Quality Rice. Quality Life.

2017 National Rice R&D Highlights

RICE BUSINESS INNOVATIONS SYSTEMS

Philippine Rice Research Institute
Central Experiment Station
Maligaya, Science City of Muñoz, 3119 Nueva Ecija

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Rice Business Innovations System (RiceBIS) Community Program

Program Leader: Aurora M. Corales

Executive Summary

The Rice Business Innovations System (RiceBIS) Community Program aimed to develop rice and rice-based enterprises in the country's key provinces with low productivity and income from rice farming. Specifically, the program focused on optimizing not only production but also processing, and marketing to ensure available and affordable rice produced in a resilient and sustainable manner.

Unlike conventional technology promotion approaches that are production driven, the program adapted the agribusiness framework. Thus, the RiceBIS program involves strong strategic collaborations with like-minded organizations.

PhilRice initiates agro-enterprise development through the clustering approach and capitalizes on partnership with site working groups composed of agencies such as the Department of Agrarian Reform (DAR), Department of Trade and Industry (DTI), Cooperative Development Authority (CDA), the Philippine Center for Postharvest Development and Mechanization (PhilMech), and State Universities and Colleges (SUCs).

The RiceBIS Community Program, which was also implemented in the branch stations, has five main projects or components implemented from February to December 2017:

1. Strategic communication – to effect behavioral change among rice farmers and rally for an enabling policy environment toward agro-enterprise development through the use of strategic communication;
2. Engaging farmers' organizations for sustainable and progressive rice-based community – to enhance the farmers' social capital through community engagement and strengthening of rice-based farmers' organizations to increase farming household's income;
3. Capacity enhancement for agro-enterprise development – to help farmers through the promotion of cost-effective farm technologies with improved rice-based production and postproduction practices to improve farm productivity and enhance the entrepreneurial competence and business skills of the farmers;
4. Developing rice and rice-based enterprises for smallholder

farmers – to develop rice and rice-based enterprises for farmer-organizations to give them the opportunity to engage themselves in business and derive more from what they have individually or collectively produced for the market; and

5. Monitoring and evaluation – to quantify the impact of program interventions in terms of yield, input use, income, technology adoption, and perceptions of farmers.

All these components interplay to carry out the program's main goal of increasing income, reducing cost, and linking of Filipino farmers to market.

I. Strategic Communication to Advance RiceBIS in Selected Farming Communities in the Philippines

Ronan G. Zagado

This project was designed to be transformational rather than simply transmissional. Transformation means effecting positive and relevant change in farmers' perceptions, attitudes, behaviors, skills, and practices towards rice-based agro-enterprise development.

It is essentially an action research that aims to assess clients' readiness and provide strategies to guide them in going through the stages of behavioral changes toward transformation.

Highlights:

Phase I: Social Preparation

- Understand and building relationship in the RiceBIS Community. A week-long sensing journey was conducted in the RiceBIS site in Agusan del Sur to allow project implementers to understand community lifestyle, break barriers, and build rapport with the locals. From the activity, a protocol (Annex H) was developed and recommended for implementation in other sites. Feedback suggests that this community immersion activity is effective as it allows one to understand the community first hand.

- Raising public awareness, interest, & participation. Stories were published on the social media and PhilRice website to raise public awareness, interest, and participation. These stories were about the mindsetting activities being done with the RiceBIS farmers and implementers. One Facebook photo story (August 9, 2017) and two news stories were uploaded on the PhilRice Website (July 28, 2017 and August 24, 2017).

Campaign collaterals were also produced to raise awareness and rally support toward the goal of the RiceBIS Community Program.

Table 1. RiceBIS campaign collaterals.

Collaterals	Quantity Produced (pc)
Program Brochure (English and Filipino)	2000
RiceBIS We Help the Rice Farmers Commitment Shirts	100+ 100*
RiceBIS I'm a Farmer Commitment Shirts	100*
Cowboy Hats	100*
Ecobags	1000*
Field Banners	10
Flags	10
Billboards	3+ locally produced by stations
RiceBIS We Help the Rice Farmers Notepads	1500
Notebook (designed by DevCom, produced by TMSD)	500
I help the rice farmers Mug	70
Ref Magnets	72

**Ongoing Production*

Figure 1. Designs of Official RiceBIS Collaterals.

Likewise, promotional materials were designed and produced to launch the different RiceBIS community pilot sites.

Table 2. RiceBIS Community Program promotional materials with uploaded templates.

Collateral	Quantity Produced (pc)
Kabilang ako sa RiceBIS Mug	30
RiceBIS meetings welcome banner	1
RiceBIS Meetings programme	1 final design (50 printouts)
RiceBIS Launching programme	1 final design (100 printouts)
RiceBIS Coop Signage	1
RiceBIS backdrop banner	1
RiceBIS Program Launch streamer	1
Palaytambayan banner	1
RiceBIS Program On-site Billboard	1

- Enhancing participants' mindsets through field visits. As part of the knowledge sharing and learning activity, a field visit was organized to allow farmers to learn and be inspired from successful cooperatives in Nueva Ecija. Knowledge sharing and learning was done through storytelling and open forum. The host cooperatives also showed their facilities such as flatbed dryers, millers, and trucks to the farmer visitors. Feedback survey suggests that 65% of the participating farmers are happy about the field trip while 53% of them felt inspired. Most (76%) have improved their perception about being a member of a cooperative. Most of them (71%) also said that they are inspired to work harder to help their cooperative earn more. More than half (53%) of them viewed that farming can be a good business venture and that their coop can become successful just like the coops they visited.

- Training of trainers mindsetting activity (August 9, 2017). Mindsetting for the implementers was done during the training of trainer's social night on August 9, 2017. Three engagement activities were done: (1) Human Bingo, (2) Amazing Race, and (3) Deal or No Deal. Human Bingo is an acquaintance game that intends to help the implementers be closer to and familiar with each other. Meanwhile, Amazing Race intends to promote unity among the development workers. The game called Deal or No Deal was inspired by the popular TV game show only that it was modified to imbibe the mindset of being agripreneurs.

