

# Rice Crop Manager in the Philippines: Understanding adoption, attitudes, and perceptions

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## Background

As information and communication technologies become more ubiquitous, a decision-support tool called *Rice Crop Manager* (RCM) was developed to help Filipino farmers increase farm yields and profitability by providing tailored crop nutrient management advice. It is estimated that RCM adoption could add 300 kg of unmilled rice to each hectare grown per season. For the farmer, this would mean an increase in income of PHP 4,000 per hectare.

Extension workers use RCM to provide farmers with field-specific fertilizer recommendations. More than 1.3 million recommendations have been generated since 2013. However, there is little data on how many farmers received RCM recommendations. A major challenge to RCM uptake is the dissemination of the recommendations.

Questions on the adoption of RCM recommendations and whether they lead to increased yields have also been raised. Aside from yield benefit, the RCM tool can provide better information to farmers to avoid fertilizer misuse, which is environmentally costly. For example, the production of fertilizer (especially nitrogen) is very energy-intensive. Wasteful consumption might cause much higher global or regional energy use. However, if farmers do not use the recommendations, then there is space for improvement.

With this in mind, the Seed Grant aimed to examine the adoption of RCM and its impact on yield. It also examined whether low-yielding farmers benefit from the adoption of RCM. Finally, it attempted to understand farmers' perceptions of RCM related to training and extension workers.



## What was done

To accomplish the Seed Grant objectives, Dr. Valera incorporated concepts based on the adoption decision process in the household survey instrument, including RCM awareness, knowledge, and compliance. Farmers' perceptions of RCM related to training, extension workers, and dissemination were also captured. He also examined existing data on how farmers used fertilizer and identified the type of extension workers. Finally, he conducted a household survey involving 300 randomly selected farmers in the municipalities of Buhi, Bula, and Nabua in Camarines Sur Province in the Philippines.

This project brought together scientists and researchers working on the RCM, Agri-food Policy platform, and gender research teams across IRRI.



Dr. Valera and Andrew Arellano (left), a field assistant from Central Bicol State University of Agriculture, visit one of the women farmers in the survey sample in Nabua, Camarines Sur.



## Results and Lessons Learned

The study found that 66% of the sample farmers who attended the RCM interview have received printed recommendations, of which 60% fully adopted the RCM advice. The positive yield impact of RCM tends to be more strongly felt by farmers at the lower end of the yield

distribution, suggesting that lower-yielding farmers benefit more from RCM adoption in terms of yield increases. The results also found that some farmers did not adopt the RCM advice because they felt the need to adjust the recommendation because of weather conditions and water availability. The nonadoption of the RCM recommendation can also be attributed to cash constraints, delays in the delivery of the

recommendation, damage caused by either pests or typhoons, and following their own practices or habits. Moreover, some farmers were hesitant to follow the RCM recommendation because they were not fully convinced of its benefits. The study also found that farmers' participation in training enabled them to have positive perceptions about RCM knowledge, extension workers, and dissemination.

## Next Steps

For more robust M&E evidence, the IRRI RCM team has started incorporating questions, farmers' perceptions of RCM, and reasons for the adoption and nonadoption of RCM into their monthly RCM Farm Monitor tool. The results of the project were presented during the Philippine Department of Agriculture's RCM National Planning and Updating on 8 March 2018. There is also a consideration to use the relevant statistical analysis employed in the project in the future plans of the RCM team in training staff of the Department of Agriculture in their monitoring, evaluation, and learning activities.

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