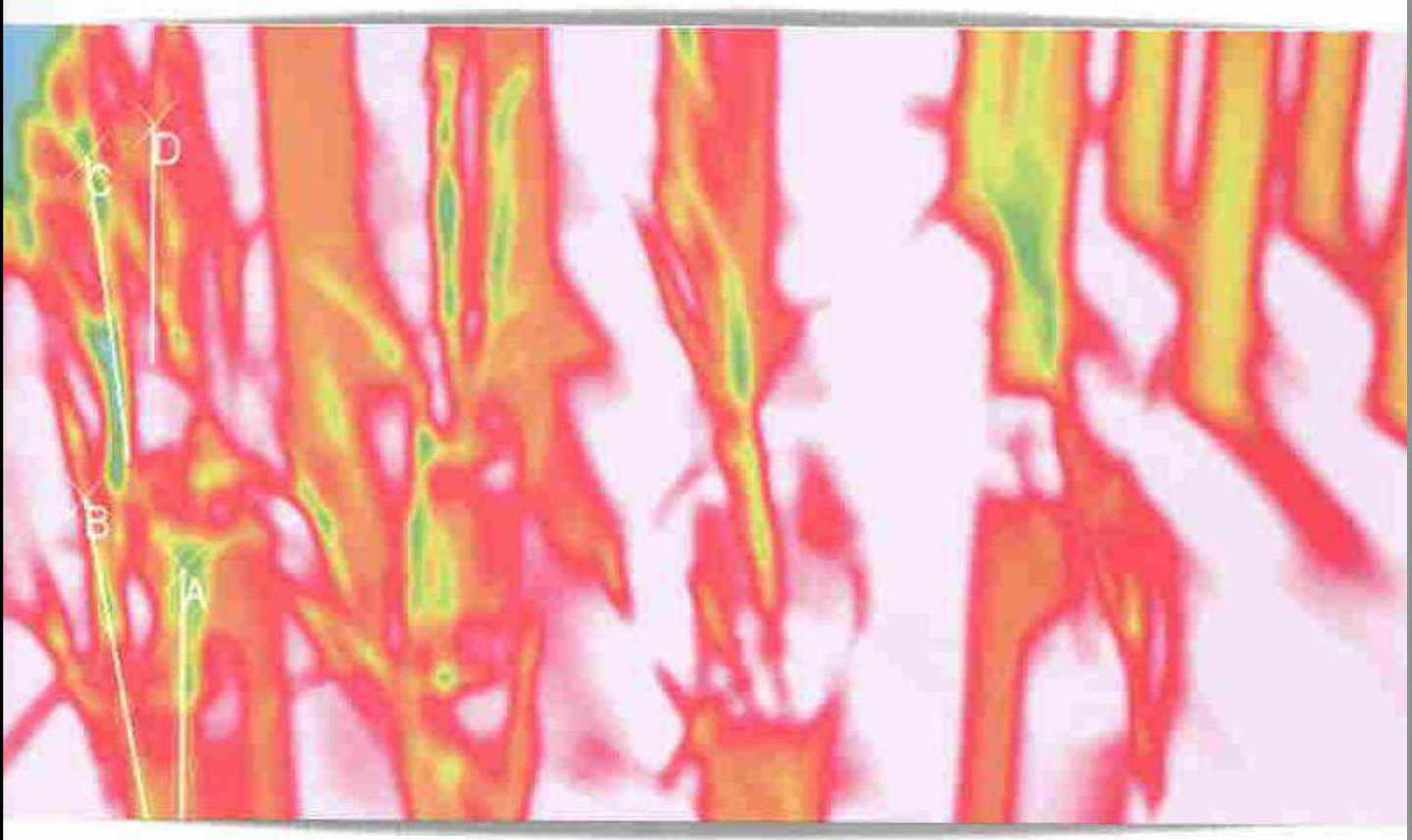
MILESTONES

PHILIPPINE RICE RESEARCH INSTITUTE

2012



ABOUT THE COVER

Thermal imaging played a major role in one of our most important research findings this year. We found that canopy temperature, as measured by thermal image, is a faster method in screening many genotypes that could respond well to drought through root plasticity. This will hasten the breeding of drought-tolerant varieties so farmers in unfavorable environments could also enjoy productive rice farming.

MILESTONES 2012

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2012

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FINDING ALTERNATIVES FOR A TRANSFORMED FOOD SYSTEM

"The present food system needs changes, as food miles or the distance that a food travels from the farm to the consumers' plate are getting farther. We need a system that is decentralized, diverse, and sustainable."
- Dr. Eufemio T. Rasco Jr.

Our 2012 crusade: green and smart farming for transformed food system.

FOREWORD

Taking change

This Milestones 2012 document highlights some of the brightest ideas, innovations, and strategies that we have endeavored to enkindle in our 27th year as a rice R&D organization.

Mandated to help the country attain rice self-sufficiency, PhilRice's vision is to make rice farming sustainable and competitive. Our fresh core strategy: green and smart initiatives not only as a means to achieve food sufficiency but also to transform the Philippine food system, starting with rice.

Green refers to technologies that reduce external inputs like energy; smart pertains to knowledge-intensive and labor- and cost-reducing technologies through the use of ICT, space technology and meteorology, and IT applications.

As a result of these initiatives, we launched the Energy in Rice Farming, which explores and tests alternative sources of fuel like nipa palm.

To transform the food system, we aimed for localized sufficiency. We have scaled up Palayamanan, one of our banner programs promoting diverse and sustainable rice-based farming systems, to Palayamanan Plus that firms up the science behind each component and practice, and promote village level integration instead of household level.

On the development side, we have helped the Department of Agriculture to launch the hybrid rice promotion effort, the Upland Rice Development Program that provides better R&D support to farmers in the upland areas, and the Reduced Tillage Technology, which embodies the green and smart philosophy, and the rice mechanization program with our focus on machine that use renewable energy.

Our infomediary campaign, which taps the youth as effective conduits of rice information, has reached various parts of the country with the Department of Education joining us in our crusade.

Our commitment to provide high-quality hybrid rice seeds to farmers has led us to expand the thermo-sensitive genetic male-sterile (TGMS) Hybrid Rice Seed Production Project, which harnesses the potential of the TGMS system in producing and promoting public-bred hybrid varieties such as Mestisos 19 and 20 through close collaboration with DA-RFUs. In PhilRice Negros alone, we have 35 hectares devoted solely to hybrid rice seed production.

The year 2012 is also witness to the debut of the National Year of Rice (NYR) 2013 campaign, which is so far our biggest effort to enjoin all sectors of society to help beat the deadline for rice self-sufficiency.

To improve our internal operations, the organizational structure was expanded to include new and redesigned components. To help ensure the timely availability of high-quality seeds, we formed the Seed Technology Division. Meanwhile, PhilRice Negros was designated as organic rice research center.

As a public service institution, we draw inspiration from our people. All year round, our personnel continue to reap awards and recognitions from various national and international award-giving bodies, most notably the Young Outstanding Scientist Award from the National Academy of Science and Technology.

We have sustained and continued to forge new partnerships and renewed linkages with our local and international allies, valuing their strengths and sharing ours with them.

