



Digital ag innovations for data-driven decision-making

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3 digital ag innovations in the Philippines



PRISM

- Satellite-based national rice monitoring system
- Operational since mid-2018

<https://prism.philrice.gov.ph>

Rice Crop Manager (RCM)

- Web and mobile platform that provides farmers with field-specific recommendations
- Transitioned to the DA

<https://rcm.da.gov.ph>

PRIME

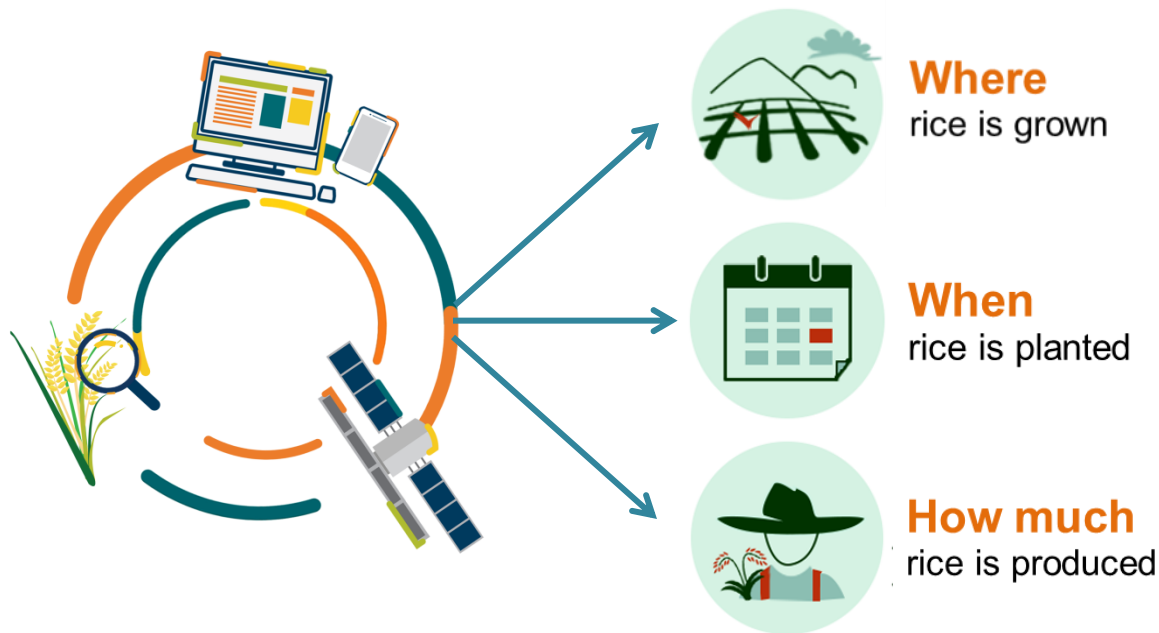
- Pest surveillance & risk mapping
- Pre-season & within-season pest advisories to reduce crop losses
- Sustainability plan for continued operation being developed

<https://pestrisk.da.gov.ph>

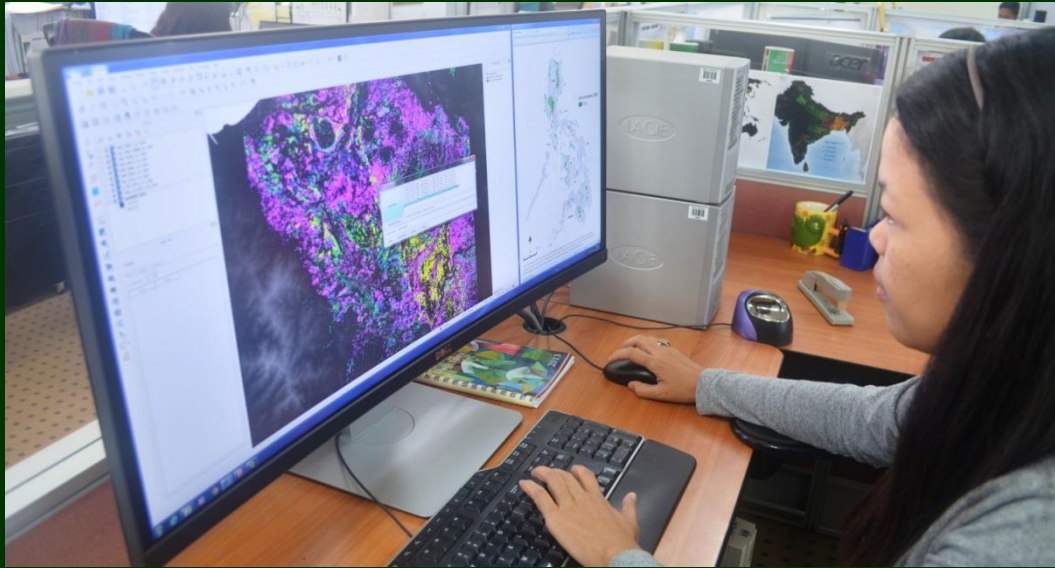


Improving food security through satellite information

We are using remote sensing, crop modeling, smartphone-based surveys and web platforms to generate information on rice.

