Litonjua, AB Mataia, MJC Regalado, JP Curibot, APG Bautista, RRD Clavero, JC Beltran, MG Layaoen, and RF Ibarra

In any industry, logical policies are crucial in helping its players operate efficiently. This project serves as a reliable source of relevant information for policymakers' crafting of sound policies and programs. In 2019, the project researched on four topics (a) hybrid rice seed pricing, (b) credit, (c) changes in the rice production systems, and (d) current situation of the rice industry. These studies produced rich information to help advance rice-related policies.

The project produced information on the economics of hybrid rice seed pricing aimed to analyze the cost and returns of producing, processing, and marketing of hybrid rice seed to determine the appropriate price of F1 seed. Initial findings showed that at the government set price of publicly-bred hybrid seed (F1) at P212/kg, hybrid seed growers and seed cooperatives were still earning with combined net profits of P80.40/kg. However, these players also faced major seed production and marketing problems including low and unstable yield, unsteady supply of parental lines, and government bidding process. Moreover, the study on credit is intended to understand better the credit behavior of farmers and to identify mechanisms to provide to increase the use of low-interest credit offered by the government. Capital borrowers were usually members of farmers' organization, with high self-confidence, information seekers, but less goal setters. They tend to shy away from formal sources as interest rate increases. The study on changes in rice production system found that farmers have become more open and positive toward the advancement of farming technologies. Rice cultivation system is heading toward a more advanced and new methods of farming that are efficient with less drudgery.

A reading material titled "Understanding the Philippine Rice Industry" was also published. It analyzed the trends and the current status of the rice sector. Main readers and users of these information are DA and PhilRice managers, policymakers, and researchers. The publication points out that production, area harvested, and yield improved through time because of better irrigation, and seeds and variety choice, but was negatively affected by weather. The country remains a net rice importer. Locally-produced rice was more expensive (P34.47/kg) than imported ones (Vietnam, P23.32/kg, Thailand, P0.80/kg).

Information on credit is intended to understand better the credit behavior of farmers and to identify mechanisms needed to increase the use of low-interest credit offered by the government. Capital borrowers were usually members of farmers' organization, with high self-confidence, information seekers, but less goal setters. They tend to shy away from formal sources as interest rate increases. Moreover, the study on the economics of hybrid rice seed pricing aimed to determine if the current price of hybrid is appropriate. Findings showed that at the current government price, seed-growers and cooperatives involved in this business were still earning profit. The study on changes in rice production system found that farmers have become more open and positive toward the advancement of farming technologies. Rice cultivation system is heading toward a more advanced and new methods of farming that are efficient with less drudgery. Technical support on an emerging issue, which is the effect of TRAIN Law was also provided to the Department of Agriculture. The estimations made became the basis of Pantawid Saka Program's direct financial assistance to farmers to cushion the effect of TRAIN Law.

As a main source of information about rice-related policy issues, this project is working closely with the advocacy arm of the program in lobbying for change toward a better rice industry.

Economic Analysis of the Hybrid Rice Seed Price in the Philippines

AB Mataia, APG Bautista, and PM De Gracia

Hybrid rice plays a major role in attaining rice self-sufficiency and security. However, rice farmer adoption remains low due to its high price, at P212/kg and P300/kg for public and private hybrid rice seed, respectively. Likewise, there is a wide price gap between public and private F1 seed.

The study examined the economics of hybrid rice seed pricing through analysis of the costs and returns across the hybrid rice seed value chain. Survey of 43 public hybrid rice (AxR) seed growers, and four seed cooperatives in Kalinga, Davao Oriental and South Cotabato was conducted using a structured questionnaire, personally administered to sample respondents. Farmers' perception and willingness to pay for F1 seed were also assessed. Using the value chain approach, value addition in each segment was examined to assess

the added cost incurred by each player in the chain. Preliminary results showed that at price, P212/kg of F1 seed, the total added cost is P130.60/kg attributed to the cost of producing, processing and marketing, and the combined profits earned of seed growers and cooperatives is P80.40/kg. Production cost has the largest share (90%) in the total added cost due to the high land rent, labor cost, and material inputs. Processing and marketing cost constitutes 6% and 4%, respectively. Meanwhile, seed cooperatives get the biggest share (P54.74/kg) in the total profits relative to seed growers (P26.66/kg). However, seed growers earn additional P17.95/kg for R-line. This means that at the current government price, seed growers and cooperatives engaged in this business are still making profits. However, the study needs to make further analysis to formulate better policy recommendation on the right price of F1 seed. On the other hand, price of F1 seed is considered high by farmers, and are only willing to pay P150.25/kg. Major challenges to production and marketing of hybrid rice seeds include pests and diseases, high production cost, unstable yield, low selling price, waiting payment period, and farmers' preference to buy private hybrid given favorable terms.