- Mindsetting event (July 20, 2017). A mindsetting event was organized to reinforce and imbibe the objectives of the program and to prepare minds of participants to be agripreneurs. Feedback survey was also done to see how the mindsetting intervention affected them. Results showed that:

  - 100% of the participants agreed that the message of the activity was clear
  - 100% of the participants agreed that the activity gave them inspiration
  - 100% of the participants agreed that they will use what they learned from the activity
  - 100% of the participants agreed that they will impart what they learned to others

Phase II: Social Reinforcement and Mobilization

- Message Reinforcement Using SMS. During the early phase, PhilRice Text Center (PTC) was only used for announcement (informational messages). Later, it was optimized to send out educational, motivational, and crowdsourcing messages. Other interventions done under social preparation also reached the goals of the social reinforcement and mobilization phase. Example of this was the mindsetting activity in July 2017, in which the farmers were familiarized with the important elements of the program.

Figure 2. Photo collage of RiceBIS Community mindsetting event (July 20, 2017).

Phase III: Action

- Communication support integrated into the FFS. Communication support in the form of knowledge products was distributed during the event and text alerts (e.g., announcements) sent through the PTC.

Phase IV: Maintenance

- Regular visits in the community. Weekly visits were done to observe and understand participants' behaviors and subsequently devise communication strategies on how to address deviants (if any). Mindsetting activities (e.g., group dynamics and text alerts) promoted respect for others and teamwork.

Figure 3. Photo collage of RiceBIS Community Field Visit (October 16, 2017).

Phase V: Documentation of Early Adopters

- After the cropping session, eight successful early adopters were documented. Farmers were asked to share the significant changes that took place during their engagement with the RiceBIS Community Program. Their common answer included higher yield that was attributed to their attendance in the FFS. Aside from high yield, 'business mindset' also surfaced in the interview. For communication, these are not simply feedback, but are important resources that can be packaged into knowledge products for use in inspiring other farmers who may be considered laggards.

II. Capacity Enhancement for Agroenterprise Development

Aurora M. Corales

Growing evidence indicates that sustaining success in productivity-based agricultural growth critically depends on expansion of market opportunities and requires thinking beyond productivity and competitiveness. Hence, this project aims to put more efforts to improve access to food and quality of life for rural households by promoting farm enterprise diversification and commercialization, and capacitating the farming communities towards agroenterprise development for greater opportunities.

Highlights:

- The project provided capacity enhancement activities for its key implementers, facilitators, resource persons, and trainers to ensure the smooth and successful implementation of the program. In these activities, goals of the program were discussed and feedback were given so that learnings and problems encountered by the site working groups were addressed.

- 61 farmers were trained on rice production and processing, values formation, organizational building and management, and enterprise development to enhance their knowledge and awareness on the latest innovations and technologies on rice production, market engagement, and provide capability building for the partner-organization.

- 60 program key implementers and facilitators were trained on Clustering Approach to Agro-enterprise Development, following a market-driven principle and adopting the modified stepwise process of Agro-enterprise Clustering Approach developed by the Catholic Relief Services.

- 29 project staff were trained on basic principles and practical skills on rice production and processing, organization building, and enterprise development for them to effectively enhance the technical capacity and entrepreneurial mindset of the farmers and their organization toward agroenterprise.

III. Enhancing the Capability of Rice-based Farmers' Organizations Toward Sustainable and Progressive Agriculture-based Community

Joel V. Pascual

The project aimed to enhance farmers' social capital through community engagement and strengthening of rice-based farmers' organizations to increase the income of farming households toward sustainable and progressive farming community. This innovation provides intensive training and development program to enhance the capacities and capabilities of farmers' organizations, especially on effective operations and sustainability of their activities.

- Project implementation in Zaragoza, Nueva Ecija started with exploratory and consultation meetings with the local government unit and farmer's organization. The project established the RiceBIS community in partnership with the Pinagbuklod na Adhika Agricultural Cooperative in Barangay Macarse, Zaragosa, Nueva Ecija and focused on organized production and joint marketing activities toward agroenterprise development. Activities consist of community organizing and cluster formation, establishment of sustainable technology demonstration farms, and strengthening the management of the partner- farmers' organization.

- Most of the farmer-cooperatives have linkages to some financing institutions such as local banks, non-governmental organizations, and private companies to provide the members' financial requirements on farming activities. To optimize the use of these resources, the project assisted the farmers in improving their farming practices by developing and promoting high-yielding rice and rice-based technologies.

- Started in WS 2017, the Cooperative served as partner in the promotion of high-yielding rice production technologies for improved productivity and income with the component of organized production and joint marketing. A focus group discussion (FGD) was conducted with the coop officers and farmer-members to identify their critical concerns and problems on farming activities. FGD result shows their concerns from production to marketing, alternative livelihoods, and strengthening of their farmer's organization (Appendix 1.)

- To gain the project's commitment, a series of briefing and consultation were conducted among the coop officers and members and gained their support in the implementation of the different activities of the project. A training needs assessment was also conducted.

- A site-working group was formed for the RiceBIS program consisting of partners from the local government units (LGUs), farmer-cooperatives, Department of Agriculture and its attached agencies, academe, other government agencies, and private organizations (Appendix 2). These collaborations will help the community and farmer-groups to improve their farm production, enterprise development, and organizational building and management.

- Three production clusters were formed in Brgy. Macarse as a RiceBIS community with 44 participating farmers, covering 85 hectares rice farms for the organized production and promotion of high-yielding production technologies. Cluster-members were initially provided with registered seeds as a roll-over scheme of the project and for seed increase of quality seeds in the area. Each production cluster planted same variety as their entry for the joint production and marketing; Cluster 1 planted NSIC Rc 160 (29 ha); Cluster 2, NSIC Rc 222 (28 ha); and Cluster 3, NSIC Rc 216 (28 ha). Technical briefing was provided before seeds distribution to guide the participating farmers on the proper seed sowing, seedling management, and crop establishment.Cluster leadership was formed in each group consisting of cluster leader, production coordinator, postharvest coordinator, techno demo cooperator, and the secretary/ treasurer as the lead persons in the management of cluster, organized production, product consolidation, and marketing. Regular monthly meetings were conducted in each cluster to monitor and supervise activities on organized production and marketing.