In the fourth State of the Nation Address of the President in July 2012, we have heard how rice imports have dramatically decreased from 2 million metric tons in 2010 to only 500,000 metric tons in 2012. In 2013, we might see ourselves importing only the minimum access volume of 350,000 metric tons. His conclusion: gone are the days when others would say we cannot even feed ourselves.

We look at this remark with an even stronger zeal to go the extra mile in helping bring about positive change in our lives.

EUFEMIO T. RASCO JR., PhD
Executive Director

RICE BREEDING

Green is growth, rebirth.

In rice farming, green calls for initiatives that reduce external inputs, particularly energy.

The varieties we developed in 2011 mature from 108 to 118 days. In 2012, our varieties could be harvested after 104 to 117 days.

Our best sellers:

Our varieties are included in the list of most-grown varieties based on data from the National Seed Quality Control Services:

Registered seeds: NSIC Rc160, Rc216, Rc224, Rc128
Certified seeds: NSIC Rc216, Rc160, Rc224, Rc128

We developed new varieties

NSIC Rc298 (Tubigan 23)

- First variety for direct seeding, containing genes for anaerobic germination, strong seedling vigor, and submergence tolerance.
- 104 maturity days after direct seeding
- Yield potential: 8 t/ha
- Moderately resistant: white stem borer, brown plant hopper (BPH)
- Intermediate resistance: green leafhopper
- Intermediate reactions: bacterial leaf blight (BLB), blast, sheath blight (ShB)
- Good eating quality
- Grade 1 milling recovery
- Long and slender grains

NSIC Rc304SR (Japonica 3)

- 113 average maturity days
- Yield potential: 7.2 t/ha
- Intermediate reactions: BLB, ShB
- Resistant: blast
- Good milling and head rice recoveries
- Good eating quality
- Has glossy, cohesive, tender, smooth texture

NSIC Rc302 (Tubigan 25)

- Matures in 115 days when transplanted; 105 days, direct-seeded
- Yield potential: 10.4 t/ha
- Intermediate reactions: blast, BLB, and ShB
- Moderate reactions: green leafhopper, BPH
- Good eating quality
- Extra long and slender grains
- Good milling recovery

NSIC Rc300 (Tubigan 24)

- Could be transplanted or direct-seeded
- Matures from 112 to 117 days
- Yield potential: 10.4 t/ha
- Moderately resistant: blast, BLB, ShB
- Susceptible: tungro, white stem borer
- Moderate reactions: yellow stem borer, BPH, green leafhopper
- Very good milling attributes: premium milling recovery (72.2%), Grade 1 head rice (48.9%)
- Long and intermediate grain size
- Good eating quality

Our varieties are most preferred across the country

(Bureau of Plant Industry)

Based on the March 2012 Rice-Based Farm Household survey, our varieties are among the most preferred and planted rices:

2011 WS: NSIC Rc128, Rc160, Rc 216, Rc152, Rc134, Rc146, Rc150, and Rc138

2012 DS: NSIC Rc128, Rc160, Rc218, Rc152, Rc216, Rc224, Rc146, Rc150, and Rc134

We have improved rice breeding processes and are discovering ways to make rices more adaptive to unfavorable environment

- Rapid evaluation protocol for hydrogen peroxide (H_2O_2) and ultraviolet radiation resistance using Lesion Mimic Mutant (LMM) rice was developed. LMMs spontaneously form patches of dead cells when rice develops injury, stress, or infection. Results showed that three out of 13 fully characterized LMM lines had 50 percent survival under ultraviolet stress; and 10 out of 52 other LMMs were tolerant to H_2O_2 better than the wild type Dongjin.

- Even at 600 mM H_2O_2 concentration, the presence of LMMs on the rice leaves can prolong cell life in the neighboring cells.

- Results also indicated that H_2O_2 could be used as selectable marker in the early detection of resistant lines to related abiotic stresses where hydrogen peroxide has been involved.

- A fast, simple, and reliable screening method to identify lines with resistance against sheath blight was developed. We optimized parameters in a microchamber screening method using soda bottles to create a micro-environment with better control of humidity and temperature. The modified parameters include culture medium for mass-producing pathogen, seedling age at inoculation, incubation time or the time of disease rating relative to time of inoculation, and the disease scoring system.

  Results showed that fungal pathogen grows better using mycelial disks made of agar as compared to rice hull substrate. Seedlings

can be inoculated as early as 14 days after sowing and disease scoring can be done 5-7 days after inoculation. We adopted a modified scoring system that takes into account seedling age during inoculation and use of actual disease index scale in addition to visual or qualitative scoring. Using these optimized parameters, screening results can be obtained in less than a month after seed germination.

- Detecting hybrid rice admixtures or seed contaminants through DNA analysis was found to be even more efficient than the conventional purity test conducted by the National Seed Quality Control Services. DNA-based marker analysis was also found to efficiently identify seed contaminants in shorter time than conventional grow-out test.

- Hybrid rice admixtures can be detected using two Simple Sequence Repeat (SSR) markers: RM110 and RM234 for Mestizo 1 and Mestiso 7, and RM171 and RM263 for Mestiso 3. A single SSR marker can also be used to differentiate hybrid from non-hybrid seeds.

- Direct-seeded seedlings especially in low-lying areas, usually do not survive. Quantitative trait loci (QTL) or the stretches of DNA containing or linked to the genes that cause the expression of physical traits for improving rice seedling vigor under water stress on direct-seeded environment were then mapped out. QTLs controlling shoot and root lengths, and shoot fresh weight were identified as these are traits of seedling vigor when submerged. Seven putative QTLs for shoot length, 11 for root length, and 14 for shoot fresh weight using Composite Interval Mapping method were identified.

- At least nine new QTLs were also verified using Chromosome Segment Substitution Lines. Among 32 putative QTLs detected using Backcross Inbred Lines, the following were identified: two QTLs for shoot length; one, root length; and six, shoot fresh weight.

- Nipponbare genome can improve seedling vigor trait under submergence conditions. Japonica germplasm is also useful for improving seedling vigor in indica rice.

- Research to improve hybrid rice seed production found that S (female) and P (male) parent lines in two-line hybrids are best synchronized at 5-7 seeding days under Isabela conditions. Isabela is one of the country's top rice producers.

- The 8:2 ratio yields highest in SxP production under Northeastern Luzon conditions.

What to expect:

"Ultra-early-maturing rice that needs less energy inputs as cultivation would be shorter, and is harvested in 100 days after sowing."

- Thelma F. Padolina
PhilRice CES

RICE BREEDING

- We also give meticulous importance to the roots of the rice plant. We have identified a surrogate method that can be used in root phenotyping under drought conditions. To screen a large number of genotypes, we correlated canopy temperature based on thermal image with shoot and root developmental responses to drought, and detected changes in temperature following abrupt changes in stomatal activities. We found that canopy temperature estimates based on thermal image can be used as a tool for screening genotypes with functional root plasticity under drought.

- Shoot and root developmental responses of contrasting rice genotypes to different intensities of soil moistures during progressive soil drying were identified. Under episodes of transient waterlogged to drought conditions, key traits for drought adaptation include greater root plasticity in terms of nodal root production and elongation, branching in CT9993, and shoot response for improved photosynthesis in IR62266. CT9993 is an upland japonica rice type, which extracts more water from drying soil through root branching and elongation. IR62266 is a lowland indica type that regulates water loss by closing its stomates during drought. These traits are being considered in the phenotyping of CTXIR doubled-haploid lines.