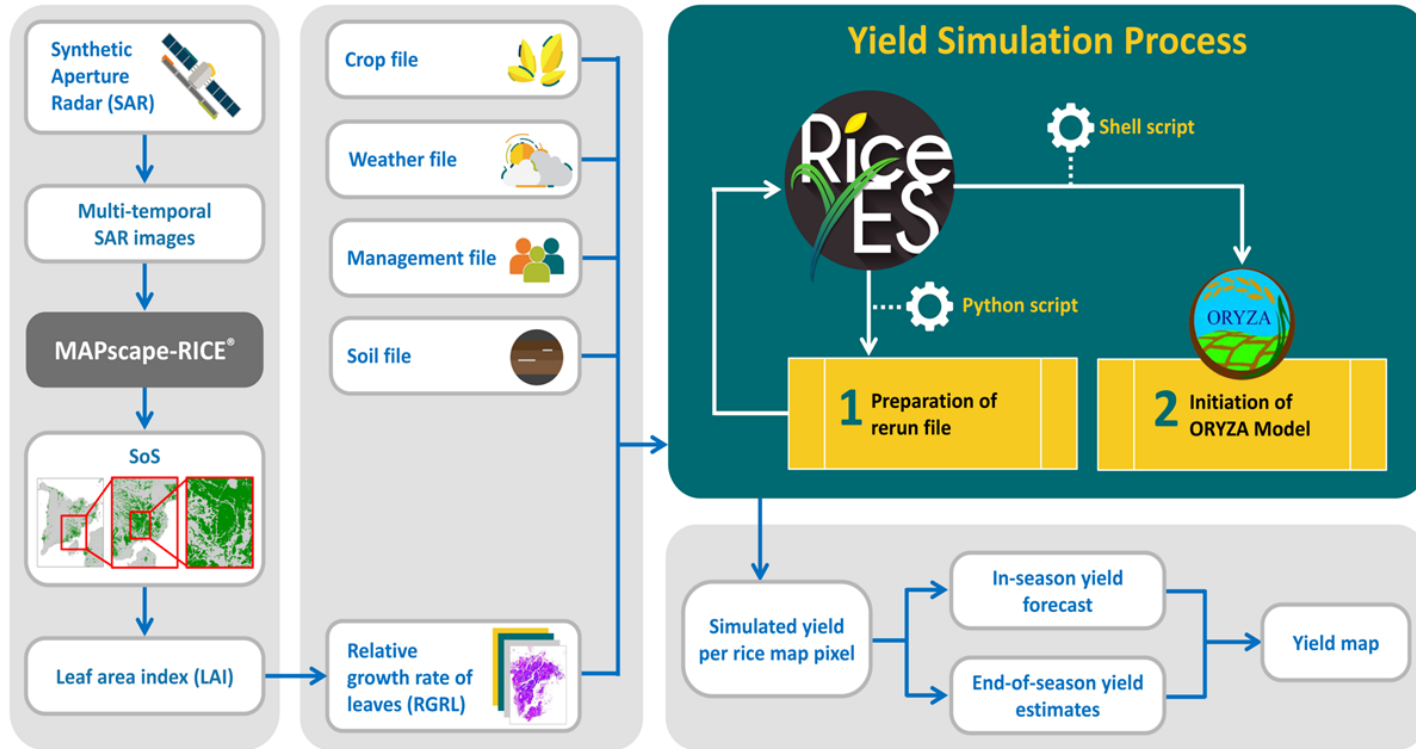


Rice area mapping and monitoring



Rice area is mapped using a time series Synthetic Aperture Radar and a rule-based rice detection algorithm
Nelson et al., 2014. Towards an Operational SAR-Based Rice Monitoring System in Asia. *Remote Sens* 6(11), 10773-10812

Rice yield estimation



Setiyono et al., 2019. Rice yield estimation using Synthetic Aperture Radar (SAR) and the ORYZA crop growth model: Development and application of the system in South and Southeast Asian countries, *Int J Remote Sens* 40(21), 8093-8124