- In WS 2017, the yield of the participating cluster-members ranged from 3.42 to 6.67 t/ha, or an average of 5.28 t/ha. It outyielded the WS 2016 average yield of 4.12 t/ha by 1.16 t/ha or 28% yield advantage. From the 44 cluster-members, 11 of them increased their yield from 0.02 to 4.27 t/ha. Cluster 1 with 14 farmer-members achieved the highest increased in yield with an average of 1.49 t/ha, followed by the Cluster 2 and 3 with an average yield increase of 1.31 t/ha and 0.70 t/ha, respectively. The three RiceBIS production clusters consolidated 3,933 bags of fresh palay, which were sold to identified potential buyer.

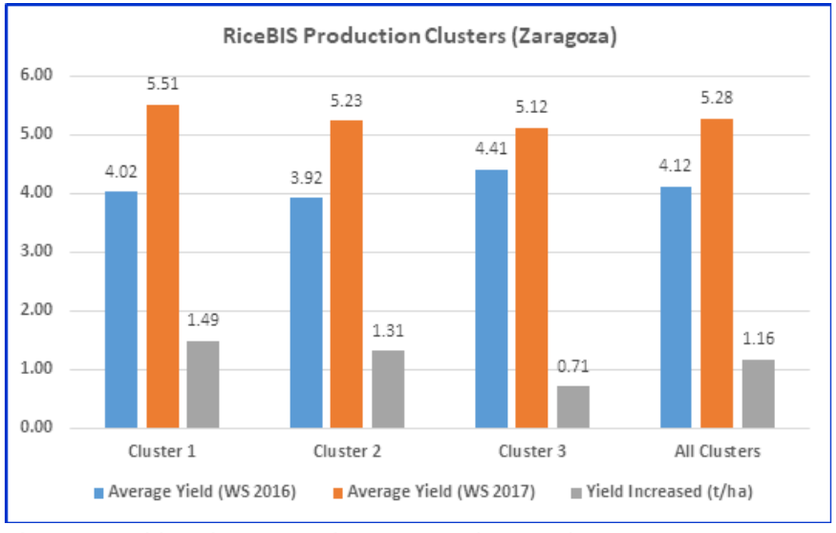

Figure 4. Yield performance of RiceBIS production clusters, Zaragoza, Nueva Ecija, WS 2017.

- The project also managed the RiceBIS Farmers' Field School (FFS) attended by 60 participating farmers and supported by the established learning field that served as the practicum and demonstration area by the cluster members. FSS course started in WS 2017 and will be completed by DS 2018. This modified FFS was equipped with training modules focused on rice production and processing, values formation, organizational building and management, and enterprise development. The training course aimed to enhance the knowledge and awareness of the participating farmers on the latest innovations and technologies on rice production and market engagement; and provide capability building for the partner-organization.

- The project developed training modules on organizational building and management consists of four modules: (a) values formation for farmer's organization; (b) leadership in farmer's organization; (c) governance and planning for cooperatives; and (d) farm bookkeeping and accounting. These modules were delivered during the Training of Trainors (TOT) for RiceBIS Implementers held in July 2017 and will be used by the PhilRice branch station's focal persons in establishing their RiceBIS communities. Modules on values formation and leadership in farmer's organization were delivered during FFS in RiceBis-Zaraqoza for the capability building of the partner-cooperative and its members.

- A demonstration field was also established and promoted newly-released inbred rice varieties (Table 6). Results show that NSIC Rc222 achieved the highest yield (6.2 t/ha) followed by NSIC Rc 442 (6.1 t/ha), NSIC Rc400 (5.8 t/ha), NSIC Rc402 & Rc440 (5.5 t/ha), and NSIC Rc438 (5.4 t/ha). As learning field, the participating farmers performed the hands-on activities at the demonstration sites such as seedbed preparation, seed sowing, field lay-outing, transplanting, fertilizer applications, and gathering of agronomic data and field observations. Farmers' field evaluation showed that rice tillers mostly preferred NSIC Rc222 based on its yield, agronomic characteristics, and field performance.

Table 3. Yield results of the established variety demonstration field, Zaragoza, Nueva Ecija, WS 2017.

Varieties	Maturity (days)	Plant height (cm)	No. of tillers	Total no. of grains/ panicle	No. of filled grains	No. of unfilled grains	Actual Yield (t/ha)
NSIC Rc222	114	138.5	25	203	124	79	6.2
NSIC Rc402	114	131	22	184	150	34	5.5
NSIC Rc438	106	127	20	183	150	33	5.4
NSIC Rc400	120	128.5	17	216	173	43	5.8
NSIC Rc442	113	139	22	169	132	37	6.1
NSIC Rc440	109	124	16	164	139	25	5.5

- A Farmers' Field Day and Forum was implemented before the end of wet season cropping, which was attended by 150 participants. During the field visitation, the participants evaluated the performance of the inbred rice varieties appropriate in their area for adoption and multiplication. Field visits also enhanced their knowledge on the other cost-reducing and yield-enhancing rice production technologies using the production modules developed for the farming clusters. End-season review and planning was also conducted to review previous cropping's accomplishments, prepare

plans for the dry season cropping's activities, and expand the production clusters.

Figure 5. Farmer's Field Day and Forum at Barangay Macarse, Zaragosa, Nueva Ecija (September 21, 2017).

IV. Developing Investment Portfolios for Potential Rice SME Investors.

Alice B. Mataia

The development conditions in rice and rice-based communities are rooted on two grounds. First, in general, Filipino farmers have always been characterized as "small time," who earn just a little more than what they invested for a particular cropping season. One of the reasons for this is the fact that farmers lack the skill of making farming as a profitable business as they often sell their produce immediately after harvest. This practice of our farmers has deprived them of getting some added value of what they have produced. Second, the focus of development strategies in agricultural communities had always been measured in terms of production, for which based on experience, did not result in significant changes in the lives of smallholder farmers.

Given the above scenarios, development practitioners had modified their practice of focusing only on production as an indicator of development. Thus, combining production and marketing strategies to help improve the conditions of the farmers were implemented.

- To better understand the needs of the cluster members, a structured Focus Group Discussion among selected cluster members was conducted. The farmers were asked to discuss among themselves: 1) What is their present condition as rice farmers?; 2) What are the challenges contributing to their present condition?; and 3) What can the group do to minimize the challenges? They used a problem tree in the analysis and presentation of their challenges.

