2020

PhilRice R&D Highlights

Rice Business Innovations System (RiceBIS) Community Program

Contents

PROGRAM

Rice Business Innovation System (RiceBIS)

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Executive Summary

The Rice Business Innovations System (RiceBIS) Community Program aimed to develop rice and rice-based enterprises in key provinces nationwide to address men and women farmers' recurring problems of low productivity and competitiveness as well as cross-cutting issues of food insecurity and poverty in rural farming areas. It promoted productivity through improved technology adoption and agripreneurship. This was implemented by intensifying the deployment of rice technologies to the ground level; spurring the agroenterprise potential of farmers; and promoting diversification and diversified rice and rice-based sources of income. These community interventions are in line with the New Thinking for Agriculture in terms of modernizing the sector and clustering smallholder farms to bring about economies of scale.

Generally, RiceBIS aimed to transform rice-based farming communities into inclusive, competitive, and sustainable agroenterprise community models with an increased income of 25%. Specifically, it sought to: (1) establish partnership with farmers' organizations for production and agroenterprise development; (2) enhance farmers' capacity on production and processing, organization building and management, and agripreneurship; (3) increase yield by 1t/ha (irrigated) and 0.5t/ha (rainfed) by applying yield enhancing technologies; (4) reduce cost of production to PhP 8/kg and postharvest losses to 12% by applying cost-reducing technologies; and (5) engage farmers in profitable rice and rice-based enterprises.

RiceBIS was designed as a two-phase program. The pilot phase covering eight rice-producing provinces was established starting 2017 WS in communities where PhilRice stations are located. The program organized 56 clusters covering 967 smallholder farmers and implemented 21 agro-enterprises. Yield improvements were achieved at 0.17 and 1.03t/ha increase in 2019 WS and 2020 DS, respectively. Unit cost of rice production was reduced from PhP 13.73/kg in 2016 WS to PhP 11.24/kg in 2019 WS and from PhP 13.76/kg in 2017 DS to P10.78/kg in 2020 DS. Postharvest losses were also reduced from 16.47% to 15.38% in 2020 DS and 14.63% in 2020 WS**,** which can be attributed to the adoption of the combine harvester. Rice income was lower in 2019 WS due to lower paddy price but much higher in 2019 and 2020 DS despite low paddy price because of better yield and lower production cost.

EXECUTIVE SUMMARY

RiceBIS Phase 2 started in 2020 WS. Outscaling and upscaling of RiceBIS processes and strategies were initiated in another set of 15 rice-producing municipalities involving farmer organizations. Each RiceBIS community covers 400 farmers and 50- 100-a area per cropping season. Capacity building, technology demonstration, agroenterprise development, and linkage building were implemented.

PROJECT 1

RiceBIS Strategic and Transformative Communication

Ronan G. Zagado

This project aimed to promote better mindsets, attitudes, and behaviors that would lead to improved men and women farmers' well-being and gender-responsive development vis-à-vis agroenterprise development. It was carried out and narrowed into two studies to achieve the following objectives: (1) design/ produce/maintain information, education, and communication (IEC) materials/ collaterals for all genders (RiceBIS-Produce); and (2) design and execute knowledge sharing and learning activities inclusive of all genders (RiceBIS-Share). It was conducted with the following procedures: (1) content creation and (2) delivery through strategic media. Accomplishments were as follows: (1) 8 stories on RiceBIS successful agroenterprises were documented for publication in PhilRice magazine and for online stories; (2) packaging for brown rice enterprise of PhilRice Batac and Negros was designed; (3) 15 new program collaterals (e.g., banners, streamer, backdrop, commitment wall) were designed in support to the new RiceBIS sites in Mangatarem, Pangasinan, Bayambang, Pangasinan, Sta Ignacia, Tarlac, Gerona, Tarlac, and Zambales; (4) 1,752 collaterals available even before year 2020 distributed; and (5) the social media was utilized as the main platform in bringing across the program's messages with 21 Facebook posts on the program's new site launches, stakeholders' meeting, and seed distribution.

PROJECT 2

Building Capacity for Agroenterprise Development

Rowena A. Pineda

This project covered two studies, which capacitated farmers and connecting them to different government institutions. Building skills on rice production and processing; values formation, organization building and management; marketing; and entrepreneurship was implemented to enhance the technical capacity and entrepreneurial ability of the farmers and their organization towards agroenterprise development. This study encouraged farmers to adopt the best management practices and technologies to raise the level and quality of production to meet market demand. It also helped farmer-organizations to be more efficient as an enterprise and to develop values and principles as organization members. Partnership was established among partner-agencies with a gender-sensitive site working group (SWG) that oversee, guide, support, and sustain the RiceBIS Community.

The RiceBIS community, in partnership with the Pinagbuklod na Adhika Agricultural Cooperative (PNAAC) in Macarse, Zaragoza and Ugat Uhay Farmers Association (UUFA) in Brgy. Mayamot, Zaragoza, trained 128 male and female farmers in rice production and post production technologies, organizational building and management, and agroenterprise development for Phase 1 implementation. To sustain the organized clusters and to further strengthen the management of the farmers group, regular monthly meetings were held to educate them on management practices/techniques, effective cooperative management, and organization welfare.