- Root sampling by using a root box-pinboard method enabled researchers to collect the whole root system with minimum impairment or disturbance to its structure. This can also be used to precisely evaluate the response of root system development and plant water-use, and regulate the target soil moisture conditions.

- We found that root plasticity response to a continuous cycle of transient soil moisture stresses contributed to increase in grain yield. Genetic variation in plastic responses of roots could have substantial impact on yield in areas experiencing these kinds of soil moisture stresses like in rainfed lowland rice.

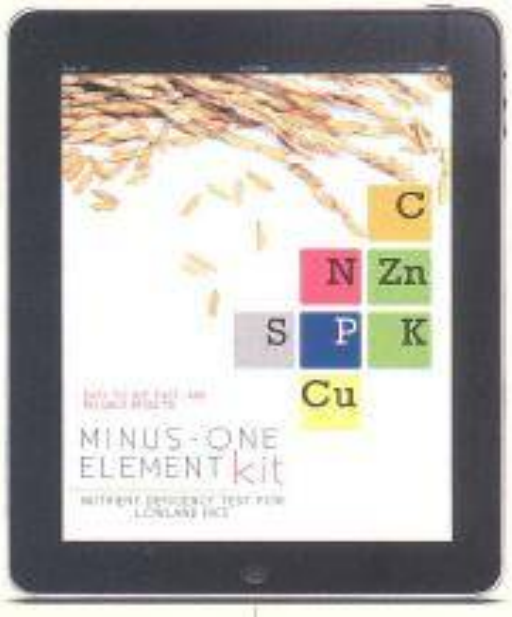
Green farming improves energy efficiency in managing pests...

- Extract from stems and leaves of *banti-banti*, a local plant with insecticidal property, was found to be an effective combination in managing storage insect pests. The recommended application was 100 grams plant extract solution mixed in one-liter water where sacks are soaked for 12 hours, then completely dried before storing seeds.

- Seven genera of fungal microbial agents were found to control rice insect pests in some rice-growing areas in Mindanao: *Batkoa* and *Zoophthora* of the Order Entomophthorales and *Beauveria, Hirsutella, Metarhizium, Nomuraea,* and *Paecilomyces* of the Order Hyphomycetes. Based on initial testing, the mortality of the brown planthopper exposed to 1 x 108 conidia mL^{-1} suspension of *M. anisopliae* (85.00%) was significantly higher than the insects exposed to *B. bassiana* (57.50%) and *Paecilomyces* sp. (40.00%) suspension at 10 days post treatment in the screenhouse.

Knowledge-intensive yet simple, labor-reducing technologies...we call them smart.

- Recommendations made from the Minus-One Element Technique (MOET) were made available in a software called eMOET for extension workers to help farmers identify the amount of fertilizer to be applied after knowing the limiting nutrient and farm size. eMOET was developed using the Microsoft Visual Basic. The MOET kit provides a general recommendation for nutrient management of lowland rice on the basis of amount of nutrient taken up by the plants to produce a ton of *palay*.



ENGINEERING

- We have completed the pre-commercial prototype of the 100-kw rice husk gasifier, which aims to produce 100-kw electricity. Main components include 120-cm rice husk reactor, scrubber, filters, gas storage, and the engine-generator set. It uses the principle of downdraft rice husk gasification in which producer gas flows from the combustion zone.

- Our continuous-type rice hull carbonizer was further improved to enhance its usefulness, capacity to process biochar from other agricultural wastes, and to reduce material and manufacturing requirements for its possible commercialization. This improved carbonizer will not only help farmers save on fertilizer but also help reduce carbon footprints in agriculture.

- Test runs showed that the improved prototype can operate under windy conditions with no significant effect on emission. In at least 85% of the time, the prototype operates with clear emission at the chimney. Input capacity ranged from 20.6 to 36.2 kg/h with biochar recovery of 37.3 to 40.5% (by volume), depending on the condition of the rice hull and the frequency of collecting the biochar, among other factors. Tests also showed that it can process other agricultural wastes such as rice straw, small branches of trees, and coconut husk into biochar.

- In 2012, the following machines were sold to various buyers:
  - 2 units, Laboy Tiller, P75,000 each
  - 48 units, Micro Tiller, P50,000 each
  - 24 units, SACLOB (Hermetic Storage), P8,000 each
  - 23 units, Plastic Drum Seeder, P6,500 each
  - 5 units, Rotary Weeder, P2,500 each
  - 72 units, Open-Type Carbonizer, P1,100 each
  - 5 units, Maligaya Rice Husk Stove, P1,100 each

VALUE-ADDING

We also aim for a food system, in which good nutrition is ensured and easily accessible.

- We evaluated the potential use of sprouted brown rice (SBR) in non-alcoholic drinks and in formulating ingredients such as herbs, vitamins, minerals, amino acids, or additional raw fruit or vegetables. NSIC Rc15, Rc82, black rice, and brown rice were first characterized in terms of nutritional, phytochemical, and functional properties. Germination rate, length of sprouts, texture of cooked rice, and total soluble solid content were also determined.

- All SBR beverages except those from Rc15 were perceived to have flavorful and sweet taste. Their acceptability scores were comparable to each other. The study suggested that sprouted pigmented rice is a potential source of natural antioxidants. SBR from both white and pigmented rice varieties could be used to improve the nutritional and functional qualities of beverages.

The search for alternatives led us to tap the potential of one of the world's neglected plants...nipa (*Nypa fruticans*).

> "Nipa and rice complement each other. Nipa provides fuel for farm mechanization while rice, through its biomass, provides fuel in the production of alcohol from nipa sap."
>
> – Abner T. Montecalvo
> PhilRice Agusan

ALTERNATIVE ENERGY

- Nipa palm is a potential source of biofuel because it produces high amount of sap that can be converted into alcohol.

- Conducted the first-ever experiment *Tissue culture of Nypa fruticans for clonal propagation.*

- Two sterilants, 85% ETOH for 5 minutes and combination of 1.31% NaClO for 10 minutes and 70% ETOH for 2 minutes, were the best for the anther. For the embryo, 5.25% NaClO with 5 drops of tween for 20 minutes had better effect compared with other tested sterilization processes; with an almost 90% decontamination rate. For the plumules, there was zero contamination but severe browning to death of tissues was observed. The young leaves showed the poorest decontamination rate among explants with only 40% as highest.

- When cultured in three different media, the embryo grew and the plumule emerged after 45 days. For clonal propagation, the explant was cut longitudinally along the shoot apical meristem into four sections and cultured in the regeneration medium.

- The country lacks data on the genetic diversity of nipa because the needed research has not been done. PhilRice launched its study on nipa's genetic diversity to select parents that will be used for breeding high sap yield.

- We started to evaluate the viability of establishing a village-level bioethanol production from nipa in Vinzons, Camarines Norte, a 4th class municipality. This pilot site had been producing "barik" (the province's local vodka) for the past 100 years.

- As a headstart in pilot-scaling a bioethanol plant in Vinzons, preliminary calculations on the design of a Distillation Column were done. The locally produced nipa wine (about 30%) will be fed to the distillation column that produces around 100 liters of hydrous bioethanol per day, with at least 95% distillate. The distillate will then be used as a fuel for agricultural machinery in rice production areas.