- Farmers claimed that "hindi pa sila umuunlad" (they have not yet developed) and they attribute their present condition on low productivity and low income. They claimed that the contributory problems to their low productivity were: 1) poor quality of seeds; 2) lack of capital for rice production because household income is foremost used for education of children and less priority is given for the purchase of farm inputs and farm machinery; 3) lack of a functional irrigation infrastructure; and 4) limited knowledge on pest management and fertilization.

- On the other hand, the contributory problems on their low income were: 1) limited production capital; 2) lack of drying facility; 3) low buying price by palay traders; 4) inadequate warehouse and milling facility of the cooperative; and 5) high production cost due to typhoon damage/ high maintenance of

farm machinery.

- Farmers themselves identified potential solutions for every challenge. On low productivity, the following were identified: 1) use of breeder and registered seeds from accredited seed grower; 2) membership in cooperative that will source out grants/subsidies for pesticides and farm machinery; 3) link with agencies who can help in the establishment or in making irrigation facilities functional; and 4) use of organic fertilizers to lower production cost and other related seminars. On low income, farmers identified the following as potential solutions: 1) spend wisely (i.e., use for crop production only what is allotted for it); 2) avail/use mechanical dryer; 3) mill palay produce or link with market who can provide higher price for their palay; and 4) coordinate with the government.

The Existing Market Channels of Fresh Palay

- In the market chain study on fresh palay, results showed that there were four existing market pathways used by the RiceBIS Community cluster members in Macarse, Zaragoza (Figure 1). These are: 1) Farmer → Trader/Rice wholesaler → Consumer; 2) Farmer →Agent→Small time trader→Agent→Trader/Rice wholesaler→Miller → Consumer; 3)Farmer →Small time trader→Agent→Trader/Rice wholesaler→Miller → Consumer; and 4)Farmer →Agent→Trader/Rice wholesaler→Miller→ Consumer.

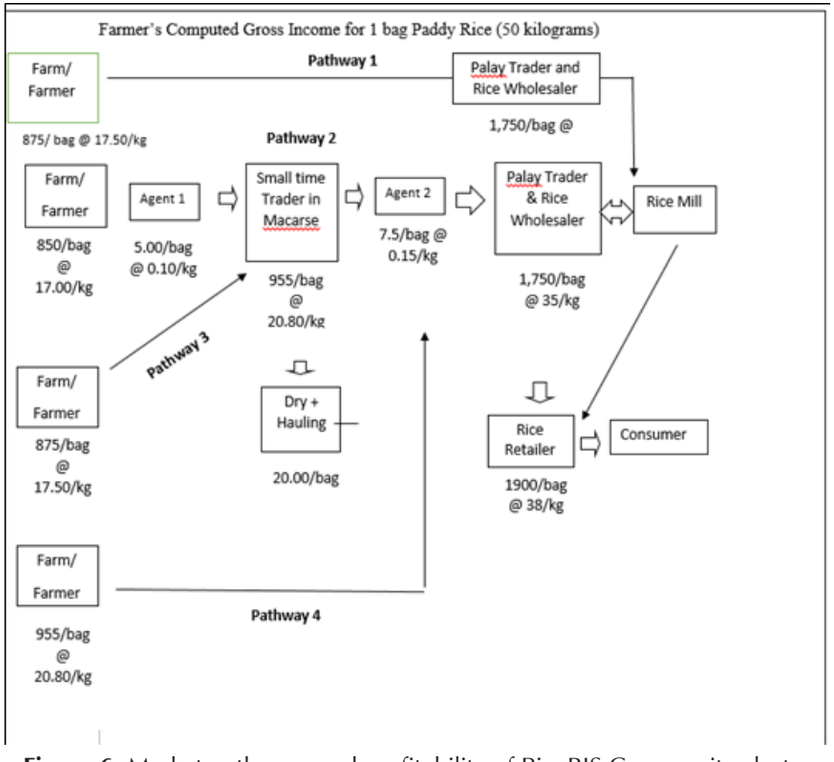

Figure 6. Market pathways and profitability of RiceBIS Community cluster members in Macarse, Zaragoza.

- In Pathway 1, some farmers sell their harvest to small time palay trader/ rice wholesaler in Macarse, Zaragoza. This trader is at the same time a rice wholesaler and partly an agent of a bigger trader whom he delivers and sells what he has consolidated at the barangay level. He mills a part of his procured palay and sells as milled rice to some pre-identified clients. This trader prefers to buy skin dried palay or those harvested by reaper with a practice of cut, dry in the field, and thresh on the third day. Table 4 shows that with this practice, farmers get a net income of P403.07/bag with a production cost of P9.44/kg. Meanwhile, the trader and rice wholesaler gets P164.40/bag net income.

Table 4. Profitability analysis of market actors using Pathway 1.

MARKET CHAIN ACTORS	
Farmer's Income	Trader and Rice Wholesaler's Income
Volume of Rice = P50/kg Negotiated Price = P17.50/kg **Gross Income** **= ₱ 875.00/bag** **Net Income** **= ₱403.07/bag**	Volume of Rice @ 63% Milling Recovery =28.9 kgs 3% Brewer rice =1.3 kgs @ P11.00/kg 14% Rice Bran =6.4 kg @ P8.00/kg Negotiated price of Milled Rice = P 35.00/kg **Expenses** Cost of Milling = P 34.70 Handling Cost = P 2.9 **Gross Income** = P**1, 077.00 (*less: expenses* + P*875 Buying Price)*** **Net Income** **= P164.40/bag**
Assumption -Field harvest at 21% MC - 5,000 kgs yield/ha -Production Cost (Based on the *recommendation of the production team)* = P9.44/kg or ₱ 471.93/bag	

- Majority of the cluster members used Pathway 2 where farmers sell their produce through agents. After the farmer and the agent have agreed on the price, farmers immediately harvest the crop, the agent then coordinate with the buyer for the payment and transport of product to the drying facility. Farmers get an average net income of P378.07/bag while the agent gets P0.10 /kg as a commission from the buyer or trader of fresh palay (Table 5). After drying and consolidation, the buyer/trader at the barangay level now negotiates with the agent of a particular dried palay buyer for the price, immediate payment, and transport of product to the buyer's storage or warehouse. He/she gets a net income of P80.00/ bag. The bigger trader from a neighboring province accepts or buys a minimum delivery of one truckload as he handles the hauling of the product. He does not store the palay for so long, rather immediately mill and sell it to rice retailers. This palay trader/ rice wholesaler maintains a delivery capacity of 3,000 bags of milled rice per week in four provinces. He/she gets P101.90/bag net income and gives his agent P0.15/kg of delivered palay.

