

2014 NATIONAL RICE R&D HIGHLIGHTS

FUTURE RICE PROGRAM

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FUTURERICE PROGRAM

Program Leader: Roger F. Barroga

I. Knowledge Management of CGPS4CSR Technologies

RF Barroga

This project is the first of its kind. It basically aims to collect information on the application of Clean GPS technologies including farm innovations on natural farming practices to advanced tools and techniques. It also includes collection of success stories on agritourism and agriprenurship ventures in the Philippines to serve as inspiration to rice stakeholders especially to the younger generation of rice farmers. Its main strategy is to conduct farm visitations, interviews, photo documentation and feature writing.

Scanning, Collection, and Database of CGPS4CSR

WHernandez, RF Barroga

The main purpose of this study is to gather smart farming solutions for future farming scenarios. It embraces the strategies of linking with other government agencies and corporations with similar advocacies, researching through farm visitations and interviews with successful local agritourism and agriprenurship icons as well as online research of natural to advanced farming innovations – from such data gathering, the team created a database of smart farming practices as well as a book encapsulating relevant information and stories which will primarily serve as an informative and motivational tool for rice stakeholders.

Highlights:

- In pursuit of its advocacy of gathering smart solutions for future farming scenarios, the FutureRice Program have conducted nine (9) local farm visitations. The farm visits included ocular exposure to Clean GPS technologies, lecture on the establishment and practice of smart farming innovations as well as interview with key people who are involved in farm management.
 - a. Costales Nature Farms is a 5-hectare land situated in Majayjay, Laguna which primarily showcases organic farming practices in vegetable production and livestock. It offers farm tour packages and trainings and it also distributes organic products locally.



b. Herbana Farms is a 4-hectare ecological and organic farm located in Calamba Laguna which specializes in the production of organic salad greens, organic pigs, free-range chickens, and tilapia aquaculture. It is owned and managed by Mr. Gil Carandang, a Fulbright scholar and mentor in organic and biodynamic farming.



c. Mangarita Organic farm in Capas, Tarlac, is a community initiative of Sibol ng Agham at Teknolohiya, Inc. (Sibol), a non-government organization that promotes the use of renewable and sustainable energy. In this farm, crop and animal integration technologies are showcased to highlight the economic and ecological nature of sustainable agriculture.



d. Gourmet Farms, Inc. is located in Silang, Cavite. They are known for their organic salad greens and herbs. Among their primary farm components are windmill, greenhouse facility and vermiculture.



e. EastWest Permaculture Farm, located in San Ildefonso Bulacan, is one of Asia's leading vegetable seed company. It sells ready-to-farm hybrid seeds and seedlings in over 60 countries worldwide.



f. Laur Farm, situated in Nueva Ecija, has 4 hectares of rice field. This farm also features diversified farming practices such as vegetable and mushroom production, fruit trees planting, livestock raising and vermicomposting. Laur Farm also offers trainings and hands-on exposure trips. It is known for its productive rice planting using hybrid seeds and panting machines.



g. Duran Farm specializes in vegetable seedlings production like tomatoes, pepper, and eggplant. Their primary service offered is planting seedlings for contract growing. The greenhouse facility is maximized as the seedlings have sure buyers in the market. The 3.6ha farm area houses vegetable production facilities, livestock, dormitories, fishpond, and water impounding system and play seed production.



h. Don Bosco Multi-Purpose Cooperative in Mlang, North Cotabato started its operations from a grant money provided by Don Bosco Foundation. It houses the Bios Dynamis brand in the market, popular for its biodynamic rice, cleansing teas and soap products.



i. ACES Farm in Panabo City, Davao del Norte performs the whole value chain operation in the farm. They do the production, packaging and marketing of the products. They have specialized training program that teaches crop and livestock production including the economic aspects. It houses organic livestock, vermicomposting, lettuce production, organic concoctions, feed pellets, accommodation, training center and product packaging facility.



- Publishing a book on agritourism: “Agritourism Farms in the Philippines”. This book encapsulates the smart farming practices gathered from the farm visits conducted by the FutureRice team in 8 local farms. It aims to serve as an inspirational and informative material for rice stakeholders to encourage them incorporate the Clean GPS practices in their own farm and at the same time venture into other creative

agripreneur and agritourism livelihood opportunities featured herein. The overall goal is to help farmers increase yield through the many available techniques without compromising environmental concerns.