A Review of the Credit System for Rice Farmers

AC Litonjua, AB Mataia, JP Curibot, and RF Ibarra

This study aimed to review the credit system in the Philippines to better understand the credit behavior of farmers and identify mechanisms to increase farmers' use of low-interest credit offered by the government. This involved descriptive and regression analysis of secondary and primary data, gathered through survey and focus group discussions. Related literature were reviewed to compare the salient features of the current and past credit programs, specifically on the loan coverage, lending conduits, eligible borrowers, interest rate, loan ceiling, maturity, requirements, among others. The cost of availing credit from formal sources was 88% more than from informal sources. Based on the Personal Entrepreneurship Competency (PEC) Assessment, farmer-borrowers exhibited stronger entrepreneurial characteristics than non-borrowers. A farmer is more likely to borrow capital if he/she is a member of farmers' organization, owns less rice area, shows high self-confidence, an information seeker but is less goal setter. These borrowers also tend to source their capital from formal sources especially if they are aware of existing formal lenders within the locality. However, if interest rate increases, they are less likely to borrow from formal sources.

Understanding the Philippine Rice Industry

AC Litonjua, JC Beltran, JP Curibot, and MG Layaoen

This study aimed to consolidate rice data and information and produce a reference material that would be useful in understanding the trends and current status of the rice industry. To accomplish this, the team gathered secondary data from sources like the Philippine Statistics Authority (PSA), PhilRice, Food and Agriculture Organization (FAO), and other relevant institutions. Analyses involved descriptive, trends, and costs and returns. Literature were also reviewed to explain the observations in the processed data. In general, there was an increasing trend in production, area harvested, and yield that could have been greatly affected by irrigation, farmers' choice of seed class, and weather. However, the country remains a net rice importer until 2017 because the production could not catch up with the increasing local demand. Most farmers preferred low-quality seeds, transplanting, and other technologies that are easy to follow and do not require mechanical power. Imported rice was estimated to be cheaper than locally-produced rice because production in exporting countries, like Viet Nam and Thailand, costs less than in the Philippines.

Drivers and Pathways of Changing Rice Production Systems

MJC Regalado, RR Clavero, JC Beltran, and AC Litonjua

This study aimed to determine and analyze emerging patterns and pathways of change in major rice production system of the Philippines. In 2019, the study gathered survey data of 400 farmers from Aurora and Bulacan. Analysis involved descriptive statistics in analyzing the survey data of 200 farmers from Nueva Ecija and Pangasinan. In the past 20 years, Filipino farmers have become more open and positive toward the advancement of farming technologies. They are now embracing the idea of having a fully mechanized method of farming. Rice cultivation system is now taking-off toward more advanced technologies and possible new methods for easier and more convenient farming. Nowadays, mechanical transplanter, drone application of fertilizer, and remote-controlled tractors are in the process of development and in a span of 20 years, these would be constantly improved to be efficiently used by the farmers. However, some farmers are also concerned about labor displacement as an adverse effect of fully mechanized farming.

Building Unified Rice Network (BURN)

RG Zagado, TRG Daquioag, AB Mataia, MG Layaoen, AC Alcantara, APG Bautista, and AP Gomez

Policy research only becomes successful and realizes its essence once its recommendations are adopted or implemented. As an institution, PhilRice has several important data and well-thought research that must be communicated to policymakers and the general public to influence decisions and policy directions for the benefit of the rice industry, as a whole.

As such, Building Unified Rice Network (BURN) Project was created to translate results of research into actionable insights and in understandable manner. The goal is to actively influence policymakers and other stakeholders in policy-making towards improved policy environment. It optimized the use of strategic communication, specifically knowledge product development and advocacy campaigns to communicate and disseminate policies, and lobby support from policymakers and major stakeholders. Study 1 Development and production of popularized knowledge products in rice and rice-based policies (CREATE SPARC) is focused on content development and packaging of policy research results into messages custom-tailored to the needs of policymakers for use of Study 2 Influencing rice policy directions through advocacy campaigns (IGNITE SPARC), in communicating and disseminating policy research findings and relevant information to promote science-based policies.

With the enactment of the Rice Liberalization Law (RLL) in March 2019, the project produced several knowledge products that discussed the law, its initial effects and challenges, and recommended strategies to combat its immediate effects and help rice farmers cope. Advocacy materials were produced and packaged based on specific target audience and disseminated using strategic approaches in lobbying for assistance from the government and major stakeholders including private institutions.