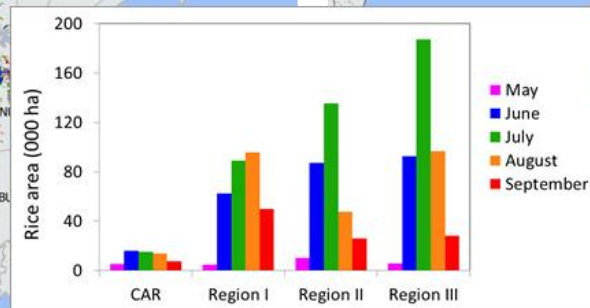
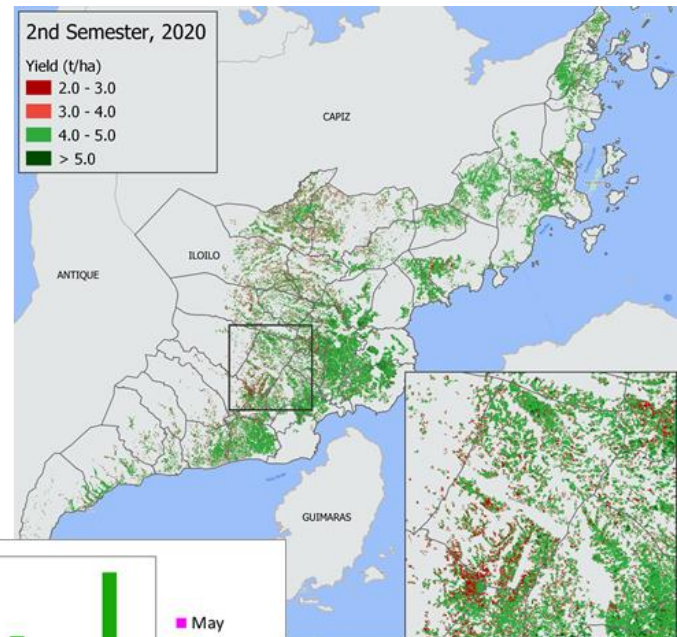
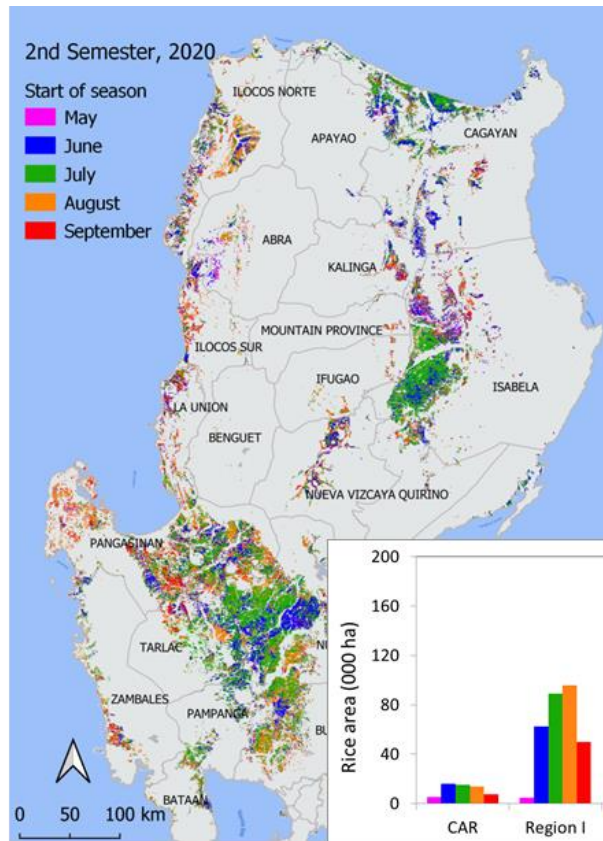
Where
rice is grown