Strictly following the "new normal" protocol on mass gathering, training on *May Kabuhayan sa Kabute-han* was conducted in partnership with the DA-Agricultural Training Institute (DA-ATI). The training was attended by 22 farmers (9 female and 13 male) from Ugat Uhay Farmers Association in Brgy. Mayamot, Zaragoza, Nueva Ecija. The members intend to pursue mushroom production as their agroenterprise.

RiceBIS Zaragoza conducted an online SWG meeting last August 24, 2020, which was participated by partner-agencies from PHilMech, DA-ATI, LGU-Zaragoza, and farmer-beneficiaries of PNAAC, and UUFA. Regular updating on the project's progress and accomplishments and crafting of an integrated plan for the next cropping season were also conducted. This strengthened the capability of RiceBIS clusters within a community to build and sustain their agroenterprise.

The Philippine Center for Postharvest Development and Mechanization (PHilMech) under the Rice Competitiveness Enhancement Fund-Mechanization Component,

awarded machineries to UUFA. These machineries include one unit rice combine harvester, one unit 4-wheel tractor, one unit mechanical transplanter, one unit 4-wheel tractor, and one unit rotavator. This initiative of PHilMech aims to prepare Filipino rice farmers to increase their yield, productivity, income, and to become globally competitive through farm mechanization.

On the other hand, the Department of Agrarian Reform-Nueva Ecija (DAR-NE), through its Convergence on Livelihood Assistance for Agrarian Reform Benefi ciaries (ARBs) Project (CLAAP), a sustainable livelihood program to poor farmers that aims to increase access to economic opportunities, provided PNAAC with mini grocery and general merchandise worth P450,000.00. This is being operated and managed by 30 women-farmers. With this assistance, farmer-beneficiaries can generate income for their organization so as to reduce poverty in their area.

The identified framework in Phase I served as the guiding principle and ethics of the RiceBIS Community with their targeted vision, “Mapaunlad ang Buhay ng mga Magsasaka sa Zaragoza”.

PROJECT 3

Engaging Farmers Organizations for Sustainable and Progressive Rice-based Community

Joel V. Pascual

The project enhanced the 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 communities. The project was implemented in Zaragoza, Nueva Ecija in partnership with two farmers' organizations resulting in the establishment of eight production clusters consisting of 95 participating farmers covering 207ha of rice areas.

The component of community organizing and cluster formation helped strengthen the farmer's capability through group-learning model and provided farmers with the foundation to implement business plans. Farmers were clustered to build on existing local resources and skills, structures, and production systems, and served as potential partners in agroenterprise development. The benefits of clustering extend organized production from the consolidated group of farmers, and linked them to potential market actors including buyers, business development service providers, and development service institutions. Cluster leaders enhanced their capability to help farmer-members in their farming skills and other enterprise activities. They served as farm advisors to offer technical guidance on better farming of farmer-members, marketing of their agricultural products, and promotion of coop activities.

Cluster formation led to an organized production and distribution system of agricultural products, and helped the partner-organizations in the promotion and adoption of sound technologies for progressive farming by strengthening the participation of women cluster-members. Through clustering, the role of women-farmers in agroenterprise and in alleviating rural poverty is recognized. Clustered production areas were formed and formalized into an agroenterprise clusters to consolidate their products and link them to the potential markets.

To support the cluster's agroenterprise activities, the organizational capability of the rice-based farmers' organizations was also enhanced. The farmers' organizations became partners in technology promotion, establishment of production farms, and cluster formation moving towards organized production and group marketing.

PROJECT 4

Rural Agro-enterprise Development

Alice B. Mataia

This project was conducted to help increase the income of the rice-based farming community in Zaragosa, Nueva Ecija through engaging in value-adding activities across the rice value chain and/or profitable rice and rice-based enterprises. Since 2018, the project implemented three interrelated studies (a) development of profitable and sustainable agro enterprises, (b) improving market access for marketing engagements, and (3) development of value-added rice and rice-based products.

The project developed five business plans on value-adding activities across the rice value chain including agri-inputs trading, provision of custom service of machines, *palay*/rice trading, brown rice trading, and rice brew trading enterprises. In addition, business plans on mushroom production, water refilling station, and mini gasoline station were crafted for future engagements.

Three of the business plans were established and managed in RiceBIS Macarse through the farmers' cooperative; however, only the provision of custom service of machines was fully operationalized and sustained in 2020. The *palay* trading and agri-inputs trading enterprises were temporarily stopped due to the limitation of coop's function as an agricultural credit. The project facilitated the farmer group's application to Cooperative Development Authority (CDA) for amendment of its by-laws from agricultural credit to a multipurpose coop. The farmers' coop also ventured in value-adding rice products such as brown rice and rice brew for market and income opportunities but these were only produced on a small scale. On the other hand, agri-inputs trading and provision of custom service rental of machine enterprises were also launched in RiceBIS Mayamot in 2020.