The project developed a policy brief related to RLL discussing how to make farmers become winners under a rice tariffed regime. It appeals to the government to provide quick assistance to our local farmers including the provision of unconditional cash rice transfer which was lobbied, then supported and adopted by the Department of Agriculture (DA) and the Department of Finance (DoF). The project also lobbied for truthful labeling in rice in collaboration with the National Food Authority (NFA) in support of the "Buy local. Eat local. Support our rice farmers" campaign.

The project outputs are expected to continue to attract policy makers and major stakeholders and influence their decisions to create effective and science-based policies to support the improvement of the entire rice value chain and its actors, particularly farmers. The project also aimed to contribute in enhancing the competitiveness of our rice industry and in creating impact to our rice farmers for a rice-secure Philippines, and support the paradigm shift of the DA's 'Masaganang Ani, Mataas na Kita'.

CREATE SPARC: Development and Production of Popularized Knowledge Products in Rice and Rice-Based Policies

RG Zagado, TRG Daquioag, AB Mataia, AC Alcantara, APG Bautista, MG Layaoen, and AP Gomez

This study developed and shared appropriate knowledge products to influence policy decision-making to help improve the Philippine rice industry. These knowledge products were policy briefs, position paper, policy inputs, radio scripts, presentation materials, and press releases to explain the content, impact, and challenges of the newly enacted RTL, as well as to call for action in providing immediate measures to mitigate its effects on rice farmers. Moreover, advocacy materials in the form of flyers, banners, tarpaulins, radio scripts and videos were also produced to raise awareness, educate consumers, and rally support to rice farmers. The outputs were then communicated and used to lobby to major stakeholders, such as the Department of Agriculture (DA) and the Department of Finance (DoF) officials, which backed the provision of unconditional cash transfer and fertilizer price support to farmers affected by tariffication. The advocacy materials produced for the 'buy local' campaign was pivotal in mobilizing support from the group of rice consumers. Though the study produced several knowledge products, continuous development and planning on the implementation and dissemination must be given equal importance for the advocacy to be sustainable and extend its influence to a far wider audience.

IGNITE SPARC: Influencing Rice Policy Directions through Advocacy Campaigns

RG Zagado, TRG Daquioag, AB Mataia, AC Alcantara, APG Bautista, MG Layaoen, and AP Gomez

This study is focused on policy advocacy and used advocacy campaigns such as lobbying and promotion through events, building networks among stakeholders, knowledge sharing and learning activities, and other modalities of strategic communication. Partnerships with the Department of Agriculture (DA), Department of Finance (DoF), and National Food Authority (NFA) were established to lobby support from the government to assist our rice farmers affected by declining palay prices. The conduct of the month-long celebration of National Rice Awareness Month (NRAM) with the theme “Buy local. Eat local. Support our rice farmers.” was intended to encourage Filipino rice eaters to help our rice farmers through patronizing their produce. NRAM-related activities were conducted to influence and encourage a large number of rice consumers. In support to the campaign, policy makers, opinion leaders, and public influencers from public and private sectors also performed various activities based on the theme. As a culminating activity of NRAM, the 2019 National Rice Industry Stakeholders’ Conference (NRISC) was organized to generate doable measures to empower, increase productivity and income of our rice farmers. This also served as a platform to lobby the Institute’s advocacy of truthful labeling in rice. Though with limited budget, the study was able to conduct all its planned activities through partnerships and was able to enjoin more and more Filipinos to help attain the goals of this year’s campaign.