When
rice is planted

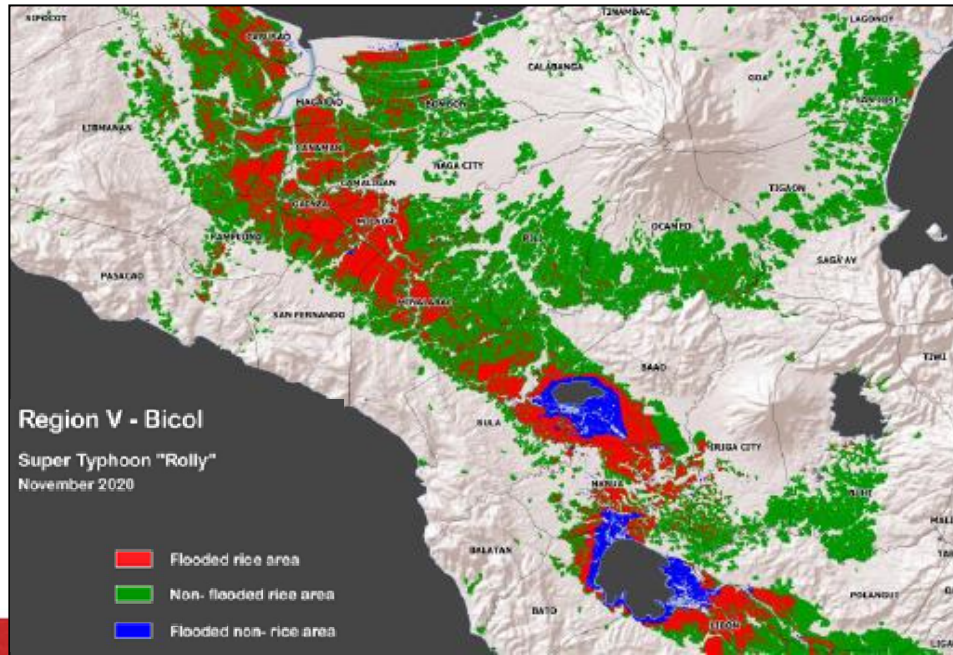


How much
rice is produced

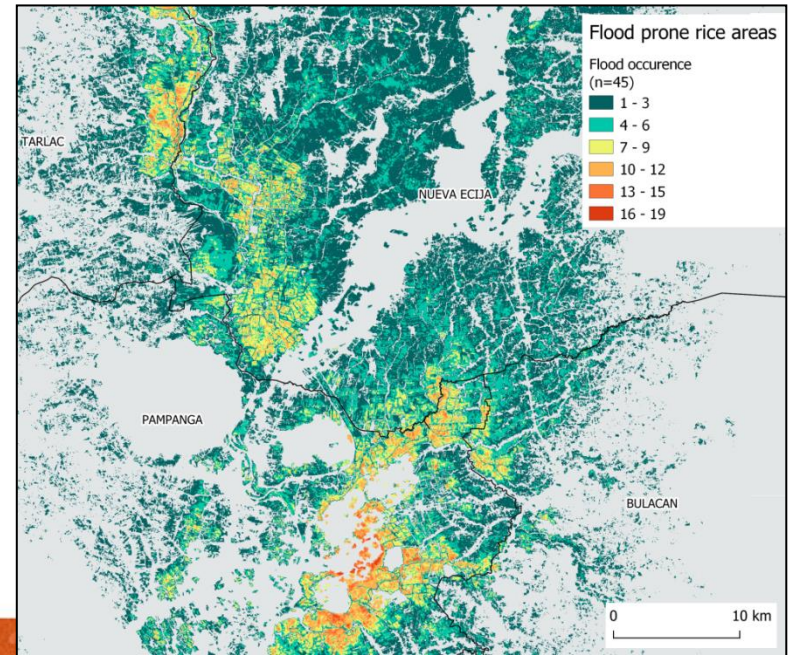


Damage assessment

Effect of Super Typhoon Goni in the Philippines (2020)



Flood-prone rice areas in the Philippines (2014-20)



From research to operation



Philippine government supports continued operation of satellite-based...

