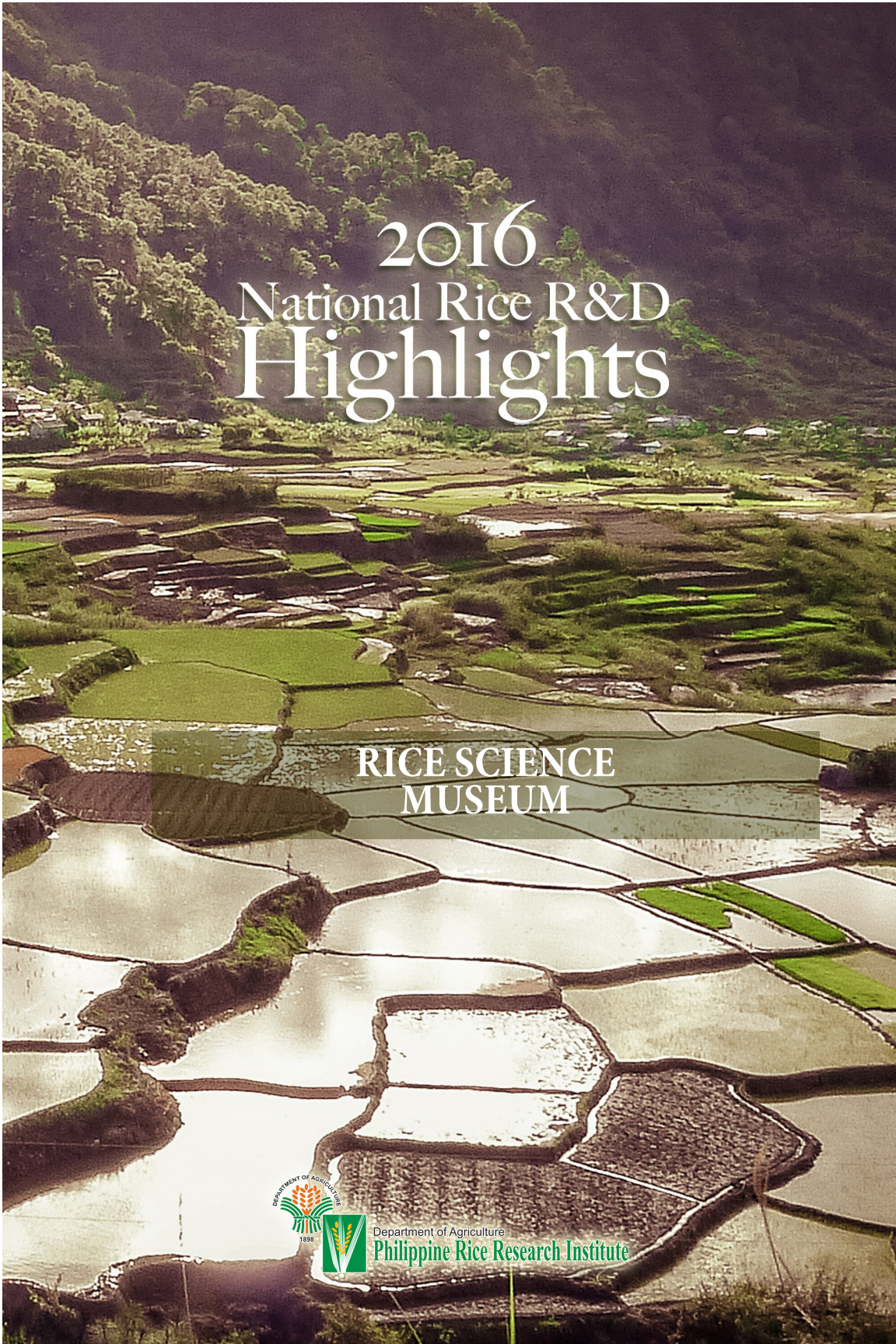

2016 National Rice R&D Highlights

RICE SCIENCE MUSEUM

Department of Agriculture
Philippine Rice Research Institute

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The Rice Science Museum

Project Leader: DG Esmero

From a museum merely holding an exhibit of few collections from the Cordillera, the Rice Science Museum is now a development initiative promoting rice science and technology, and in fostering adoption of new farming practices. Other than the farmers, the museum also became a venue where the youth, foreigners from fellow rice-producing countries, and the general public can be engaged in agriculture and rice farming.

As an active, innovative form of extension, the museum had reached mothers, farmers, and the young sector to know more about healthier form of rice, new farm technologies, and appreciate the agriculture and rice sector. Visitors from Japan, Nepal, and Korea had learned about rice production in the Philippines through their visit.