Table 5. Profitability Analysis of market actors using Pathway 2.

MARKET CHAIN ACTORS				
Farmer's Income	Agent's Income	Small Time Trader's Income	Agent's Income	Palay Trader And Rice Wholesaler's Income
Volume of Rice =50 kgs Negotiated Price = P17.00/kg Gross Income **= P850.00** **Net Income** **= P378.07/bag**	**INCOME** = P5.00/bag @ P0.10/kg	Volume of Rice @ 14% MC =45.9 kgs Negotiated Price = P20.80/kg **Expenses** Drying and Hauling =20.00/bag Agents Fee = P5.00 @ P 0.10/kg **Gross Income** = P**930.00/bag** **Net Income** = P**80.00/bag**	**INCOME** = P7.5 @ P0.15/ kg	Volume of Rice @ 63% Milling Recovery =28.9 kgs 3% Brewer rice =1.3 kgs @ P 11.00/kg 14% Rice Bran =6.4 kg @ P Negotiated price of Milled Rice = P 35.00/kg **Expenses** Cost of Milling = P 34.70 Handling Cost = P 2.9 Agents Fee = P 7.5 **Gross Income** = P 1, 077.00 ***(less: expenses*** + P ***935 BP)*** **Net Income** **= P 101.90/bag**
Assumption -Field harvest at 21% MC - 5,000 kgs yield/ha -Production Cost (Based on the *recommendation of the production team)* = P 9.44/kg or P 471.93/bag				

- Market pathway 3 describes the farmers' decision to directly sell their produce to the small time trader in the barangay. This small time trader will then dry what he procured to meet the product requirement of his pre-identified palay trader outside the province. A farmer gets a net income of P 403.07/bag while the small trader gets P85.00/bag (Table 6).

Table 9. Profitability analysis of market actors using Pathway 3.

MARKET CHAIN ACTORS			
Farmer's Income	Small Time Trader's Income	Agent's Income	Palay Trader And Rice Wholesaler's Income
Volume of Rice =50 kgs Negotiated Price =₱17.50/kg **Gross Income** **=₱875.00** **Net Income** **= ₱403.07/bag**	Volume of Rice @ 14% MC =45.9 kgs Negotiated Price = ₱20.80/kg **Expenses** Drying and Hauling = ₱20.00/bag **Gross Income** = ₱ 930 /bag **Net Inco** **= ₱ 85.0 g**	**INCOME** = ₱ 7.5 @ ₱ 0.15 kg	Volume of Rice @ 63% Milling Recovery =28.9 kgs 3% Brewer rice =1.3 kgs @ ₱ 11.00/kg 14% Rice Brand =6.4 kg @ ₱ 8.00/kg Negotiated price of Milled Rice = ₱35.00/kg **Expenses** Cost of Milling ₱ 34.70 Handling Cost = ₱ 2.9 Agents Fee = ₱ 7.5 **Gross Income** = ₱ **1, 077.00** ***(less: expenses +*** ₱ ***935 BP)*** **Net Income** **= ₱ 101.90/bag**
Assumption -Field harvest at 21% MC - 5,000 kgs yield/ha -Production Cost (Based on the *recommendation of the production team)* =₱9.44/kg or ₱471.93/bag			

- In Pathway 4, the farmer decides to dry his/her palay and negotiate directly with the agent commissioned by the palay trader/rice wholesaler who buys dried palay. The farmer gets a net income of P531.93/bag while the palay trader/ rice wholesaler gets a net income of P101.90/bag who in turn gives his agent a commission of P7.50/bag of fresh palay delivered (Table 7).

Table 7. Profitability Analysis of market actors using Pathway 4.

MARKET CHAIN ACTORS		
Famer's Income	Agent's Income	Palay trader and rice wholesaler's income
Volume of Rice @ 14% MC =45.9kgs Negotiated Price = ₱20.80/kg Expenses Drying and Hauling = ₱20.00/bag **Gross Income** **= ₱935.00/bag** **Net Income** **= ₱531.93/bag**	**Income** **=₱7.5 @ 0.15 kg**	Volume of Rice @ 63% Milling Recovery =28.9 kgs 3% Brewer rice =1.3 kgs @ ₱11.00/kg 14% Rice Brand =6.4 kg @ ₱8.00/kg Negotiated price of Milled Rice = ₱35.00/kg **Expenses** Cost of Milling =₱34.70 Handling Cost =₱2.9 Agents Fee =₱7.5 **Gross Income** **= ₱1, 077.00** ***(less: expenses +*** ₱***935 BP)*** **Net Income** **= ₱101.90/bag**
Assumption -Field harvest at 21% MC - 5,000 kgs yield/ha -Production Cost (Based on the *recommend* = ₱9.44/kg or ₱471.93/bag		

The Potential Markets of Fresh Palay

- This study shows that the market for palay is not a problem. There are potential markets of fresh palay within Zaragoza, outside Zaragoza, and outside Nueva Ecija. Within Zaragoza alone, there were 34 licensed palay buying stations. Table 8 shows that the potential markets within Zaragoza buy fresh cut and threshed palay, skin dried or those harvested by reaper, left in the field and threshed on the third day, and dried palay at an average price of P15.00, P20.00, and P17.40, respectively.

- Outside Zaragoza, buyers prefer skin dried palay at P17.50/kg while big markets outside Nueva Ecija prefer both skin dried and dried palay at P17.50/kg and P21.16/kg, respectively. All buyers immediately pay the goods in cash.

Table 8. Potential markets for fresh palay.

