PHILIPPINE RICE R&D HIGHLIGHTS 2012

Irrigated Rice Research Consortium Phase IV

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The Irrigated Rice Research Consortium (IRRC) was established to assist farmers in irrigated rice-based systems to achieve increased profitability, food security, and environmental suitability. One of the five workgroups of the IRRC is the water-savings group which strives to develop technologies for increased productivity under water-scarce conditions or producing the same quantity of rice with lesser water. During Phase I – III, activities were more on technology generation, on-site demonstrations, and adaptability trials. The two main technologies generated were (1) alternate wetting and drying (AWD) and (2) aerobic rice culture.

In Phase III, much of the work had been on dissemination of these two technologies, exploiting partnerships aimed at creating synergy among involved organizations. For AWD, the approach found to be working well is farmer participatory approach, establishing side-by-side plots practicing AWD and the farmer's practice of continuous flooding. In addition, capacity building for the farmer cooperators was conducted. Practical implementation of AWD was facilitated using a simple tool called a "field water tube"or "observation well" as a reference if irrigation water has to be applied to the rice crop.This was first done in pump irrigated areas in Tarlac and later in Division I of NIA-UPRIIS in 2007-2008. The results of the technology demonstrations in these areas gave a very good result confirming a reduction of about 15% to 30% irrigation water without any yield penalty specifically at the UPRIIS area.

In Phase IV, the system level dissemination or scaling out started in 2009 at the Upper Pampanga River Integrated Irrigation System (UPRIIS) with a service area of about 110,000 ha. Then in 2010 onwards, it was disseminated in Regions 2, 12, Cordillera Administrative Region (CAR), and Magat River Integrated Irrigation System (MARIIS) in Region 2. Prior to the scaling-out, a policy support was drafted by a Technical Working Group (TWG) and later issued by the DA Secretary – Dept. of Agriculture Administrative Order No 25 in November 2009. Four island-wide public consultations were held from June to August participated in by about 360 stakeholders. They are officials from the National Irrigation Administration (NIA), water users, Irrigators' Associations (IAs), regional and provincial agriculture offices, and representatives from state universities and colleges in the different regions nationwide. The AO provided the guidelines on the adoption of water saving technologies in all irrigation systems in the country.

Highlights:

- About 30% of the farms in UPRIIS have adopted AWD since 2009 due to the system wide implementation in the area. As of 2012, a total of 70 IAs comprising of 13,213 farmers with a total farm area of 17,841ha are adopting AWD;

- A total of 1,488 participants comprised of members and leaders of IAs, and technical staff from NIA had participated in during the conduct of 42 training of trainers/appreciation seminars and on-site briefings on water-saving technique and other IRRC technologies in Regions 2, 3, CAR, 12, UPRIIS, and MARIIS from 2010 to 2012;

- One national appreciation seminar on rice production technologies with emphasis on AWD was conducted for the top officials of NIA-Central with 40 participants;

- A total of 365 observation wells were distributed to 26 IAs covering farm area of 6,204ha in MARIIS. A total of 2,026ha with 1,350 farmers adopted AWD in Pumps 1 and 2, and Ladeco main canal in 2010;

- A total of 45 observation wells were distributed in the three irrigation systems in Cotabato as part of the technology demonstrationfarm of AWD in the area in 2010. A TOT for the partner-implementers with 20 participants was also conducted;

- A total of 17 techno-demo sites were established in CAR covering Apayao, Kalinga, and Ifugao in 2010. Based on the data submitted by the regional field unit of NIA-CAR, an estimated total of 10,904ha with 10,888 farmers adopted AWD.

- A paper and poster presentation of the AWD dissemination of the project won 2nd and 3rd place, respectively, during the 2nd Annual National Convention and 23rd Philippine Agricultural Engineering Week, 23-27 April 2012, Puerto Prinsesa City, Palawan.

- One MS graduate successfully finished MS in Agricultural Engineering, with thesis funded and supported by IRRC through the water-savings workgroup;
- The IRRC Phase IV Final Workshop and Steering Committee Meeting were held in Vientiane, Lao PDR in November 2012 to showcase outcomes and impact of the project.

Abbreviations and acronymns

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

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

Department of Agriculture

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PHILIPPINE RICE RESEARCH INSTITUTE

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, cost-reducing, and environment-friendly 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 58 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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