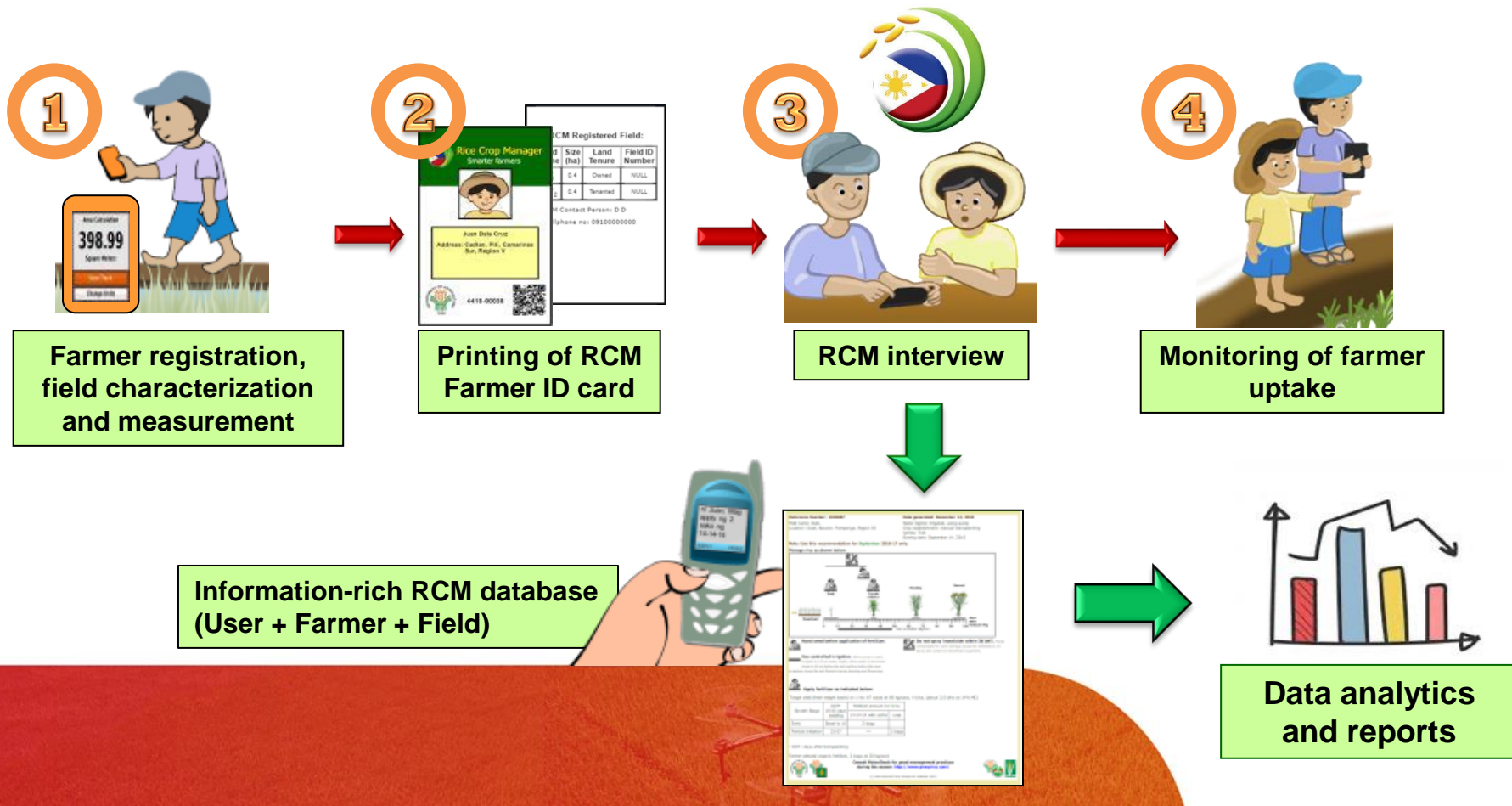
LOS BAÑOS, Philippines—"We are not done here because we still have a long way to go, and now our project will go into the hands of the real users,"...



- **R&D phase:** Oct 2013-Aug 2018
Funded by the Philippine DA
- **Operational phase:** 2018 and beyond
PRISM has been institutionalized within the DA and fully operated by PhilRice

<https://prism.philrice.gov.ph/>

Rice Crop Manager Advisory Service (RCMAS)




Field-specific recommendations

RICE CROP MANAGER PHILIPPINES


Reference ID: 361
 Pangalan ng magsasaka: Dolores Daguro Carumba
 Pangalan ng bukid: blagamon DCarumba dolores farm
 Lokasyon ng bukid: Potolan, Dingle, Iloilo, Region VI

Petsa ng paglikha: July 27, 2021
 Kondisyon ng bukid: May patubig, gumagamit ng bomba patubigan
 Paraan ng pagtatanim: Sabog-tanim
 Variety: NSIC Rc 222 (Tubigan 18)
 Sowing Date: July 30, 2021

***Tandaan: Gamitin itong rekomendasyon para sa Hulyo 2021**

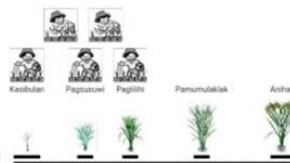
 Gumamit ng 30 hanggang 60 kg ng kalidad na binhi na may kasamang mabuting pamamahala sa kuhol para sa 0.75 ektaryang bukid.


Gumamit ng kontroladong pagpapatubig.
 Gumamit ng safe alternate wetting and drying (safe AWD). Tuwig magpapatubig maglagay ng 3-5 cm taas ng tubig; i-monitor ang lebel ng tubig gamit ang observation well; hayaang bumaba ang lebel ng tubig hanggang 15 cm mula ibabaw ng lupa bago muling magpapatubig. Siguraduhing may maayos na pangangasiwa ng damo kapag ang lebel ng tubig ay mababa. Panatilihin may tubig sa ibabaw ng lupa sa panahon ng pagsapaw ng palay hanggang matapos ang pamumalaklak.

 Huwag maglagay ng insecticide sa loob ng 30 araw pagkasibol
 Ang palay ay may kakayahang makabawi sa maagang pinsala ng maninira ng dahon. Napananatili din nang hindi pag-spray ang mga benepisyal na organismo.