From an average of 2,000 monthly visitors last year, the visitors doubled this 2016 with tours peaking in September-October. The increase in visitors can be attributed to promotional activities through mobile exhibits, partnerships, accreditation from the Department of Tourism, and TripAdvisor enlistment, which currently ranked the museum as 9 of the 14 things to do in Nueva Ecija.

Social Influence of the Rice Science Museum: Characterization of Interactive Learning Behavior of Museum Visitors

FGEManuel, DGEsmero, CLBGado, and HUGandeza

The Rice Science Museum had been receiving a lot of visitors since it was re-launched in September 3, 2014. These visitors were from various audience groups ranging from elementary school students, high school and university students, professionals from different agencies to farmers and even religious groups. Based on our observations as docents, we felt that there is a need to have a deep analysis and study on the learning behaviors of the visitors so that we can meet their interests and the learning objectives of the museum.

This way, we can come up with a more effective delivery of learning experience for visitors from various audience groups. The study aims to (1) understand the learning behaviors of museum visitors and improve museum display and arrangement based on learning behavior; (2) identify the social processes in museum setting; (3) define the social influence of museum among its visitors.

Activities:

- Evaluated feedback of museum visitors based on the feedback evaluation forms. A feedback form was developed and is given to visitors throughout the exhibit.

- Conducted informal interviews with visitors. Interviews are conducted informally while visitors are going around the museum. Conversations among museum visitors and docents were also noted.

- Developed work plan for the museum exhibits. Based on the observed learning behavior and interests of museum visitors, a work plan for more effective delivery of learning through the exhibits is to be developed.

Results:

- Majority of museum visitors per month were farmers and extensionists, government officials especially from the LGU and students, usually college students.

- Based on the feedback forms from museum visitors, the most interesting section of the museum for visitors is the material culture section.

- However, it was noted that most farmers spend more time on the display of seed varieties and machines. Current displays focus on climate-change ready varieties. Farmers are also interested in the machines, and come up with ideas how they or their group can invest on machines to speed up their rice production process.

Making Sense of Rice Science: Development of Multisensory Media Exhibits through the Seven Arts

CLBGado, DGEsmero, FGEManuel, HUGandeza, and CNBibal

For technologies and practices to be adopted and used, the science and principles governing them must be understood. Curtis, Reid and Ballard (2012) have strongly noted the importance of using art as another medium of presenting science and scientific research to the public. The Rice Science Museum, as a science museum, aims to make knowledge easily understandable, accessible, and available to the public. Thus, this study, will develop a creative multisensory rice portfolio through the seven arts: 1) Visual Arts such as painting, sculpture, photography, and installation; 2) Music; 3) Dance; 4) Architecture; 5) Film/Cinematography and Videography; 6) Literature; and 7) Theater.

Activities:

- Launched the museum's major thematic and special exhibits:
  - Transformations in Progress at the Rice Science Museum in Nueva Ecija
  - Tawid at SM City Cauayan
  - Evolution of Novo Ecjijano's Rice Farming Systems and Filipino Costumes at Central Luzon State University (CLSU)
  - Balligi ni Mannalon (Farmers' Victory) at Balay Dingras, Ilocos Norte
  - Experience Rice at Assumption College
  - Healthy Rice at the Department of Agriculture
  - Colors of Rice at RiceWorld, Laguna
  - Rice and its Environment at Museo Pambata

- To help improve children's nutrition and encourage rice conservation in Science City of Muñoz, Nueva Ecija, a Rice-Based Food Art Contest was launched during the Nutrition Month, in which 37 rice-based nutritious recipes were developed.

- A video on Cultural History of Rice was launched in Nov. 3 during the exhibit launch of Evolution of Novo Ecjijano's Rice Farming Systems and Filipino Costumes. The 5-minute video was developed in partnership with Ateneo de Manila University.

- Conducted cultural studies on rice-based festivals: Carabao-Carroza, Pahiyas, and Kuliglig. Results of the study will be bases on presenting rice through the seven arts.

Results:

Exhibits

- About 90,000 viewers were reached by the exhibits. Visits to the Rice Science Museum, Rice World, and Museum Pambata total 72,000 a year while about 18,000 viewed the exhibits in SM City Cauyan, CLSU, Balay Dingras, Assumption College, and Department of Agriculture. Mobile exhibits are cost-efficient way of promoting rice science and technology as they are conducted during special events when large audience is expected to be gathered.

- Eight galleries were developed for the major exhibit: 1) Farmer's Corner: farmers' struggles in coping with changes and their unwavering duty in providing us with food, especially with rice; 2) Anong Akala Mo sa Brown Rice: facts and dispel misconceptions about this healthy rice; 3) Traditional Implements; 4) Transitions: chronicles rice from the precolonial era until the present; 5) Climate-change ready varieties; 6) Insects and 7) Ecological Engineering: recommended adaptive practice for climate change and insects that farmers have to identify well so they will know if there is a need to apply chemicals; and 8) PalaYamaNayon.