- PhilRice Agusan has partnered with UP Mindanao to engage in research on the potential of nipa to provide energy for rice farming. A research team in Agusan transplanted nipa seedlings at the station, using materials collected by PhilRice executive director Eufemio T. Rasco Jr from Camarines Norte, Bohol, Surigao del Norte, and Butuan City over two years of study.

As we go green and smart, we reached out to communities for them to learn and adopt modern farming practices.

- The Upland Rice Development Program was launched, under which 327,656kg of traditional and modern upland rice seeds were procured. These were distributed to 10,522 upland farmers in 59 provinces where 6,135.8 ha of upland rice areas were planted.

- Demonstration sites of the Reduced Tillage Technology Project in two municipalities showed a 20-cavan/ha advantage over plowed plots. Partial Budget Analysis also showed an average savings of P3,579/ha in land preparation. Cost-and-return analysis in the three sites in Talavera, Nueva Ecija counted an average net income of P43,029 /ha for the reduced tillage or a net income advantage of P15,287/ha over conventional tillage.

- We have widened our hybrid rice seed production area in our station in Negros. We targeted 1,000 ha to be planted in the Visayas and Mindanao starting this year until 2013 as strategy to help the country achieve rice self-sufficiency. These will produce seeds of Mestiso 19 (NSIC Rc202H) and Mestiso 20 (Rc204H).

- In 2012 DS, 1,073 bags of Mestiso 19 and 286 bags of Mestiso 20 were produced and distributed in the wet season. In 2012 WS, 6,026 bags of Mestiso 19 and 244 bags of Mestiso 20 were produced and distributed for planting in 2013 DS. Major recipients were Zamboanga, Bohol, Iloilo, Leyte, DA-RFUs, Cordillera Administrative Region and Caraga Region.

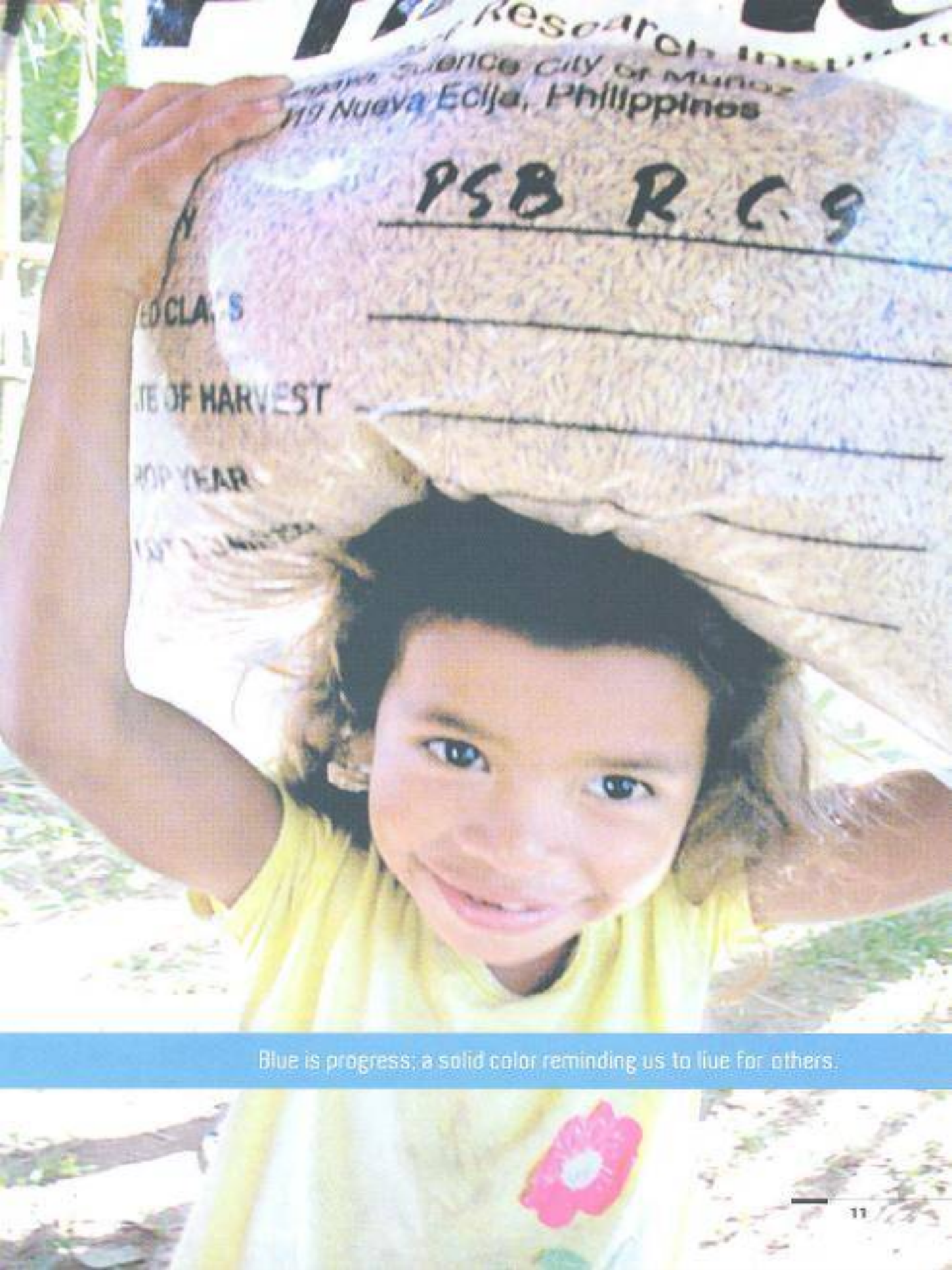
- At the Central Experiment Station, we have conducted trainings on: Farm Machinery Operations and Safety (FMOS) for Young Farmers; FMOS cum PalayCheck System for DAR Farmer-Leaders; Crop Simulation Modeling and Application in Land Resource Management: A Training Program on DSSAT Version 4.1; Intensive Training Course on Seed Production & Seed Certification of TGMS-Based Two-line Hybrids (4 batches); Training-Workshop on Mapping Rice Areas Using Synthetic Aperture Radar Imagery; Skills Enhancement in Facilitation and Lecture Delivery; PalayCheck System for Tulay sa Pag-unlad, Inc. (TSPI) Staff; Rice Appreciation Crash Course for CLSU-CWTS Faculty and Staff; Training of Trainers on PalayCheck System for Farmer-Leaders and Extension Workers of Region III (2 batches); Rice Appreciation Course for Infomediaries; and Seminar-Workshop on Courseware Development and Delivery for ELJMC BSEEd Math Major Graduating Students.

- 6,942 farmers, 185 collaborators/scientists, 6,133 students/faculty, 6,353 NGOs/POs, 294 dignitaries, 272 walk-in visitors, and 372 from other agencies visited the Central Experiment Station in Maligaya, Science City of Muñoz, Nueva Ecija in 2012.