II. Advocacy and Capacity Building

WHernandez

This project aims to promote the FutureRice Program to various rice stakeholders by showcasing natural farming and cost reducing technologies in the farm. It also aims to provide aid to the farmers to avoid the harmful farming practices and at the same time assist them in increasing their yield through the distribution of educational materials and other promotional efforts. This program will also establish links with private corporations with CSR programs related to agriculture to reinforce our initiatives.

Courseware Development for Rice Academy

RFBarroga, WHernandez

This study focuses on creating an inventory of existing technologies of smart and productive rice planting through multi-media documentation. The main purpose of this initiative is to develop a courseware material that offers information on natural farming, mechanization, alternative energy and farm automation to produce a new breed of rice extensionists.

Highlights:

- The FutureRice team conducted nine (9) visits to local smart farms (also see Knowledge Management of CGPS4CSR Technologies) that subscribe to Clean GPS practices. The farm visits included trainings and exposure trips. The information

obtain were documented to later on be used in the development of a courseware material.

- The FutureRice Program also conducted rice transplanting and harvesting activities on January 10 and April 15, 2014 to PhilRice staff and interns to reinforce its advocacy of increasing awareness for smart and sustainable farming practices.



- FutureRice staff Marian Anora and Wendy Hernandez attended training on organic farming; Jose Angat in mushroom production; Jomar Bildua, Sonny Josen, Jose Angat in SRI technology; Jomar Bildua in biogas digester operation.



- FutureRice staff also attended in KEC conference, Science and Technology exhibit and SEARCA Agritourism conference



- To reinforce its rice academy component, the program also established a collaboration with the Project IPaD. The FutureRice farms serves as the rice boot camp of rice extensionist trainees or AgRiDOCs, providing plots for their manual and mechanized rice transplanting and vegetable production. The Project IPaD donated 1million pesos to the program to be used for the construction of learning sheds and training center.



III. Promotion of CGPS4CSR in farming communities

RF Barroga, WHernandez

This study aims to promote the FutureRice Program to rice stakeholders to raise awareness for its primary advocacies on smart and sustainable farming practices. With the advent of the internet, the program will capitalize on this tool to reach its target audience while still using the traditional means of wide-scoped communication which are print materials.

Highlights:

- The program was able to produce billboards, variety labels and other farm site signage and promotional or informative collaterals such as brochures, leaflets, stickers, and cap patches.



- To effectively reach its target audience especially the younger generation of agriculturists or rice stakeholders, FutureRice also established its presence in the social media by creating a Facebook page ([Facebook.com/FutureRice](https://www.facebook.com/FutureRice)), gmail account (TheFutureRiceProgram@gmail.com) and blog (futurerice.blogspot.com).



- The FutureRice also invited barangay officials of Maligaya and Mabini to showcase mechanized harvesting equipment during the October field day. The demonstration also included ocular visit in the vermicomposting facility which uses rice straw.



- The FutureRice also submitted trade name application to IPO and filed the Declaration of Actual Use.



IV. Creating an ICT solutions catalogue for farm automation *NLCaballong, RFBarroga*

Integrating Information and Communication Technology (ICT) in the farming system requires analyzing underlying key concepts by which farming discipline is anchored. Through Soft Systems Methodology (SSM), all possible ICT mechanisms were identified and fitted to appropriate farming domain category (production or management) and vice versa. This brought out an inventory of existing and new ICT product concepts that can suit to certain farming knowledge area (Figure 1). Creating such basis can help not only ICT but also other technologies develop innovations that will bridge gaps to improve farming not just as a production entity but an enterprise, as a whole.

Highlights:

- Existing ICT products available for farmer use: knowledge banks e.g. PinoyRKB-PhilRice; diagnostic applications e.g. MOET-PhilRice, and Crop Nutrient Manager-IRRI,PhilRice; automatic weather logger; expert link text messaging service e.g. PhilRice and ATI.
- Industry-based products that when customized will fit in the farming system: software application development for activity monitoring, enterprise resource management, marketing, and security among others; unmanned aerial vehicle (UAV) for remote sensing, data capture, and mapping; satellite remote sensing; automatic weather station system; text messaging service for market price alerts; e-community centers; social media network platform for agriculture supply chain;
- Developing ICTs ready for agriculture research and product development: sensor systems; global positioning system (GPS); robotics; intelligent systems; telecommunication; image and acoustic analysis; open-source microcontrollers;
- Farm automation will be the unique selling point of the FutureRice program – as it prepares for globalization and knowledge based competition. This catalogue will be the basis for FutureRice’s farm automation projects.