Abbreviations and acronyms

AYT - Advanced Yield Trial	GIS - Geographic information system
ABE - Agricultural and Biosystems Engineering	GEMS - Germplasm Management System
AEW - Agricultural Extension Worker	GAS - Golden apple snail
ATI – Agriculture Training Institute	GL - Grain length
AESA - Agro-ecosystem Analysis	GQ - Grain quality
AC - Amylose Content	GW - Grain Weight
BLB - Bacterial Leaf Blight	GY - Grain Yield
BLS -Bacterial Leaf Streak	GLH - Green Leafhopper
BCA - Biological Control Agent	GOT - Grow Out Test
BS - Breeder Seeds	HR - Head Rice
BPH -Brown Planthopper	HRA - Heat Recovery Attachment
BPI - Bureau of Plant Industry	HIPS – Highly-intensified Production System
CGMS - Cytoplasmic Genic Male Sterility	HQS - High-quality Rice Seeds
COF - Commercial Organic Fertilizer	HON - Hybrid Observational Nursery
CDA - Cooperative Development Authority	HPYT - Hybrid Preliminary Yield Trial
DAS - Days After Sowing	ICT - Information and Communication Technology
DAT - Days After Transplanting	IEC - Information Education Communication
DF - Days to Flowering	IBNM - Inorganic-based Nutrient Management
DM- Days to Maturity	ICM - Integrated Crop Management
DAR - Department of Agrarian Reform	IPM - Integrated Pest Management
DA-RFOs - Department of Agriculture-Regional Field Offices	JICA - Japan International Cooperation Agency
DoF - Department of Finance	IRRI - International Rice Research Institute
DOLE - Department of Labor and Employment	IA - Irrigators’ Association
DTI - Department of Trade and Industry	KP - Knowledge Product
DSR - Direct-seeded Rice	KSL - Knowledge Sharing and Learning
DS - Dry Season	LCC - Leaf Color Chart
FBS – Farmers’ Business School	LFT - Local Farmer Technicians
FC - Farmers’ Cooperative	LGU - Local Government Units
FSM - Farming Systems Models	LPS - Low Pressure Steam-operated
FAA - Fish Amino Acid	SB - Stemborer
FGD - Focused Group Discussion	LE-CYPRO - Lowland ecotype Cyperus rotundus
FSP - Foundation Seed Production	MFE - Male Fertile Environment
FRK - Farm Record Keeping	MSE - Male Sterile Environment
GABA - Gamma-aminobutyric Acid	MAS - Marker-assisted Selection
GT - Gelatinization Temperature	MRL - Maximum Root Length
GAD - Gender and Development	MR - Milled Rice
GYT - General Yield Trial	MER - Minimum Enclosing Rectangle
GCA - Genetic Combining Ability	MOET - Minus-one Element Technique
	MC - Moisture Content

MAT - Multi-Adaptation Trials	RTV - Rice Tungro Virus
MC RTP - Multi-crop Reduced Till Planter	RBFHS - Rice-based Farming Household Survey
MET - Multi-environment Trial	KQ - Kernel Quality
MYT - Multi-location Yield Trial	SV - Seedling Vigor
NAAP - National Azolla Action Program	ShB - Sheath Blight
NCT - National Cooperative Test	ShR - Sheath Rot
NFA - National Food Authority	SMS - Short Messaging Service
NRAM - National Rice Awareness Month	SNP - Single Nucleotide Polymorphism
NSIC - National Seed Industry Council	SWRIP- Small Water Reservoir Irrigation Project
NSQCS - National Seed Quality Control Services	SRB - Stabilized Rice Bran
N - Nitrogen	SUCs - State Universities and Colleges
NBSP - Nucleus and Breeder Seed Production Project	SB - Stem Borer
NFGP - Number of Filled Grains Panicle	TESDA - Technical Education and Skills Development Authority
ON - Observation Nursery	TDF - Technology Demonstration Farm
OSIS - One Stop Information Shop	TRV - Traditional Rice Varieties
OBNM - Organic-based Nutrient Management	TOT - Training of Trainers
PL - Panicle Length	TPR - Transplanted Rice
PW - Panicle Weight	URBFS - Upland Rice-Based Farming
PVS - Participatory Varietal Selection	WS - Wet Season
PWD - Person with Disabilities	WCV - Wide Compatibility Variety
PhilMech - Philippine Center for Postharvest Development and Mechanization	YSB - Yellow Stemborer
PRISM - Philippine Rice Information System	
PhilRice - Philippine Rice Research Institute	
PSA - Philippine Statistics Authority	
PTC - PhilRice Text Center	
P - Phosphorus	
PVS - Plant Variety Selection	
K - Potassium	
QTL - Quantitative Trait Loci	
RCBD - Randomized Complete Block Design	
RSP - Registered Seed Production	
RBB - Rice Black Bug	
RCEF - Rice Competitiveness Enhancement Fund	
RCEP - Rice Competitiveness Enhancement Program	
RCM - Rice Crop Manager	
RHGEPS - Rice Hull Gasifier Engine Pump System	
RPH - Rice Planthopper	
RSTC - Rice Specialists' Training Course	

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With a "Rice-Secure Philippines" vision, we want the Filipino rice farmers and the Philippine rice industry to be competitive through research for development in our central and seven branch stations, coordinating with a network that comprises 59 agencies strategically located nationwide.

We have the following certifications: ISO 9001:2008 (Quality Management), ISO 14001:2004 (Environmental Management), and OHSAS 18001:2007 (Occupational Health and Safety Assessment Series).

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