

2018

NATIONAL RICE R&D HIGHLIGHTS



PHILRICE MIDSAYAP
BRANCH STATION



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PHILRICE MIDSAYAP

Ommal H. Abdulkadil, Frezzel Praise J. Tadle, Sailila E. Abdula, and Pernelyn S. Torreña

EXECUTIVE SUMMARY

PhilRice Midsayap is mandated to develop and promote effective and cost efficient technologies of rice and rice-based farming systems in its research, development and extension programs to be implemented in Bangsamoro Autonomous Region in Muslim Mindanao (BARMM).

The station strengthens its RDE linkages to deliver information, knowledge, and technology package, based on participatory and freely communicative approaches. The station aimed to improve farmers' farming practices and achieve higher yields while promoting the sustainability of production and farming systems. The prevalence of pest outbreaks in the area made pest management as its priority RDE thrust.

As one of the lead agencies in providing technical assistance and developing extension modalities, PhilRice Midsayap carried out its development initiatives in partnership with Agricultural Training Institute (ATI), National Irrigation Administration (NIA) through its National Irrigation Systems, State Colleges and Universities (SCUs), Local Government Units (LGUs) and other public and private partners.

In 2018, the station implemented nine R&D projects/studies. For research, 5 studies were implemented that focused on developing and identifying rice lines suitable in a specific location or environment condition. Best pest management practices particularly on the efficient use of *Metarhizium anisopliae* for rice black bug (RBB) management was also determined.

The development sector implemented four development projects: RiceBIS as the banner development program and three station-based projects.

All this contribute in achieving increased productivity, cost-effectiveness, and profitability of rice farming community; enhanced partnerships and knowledge management for rice research for development.

RICE PRODUCTIVITY ENHANCEMENT THROUGH ADOPT-A-FARM PROJECT (REAP)

PLP Sabes

This project aimed to document and assess location-specific package of technologies being adopted in local farming communities and to develop a rice technology suitability map.

Assessment of Adopted Localized Rice Production Technologies in Area of Responsibility of PhilRice Midsayap

IV Boholano, R Marcos, and MAM Macadilidig

The study aimed to identify farmers' evaluation criteria and the adoption rate of rice production technology in to develop a package of suitable technology. It employed a descriptive method and survey research with stratified-purposive sampling design for analysis.

Eighty farmer respondents were surveyed in North Cotabato. Findings showed that most were still in their productive years, possess extensive experience in rice farming, and rely on rice farming as source of income. There were significantly more males than females.

Results showed that production cost for direct wet seeded inbred rice was slightly higher than transplanted rice. This implies that transplanted inbred rice is highly feasible in the province provided that 6-7t/ha or more will be achieved by farmers. Farmers should not also depend on insecticide application and must properly manage the weeds at an early stage so that less production cost will be spent on pest management.

Midsayap Rice Technology Information System (MRTIS): Rice Technology Suitability Map

PLP Sabes and MAM Macadilidig

The study aimed to develop a rice technology suitability map within BARMM. Although adoption of modern high yielding varieties and rice technologies had increased rice productivity, farmers' practices were not recorded. Thus, a survey was implemented in the municipalities of of Sultan Kudarat: Columbio, Esperanza, Isulan, Lambayong, Tacurong, and President Quirino. Results showed that 62.82% of the farmer-respondents used high-quality seeds, while 37.18% said they are aware of it but do not necessarily use them.

ACCELERATING THE ADOPTION OF SUSTAINABLE AGRICULTURE TECHNOLOGIES

OH Abdulkadil, DAN Sumlay, IV Boholano, PLP Sabes, RS Salazar, and JO Edraira

This project aimed to: 1) educate both men and women rice stakeholders with the latest rice production technologies through trainings, KSL activities and radio program; 2) promote cost-reducing technologies (variety, Rice Crop Manager, AWD, pest management, and post-harvest management through varietal demonstration and conduct of Lakbay Palay or Farmers' Field Day and Forum; and 3) disseminate PhilRice matured technologies through IEC materials.

Three best performing inbred rice varieties were identified in North Cotabato, Maguindanao, and Zamboanga Sibugay. NSIC Rc 218 showed the highest yield and surpassed the two public hybrid rice, PSB Rc 72H and NSIC Rc 204H across locations. For capacity building, 14 regional and provincial rice focal persons and 21 new agriculture graduates were trained on PalayCheck System and Palayamanan Plus with 57.72% and 55.05% gained knowledge, respectively. There were 1,577 rice farmers, students, and professionals reached and benefited from various technology promotion initiatives (e.g., KSL activities, Farmers' Field Day and Forum, Be RICEpossible campaign) conducted. Twenty-one radio plugs were aired through community local radio station reaching more rice stakeholders in the far-flung areas.