We looked for new pathways to reach our farmers

Before the year ended, we have partnered with the Technical Vocational Unit of the Bureau of Secondary Schools of the Department of Education (DepEd) to intensify our efforts to reach the farmers in the countryside. The partnership has been realized through the *Saigot ko ang magulong kalsang kampanya upang hikayatin ang mga kabataang maging infomediaries*. By using the school as the nucleus of agricultural extension, we are able to reach farmers in remote areas. Rice gardens featuring some of the newly-bred rice varieties for different ecosystems will be set up in all participating schools.

The Open Academy for Philippine Agriculture-developed platforms PhilRice Farmers' Text Center and Pinoy Rice Knowledge Bank will likewise be introduced to the students as information lifelines on rice farming. Beginning 2012, we are working with 70 Technical Vocational high schools spread all over the country. This partnership is well under the memorandum of understanding between the Department of Agriculture and DepEd.



Blue is progress, a solid color reminding us to live for others.

BY THE PRESIDENT OF THE PHILIPPINES

PROCLAMATION NO.

DECLARING THE YEAR 2013 AS THE NATIONAL YEAR OF RICE AND DIRECTING THE DEPARTMENT OF AGRICULTURE TO LEAD ITS CELEBRATION

WHEREAS, ...

WHEREAS, ...

WHEREAS, ...

NOW, THEREFORE, I, BENIGNO S. AQUINO III, ...

SECTION 1. National Year of Rice. ...

SECTION 2. Implementation. ...

IN WITNESS WHEREOF, ...

DONE, ...

But let's not forget that the core of our crusade is rice self-sufficiency.

President Benigno S. Aquino III has declared 2013 as National Year of Rice (NYR) through Proclamation No. 494 signed Oct. 18 to intensify the government campaign on achieving rice self-sufficiency.

Luzon launching during the PhilRice 27th anniversary celebration in November

Visayas launching during the Dumaguete Fun Run in November

Mindanao launching during the Zamboanga Week of Peace in November

NEW PROGRAMS

We crafted initiatives to strengthen our crusade.

- Energy in Rice Farming Program

  With the increasing cost of petroleum, the Program aims to explore and develop energy sources and inputs for and from rice and rice-based farming and their applications. It aims to develop sustainable and cost-effective mechanized rice production and postproduction systems that are renewable, decentralized, diversified, and less polluting.

  PhilRice breeders are developing varieties for direct seeding and ultra-early-maturing rice, which could be harvested 100 days after sowing. These varieties would need less energy inputs because their cultivation would be shorter. Low-gel-temperature rice will also be developed to cut cooking time.

  Projects on pilot-testing a fermentation and distillation plant for hydrous ethanol production from nipa sap and other plant sources; testing of flex-fuel and retrofitted engines using hydrous ethanol, biodiesel and other biofuels for mechanized rice farm operations; and pilot-testing solar, wind, and biogas energy utilization systems for mechanized farm operations are in the pipeline.

  Studies on alternative non-fossil fuel-based nitrogen fertilizer sources, rice straw collection and utilization for electric power generation, and rice husk gasification systems; and energy audit of intensified rice production systems are also hoped to help increase farmers' income without much dependence on fossil resources.

  We also promote the machines rice combine, transplanter, and drumseeder to help reduce significant yield losses attributed to manual farming.

We intensified research collaborations for more discoveries that are relevant to farmers' daily lives.

Fellowships on research and thesis/dissertation and graduate research assistantship were launched. Researchers with studies fostering rice science for improved productivity and profitability were awarded with P150,000-P300,000 and monthly stipend of P30,000-P50,000.

INTERNAL SYSTEMS

The crusade for green and smart rice farming demands excellence. We improved our internal environment for us to give our best.

Rice seed data:
Area harvested, yield, sample for testing, approved samples, etc.

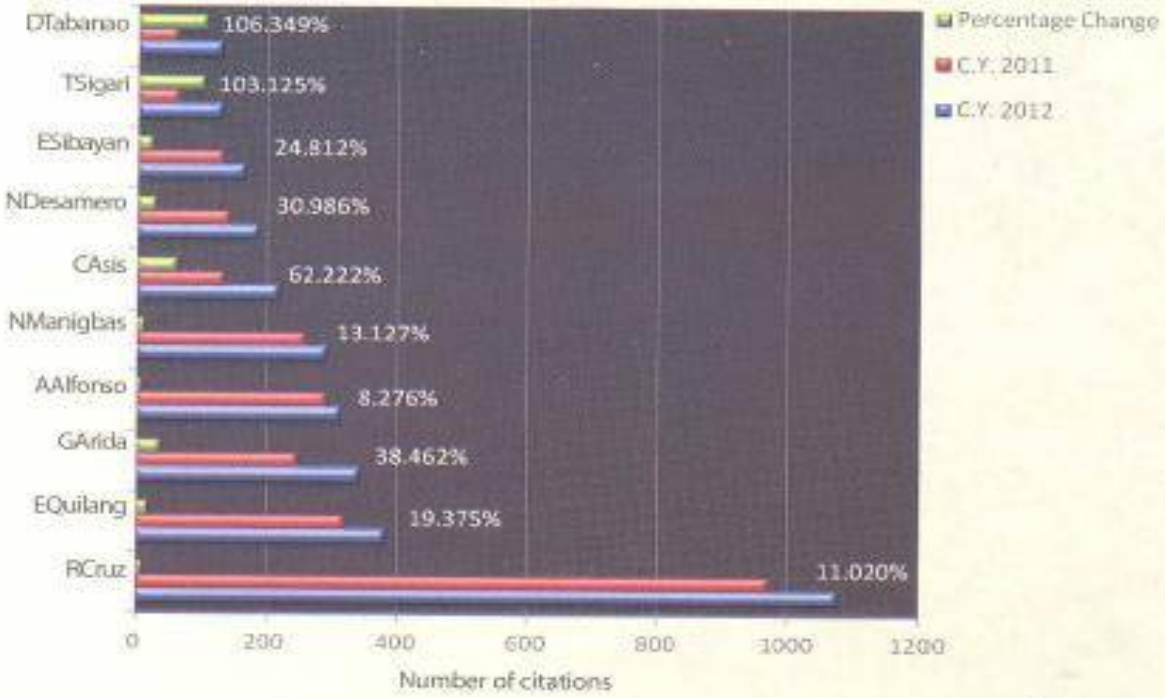
- We have improved our Vehicle Information Systems, Point of Sale and Warehouse Database Systems, Mobile-phone Applications, and Online Rice Research and Development Abstract Information System Development.

- We also worked on a Near Real-Time Rice Seed Information Support System for Region III to gather data on varieties, seed stocks, and updated locations of seed centers and growers.

Our people made us strong...

and they were well-cited worldwide

- Using the Harzing's Publish or Perish software with link to the Google Scholar citation database, results show that citations for PhilRice's ten most-cited authors had increased by 42%.



Noel D. Ganotisi, RR Batuac, RC Castro, & MG Galera

Best Paper
Carbonized Rice Hull (CRH) Improves the Water Productivity and Yield of some Dry Season Crops; 23rd Agricultural Engineering Week and 62nd PSAE Annual National Convention; Puerto Princesa City, Palawan, April 22-26, 2012.