Within Zaragoza, Nueva Ecija		
Product	**Average Price/kg**	**Mode of Payment**
Freshly Cut	P=15.00	Cash
Dry (14%)	P=20.50	Cash
Skin Dry (cut by reaper, dry in the field, and threshed on the third day)	P=17.40	Cash
Outside Zaragoza, Nueva Ecija (Neighboring Towns)		
Freshly Cut		
Dry (14%)		
Skin Dry (cut by reaper, dry in the field, and threshed on the third day)	P=17.5	Cash
Outside Nueva Ecija (Neighboring Provinces)		
Freshly Cut		
Dry (14%)	P=21.16	Cash
Skin Dry (cut by reaper, dry in the field, and threshed on the third day)	P=17.5	

- Among these potential markets of fresh palay, list of the top three major buyers were chosen to assess if they were able to meet the requirements of the RiceBIS Community members in Barangay Macarse, Zaragoza, Nueva Ecija. These top rice miller traders were identified as Dennis Gregorio Rice Trader in Padapada, Sta Ignacia, Tarlac; JunRia Rice Mill in La Paz, Tarlac and; Victor Del Rosario Rice Mill Corporation in San Leonardo, Nueva Ecija. Table 9 shows the requirements of each millers/traders in different categories.

Table 9. Requirements of Millers/Traders.

	Dennis Gregorio Rice Trader Sta. Ignacia, Padapada, Tarlac	**JunRia Rice Mill** La Paz, Tarlac	**Victor del Rosario Rice Mill Corp.** San Leonardo, Nueva Ecija
	Custom Mill to other Millers	Rice Mill	Rice Mill
Minimum quantity of every purchase	1 Forward= 12, 000 kgs	1 Forward= 12, 000 kgs	1 Forward= 12, 000 kgs
Payment Method	Cash	Cash	Cash/ Dated cheque
Pick-up Cost	Free	Free	Free
Weighing Method	Manual	Truck scale/Free	Truck scale/Free
Storage/Drying Capacity		3 units of 12 tons 1 unit of 24 tons	5 unit of drying facility that can accommodate a total of 2500 bags of fresh palay daily
Interest on buying from small time farmers	Yes	Yes	Yes
Preferred Variety/s	Any	RC-218; RC-216; RC-160	RC-222; RC-216; RC-260; RC-218
Preferred Product	Dried palay	Fresh/dried palay	Fresh/dried palay

The Actual Group Test Marketing

- Prior to the actual group test marketing, the farmers identified fresh palay (varieties: NSIC Rc 160; NSIC Rc 216; and NSIC Rc 222) as their main product due to unavailability of postharvest facilities in the area.

- Table 10 shows the result of the actual group test marketing per cluster. Thirteen of 15 members participated in the group marketing in cluster 1 with 105,088 kg volume sold. In cluster II, seven members joined the group marketing and sold 51,815 kg. A volume of 89,562 kg were consolidated and sold by cluster III participated by six members. On the other hand, cluster IV (Ibayo), which will be officially part of the group marketing on the dry season already consolidated a volume of 27,940 kg from four members. The RiceBIS community in Macarse, Zaragoza consolidated a total of 274,405 kg and sold to the identified buyer.

Table 10. Consolidated marketing result.

Cluster	No. of farmers	Farmers participated	Volume harvested (kg)	Volume sold	Variety	Ave. Price (P/kg)	Price range (P/kg)
I	15	13	126,272	105,088	NSIC Rc 160	17.22	14-18.5
II	15	7	104,553	51,815	NSIC Rc 222	14.61	14-15.5
III	15	6	126,673	89,562	NSIC Rc 216	16.20	14-17.5
IV	15	4	27,940	27,940	NSIC Rc 216	17.50	17.50
TOTAL	**60**	**30**	**385,438**	**274,405**		**16.38**	**14-18.5**

- Price monitoring was done to compare and assure that the price for fresh palay is competitive in the market. Figures 7, 8, and 9 show the price variation for NSIC Rc 216, NSIC Rc 160, and NSIC Rc 222 among the potential buyers of fresh palay. During the first phase, VDRRM recorded the highest price while on the second phase, the price dropped due to the law of supply and demand, but still, competitive in the market. On the last phase, as the supply of the newly harvested palay decreased in volume, the price gradually increased except for the variety NSIC Rc 222, which recorded the lowest price on this phase due to the large volume of supply and low quality. On the fourth phase, the price of NSIC Rc 222 increased.

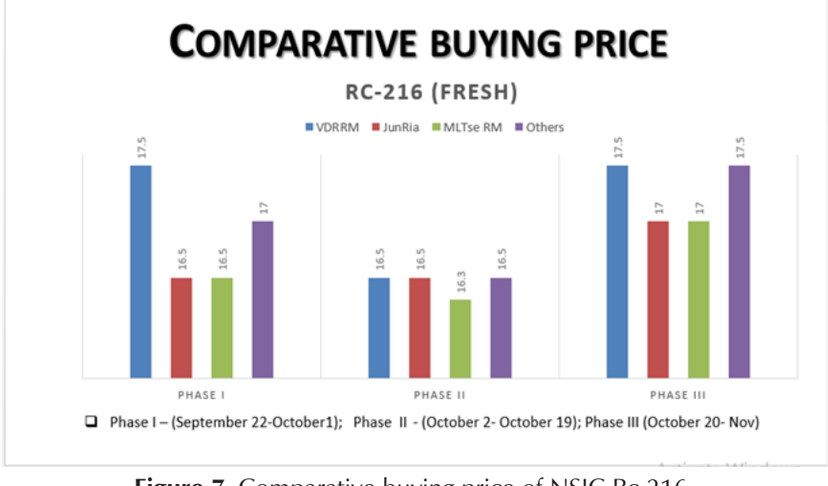

Figure 7. Comparative buying price of NSIC Rc 216.

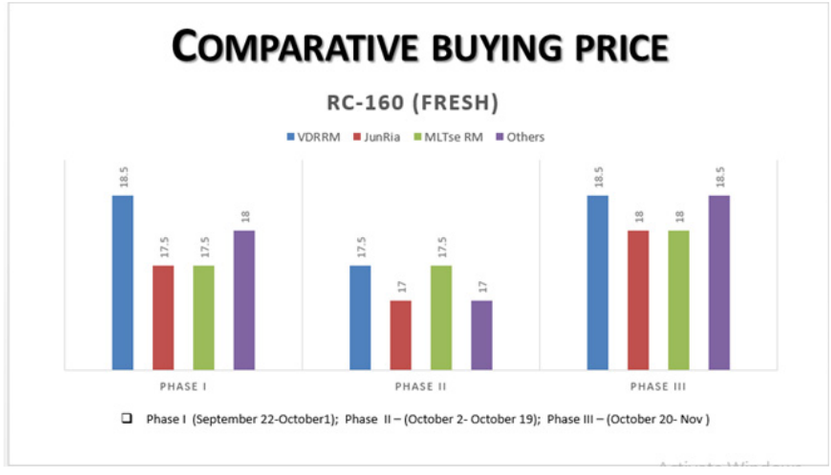

Figure 8. Comparative buying price of NSIC Rc160.