Several marketing engagements with other players in the rice value chain were carried out by farmers' groups to build and sustain market partnerships. Through the project, the farmers' coop and association built linkages with agri-inputs suppliers, miller-traders, and National Food Authority. Test markets for brown rice and rice brew were likewise conducted to rice traders in Quezon City and participation in the KADIWA market to establish market linkage. Moreover, the project negotiated with JNRM Corp (mushroom processor) for a potential market for fresh mushroom products of farmers' association in RiceBIS Mayamot. JNRM requires a daily volume of 200kg oyster mushroom.

The farmers' coop and farmers' association in RiceBIS Macarse and RiceBIS Mayamot generated additional income from engaging in value-adding activities.

Moreover, farmer members benefited in the form of relatively high *palay* prices, reduced service rental fee of farm machines, and less price of farm inputs.

Value-added rice and rice-based products were also developed for market and income opportunities for women farmers. In Macarse, rice brew was created while in Mayamot, several mushroom concepts were being tested for market.

PROJECT 5

Monitoring and Impact Evaluation of the RIceBIS Community Program

Aileen C. Litonjua

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

This project comprises three studies: (1) baseline and end-season assessments of the socioeconomic indicators in the RiceBIS communities; (2) monitoring and analysis of harvest losses in RiceBIS communities; and (3) impact assessment of the RiceBIS Community Program. These studies focused on measuring the key indicators of the program, i.e., increased yield and income and reduced cost and postharvest losses. The baseline assessment profiled farmers and their production and marketing practices before program implementation. The end-season assessment measured the program's seasonal effect on farmers' yield, cost, and income. The first study involved comparison of the baseline and end-season results to provide information on the farmers' seasonal progress in terms of increased yield and income and reduced cost. Meanwhile, the second study focused on the quantification and comparison of farmers' actual postharvest losses per activity (e.g., harvesting, threshing, drying, marketing, drying, and milling, if applicable) before and during program implementation. An ex-post impact evaluation (study 3) will be conducted after the interventions to determine whether the program's impact on farmers' yield, cost, income, and harvest losses has been sustained even without direct interventions/support. Study 3 will partly use the baseline results of study 1.

PROJECT 6

RiceBIS – PhilRice Batac

Mary Ann U. Baradi

The RiceBIS Community Project in Ilocos Norte was established in 2017 with pilot site in Brgy. Rayuray, City of Batac. The project aimed to increase the yield of the farmers, minimize production costs and postharvest losses, and establish marketing channel and engagement. The project has four components: (1) assessment of communication strategies implemented in the RiceBIS community; (2) development of agribusiness ventures of the RiceBIS Community; (3) development of man and woman farmer competence in agribusiness in the RiceBIS Community; and (4) monitoring and evaluation of the performance of the RiceBIS Community. Initially, the project formed the Rayuray Farmers Agriculture Cooperative composed of 59 farmer-members. The RiceBIS community is comprised of six clusters with 32.07ha farm area.

During the dry season, three technology demonstrations were showcased: (1) PalayCheck system on integrated rice crop management and farmer's practice; (2) different crop establishments (manually transplanted based on recommended technology, mechanically transplanted using riding-type transplanter machine, dry-direct-seeded using Multi-Purpose Seeder, and (3) varietal trial using four hybrid varieties (Mestizo 1, LP 937, Arize Bigante, and NK 5017).

Yield-enhancing (nutrient management and integrated pest management) and cost-reducing technologies (water management particularly intermittent irrigation), and appropriate postharvest technologies during harvesting and drying were also promoted. The combine harvester reduced post-production losses from 5.54% to 1.67% or a reduction of 3.87%.

As part of the knowledge sharing and learning (KSL) activities, meetings with general assembly and board of directors and coaching on financial management/ bookkeeping with Mariano Marcos State University (MMSU) were conducted. A farm walk was also conducted at the station.

To enhance competence, farmer-partners were updated on PalayCheck System, integrated rice crop management, and cooperative and financial management. Four webinars or meetings were conducted with MMSU and Cooperative Development Authority.

The 2-year-old organized cooperative ventured into product consolidation, processing (value-adding), and marketing of products (*palay*, brown rice, milled rice). The cooperative has a total asset of P2.19 M (20% up from last year's P1.82 M) including cash, equipment, and machineries from partner-agencies including the Department of Agriculture Region 1, Agricultural Training Institute, Provincial Government of Ilocos Norte, and Department of Science and Technology. The Cooperative has acquired its own truck and was able to build a center from their income.

PROJECT 6

The cooperative participated and exhibited in the Producer to Consumer (P2C) Program of the Provincial Government of Ilocos Norte, sold their produce in a market stall, promoted their products, and expanded market outlets and linkages.

In 2020, the cooperative delivered its *palay* to a local trader and delivered thrice to National Food Authority (NFA). Brown and milled rice were also marketed to institutional and individual buyers. Custom service and rental of the four-wheel tractor and truck were also added to the members' income. As part of their quality control measure in the *palay* trading, the cooperative acquired its own unit of a moisture meter to ensure that they meet the quality standards of NFA and minimize loss due to overdrying of grains.