Adaptation of released varieties in Mindanao through technology demonstrations

OH Abdulkadil and DAN Sumlay

One-hectare technology demonstration farms were established to showcase the yield of 11 newly developed inbred and two public hybrid rice varieties. They were located in PhilRice Midsayap and Brgy. Agriculture, in North Cotabato; Tapayan and Mastura in Sultan Kudarat; and Labrador, Buug, Zamboanga Sibugay. NSIC Rc 218, Rc 238, Rc 400, and Rc 420 were the top four performing inbred released varieties across locations. NSIC Rc 218 surpassed the two hybrid released varieties, PSB Rc72H (6.25 t/ha) and Rc 204H (6.39 t/ha), at 6.52t/ha. NSIC Rc 218 is a suitable inbred variety across Region IX, XII, and ARMM. Rice farmers can also plant Rc 238, Rc 400, and Rc 420. Hybrid rice varieties such as PSB Rc72H and NSIC Rc204H are also recommended as they can yield 6t/ha and above.

Enhancing technology adoption through effective sharing and learning activities and Trainings

OH Abdulkadil and DAN Sumlay

This study reached 1,435 rice stakeholders. Series of trainings were conducted to regional and provincial rice focal persons of Region IX, XII, and ARMM. Of the 35 rice stakeholders trained, 14 participants were regional/provincial rice focal persons from Region XII; one, Region IX; and six, ARMM. Their knowledge gained was at 57.72%.

Twenty-one new agriculture graduates undertook a 5-day Boot Camp with emphasis on PalayCheck System and Palayamanan Plus. Graduates were from Southern Christian College, University of Southern Mindanao, and Sultan Kudarat State University. Students had an overall gained knowledge of 55.05%.

Lakbay Palay/Farmers' Field Day and Forum

PLP Sabes, DAN Sumlay, and OH Abdulkadil

Lakbay Palay is an annual activity of PhilRice Midsayap that facilitates fast and effective dissemination of rice and rice-based production technologies. It particularly showcased high yielding rice varieties; mushroom, vermi-compost and vegetable production; efficient postharvest machines and facilities such as combine harvester, seed cleaner and modified flatbed dryer; and other rice production technologies.

Dubbed as Serbisyo sa Pamayanan, the two-day event gathered 739 participants. Resource speakers were from Social Security System, Pag-ibig, Philippine Crop Insurance Corporation, ATI, NIA, and USM and SKSU professors.

Effective communication intervention through different multimedia channels (Radio airtime, Social media and Print)

DAN Sumlay

Twenty-one technological tips and advisories were aired via WOW radio 104.1 DXMA FM and 103.3 KISS FM ang RADYO ni JUAN in Midsayap, Cotabato. There were 2,919 IEC materials such as PhilRice magazines, techno bulletins, and pamphlets distributed to rice farmers.

PALAYAMANAN PLUS IN MIDSAYAP

PLP Sabes

The Palayaman Plus in Midsayap aimed to strengthen the technical capacity of rice farmers through training and farm demonstration and to accelerate the adoption of rice-based production models. Palayaman Plus was up-scaled in Salunayan National High School and to the group of Citizen Armed Force Geographical Unit (CAFGU) in North Cotabato. The component included rice production using mechanical transplanter in different seeding rates; small scale mushroom production using locally available resources; and organic fertilizer production through vermicomposting. The net income based on direct cost for seed production amounted to P194,000 (DS) and P184,469 (WS), and P13,000 for mushroom production. Income generated by the different components proved that crop diversification, integration, and intensification of utilizing farm residues, is profitable and sustainable.

RESEARCH PROJECTS AND STUDIES

Effects of Yield-related Traits to Rice Grain Yield of Hybrid Released Varieties in a Non-Simulated Environment of Type 4 Climate in Mindanao

AY Cantila, IV Boholano, and AML Fordan

This study aimed to determine yield-related traits affecting grain yield of hybrid rice, measure the stability of hybrid rice, detect the presence of genotype by environment interaction rice, and select suited hybrid rice varieties approved by men and women farmers in type 4 climate. The grain yield (GY) of hybrid rice in type 4 is lower than in regions with type 1 or 3 climate conditions. Thus, 13 hybrids along with three inbred released varieties (check) were planted in two locations to determine the effects of yield-related traits to GY and suited genotypes in type 4 climate. Correlation analysis showed that the number of filled grains per panicle, panicles in meter squared, spikelet fertility, and spikelets per panicle significantly influenced GY. It was found that NSIC Rc 72H with a mean GY of 9.57t/ha; NSIC Rc 378H, 9 t/ha; and NSIC Rc 368H, 8.61t/ha were suited genotypes. These top 3 hybrids can be recommended to rice farmers in type 4 climate.

Development of Rice Information System in BARMM

ES Perialde and MC Romarez

The study aimed to establish rice seeds information system that includes the area map of active seed growers and up-to-date adoption of foundation seeds and registered seeds in BARMM. There are 345 active seed growers in Region XII, 46 in Region IX, and 68 in ARMM. Gathering of the global position system points for the seed growers is still on-going. PhilRice Midsayap also produced and delivered 3,225kg of FS and 206,810kg of RS to its area of coverage. The updated information of seed growers and seed availability will lead to a more efficient and effective seed system in the region.