Figure 9. Comparative buying price of NSIC Rc222.

- There were major marketing constraints encountered during the actual group test marketing. One of these is the delayed transport for palay to be picked up due to the simultaneous harvesting which makes it difficult for the miller to accommodate the volume of palay supplied. Others were non-transparency for determining moisture content, low quality of palay due to continuous rainfall, which resulting in low price, and fluctuating price for newly threshed palay due to law of supply and demand, and limited drying facility.

- The following improvements were suggested to address problems on group marketing. First, provision of a moisture meter machine and weighing scale to farmer coop. Second, availability of mechanical dryers so that farmers can improve the quality of palay produced. It is also important to improve marketing linkage (written marketing agreement between farmer coop and the identified buyer) to address the concerns of both sides with regard to their partnership. It is also important that the agreement will be beneficial to both the miller and the farmer coop. Last is to develop entrepreneurial and negotiating skills of farmers. As the aim of the RiceBIS program is to transform the mindset of rice farmers and engage them in profitable rice and rice-based enterprises, it is important for them to adapt and to learn the business side of farming and to negotiate solely with their future partners.

Development and Delivery of Training Module on Enterprise Development

- The Agro-enterprise group led the preparation for the conduct of the Writeshop on the Development of Curriculum and Modules of various RiceBIS Training Courses held at DBP Training Complex, Baguio City. The RiceBIS program dreams of transforming the mindset of rice farmers and engage them in profitable rice and rice-based enterprises.

Training of Trainers

- The Training of Trainers was conducted last August 1-10, 2017 at the Philippine Rice Research Institute-Central Experiment Station, Maligaya, Science City of Munoz, Nueva Ecija to deliver the curriculum and modules of various RiceBIS training courses. One of these is the delivery of Introductory Course on Agro-enterprise Development. Project implementers among eight PhilRice branch stations were equipped with technical, organizational, and entrepreneurial skills through this training. Later on, these project implementors will also train their target farmer-partners on their respective RiceBIS communities.

Delivery of the Training Module on Agro-enterprise Development in the RiceBIS Community in Macarse, Zaragoza, Nueva Ecija

- The Agro-enterprise group started to deliver four lessons under Module 1 (The RiceBIS Entrepreneur) of the Introductory Course on Agro-enterprise Development last August 31, 2017. Thirty-two farmers were able to participate in the activity.

V. Monitoring and Impact Evaluation of PalaYamaNayon in Selected Provinces in the Philippines

Aileen C. Litonjua

The establishment of RiceBIS communities are assumed to benefit the rice industry. However, this still needs to be verified and documented to justify investments in the program. Monitoring and evaluation of the socioeconomic indicators in RiceBIS communities can serve as a reference of implementers in determining the effectiveness of interventions provided to farmers in attaining the program targets.

- In 2017, the study conducted two-season baseline surveys, developed a web-based database system that can automate generation of results, partially encoded the baseline data (partial), and drafted preliminary baseline assessment reports for all sites. These reports can be used as a reference of program implementers in knowing the situation in the RiceBIS communities prior to program implementation. Future activities and interventions may be designed based on these results.