Christopher C. Cabusora, NU Desamero, JC Bagarra, FJB Garcia, HT Ticman, MU Chico, KB Bergonio, & JBR Duldulao

Best Poster Award
Improving the amylose content of the rice variety PSB Rc68 (Sacobia) through somaclonal variation; Philippine Association for Tissue Culture and Biotechnology-PAPTCB Inc., 8th Scientific Convention; Casa Pilar Beach Resort, Boracay Island, Malay, Aklan, April 23-28, 2012.

Josielyn C. Bagarra, NU Desamero, CC Cabusora, & FJB Garcia

4th Best Poster
Enhanced abiotic stress tolerance in inflorescence culture-derived lines from rice variety PSB Rc68 (Sacobia), 8th PAPTCB Scientific Convention.

> PhilRice has a very strong Staff Development Program. As graduated scholar, I can do better as a scientist involved in developing new varieties that suit best the environment and economic capacity of the Mindanao farmers.
>
> -Dr. Saillla E. Abdula
> PhilRice Midsayap

Monday, February 27, 2012

PhilRice scholars worth the investment

Over the years, the Philippine Rice Research Institute (PhilRice) has delivered unparalleled service to the Filipino farmers by developing cost-effective technologies to make rice farming fulfilling and profitable—an accomplishment that was contributed for the most part by returning scholars, a PhilRice official said.

Dr. Manuel Jose C. Regalado, PhilRice's acting deputy executive director for research and chair of the Staff Development Committee, said for close to three decades, PhilRice has reaped the benefits of strengthening its human resource as returning scholars, both local and international, have widened the Institute's networks and continuously partnered with universities and scholarship grantors.

"PhilRice has many projects sourced externally, many of them from international donor agencies and had produced results that helped optimize rice farming and increased farmers' yield. These are made possible because we have invested on our staff," Regalado said.

Data from the Institute's Human Resources Office revealed that 81 percent of PhilRice scholars have rendered or are rendering their return service obligations while about 19 percent did not finish their return service.

"The scholars are required to render 1-2 years of service for every year of the grant. We are delighted that most of our scholars have returned to serve the country despite more lucrative offers from private agencies. Meanwhile, most of the scholars who did not complete their return service have either fully paid or are paying their scholarship obligation," Regalado said.

With a pool of 38 PhD and 142 master's degree holders, PhilRice had produced six recipients of the distinguished Ten Outstanding Young Men and The Outstanding Women in the Nation's Service awards. These distinctions are awarded to Filipinos who have shown unwavering service to the country.

Regalado also stressed that the expertise gained by the scholars have helped the institute in conducting studies and implementing projects that had improved the productivity and efficiency of rice farmers.

"In 2007, a study commissioned by the Bureau of Agricultural Research of the Department of Agriculture revealed that there was a 75 percent return on investment for PhilRice. This is something that the Institute tries to live up to and even improve on in our commitment to elevate the standards of public service in the Philippines with stronger human resource," he said.

Lifted from: http://mabuhayonline.blogspot.com/

UPLB
Philippines

Joel V. Pascual
MS in Community Development

Babylyn U. Tizon
MS Agronomy

Richard D. Romanillos
MS in Community Development

Neil Nemesio A. Baliuag
MS in Plant Breeding

Rodel M. Bulatao
MS in Food Science

Jonathan M. Niones
PhD in Bioagricultural Science
Nagoya University, Japan

Sailila E. Abdula
PhD in Agriculture
Chungbuk National University
Chungbuk, South Korea

Rizzla I. Salas
MA in Digital Communication
Maejo University, Chiang Mai, Thailand

SCHOLAR (2007-2012)	SCHOOL	COURSE
PhD		
ABDULA, Sailila E.	Chungbuk National University	Agriculture
BARROGA, Karen Eloisa T.	University of Western Australia	(by Research)
BARADI, Mary Ann U.	UP Los Baños	Agricultural Engineering
BELTRAN, Jesusa C.	University of Western Australia	(by Research)
BORDEY, Flordeliza H.	University of Illinois	Agricultural Economics
CORALES, Aurora M.	UP Los Baños	Community Development
LAPITAN, Victoria L.	Yamagata University	(by Research)
LAUNIO, Cheryll C.	Kochi University	(by Research)
MABAYAG, Corsennie A.	UP Los Baños	Agronomy
MANANGKIL, Oliver E.	Kobe University	Biofunctional Science
NIONES, Jonathan M.	Nagoya University	Bioagricultural Science
ORGE, Ricardo F.	UP Diliman	Energy Engineering
RAMOS, Riza A.	University of Nottingham	(Multidisciplinary)
SURALTA, Roel R.	Nagoya University	Agricultural Science

SCHOLAR (2007-2012)	SCHOOL	COURSE
Master's		
ABDULKADIL, Ommal H.	UP Los Baños	Plant Pathology
ABORDO, Genevive U.	UP Los Baños	Soil Science
ANGELES, Amelita T.	UP Los Baños	Insect Pathology
ANGELES, Noriel M.	UP Los Baños	Plant Breeding
ANTONIO, Hazel V.	Wageningen University	International Development Studies
BALIUAG, Neil Nemesio A.	UP Los Baños	Plant Breeding
BALLERAS, Gina D.	UP Los Baños	Entomology
BULATAO, Rodel M.	UP Los Baños	Food Science
CAPISTRANO, Ailon Oliver V.	UP Los Baños	Crop Physiology
CAPISTRANO, Maureen P.	University of Asia & the Pacific	Food Systems Management
CASTILLO, Michelle B.	UP Los Baños	Soil Science
CORPUZ, Henry M.	UP Los Baños	BioChemistry
COSIO, Aurea C.	UP Diliman	Public Administration
GADO, Charisma Love B.	Ateneo de Manila University	Communication
LANUZA, Andrei B.	UP Diliman	Education Technology
LITONJUA, Aileen C.	UP Diliman	Economics
MALOOM, Juanito M.	UP Los Baños	Agrometeorology
MANALO, Jaime A. IV	University of Queensland	Communication
MANAOIS, Rosaly V.	Louisiana State University	Food Science
NARVADEZ, Chona Mae S.	De La Salle University	Marketing Communication
OLVIDA, Imelda DG.	UP Los Baños	Development Communication
PACADA, Imeldalyn G.	Wageningen University	Plant Science
PASCUAL, Joel V.	UP Los Baños	Community Development
REBONG, Democrito B.	UP Los Baños	Plant Breeding
RELADO, Rhemilyn Z.	Pennsylvania State University	Agricultural Extension Education
ROMANILLOS, Richard D.	UP Los Baños	Community Development
SALAS, Rizzla I.	Maejo University	Digital Communication
SUÑER, Albert Christian S.	UP Los Baños	Crop Physiology
TIZON, Babylyn U.	UP Los Baños	Agronomy
VALDEZ, Rene E.	UP Los Baños	Seed Technology