In 2020DS, farmers' harvest increased by 0.58t/ha (from 6.25t/ha to 6.83t/ha) while production cost was reduced by 27% (from P93,877 to P68,744). Net income was also increased by 61% from the 2017DS baseline.

PROJECT 7

RiceBIS in San Mateo, Isabela

Ofelia C. Malonzo

Rice Business Innovations System (RiceBIS) Community Program in San Mateo, Isabela implemented projects to enable RiceBIS farmers and their organization to engage and sustain farmers' engagement in agroenterprise. The first component included capacity building activities related to rice production, organizational building and management, and enterprise development, which were completed during the first two years of implementation. It serves as the preparatory stage for the second component, in which the farmers were engaged in their chosen agroenterprise. At this stage, farmers are guided to prepare and implement their agroenterprise plans. Farmers' engagement were sustained through strategic communication activities.

The MarDag RiceBIS Association (MarDag) is duly registered as a farmers' association to the Department of Labor and Employment, which affirms its legal identity. The association is also registered to the Bureau of Internal Revenue and recently completed its accreditation to the Department of Agriculture – Regional Field Office 2 (DA-RFO 2) Rice Program and the RCEF Special Program so its members can avail of the benefits from government programs.

Presently, MarDag comprises eight production clusters involving 84 farmers. Through their online group chat, PhilRice RiceBIS staff and MarDag led by its officers and cluster leaders, regularly update members on upcoming activities so that their traininga activities on rice production, organization building and management, and enterprise development are put to use and to further strengthen and enhance their knowledge and skills. The association performed very well during the 2020DS with 7.09t/ha yield or an increase of 1.37t/ha from 2017DS baseline yield of 5.72 t/ha. Production cost was reduced from P14.18/kg in 2017DS to P10.34/kg in 2020DS and from P11.70/kg in 2016WS to P10.83/kg during 2019WS. There is also a decrease in postharvest losses of 0.73% during the dry season (4.5% in 2020DS from 5.23% in 2019DS) and 0.7% during the wet season (from 5.37% in 2018WS to 4.67% in 2019WS).

MarDag is now engaged in four gender-friendly agroenterprises namely: branded well-milled rice and brown rice production and marketing; custom service provision from machinery grant given by the DA-RFO2; and KADIWA ni Ani at Kita outlet assisted by the DA-Agribusiness and Marketing Assistance Division. As of October 2020, MarDag has earned an income of P91,231.00 from the well-milled rice enterprise including sales of rice bran or "darak". For every bag of rice sold, the member-seller earns P70.00, while P20.00 goes to the organization and P10.00 to the manager. A profit of P5,370.00 from custom service provision was also generated, in which most members also benefited because of minimal rental fees for the use of the two units hand tractors. After the first two years of

operationalization, the association has earned P96,601.00 from the milled rice and custom hiring agroenterprises.

The association also provides production loan assistance amounting to P 275,000.00 during the dry season and P283,000.00 during the wet season with an agreed interest rate of 2.5% per month.

To sustain the four agroenterprises, continued mentoring and coaching sessions were conducted.

PROJECT 8

RiceBIS in Region IV-A

Kristina Concepcion S. Labita

RiceBIS Community Program in Region IV-A has five components namely: (1) strategic communication, (2) organizational building, (3) capacity enhancement, (4) enterprise development, and (5) monitoring and evaluation. The studies were guided by the eight steps to Agroenterprise Approach.

The first study, "Communication Strategies in Promoting Better Mindsets, Attitudes, and Behaviors of Rice Farmers and other Stakeholders in the RiceBIS Community," helped transform the mindsets of farmers into viewing rice farming as a business. Selected knowledge sharing and learning activities and media interventions were conducted. Due to the pandemic, the study focused on the wide dissemination of rice information through *PalayTxtmate* and social media especially concerning the marketing and entrepreneurship activities of the farmers. Adjustments in the schedule and type of activities to be conducted were based on feedback gathered from text messages. Meanwhile, the *PalayTambayan* served as a mini-library for farmers to access rice information. Marketing materials for the promotion and product packaging of the black rice enterprise of farmers were developed and disseminated. Clients were mostly composed of buyers across NCR, Laguna, and Quezon. Third-party delivery service providers were strategically tapped for clients in Laguna.

The second study, "Development of Rice and Rice-based Enterprise in Sariaya, Quezon," helped the rice farmers become competitive in processing and marketing their own produce. The three farmer-organizations included Morong-Antipolo (MORAN) Farmers Association, Samahan ng mga Magsasaka sa Barangay Antipolo (SAMBA), and Manggalang Agrarian Reform Beneficiaries Cooperative (MARBENCO). Only two organizations were able to sustain the three enterprises, which include inputs trading and milled and pigmented rice production.

MARBENCO was able to scale out its enterprise because they have access to financial service providers. A package of technology was developed using the technology and practices used by the consistent high-yielding farmer in the community. The technologies will be recommended to help other farmers increase their yield.

Currently, SAMBA and MARBENCO can market their produce to institutional buyers as they are now registered for sales transactions. Pricing of milled and pigmented rice will no longer be an issue as the study has developed an automated price computation.