Ang target na ani para sa Iyong Tektarya RMarineta test palayan ay
 134 sako, 25 kilo kada sako
 4.2 t/ha ((tuyong timbang ng palay))
 4.7 t/ha ((sariwang timbang ng palay))

Tamang panahon at paghahati ng abono na i-apply para sa Iyong palayan	Araw pagkalipat-tanim (15-22 araw)	Dami ng abono para sa 1 ektarya
Yugto ng paglaki ng palay		14-14-14 with sulfur Urea (46-0-0)
Kasibulan	Basal-10	3 sako at 36 kilo ---
Pagsusuzi	24-30	--- 46 kilo
Paglikha	41-47	--- 1 sako at 9 kilo





araw pagkalipat-tanim
 Practice Safe AWD

For questions, contact: Enica Benavides (09398043540)
 Consult PalayCheck for good management practices during the season <https://www.philrice.com/>

++Crop management:

- Use of quality seeds, seed rate and seedling age
- No early spray of insecticide
- Safe AWD; irrigation at flowering stage

Nutrient management:

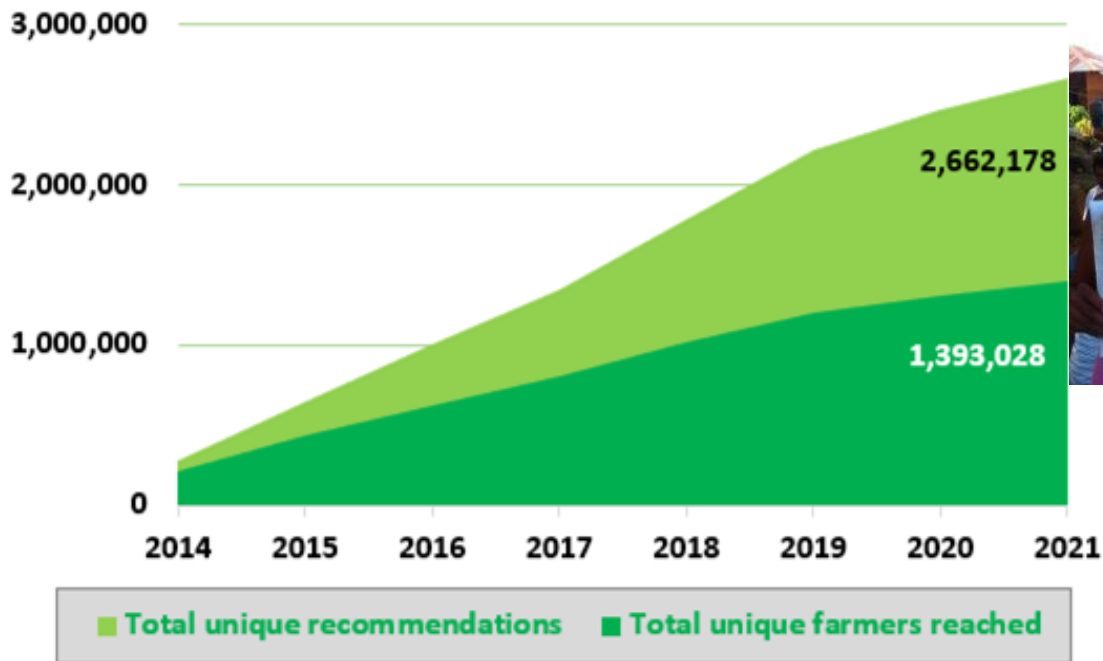
Right Source

Growth Stages	DAT* 15-22 days seedling	Fertilizer amount for 1 ha		
		14-14-14 with sulfur	urea	MOP
Early	Basal to 10	5 bags	---	---
Active tillering	21-25	---	2 bags	---
Panicle initiation	35-39	---	2 bags	1 bag

Right Timing

Right Amount

Use of RCM



- **2.7M** RCM recommendations generated since 2014
- **1.4M** farmers reached
- **58%** of farmer respondents affirmed that they followed most of the RCM recommendations (external M&E)
- RCM farmers earn **USD200/ha/season** higher net income

RCMAS data from January 1, 2014 to July 15, 2021





"It really helps me as a technician, because it readily generates a one-page recommendation right after the interview."