Station's Advance Germplasm on Trail (SAGOT) to Increase Rice Yield in Southwestern Mindanao

PS Torreña, AY Cantila, CG Flores, and KMB Abejar

Host plant resistance is an important component in breeding for pest and disease resistance. The use of genetic resources can contribute in addressing the increasing food demands of an ever-growing global population. This study aimed to identify breeding materials with resistance and/or tolerance to rice tungro virus, rice black bugs, and stem borers. One entry showed (M19-250GY.1-2-3-4-5-6-7) resistance to stemborer damage (deadhearts) at vegetative phase. For whiteheads, seven entries (HPS-11, PHB77-250GY.1-1-2-3-4-4, M19-250GY.1-1-2-3-4, M19-250GY.2-1-2-3-4-5, M19-250GY.4-1-2-3-4, M19-300GY.1-2-3-4-5-6-1, and M19-250GY.1-2-3-4-5-6-1) were resistant. For rice black bug (RBB) damage at vegetative phase, all entries showed resistance to deadhearts. At reproductive phase, 39 entries were resistant. On rice tungro virus (RTV) screening, synchronous planting and long fallow period (3 months) lowered the population of green leafhoppers and prevented the incidence of rice RTV infection. Rice lines evaluated and rated with resistant to pests and diseases could be used as a parent material for developing new varieties.

Weather and Pest Monitoring at PhilRice Midsayap

CG Flores, PLP Sabes, and FPJ Tadle (January to May 2018)

Insect population abundance is highly fluctuating in Mindanao. Light trap was installed at PhilRice Midsayap to determine the occurrence and population dynamics of insect pest. It was observed that population of RBB and WSB peaked in the first week of January and third week of July. No meteorological factor has significant effect on the population buildup of RBB and WSB during its peak months.

Sustaining Rice Productivity through Efficient Use of *Metarhizium anisopliae* for the Management of Rice Black Bug

PS Torreña and MS Ocenar

This study aimed to develop a sustainable strategy on RBB management through *Metarhizium anisopliae*. Assays were conducted in laboratory and greenhouse conditions to evaluate the efficacy of the different *M. anisopliae* isolates. Seven *M. anisopliae* isolates were used for the laboratory assay viz.: F22-MES, F23-MES, RCPC-Molave, RCPC-Trento, 4003-AES, RCPC-Bukidnon, and RCPC-Tacurong. Results in the laboratory assay showed the earliest fungal infection on RBB body was observed in all treatments at day 2. The highest percent infection was observed on isolates from F23-MES with 48% infection, followed by RCPC-Molave isolate (28%), and F22-MES (18%). Consequently, at 14 days after inoculation (DAI), 100% RBB infection was observed on isolate from F23-MES, 88% on RCPC-Molave and 85% on F22-MES isolates.

The greenhouse assay used the top three most virulent/effective isolates (F23-MES, RCPC-Molave, and F22-MES). At 14 DAI, highest percent RBB infection was observed on treatment using the F23-MES isolate at 32% infection followed by F22-MES at 20% and RCPC-Molave at 14% infection. Based on the result of the laboratory and greenhouse assay, isolate from Field 23 of PhilRice Midsayap was the most virulent isolate, having the highest percent infection and mortality. Thus, this isolate can be further subjected in field condition trial to determine its efficacy under uncontrolled conditions.

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) 456-0354

BRANCH STATIONS:

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 Isabela, Malasin, San Mateo, 3318 Isabela
Mobile: 0908-875-7955; 0927-437-7769; 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.station@philrice.gov.ph
PhilRice Bicol, Batang, Ligao City, 4504 Albay
Tel: (52) 284-4859 to 60; Mobile: 0918-946-7439 ; Email: bicol.station@philrice.gov.ph
PhilRice Negros, Cansilayan, Murcia, 6129 Negros Occidental
Mobile: 0949-194-2307; 0927-462-4026; Email: negros.station@philrice.gov.ph
PhilRice Agusan, Basilisa, RTRomualdez, 8611 Agusan del Norte
Telefax: (85) 343-0768; Tel: 343-0534; 343-0778; Email: agusan.station@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 Field Office, CMU Campus, Maramag, 8714 Bukidnon
Mobile: 0916-367-6086; 0909-822-9813
PhilRice 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: 0917-714-9366; 0948-655-7778
Samar Satellite Station, UEP Campus, Catarman, 6400 Northern Samar
Mobile: 0948-754-5994; 0929-188-5438
Zamboanga Satellite Station, WMSU Campus, San Ramon, 7000 Zamboanga City
Mobile: 0975-526-0306; 0910-645-9323

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