The study, "Socioeconomic Indicators of RiceBIS Community in Region IV-A," guided implementers on how to approach and introduce interventions to the rice farmers depending on their needs. For 2019 WS and 2020 DS, yield increment did not reach the 1t/ha target due to problems in irrigation. The use of high-quality seeds and proper timing of fertilizer application may have contributed to the yield increment. The increase in net income was not as high as anticipated because of the low price of *palay* due to oversupply. Majority (93.63%) of the rice farmers sold their produce to traders.

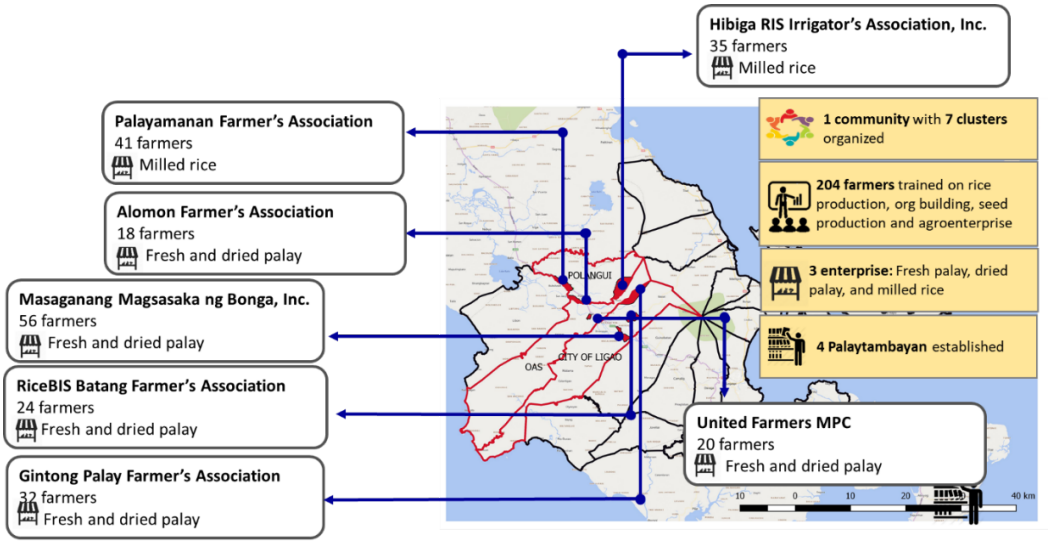
PROJECT 9

RiceBIS in Bicol Region

Melanie Aileen C. De Peralta

To increase production and reduce cost of production, farmers in the community were capacitated about rice production and appropriate yield-enhancing and cost-reducing technologies. On the other hand, development of rice and rice-based enterprises was done through formation of clusters and engagement in consolidated marketing. Profitability and adoption of appropriate technologies in the RiceBIS community were assessed through the monitoring and evaluation component.

For Phase I, one community with seven clusters composed of seven farmer's organizations were organized (see figure below). There were 204 farmers trained on rice production, organizational building, seed production, and agroenterprise. Three enterprises composed of fresh *palay*, dried *palay*, and milled rice were implemented and monitored.



PROJECT 10

RiceBIS in Negros Occidental

Anileen O. Pajarillo

RiceBIS Community Program in Negros Occidental covers 80-ha rice production clusters participated by 87 farmers from the Municipality of Murcia and City of Victorias. Based on the baseline, majority of the farmers in these communities practice direct seeding with an average seeding rate of 205kg/ha. Average yield in the wet season was 3.9t/ha while 2.8t/ha in the dry season. Farmers use certified and farmers' seeds and planted NSIC Rc 216 and NSIC Rc 226 in both seasons.

Based on survey conducted every end season, adoption rate for yield-enhancing and cost-reducing technologies is high, mainly in seeding rate, use of high-quality seeds, and nutrient and pest management. Mechanization is still low.

The RiceBIS community in Murcia is a registered cooperative since April 25, 2019 and on its third year of its operation. The cooperative was engaged in brown rice enterprise and are known to produce pigmented rice popularly Red 64. Farmers were continuously capacitated in organizational management, business operation, and financial management. Market linkage and necessary preparations were initialized for the signing of Memorandum of Agreement with the partner. On its first year of operation, net income from brown rice processing enterprise was only at P2, 556. This year, P34, 673 was recorded.

Government support converged to help the RiceBIS farmers with seed assistance from Rice Competitiveness Enhancement Fund and fertilizer from Rice Resiliency Program.

PROJECT 11

RiceBIS Phase 1 in Agusan del Sur

Sharen T. Rivas

RiceBIS Phase 1 in Agusan del Sur was implemented in the municipality of Esperanza. The project has three studies, namely: (1) strategic promotion of yield-enhancing and cost-reducing technologies in RiceBIS Agusan (Study 1); (2) developing feasible and viable rice and rice-based agroenterprises in RiceBIS Agusan; and (3) establishing baseline information and monitoring impacts of RiceBIS interventions in Agusan.