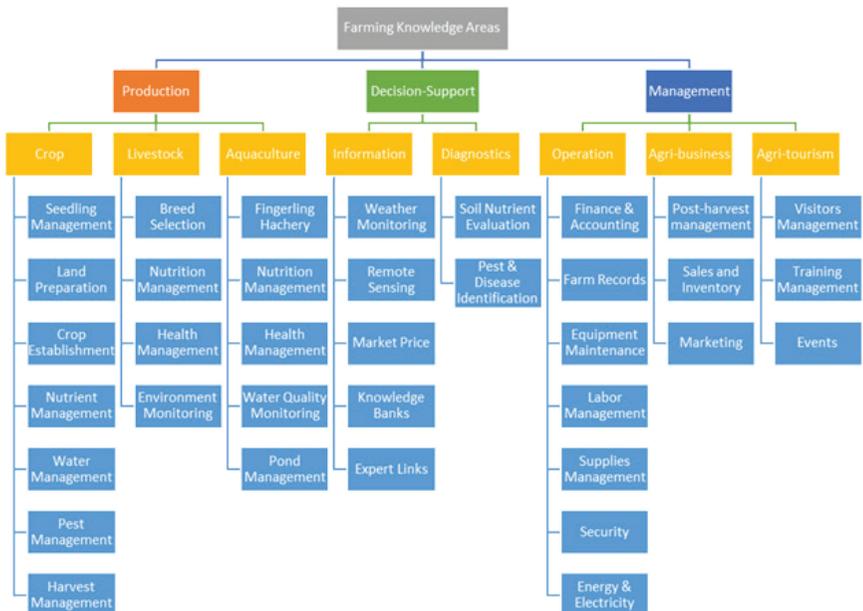


Figure 1. Inventory of farming knowledge areas where ICT can intervene

Abbreviations and acronyms

ABA – Abscisic acid	EMBI – effective microorganism-based inoculant
Ac – anther culture	EPI – early panicle initiation
AC – amylose content	ET – early tillering
AESA – Agro-ecosystems Analysis	FAO – Food and Agriculture Organization
AEW – agricultural extension workers	Fe – Iron
AG – anaerobic germination	FFA – free fatty acid
ALS – Agricultural Information System	FFP – farmer’s fertilizer practice
ANOVA – analysis of variance	FFS – farmers’ field school
AON – advance observation nursery	FGD – focus group discussion
AT – agricultural technologist	FI – farmer innovator
AYT – advanced yield trial	FSSP – Food Staples Self-sufficiency Plan
BCA – biological control agent	g – gram
BLB – bacterial leaf blight	GAS – golden apple snail
BLS – bacterial leaf streak	GC – gel consistency
BPH – brown planthopper	GIS – geographic information system
Bo - boron	GHG – greenhouse gas
BR – brown rice	GLH – green leafhopper
BSWM – Bureau of Soils and Water Management	GPS – global positioning system
Ca - Calcium	GQ – grain quality
CARP – Comprehensive Agrarian Reform Program	GUI – graphical user interface
cav – cavan, usually 50 kg	GWS – genomwide selection
CBFM – community-based forestry management	GYT – general yield trial
CLSU – Central Luzon State University	h – hour
cm – centimeter	ha – hectare
CMS – cytoplasmic male sterile	HIP - high inorganic phosphate
CP – protein content	HPL – hybrid parental line
CRH – carbonized rice hull	I - intermediate
CTRHC – continuous-type rice hull carbonizer	ICIS – International Crop Information System
CT – conventional tillage	ICT – information and communication technology
Cu – copper	IMO – indigenous microorganism
DA – Department of Agriculture	IF – inorganic fertilizer
DA-RFU – Department of Agriculture-Regional Field Units	INGER - International Network for Genetic Evaluation of Rice
DAE – days after emergence	IP – insect pest
DAS – days after seeding	IPDTK – insect pest diagnostic tool kit
DAT – days after transplanting	IPM – Integrated Pest Management
DBMS – database management system	IRRI – International Rice Research Institute
DDTK – disease diagnostic tool kit	IVC – in vitro culture
DENR – Department of Environment and Natural Resources	IVM – in vitro mutagenesis
DH L– double haploid lines	IWM – integrated weed management
DRR – drought recovery rate	JICA – Japan International Cooperation Agency
DS – dry season	K – potassium
DSA - diversity and stress adaptation	kg – kilogram
DSR – direct seeded rice	KP – knowledge product
DUST – distinctness, uniformity and stability trial	KSL – knowledge sharing and learning
DWSR – direct wet-seeded rice	LCC – leaf color chart
EGS – early generation screening	LDIS – low-cost drip irrigation system
EH – early heading	LeD – leaf drying
	LeR – leaf rolling
	lpa – low phytic acid
	LGU – local government unit