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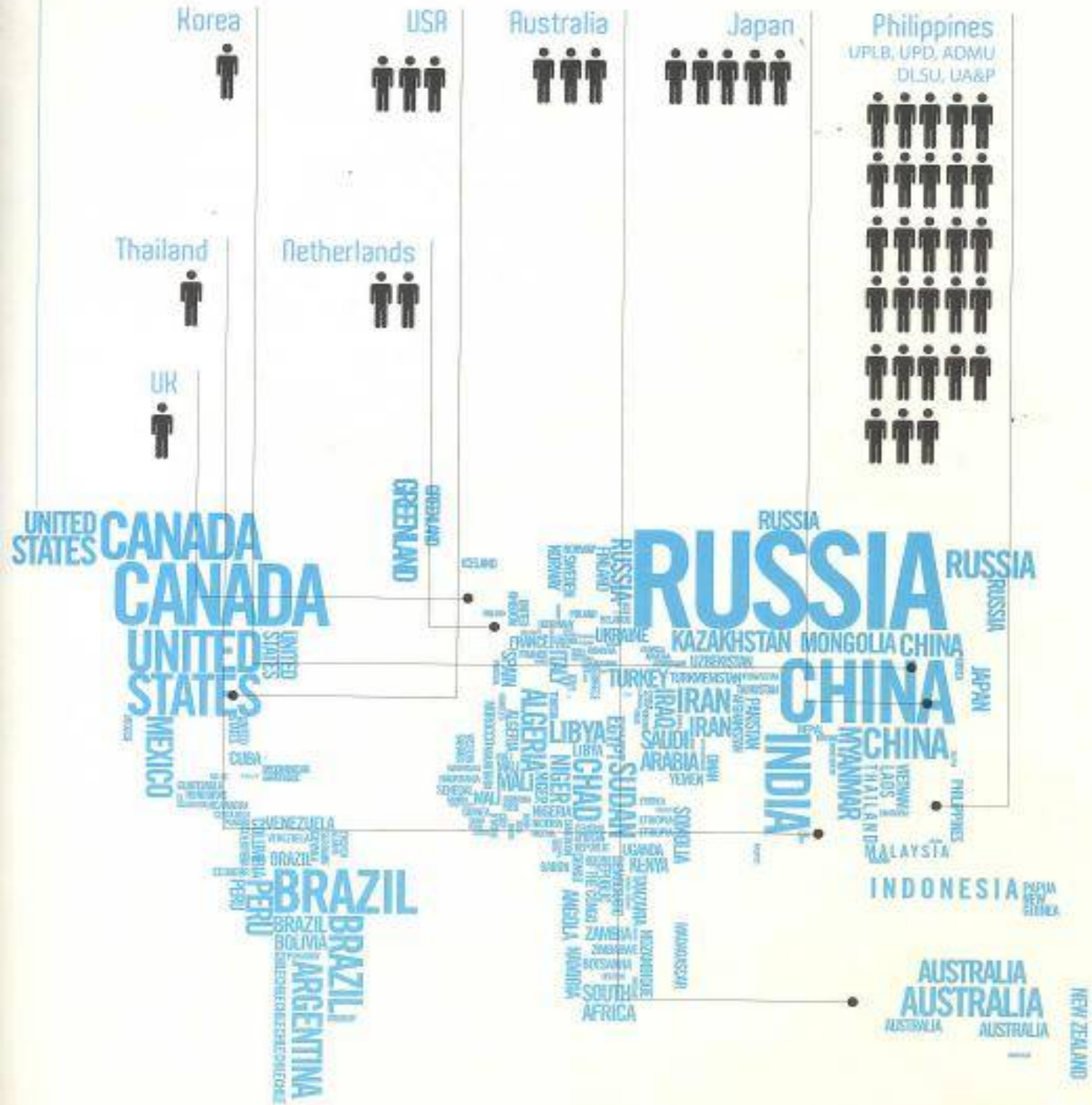

more partnerships...

PROJECT TITLE	Donor	Amount (PhP)
Ecology-Based Participatory IPM for Southeast Asia	Clemson University, USA	813,595.41
Development of Philippine Rice Cultivars with Elevated Levels of the Provitamin A Beta-Carotene (Golden Rice 2) and Resistance to Tungro and Bacterial Blight through Marker-Assisted Breeding	DA-BAR	567,360.00
Strengthening and Institutionalizing the DA-Crop Biotechnology Center	DA-BAR	1,940,050.00
No-Tillage Technology and PalayCheck System for Irrigated Rice Production for Agrarian Reform Communities	DA-BAR	584,500.00
Detection of Rice Viruses in Infected Plants and Viruliferous Insects by Loop-Mediated Isothermal Amplification (LAMP) and its Application for Virus Disease Management in the Philippine Rice Cropping System	DA-BAR	1,493,118.00
Establishment of Community-Based Seed Banks (Procurement and Distribution of 1691 bags of 20-kg Registered Seeds)	DA-OSEC	1,691,000.00
Implementation of Rice R&D Projects in CAR	DA-RFU CAR	7,224,000.00
Increasing Rice Yield and Productivity through the Promotion of Small-Scale Irrigation and Integrated Crop Management Systems in Rainfed Areas (GCP/PHI/059/EC)	DA-RFU I	700,000.00
Water Harvesting for Rice Intensification and Crop Diversification in Region 1	DA-RFU I	2,618,000.00
Implementation of Rice R&D Projects in Region 2	DA-RFU II	700,000.00
Increasing Rice Yield and Productivity through the Promotion of Small-Scale Irrigation and Integrated Crop Management Systems in Rainfed Areas (GCP/PHI/059/EC)	DA RFU III	5,040,000.00
Implementation of Rice R&D Projects in Region III	DA-RFU III	25,000,000.00
Assessment of the Gulayan ng Masa Program of the Department of Agriculture	DA-RFU III	1,940,510.00
Windmill-Pump Irrigation Technology Adoption for Improved Rainfed Agriculture Productivity and Profitability in Tiaong, Quezon	DA-RFU IV-A	2,000,000.00
Implementation of Rice R&D Projects in Region 4A	DA-RFU IVA	1,500,000.00
Implementation of Rice R&D Projects in Region 4B	DA-RFU IVB	6,316,834.00
Implementation of Rice R&D Projects in Region 5	DA-RFU V	19,715,346.00
Intensive Training Course on Seed Production and Seed Certification of TGMS-Based Two-Line Hybrids for BPI-NSQCS Heads	DA-RFU XI	603,750.00
Implementation of Rice R&D Projects in Region 11	DA-RFU XI	4,462,516.00
Implementation of Rice R&D Projects in Region 12	DA-RFU XII	590,000.00
Implementation of Rice R&D Projects in Region 13	DA-RFU XIII	3,770,000.00