Abbreviations and acronymns

ABA – Abscicic acid
Ac – anther culture
AC – amylose content
AESA – Agro-ecosystems Analysis
AEW – agricultural extension workers
AG – anaerobic germination
AIS – Agricultural Information System
ANOVA – analysis of variance
AON – advance observation nursery
AT – agricultural technologist
AYT – advanced yield trial
BCA – biological control agent
BLB – bacterial leaf blight
BLS – bacterial leaf streak
BPH – brown planthopper
Bo - boron
BR – brown rice
BSWM – Bureau of Soils and Water Management
Ca - Calcium
CARP – Comprehensive Agrarian Reform Program
cav – cavan, usually 50 kg
CBFM – community-based forestry management
CLSU – Central Luzon State University
cm – centimeter
CMS – cystoplasmic male sterile
CP – protein content
CRH – carbonized rice hull
CTRHC – continuous-type rice hull carbonizer
CT – conventional tillage
Cu – copper
DA – Department of Agriculture
DA-RFU – Department of Agriculture-Regional Field Units
DAE – days after emergence
DAS – days after seeding
DAT – days after transplanting
DBMS – database management system
DDTK – disease diagnostic tool kit
DENR – Department of Environment and Natural Resources
DH L– double haploid lines
DRR – drought recovery rate
DS – dry season
DSA - diversity and stress adaptation
DSR – direct seeded rice
DUST – distinctness, uniformity and stability trial
DWSR – direct wet-seeded rice
EGS – early generation screening
EH – early heading
EMBI – effective microorganism-based inoculant
EPI – early panicle initiation
ET – early tillering
FAO – Food and Agriculture Organization
Fe – Iron
FFA – free fatty acid
FFP – farmer's fertilizer practice
FFS – farmers' field school
FGD – focus group discussion
FI – farmer innovator
FSSP – Food Staples Self-sufficiency Plan
g – gram
GAS – golden apple snail
GC – gel consistency
GIS – geographic information system
GHG – greenhouse gas
GLH – green leafhopper
GPS – global positioning system
GQ – grain quality
GUI – graphical user interface
GWS – genomwide selection
GYT – general yield trial
h – hour
ha – hectare
HIP - high inorganic phosphate
HPL – hybrid parental line
I - intermediate
ICIS – International Crop Information System
ICT – information and communication technology
IMO – indigenous microorganism
IF – inorganic fertilizer
INGER - International Network for Genetic Evaluation of Rice
IP – insect pest
IPDTK – insect pest diagnostic tool kit
IPM – Integrated Pest Management
IRRI – International Rice Research Institute
IVC – in vitro culture
IVM – in vitro mutagenesis
IWM – integrated weed management
JICA – Japan International Cooperation Agency
K – potassium
kg – kilogram
KP – knowledge product
KSL – knowledge sharing and learning
LCC – leaf color chart
LDIS – low-cost drip irrigation system
LeD – leaf drying
LeR – leaf rolling
lpa – low phytic acid
LGU – local government unit
LSTD – location specific technology development
m – meter
MAS – marker-assisted selection
MAT – Multi-Adaption Trial
MC – moisture content
MDDST – modified dry direct seeding technique
MET – multi-environment trial
MFE – male fertile environment
MLM – mixed-effects linear model
Mg – magnesium
Mn – Manganese
MDDST – Modified Dry Direct Seeding Technique
MOET – minus one element technique
MR – moderately resistant
MRT – Mobile Rice TeknoKlinik
MSE – male-sterile environment
MT – minimum tillage
$mtha^{-1}$ - metric ton per hectare
MYT – multi-location yield trials
N – nitrogen
NAFC – National Agricultural and Fishery Council
NBS – narrow brown spot
NCT – National Cooperative Testing
NFA – National Food Authority
NGO – non-government organization
NE – natural enemies
NIL – near isogenic line
NM – Nutrient Manager
NOPT – Nutrient Omission Plot Technique
NR – new reagent
NSIC – National Seed Industry Council
NSQCS – National Seed Quality Control Services
OF – organic fertilizer
OFT – on-farm trial
OM – organic matter
ON – observational nursery
OPAg – Office of Provincial Agriculturist
OpAPA – Open Academy for Philippine Agriculture
P – phosphorus
PA – phytic acid
PCR – Polymerase chain reaction
PDW – plant dry weight
PF – participating farmer
PFS – PalayCheck field school
PhilRice – Philippine Rice Research Institute
PhilSCAT – Philippine-Sino Center for Agricultural Technology
PHilMech – Philippine Center for Postharvest Development and Mechanization
PCA – principal component analysis
PI – panicle initiation
PN – pedigree nursery
PRKB – Pinoy Rice Knowledge Bank
PTD – participatory technology development
PYT – preliminary yield trial
QTL – quantitative trait loci
R - resistant
RBB – rice black bug
RCBD – randomized complete block design
RDI – regulated deficit irrigation
RF – rainfed
RP – resource person
RPM – revolution per minute
RQCS – Rice Quality Classification Software
RS4D – Rice Science for Development
RSO – rice sufficiency officer
RFL – Rainfed lowland
RTV – rice tungro virus
RTWG – Rice Technical Working Group
S – sulfur
SACLOB – Sealed Storage Enclosure for Rice Seeds
SALT – Sloping Agricultural Land Technology
SB – sheath blight
SFR – small farm reservoir
SME – small-medium enterprise
SMS – short message service
SN – source nursery
SSNM – site-specific nutrient management
SSR – simple sequence repeat
STK – soil test kit
STR – sequence tandem repeat
SV – seedling vigor
t – ton
TCN – testcross nursery
TCP – technical cooperation project
TGMS – thermo-sensitive genetic male sterile
TN – testcross nursery
TOT – training of trainers
TPR – transplanted rice
TRV – traditional variety
TSS – total soluble solid
UEM – ultra-early maturing
UPLB – University of the Philippines Los Baños
VSU – Visayas State University
WBPH – white-backed planthopper
WEPP – water erosion prediction project
WHC – water holding capacity
WHO – World Health Organization
WS – wet season
WT – weed tolerance
YA – yield advantage
Zn – zinc
ZT – zero tillage

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Philippine Rice Research Institute
Central Experiment Station
Maligaya, Science City of Muñoz, 3119 Nueva Ecija

We are a government corporate entity (Classification E) under the Department of Agriculture. We were created through Executive Order 1061 on 5 November 1985 (as amended) to help develop high-yielding and cost-reducing technologies so farmers can produce enough rice for all Filipinos.

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).

PhilRice Central Experiment Station; Maligaya, Science City of Muñoz, 3119 Nueva Ecija; Tel: (44) 456-0277 •
Direct line/Telefax: (44) 456-0112; Email: prri.mail@philrice.gov.ph; PhilRice Text Center: 0917 111 7423;
Websites: www.philrice.gov.ph; www.pinoyrice.com

BRANCH STATIONS:

PhilRice Agusan, Basilisa, RTRomualdez, 8611 Agusan del Norte; Telefax: (85) 343-0768; Tel: 343-0534; 343-0778; Email: agusan.station@philrice.gov.ph
PhilRice Batac, MMSU Campus, Batac City, 2906 Ilocos Norte; Telefax: (77) 772- 0654; 670-1867; Tel: 677-1508; Email: batac.station@philrice.gov.ph
PhilRice Bicol, Batang, Ligao City, 4504 Albay; Tel: (52) 284-4860; Mobile: 0918-946-7439 ; Email: bicol.station@philrice.gov.ph
PhilRice Isabela, Malasin, San Mateo, 3318 Isabela; Mobile: 0908-895-7796; 0915-765-2105; Email: isabela.station@philrice.gov.ph
PhilRice Los Baños, UPLB Campus, Los Baños, 4030 Laguna; Tel: (49) 536-8620; 501-1917; Mobile: 0920-911-1420; Email: losbanos@philrice.gov.ph
PhilRice Midsayap, Bual Norte, Midsayap, 9410 North Cotabato; Tel: (64) 229-8178; 229-7241 to 43; Email: midsayap.station@philrice.gov.ph
PhilRice Negros, Cansilayan, Murcia, 6129 Negros Occidental; Mobile: 0932-850-1531; 0915-349-0142; Email: negros.station@philrice.gov.ph
PhilRice Field Office, CMU Campus, Maramag, 8714 Bukidnon; Mobile: 0916-367-6086; 0909-822-9813
Liaison Office, 3rd Floor, ATI Bldg, Elliptical Road, Diliman, Quezon City; Tel: (02) 920-5129

SATELLITE STATIONS:

Mindoro Satellite Station, Alacaak, Sta. Cruz, 5105 Occidental Mindoro; Mobile: 0908-104-0855
Samar Satellite Station, UEP Campus, Catarman, 6400 Northern Samar; Mobile: 0948-800-5284