

AgPractices Domains platform – An Integrative System of Information and Modelling for Recommendations Domains of Agricultural Best Management Practices and Technologies

AgPractices&Domains: a web-based platform facilitating access to modelling data in agricultural research

Sustainable agricultural systems remain a challenge for Southeast Asian countries when the region is among the most vulnerable areas globally to climate change and various abiotic and biotic stresses. Food and nutrition security relies mostly on small holding farming systems that require site specific management practices and adaptive at the same time to the continuously changing environment of conditions of production. Modelling is a useful research tool that can help researchers to identify key determinants of productivity under constraining environments and to access valuable information to support decision making for climate smart management practices reducing risk and improving productivity. The AgPractices&Domains platform has been developed to facilitate access to modelling to agricultural researchers in the Southeast Asia region. It is a tool that provides integrated information on climate and disease risk and management options in rice-based cropping systems. This will help stakeholders to build capacity in modelling and provide access to data and modelling tools to assist farmers to adapt to climate change.

The main activities of the project were led by the University of Southern Queensland and conducted in partnership with the Southeast Asian Regional Centre for Graduate Study and Research in Agriculture (SEARCA) and the University of the Philippines Los Banos Foundation Inc. (UPLBFI). These activities included 1) the development of the AgPractices&Domains platform and 2) the

organisation and delivery of a workshop aiming to present and train targeted users of the tools.

The project trained almost 100 researchers and students from seven countries of Southeast Asia and Pacific regions. The AgPractices&Domains platform is now available and accessible with information for sites in the Philippines and in Myanmar at the website: <https://www.searca.org/projects/research/agpractices-domains-platform>. The platform is part of Accelerating Transformation Through Agricultural Innovation™ (ATTAIN) SEARCA program, a suite of digital solutions supporting the centre's vision to be the central knowledge platform for supporting research activities in the Southeast Asia region.

Development of AgPractices&Domains database for the Philippines

During the 12 months of the project, USQ and UPLB worked in collaboration with national research organisations to collect and compile the data required to apply the AgPractices&Domains platform to two of the selected Philippine locations (Nueva Ecija in Central Luzon and Camarines Sur in Bicol). Three steps were implemented in the framework development: 1) evaluation of the robustness of the outputs made available on the platform and the level of confidence in the use of the data for users, 2) processing and formatting of data required for the database of AgPractices&Domains platform through scenarios simulations and 3) the upload of the data onto the platform after proper cross validation with experts. About 50 farmers were surveyed to collect data for rice yield, varieties used, water management, nitrogen application and observation on trends of disease

occurrence from the previous and current seasons in the Iloilo regions. Data for about 30 farmers were used from an existing survey for the Nueva Ecija region which helped to identify the most common practices to maximise rice yield in these regions (especially optimal level of nitrogen application).

Two days' workshop on the use of AgPractices& Domains for evaluation of climatic risk and potential for yield in the project sites

A two day online-workshop was conducted to train targeted end of users of the platform in early October 2021 using the SEARCA's SOLVE platform. The project workshop brought together a network of about one hundred researchers, trainers, and students currently conducting rice cropping systems' monitoring and evaluation and aimed to support a community of practices that further facilitate learning and exchanges between institutions and countries. Participants were from twenty-two different research and education organisations of seven Southeast Asia countries all connected via the TEIN network. Engagement with these NREN participants during the project workshop was led by SEARCA, with practical activities aimed to identify optimum sowing date for rice planting to maximise yield and minimise major rice disease risk for yield loss.

Challenges and benefits of the project

The participants of the workshops have been equipped with improved capacity in use of modelling in their research and in managing/using agricultural research data. These data are available as open access through the AgPractices&Domains online platform. Data access, Covid -related issues and various time constraints were the main challenges in the project implementation, this was the case for the survey data collected in Iloilo region in the Philippines as the initial survey was delayed, and data were not available to the

project team for timely processing and validation. In the future, these challenges can be addressed as the platform is still evolving and more researchers are using modelling in their studies. Furthermore, as the AgPractices&Domains platform has the capability to expand to include more regions and more crops, there is the opportunity to support the wider transformation of agriculture and the agri-food system in the Southeast Asia region. The platform therefore has the potential to be one of the leading sources of information in SEA to support decision making improving productivity and reducing biotic and abiotic risks in agricultural systems.



Figure 1_ Farmer survey in Camarines Sur. (Source Hannah Jose, 2021)



Figure 2_ Workshop banner.

For more information

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