- Maribeth Halasan, AEW from Bohol

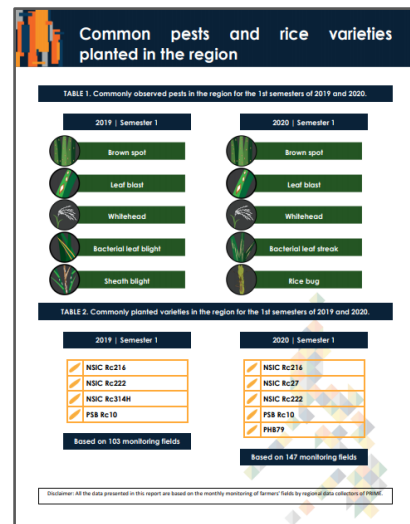
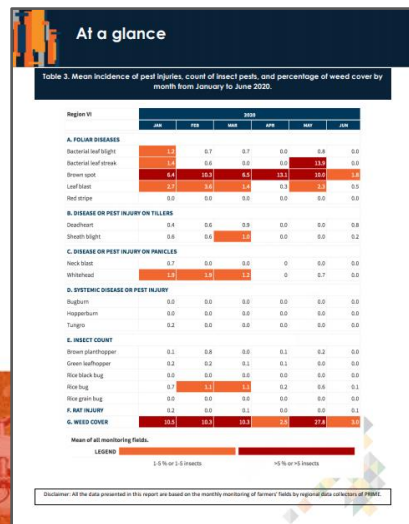
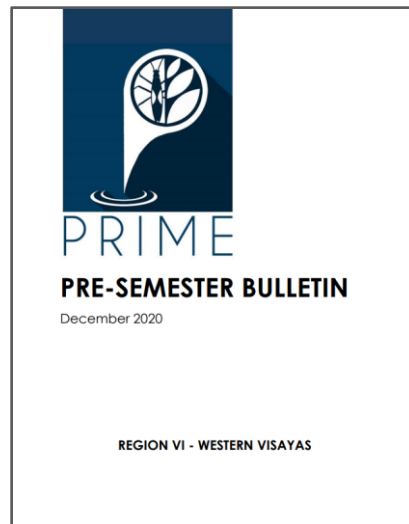
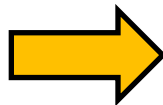
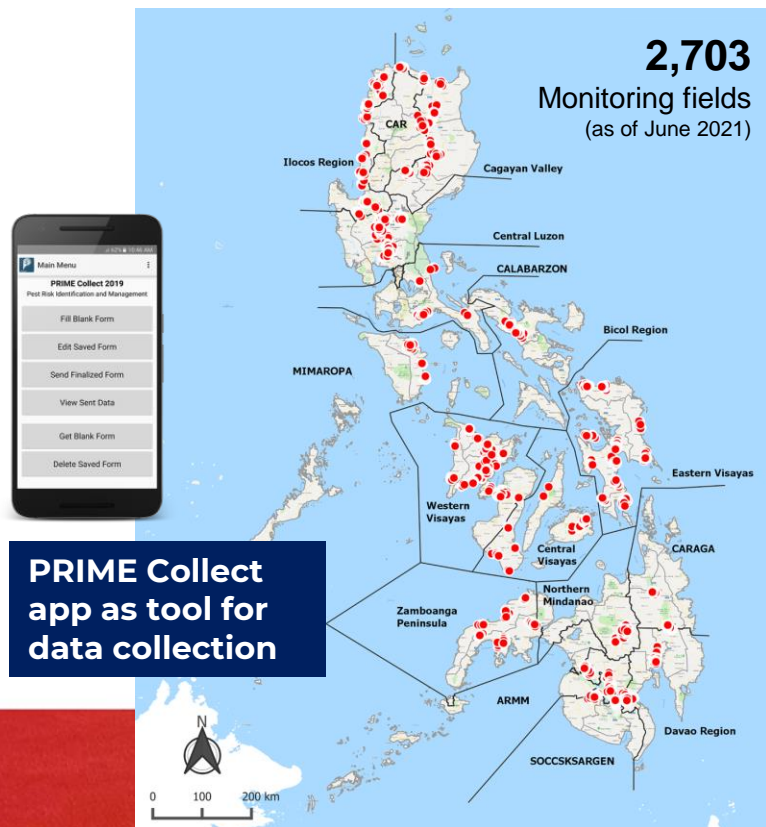


"There's a big difference with our yield before and now. Before in my 1 hectare, I gained 60-80 sacks of rice. However, during the last cropping, I gained 118 sacks of rice using RCM."

- Geronimo Alterado, farmer from Zamboanga Sibugay



Pest surveillance



Pest alert system

DA offices automatically receiving the email alerts from the PRIME Web App

1. DA-Disaster Risk Reduction and Management Section (**DRReaMS**)
2. DA-Field Operation Service (**DA-FOS**)
3. DA-Field Programs Operational Planning Division (**DA-FPOPD**)
4. DA-Assistant Secretary for Operations
5. DA-Regional Crop Protection Centers

PRIME WebApp Notification.