PROJECT TITLE	Donor	Amount (PhP)
Increasing Farmers' Access to High-Quality Rice Seeds Through Efficient Seed Production Systems	Department of Science and Technology (DOST)	5,443,164.00
Contribution of Functional Stay-Green Character to Drought Tolerances in Rice (*O. sativa* L.) During Post Flowering Drought Stress	DOST	300,000.00
Smart Farming-Based Nutrient and Water Management for Rice and Corn Production	DOST and Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD)	3,606,163.00
Rolling Out Techno Gabay Rice Program for Sufficient Food on the Table. Sub-Program 3: S&T-Based Farms on Rice Production in Selected Irrigated and Rainfed Areas	PCAARRD	1,036,548.00
Assessment of Climate Change Impacts and Mapping of Vulnerability to Food Insecurity under Climate Change to Strengthen Household Food Security with Livelihood Adaptation Approaches	FAO- UN	183,138.50
Construction, Installation, and Testing of STWs	FAO- UN	888,703.17
In support of the Enhancement of Knowledge and Information Sharing under the GCP/PHI/059/EC Project (Component 1)	FAO-UN	108,000.00
In support of the Enhancement of Knowledge and Information Sharing under the GCP/PHI/059/EC Project (Component 2)	FAO-UN	76,000.00
In support of the Enhancement of Knowledge and Information Sharing under the GCP/PHI/059/EC Project (Component 3)	FAO-UN	330,200.00
LEGATO (Land-use intensity and Ecological Engineering-Assessment Tools for Risks and Opportunities in Irrigated Rice-Based Production Systems)	Helmholtz Center for Environmental Research (UFZ, Germany)	318,347.90
Economy and Environmental Program for Southeast Asia (EEPSEA Centre File: 106269-0-017)	International Development Research Center, Canada	121,457.49
Screening of Mutant Rice Lines for Drought and Heat Tolerance	International Atomic Energy Agency	438,940.86
Irrigated Rice Research Consortium (IRRC) Phase IV (2009-2012)	International Rice Research Institute (IRRI)	1,095,414.34
Water Savings Workgroup for IRRC Phase IV	IRRI	410,394.70
Integrated Weedy Rice Management and Herbicide Resistance	IRRI	394,661.47
Field Performance Evaluation and Selection of Germplasm Utilization for Value-Added (GUVA) Lines	IRRI	173,019.45
Expanded GxE experiments in different agroecologies in support of Bangladesh and Eastern India high-zinc rice profiles: Multi-location (Philippines) evaluation of recombinant inbred lines for identifying most adapted lines for varietal promotion	IRRI	639,386.80
Multi-Environment Testing for Irrigated Lowland Rice -Stage 1 (MET 1-IR,2011 DS)	IRRI	2,831,178.52
Addressing the Pre and Postharvest Challenges in the Rice Supply Chain in the Philippines	IRRI	2,129,984.10
From QTLs to Variety: Pyramiding Major Drought-Responsive QTLs for Sustainable Rice Yields in Asia and Africa (DRPC2010-04)	IRRI	210,139.63
Improving Livelihoods in the Drought-Prone Lowlands of South East Asia (DPPC2009-119)	IRRI	831,399.74

PROJECT TITLE	Donor	Amount (PhP)
Multi-Location Hybrid Rice Yield Trials at Munoz, Nueva Ecija	IRRI	172,778.55
Greenhouse Gas Emissions under Alternate-Wetting and Drying in Rice Fields in Central Luzon	IRRI	877,980.45
Impact Assessment of Contributions to Modern Varietal Replacement during 1990-2010	IRRI	456,905.50
Phenotyping for yield potential component traits	IRRI	491,275.25
Foundation Experiment for Analysis and modeling of key yield potential traits	IRRI	320,474.98
Enhancing Knowledge Exchange and Decision-Making among Rice Stakeholders through the Development and Promotion of Location-Specific Rice Knowledge Products and Delivery Systems (Cyber-Village Project Phase 2)	IRRI	93,000.00
The Deployment and validation of high beta carotene-rice varieties in the Philippines and Bangladesh to combat Vitamin A deficiency	IRRI / Bill and Melinda Gates Foundation	13,935,628.95
Remote Sensing-Based Information and Insurance for Crops in Emerging Economies (RIICE)	IRRI/SARMAP	419,690.05
Technical Cooperation Project 5 (TCP5), "Rice-Based Farming Technology Extension Project for the Autonomous Region in Muslim Mindanao"	Japan International Cooperation Agency (JICA)	12,477,678.61
Seasnn-Long Rice Farming Training for Extension Agronomists (Sub-Saharan Africa)	JICA through IRRI	8,212,573.83
Interaction between Soil Stresses and Root - Related Traits QTL in Rainfed Lowland and Upland Rices	Nagoya University, Japan	613,885.85
National Irrigation Sector Rehabilitation and Improvement Project (NISRIP)	National Irrigation Administration	3,999,075.00
Efficacy of Microbial-based Biofertilizer on Rice: Assessment of their nitrogen Fixation Using Isotope Dilution Technique	Philippine Nuclear Research Institute	18,000.00
Breeding Heat-Tolerant Rice	The International Technical Cooperation Center (ITTC), Rural Development Administration (RDA), Republic of Korea	5,936,121.58
Implementation of the CoCoPal Project	United States Dept. of Agriculture (USDA) through ACDI/VOCA	15,876,648.72
National Cooperative Tests	ADVANTA	120,000.00
National Cooperative Tests	Bayer CropScience Inc. (Aventis)	810,000.00
National Cooperative Tests	BMC Comworld Breeding System Corporation	717,000.00
National Cooperative Tests	DevGen Philippines	696,000.00
National Cooperative Tests	Seedworks India	5,000.00
Study to Investigate the Effect of Yield Increases Observed from Yara Rice Fertilizer Programs in the Philippines	Yara Fertilizer Philippines, Inc.	416,142.00
TOTAL		P177,502,680.40

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Philippine Rice R&D Highlights 2010
Milestones 2011
Rice Science for Decision Makers, Vol. 1 No. 2 December 2010: Capacitating Farmer-Partners and Stakeholders for an Improved Rice Supply: Delivering the Promise through High-Quality Seeds (HQS)
Rice Science for Decision Makers, Vol. 2 No. 3 November 2011: Pushing for Brown Rice Consumption among Low- and Middle-Income Families
PhilRice Magazine Vol. 24, No. 2 April to June 2011: Upland Rice Farming, at what cost?
PhilRice Magazine Vol. 24, No. 3 July to September 2011: Golden Rice could help save kids from Vitamin A deficiency and blindness
Milestones 2010
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PhilRice Magazine Volume 25, No. 3 July to September 2012: Putting the Pieces Together through Partnerships
DNA Fingerprinting in Hybrid Rice: Its Applications in Varietal Purity Testing

Plant Variety Protection

PR 32220-16-B-1-2 - Dr. Norvie L. Manigbas, Thelma F. Padolina, Emily C. Arocena, Wilhelmina V. Barroga, and Leslie Angela F. Lambio

PR37273-5-16-5-2-1-2-1 - Thelma F. Padolina, Rustum C. Braceros, Jose A. Orcino, Gloria M. Osoteo, Emily C. Arocena, Dr. Norvie L. Manigbas, and Leslie Angela F. Lambio

PR35766-B-24-1 - Thelma F. Padolina, Emily C. Arocena, Jose A. Orcino, Gloria M. Osoteo, Rustum C. Braceros, Alvin Quiel C. Sabanal, Dr. Norvie L. Manigbas, Leslie Angela F. Lambio

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PR37598-9-3-2-3-2-B - Dr. Norvie L. Manigbas, Thelma F. Padolina, Emily C. Arocena, Wilhelmina V. Barroga, Leslie Angela F. Lambio

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Department of Agriculture
Philippine Rice Research Institute
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We are a chartered government corporate entity 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.

We accomplish this mission through research and development work in our central and seven branch stations coordinating with a network that comprises 57 agencies and 70 seed centers strategically located nationwide.

To help farmers achieve holistic development, we will pursue the following goals in 2010-2020: attaining and sustaining rice self-sufficiency; reducing poverty and malnutrition; and achieving competitiveness through agricultural science and technology.

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

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