- Six new partnerships were forged from the exhibits: YanMar, SM City Cauayan, local and provincial government units of Science City of Muñoz, Nueva Ecija; Dingras Ilocos Norte; and Ilocos Norte, and IRRI Rice World. Partnerships with Ayala Museum, Center for the Central Luzon Studies of CLSU, and Museo Pambata were maintained.

- Displays in the regional museums in San Mateo, Isabela and Batc, Ilocos Norte were updated for the 2016 Station Field Days.

Cultural research

- Three rice-related festivals were included in the study: Pahiyas in Lucban, Quezon; Carabao-Carroza in Pavia, Iloilo; and Kuligligan in Bayombong, Nueva Vizcaya. The festivals were selected as they can provide a wide range of perspective from the 16th century until 2014.

- Our study noted the progression of agriculture system from solely rice – the Pahiyas, to the use of carabao – the Carabao-Carroza, and the gradual mechanization of the farm – the Kuliglig.

- Despite the passage of time, the communities staged the festivals as thanksgiving, form of entertainment, and to showcase the province's agricultural products. The celebrations follow the calendar of rice production culminating in the harvest time.

- The pressure of tourism and of promoting the festival to the youth brought changes to the celebration. Big companies are invited to sponsor the festivals to cover the decoration cost and women are staged in a competition to draw the youth's attention.

- Although festival organizers intend for the youth to understand the cultural value of the festival, most of the youth interviewed are not aware of the origin and reason of celebrating the festivals.

- Issues in staging the festivals include the expensive decoration cost and decreasing carabao population.

Mapping and Collection of Philippine Rice Material Culture of Major Rice Producing Provinces in the Philippines

DGEsmero, FGEManuel, CLBGado, HUGandeza, and CNBibal

More than its aesthetic purpose and being a repository of information on rice farming, the Rice Science Museum is an active participant in confronting issues of the rice sector in the country. One way to deal with these issues in the rice industry is to appreciate, study, and analyze the concrete relation between the rice plant and the farmer, and rice plant and the community per se. The story of the rice grain from being produced for subsistence to being a commercial good is tightly interwoven with the unfolding of the concrete culture of the rice farmer who produces it. Hence, it is imperative to understand the material culture of the farmer as it evolved through time and how such evolution serves as a continuing impetus and incentive to continue producing the nation's lone staple. By looking at these factors, we can analyze the significant objects used by the rice farmers in relation to rice production. We can also have a better understanding of the situation of rice farmers in relation to the technology they have used and are using. Considering that these materials were and are of importance to the farmers at a particular point in rice farming history, these objects can be recognized as a collection for the Rice Science Museum. These can be considered as objects for display as they have reflected the situation of farmers and the position of rice in the community, society, economy and culture. This study aims to (1) map out and document various objects/materials related to rice culture of the country; (2) serve as a background/symbols in understanding the culture and behavior of farmers regarding the use of various materials in rice production and post-production processing; (3) collect various artefacts for the planned Rice Exploratorium.

Activities:

- Provincial agricultural officer in Isabela and Ilocos Norte were interviewed for the initial data gathering. They were tapped to distribute the survey forms to the municipal agricultural officers in their monthly meeting.

- Conducted research with the Center for Central Luzon Studies of CLSU on the cultural materials found in the country's rice granary.

- Developed the Philippine Rice Material Culture Database of the Rice Science Museum and its regional branches

Results:

- About 60 questionnaires were distributed to the municipal agricultural officers in Isabela and Nueva Ecija.

- A monograph for rice material culture of Nueva Ecija was drafted
- Cultural materials were encoded in the database, which was launched on Nov. 3 during the Evolution of Novo Ecjijano's Rice Farming Systems and Filipino Costumes.

- 1 set of study guides on rice culture, science, and technology was drafted

Other than the accomplishments in the three studies, the Rice Science Museum also focused on publications, partnership, and promotions.

Publications

- Following papers were presented and submitted:
  - Empowerment Starts in their Early Youth: Molding the Future Leaders in Agricultural Industry (2016 Crop Science Society of the Philippines Conference).
  - Engaging the Youth Amidst Threats on Food Security and Transformation in Agriculture (#Kabataan Workshop of the Philippine Sociological Review).
  - Exploring new ways to engage the disinterested urban youth (2016 National Rice Research and Development).
  - Promotion and Conservation of Philippine Cultural Rice-scapes through Rice Science Museum (2016 National Rice Research and Development).
  - Promotion and Conservation of Philippine Cultural Rice-scapes through Rice Science Museum (Museum International Volume 72).
  - The Role of Arts in Engaging the Filipino Rural and Urban Youth in Agriculture (2017 International Convention for Asian Scholars).
  - Role of Rice Museum in Rice Research and Development, 3rd placer during the 2016 International Commission on Museums Conference.