- LSTD – location specific technology development
 m – meter
 MAS – marker-assisted selection
 MAT – Multi-Adaption Trial
 MC – moisture content
 MDDST – modified dry direct seeding technique
 MET – multi-environment trial
 MFE – male fertile environment
 MLM – mixed-effects linear model
 Mg – magnesium
 Mn – Manganese
 MDDST – Modified Dry Direct Seeding Technique
 MOET – minus one element technique
 MR – moderately resistant
 MRT – Mobile Rice TeknoKlinik
 MSE – male-sterile environment
 MT – minimum tillage
 mtha⁻¹ - metric ton per hectare
 MYT – multi-location yield trials
 N – nitrogen
 NAFC – National Agricultural and Fishery Council
 NBS – narrow brown spot
 NCT – National Cooperative Testing
 NFA – National Food Authority
 NGO – non-government organization
 NE – natural enemies
 NIL – near isogenic line
 NM – Nutrient Manager
 NOPT – Nutrient Omission Plot Technique
 NR – new reagent
 NSIC – National Seed Industry Council
 NSQCS – National Seed Quality Control Services
 OF – organic fertilizer
 OFT – on-farm trial
 OM – organic matter
 ON – observational nursery
 OPAG – Office of Provincial Agriculturist
 OpAPA – Open Academy for Philippine Agriculture
 P – phosphorus
 PA – phytic acid
 PCR – Polymerase chain reaction
 PDW – plant dry weight
 PF – participating farmer
 PFS – PalayCheck field school
 PhilRice – Philippine Rice Research Institute
 PhilSCAT – Philippine-Sino Center for Agricultural Technology
 PHilMech – Philippine Center for Postharvest Development and Mechanization
 PCA – principal component analysis
 PI – panicle initiation
 PN – pedigree nursery
 PRKB – Pinoy Rice Knowledge Bank
 PTD – participatory technology development
 PYT – preliminary yield trial
 QTL – quantitative trait loci
 R - resistant
 RBB – rice black bug
 RCBD – randomized complete block design
 RDI – regulated deficit irrigation
 RF – rainfed
 RP – resource person
 RPM – revolution per minute
 RQCS – Rice Quality Classification Software
 RS4D – Rice Science for Development
 RSO – rice sufficiency officer
 RFL – Rainfed lowland
 RTV – rice tungro virus
 RTWG – Rice Technical Working Group
 S – sulfur
 SACLOB – Sealed Storage Enclosure for Rice Seeds
 SALT – Sloping Agricultural Land Technology
 SB – sheath blight
 SFR – small farm reservoir
 SME – small-medium enterprise
 SMS – short message service
 SN – source nursery
 SSNM – site-specific nutrient management
 SSR – simple sequence repeat
 STK – soil test kit
 STR – sequence tandem repeat
 SV – seedling vigor
 t – ton
 TCN – testcross nursery
 TCP – technical cooperation project
 TGMS – thermo-sensitive genetic male sterile
 TN – testcross nursery
 TOT – training of trainers
 TPR – transplanted rice
 TRV – traditional variety
 TSS – total soluble solid
 UEM – ultra-early maturing
 UPLB – University of the Philippines Los Baños
 VSU – Visayas State University
 WBPH – white-backed planthopper
 WEPP – water erosion prediction project
 WHC – water holding capacity
 WHO – World Health Organization
 WS – wet season
 WT – weed tolerance
 YA – yield advantage
 Zn – zinc
 ZT – zero tillage

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Figure 1. Inventory of farming knowledge areas where ICT can intervene

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