For 2020, RiceBIS conducted 36 coaching and mentoring sessions, 19 cluster meetings, and two training sessions related to rice production and organizational building. The seed production cluster (Esperanza Seed-growers Farmers Association) underwent coop pre-registration seminar and refresher training course on seed production and certification to enhance their knowledge and skills in organizing a cooperative and their main enterprise – seed production. In addition, the seed production cluster renewed 21 contracts (affiliations) with Butuan Seed Producers' Cooperative to provide high-quality inbred seeds to the Rice Competitiveness Enhancement Fund Program. There were 9,775 bags delivered in Caraga Region.

More than half of RiceBIS participants (56.8%) are women-farmers. Two of the six clusters are led by women-farmers.

PROJECT 12

RiceBIS in PhilRice Midsayap

Pernelyn S. Torrena

The RiceBIS Community Program in Midsayap is composed of four components, namely: (1) empowering rice farming communities in Midsayap through clustering approach; (2) building resilient pathway to prosperity: the Midsayap RiceBIS community capacity enhancement approach; (3) assessment of harvesting practices that contribute to postharvest losses in Midsayap; and (4) monitoring and evaluation of Midsayap RiceBIS communities.

The component 1 of the project capacitated 49 men and 26 women farmers in rice and rice-based agroenterprise and linked farmers to markets and financing institutions in the local rice value chain and local organizations. For 2020, 63.3ha production area from seven organized clusters of Barangay Bual Sur, Central Glad, Upper Glad I, and San Pedro, Midsayap received support on agroenterprise mindsetting and organizational building activities. One pre-registration webinar was conducted through the Cooperative Development Authority – Region XII participated by 49 farmers. These activities were preparatory for the agroenterprise engagement including product identification for each cluster and supply assessment.

Under component 2, 11 techno-demo farms were participated by 4 female and 7 male farmers from Central Glad and San Pedro, Midsayap. As part of the initiatives in upscaling seed production, 11 farmers were trained on basic course on inbred rice seed production and certification who showed interest in becoming seed growers in their community. The RiceBIS Team also facilitated the provision of free inbred certified seeds and fertilizers from Rice Competitiveness Enhancement Fund, Office of the Provincial Agriculture-Cotabato and DA-Regional Field Office XII. Forty-nine (49) male and 26 female farmers received the benefits in 2020 WS and 2021 DS.

Component 3 showed that average postharvest losses were recorded at 144.17kg/ha or 1.98%. Combine harvesting recorded a baseline postharvest losses of 3.65% in 2018WS, which reduced to 1.98% in 2020WS.

Component 4 showed that yield in RiceBIS community was increased by 20% or 0.88t/ha from 4.40t/ha baseline to 5.28t/ha. Cost per unit of fresh palay was reduced by 25.89% from P12.47 to P9.24. The large reduction on the cost of production of fresh palay and the increment in the yield resulted in an increased net income of P24,042.10 or 29.13%.

PROJECT 12

Gender and Development (GAD)

Tagged as Gender and Development (GAD)-tagged project of PhilRice Midsayap, RiceBIS farmers' issues like high cost of labor and farm inputs were analyzed so RiceBIS project team can suggest and initiate appropriate interventions. The introduction of the use of drumseeder in crop establishment has helped farmers reduced cost on labor and seeds. From the usual seeding rate of 120-180kg/ha, at least 50% (60kg/ha) reduction was recorded with the use of drumseeder. RiceBIS farmers received free seeds and fertilizers from the OPAg-Cotabato and DA-RFO XII.

The project promoted sustainability of its gender equality results. For instance, when RiceBIS participants were asked about their thoughts regarding women in the farm, 91% of female participants who attend Farmer Field School, meetings, and seminars said their male partners who worked in the farm listened to them and followed their suggestions. Only 9% of the female participants who call themselves "Amazona" attended RiceBIS activities and also worked full time in the farm. They also said that women-farmers can do all the men's tasks on farming including land preparation and manual harvesting. These women are widows who are obliged to do the hard work because they do not have somebody to rely on. Meanwhile, 94% of the male participants said they do not let their wives work in the farm because they are busy with other household chores like rearing the kids and planting ornamentals. Their wife's active involvement only include selling their produce as the women are the "treasurer/budget officer" in the household. The remaining 6% of the male participants, however, said that their wives are important in all farm activities including meetings because they are involved in the decision-making.

PROJECT 13

RiceBIS in Zambales (Phase II)

Rowena A. Pineda

Partnership with the LGU of Castillejos, Zambales was established to help the production clusters to transform into an inclusive and competitive rice-based farming communities with sustainable agroenterprise. The Phase II implementation started in 2020 DS thru site selection, identification of partner stakeholders, courtesy call, and formation of site working group. However, major activities (like stakeholders meeting and RiceBIS Program launching and commitment wall signing) were affected by the enhanced community quarantine.

Moreover, RiceBIS Zambales was introduced to the partner-agencies in a virtual meeting conducted in October 05, 2020, which was attended by OPAg-Zambales, LGU-Castillejos, Representative of Farmers Federation of Castillejos, DA-RFO III, Cooperative Development Authority, Department of Agrarian Reform-Bataan, and PHilMech.