Partnership and Promotions

- The Rice Science Museum assisted in developing the diorama for mobile exhibits of the National Food Authority Museum in Cabanatuan City.

- Our exhibits were featured in the Journalists' Bulletin, DWNE, The Media Messenger, Central Luzon Media Association, UNTV, CAB16, TV48, DZRH, Dahong Palay, DWAY, Radyo ng Bayan, Punto, Eagle News, Philippine Information Agency, and Radyo Natin.

- Our accreditation from the Department of Tourism was renewed and is now enlisted in TripAdvisor as rank 9 of the 14 travel destinations in Nueva Ecija.

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

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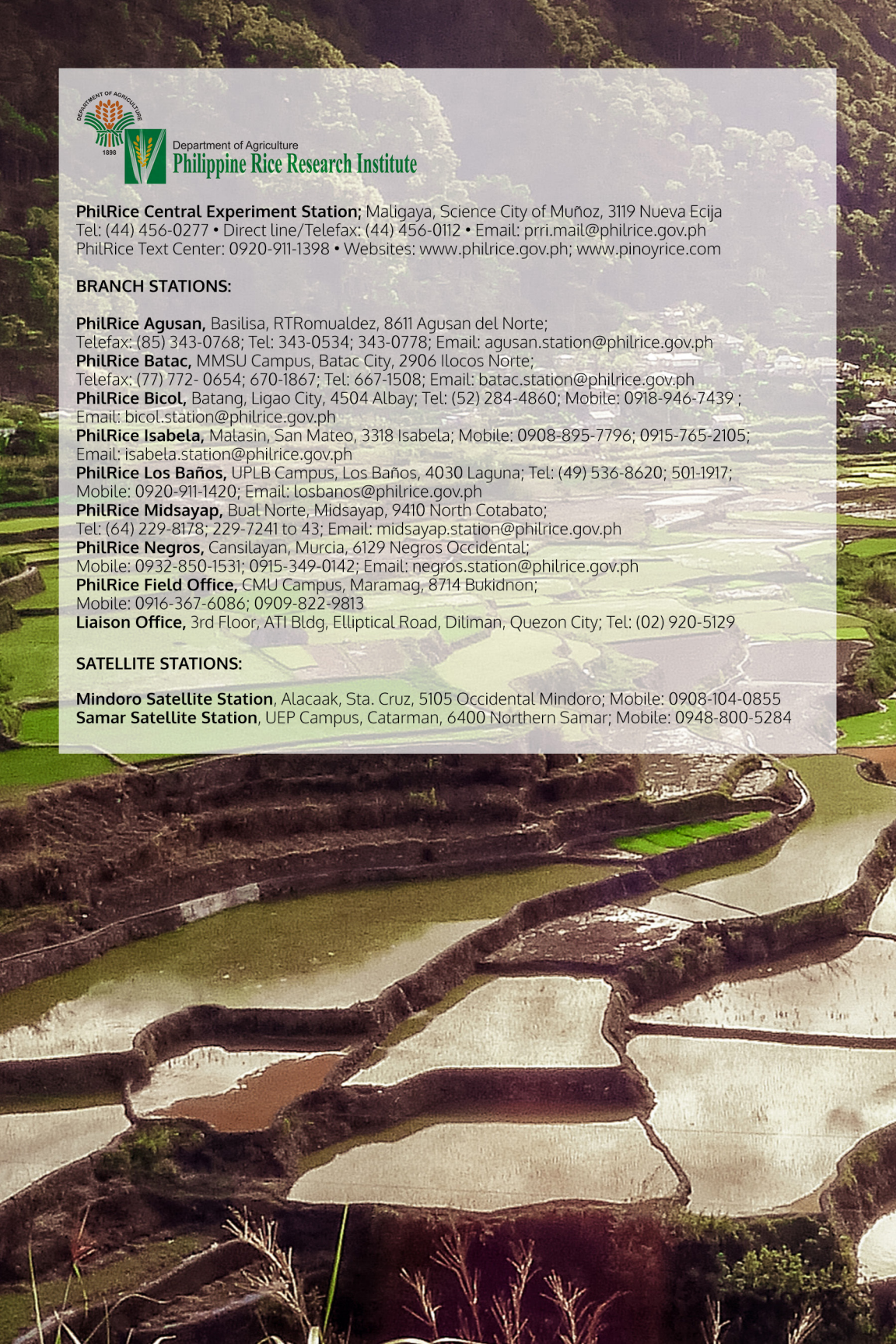

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