18 October 2021, 7:00 am (Philippine time)

Elevated Pest Case

Dear Sir/Madam,

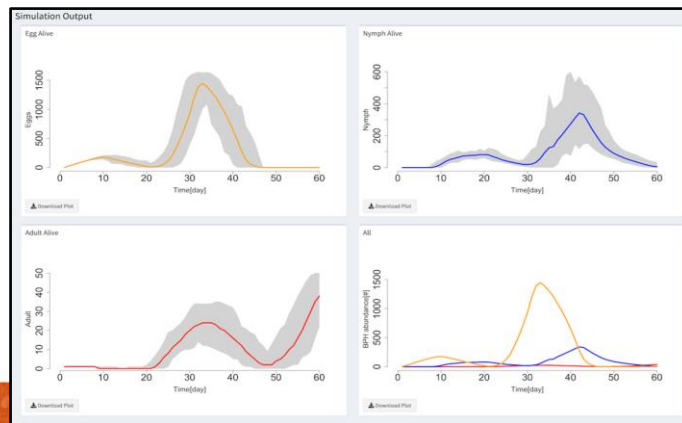
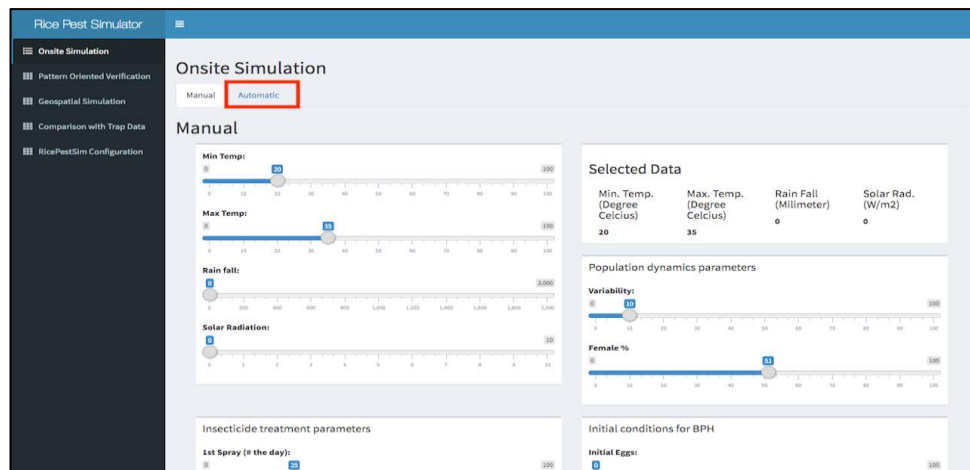
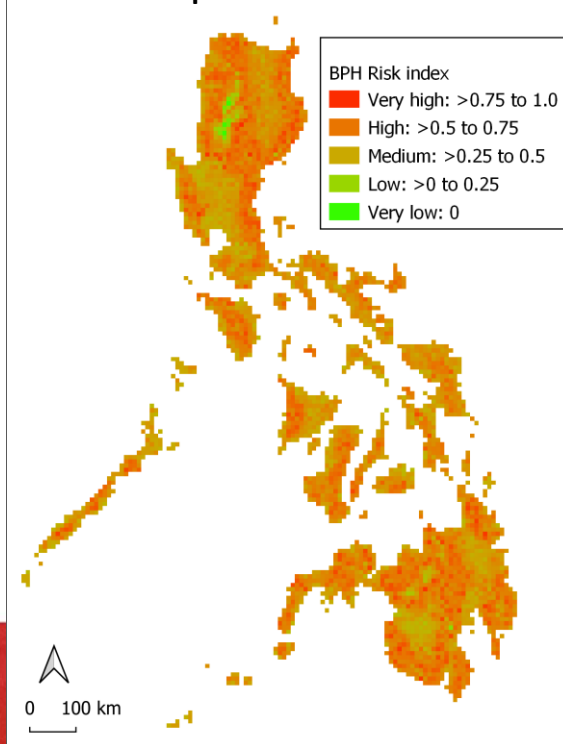
PRIME observed **elevated incidence** of pest injury or insect pest count in the following farmers' field(s) based on data submitted **in the last 24 hours** .

Please activate regional partners to validate the pest situation in the following location(s).

Region I				
Field code	Location (province town barangay)	Pest or diseases	Incidence (%) or count	Growth Stage
010003	Pangasinan Mangatarem Malunec	Bacterial leaf blight Weeds	8.91 5.00	Booting
010004	Pangasinan Mangatarem Bogtong Silag	Bacterial leaf blight	6.34	Tillering
Region III				
Field code	Location (province town barangay)	Pest or diseases	Incidence (%) or count	Growth Stage
030085	Nueva Ecija San Antonio San Francisco	Weeds	5.00	Maturity

Pest risk modelling

Risk map for BPH



PRISM

Crop monitoring,
yield forecast



RCM

Crop management
recommendations



PRIME

Pest surveillance &
advisories



**Better advisories
for farmers**



Key lessons

- Ownership is key to sustainability; Co-development, regular communication and joint decision-making are important.
- Identify key stakeholders and partners, plan how to engage them, and involve them early.
- Establish confidence in the accuracy and timeliness of product delivery and clearly demonstrate value addition
- Build capacity to generate and use products, and sustain the system



Thank you!



Rice Crop Manager Advisory Service



<https://rcm.da.gov.ph>



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