From 516 farmer- member of Farmer's Federation of Castillejos, 13 clusters were formed for 2020 WS implementation. Production clusters were formed for organized production, collective marketing and developing other potential enterprise. Covering 132.06ha, farms of 105 male and female participating farmers were geo-tagged.

Focus Group Discussion was conducted to gather the management practices in the locality and identify the field problems that limit production.

Under the "new normal" protocol on mass gathering, implementers conducted a series of batches with minimal number of farmers as training strategy. The training design was modified.

Four batches of Farmer Field School were conducted in Castillejos, Zambales with 75 male and 30 female farmers who underwent training on PalayCheck System, processing, organizational building, and management for farmers' organizations.

Participants recorded an average of 45.85% gain in knowledge while the course was rated "good" (57%). The training course objectives were fully attained according to 65% of the participants who also mentioned that the course is very useful to them. Personal Entrepreneurial Competency also showed that the participants' entrepreneurial ability, especially their commitment to work, is strong.

In coordination with the RCEF-Seed Program, 46 bags of certified seeds were distributed among the early planters.

PROJECT 13

Two technology demonstration farms were also established in Brgy. Nagbayan and Brgy. Baring. Varietal trial for newly-released inbred rice varieties (NSIC Rc 506, Rc 508, Rc 510, Rc 512, and Rc 514), participatory technology demonstration trials on nutrient management, and method of crop establishment were showcased. Twelve farmers also tried the Minus-One-Element Technique.

A business model on brown rice and collective marketing of fresh *palay* was identified and discussed with the LGU-Zambales, which will cover 30ha.

Commitment wall signing during program launching

Representative from partner-agencies during the program launching and ceremonial transplanting

PROJECT 14

RiceBIS in Mangatarem, Pangasinan (Phase II)

Jayca Y. Siddayao

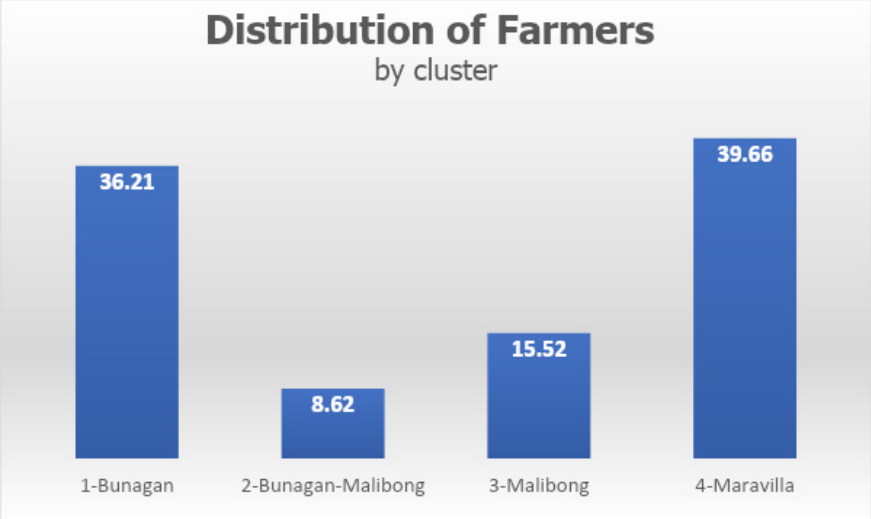
RiceBIS Mangatarem Modern Farms in Pangasinan is a DA-Bureau of Agricultural Research funded project established in August 2020. The project covers 400 farmers from the seven villages of Mangatarem Irrigators Association, Inc. with consolidated 165ha. In 2020, five clusters were initially formed involving 101 male and 24 female farmers from four barangays (i.e., Bunagan, Malibong, Maravilla Proper, Maravilla Extension).

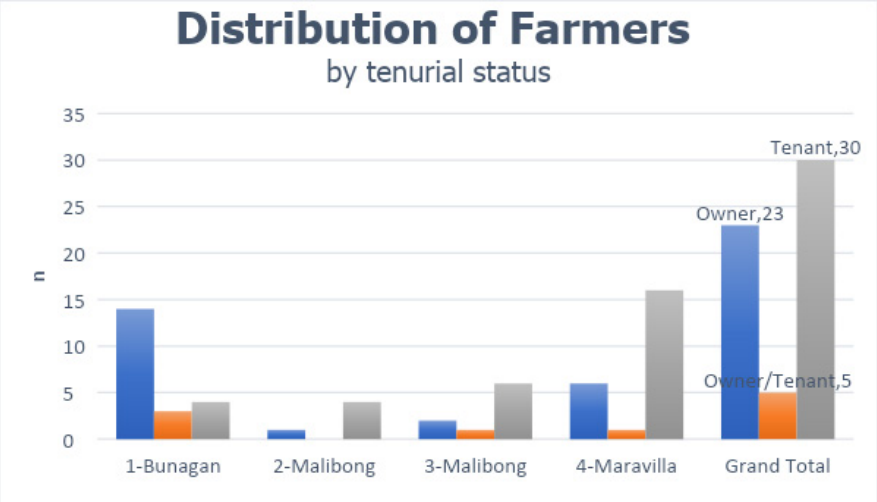
Although rice farming is the major occupation in the municipality, most farmers are still considered as small-scale in terms of farm size. About 70% of the rice farmers have less than 2ha planted to rice (36% landowners and 39% tenants). Majority of the farmers are above 60 years with an average age of 55 years. On average, a rice farming household is composed of four family members. In terms of education, about 80% have reached elementary to secondary levels only.

In 2020 wet season, four technology demonstrations cum learning fields on integrated crop management were established to showcase three yield-enhancing and cost-reducing technologies such as: (a) use of high-quality seeds; (b) fertilizer management; and (c) integrated pest management. For yield-enhancing technologies, 500-series rice varieties (i.e., NSIC Rc 506, 508, 510 and 512) and NSIC Rc 480 were used in the varietal trial. Fertilizer recommendation based on Minus-One-Element Technique and general recommendation for inbred varieties also served as the nutrient management trial. Based on field monitoring and data gathering, NSIC Rc 506 has an exceptional performance among the 500-series as well as NSIC Rc 480. These varieties are resistant to abiotic stresses such as drought, salinity, alkalinity, and iron toxicity.

To develop competence, 125 farmers were trained on rice production technologies, 100 farmers trained on organization building and institutional development, and 30 farmers trained on grain classification and collective marketing strategies.

PROJECT 14


Distribution of Farmers
by cluster
36.21
8.62
15.52
39.66
1-Bunagan
2-Bunagan-Malibong
3-Malibong
4-Maravilla


Distribution of Farmers
by tenurial status
n
35
30
25
20
15
10
5
0
Tenant,30
Owner,23
Owner/Tenant,5
1-Bunagan
2-Malibong
3-Malibong
4-Maravilla
Grand Total

PROJECT 15

RiceBIS in Banna, Ilocos Norte (Phase II)

Mary Ann U. Baradi

The RiceBIS Community Project in Ilocos Norte (Phase II) was established in Mayin Banna and Nueva Era, Ilocos Norte with the Zanjera Sto. Niño de Tabtabagan Association.

The Zanjera covers six barangays, five in Banna (Bugasi, Valdez, Tabtabagan, Caestebanan, and Sinamar) and one in Nueva Era (Sto. Niño). It has 45 *gunglos* (groups) being led by *Panglakayens* (elders) with 575 male and 28 female farmers and 589ha.

As initial step in organizing the community, the Zanjera officers and *gunglo* leaders, and members were briefed about the project. Farmer group discussions with the different *g*unglos were also conducted.

The Zanjera also took the initial step in registering the association into a cooperative. Thirty-two (32) members underwent the pre-registration seminar conducted by Cooperative Development Authority (CDA). Twenty-nine (29) members are officially members and now composed the recently registered Zanjera Sto. Nino Agriculture Cooperative.

In strengthening the farmer's capability on production, 79 male and 24 female farmers graduated from the Modified Farmer Field School on PalayCheck System with 51% gain in knowledge during the wet season. Technology demonstrations showcasing the PalayCheck System vs. farmer's practice and walking-type mechanical transplanter were also established.

Yield-enhancing [straight-row planting, nutrient management and integrated pest management (IPM)] and cost-reducing technologies (seeding rate, IPM), and appropriate postharvest technologies during harvesting, drying, and cleaning were also promoted to the community to increase their yield and income and reduce postharvest losses. The bamboo-bin dryer, PhilRice seed cleaner, and moisture meter were also introduced and used by Zanjera/Cooperative. The dryer facilitated the drying of *palay* especially during inclement weather, which minimized losses. The cleaning cost was reduced from P0.71/kg to P0.28/kg or 61% through the seed cleaner. The moisture meter was also useful in meeting the standard requirement of the National Food Authority and minimizing weight loss due to overdrying.

Moreover, a Farm Walk was conducted at PhilRice Batac, which was participated by the farmers.

To develop farmer competence on cooperative and financial management, three webinars/ meetings were conducted with CDA.

In engaging farmers in profitable agroenterprises, the Zanjera/Cooperative identified two agroenterprises (custom service of machineries such as combine harvester and *palay* trading). The custom service of the combine harvester has been undertaken and tested *palay* trading. The Zanjera/Cooperative has delivered, and test marketed thrice to NFA around 25t of *palay* amounting to P475,000.00

For the monitoring and evaluation, 150 farmers each for 2019 WS and 2020 DS were baselined.

PROJECT 16

RiceBIS in Diffun, Quirino (Phase II)

Ofelia C. Malonzo

The municipality of Diffun was chosen for RiceBIS Phase 2 because of its average yield of 4.3t/ha (PSA, 2019) for irrigated areas — considered one of the lowest in the region. In 2020 WS, 153 men and 72 women farmers participated in the Training on Improved Rice Production and Processing. They belong to the first five farmer organizations (FO) who were committed to the project (Table 1). Four new organizations gave their commitment for the 2nd part of implementation in Diffun for 2021 DS.

Through RiceBIS, four of the five FO/clusters received two units of handtractors from the DA- Regional Field Office 2 that were awarded last September 30,2020. These will be used for their custom hiring agroenterprise. However, the business plans must still be prepared for their enterprise.