



Tropentag, September 14-16, 2022, hybrid conference

“Can agroecological farming feed the world?
Farmers’ and academia’s views”

Drivers and pathways of changing rice production systems in Luzon, Philippines

RICHELYN ROSE CLAVERO¹, MANUEL JOSÉ C. REGALADO², MATHIAS BECKER¹, SHYAM PARIYAR¹

¹University of Bonn, Inst. Crop Sci. and Res. Conserv. (INRES) - Plant Nutrition, Germany

²Philippine Rice Research Institute, Rice Engineering & Mechanization Division, Philippines

Abstract

Estimating future production trends and expected changes in land use and crop management requires an understanding of past and present changes in productivity and of pathways of transitions to the emergence of new cropping system configurations. Understanding and forecasting change trends and their determinants can help avoiding undesirable developments and guide policy decisions for a sustained supply of rice. We studied how recently implemented Rice Trade Liberalization Law (Republic Act No. 11203) in the Philippines changed the policy landscape in the rice sector and impacted rice production systems.

Through a diachronic analysis (years 2018 vs. 2022) we assessed changes in production practices and performance attributes in four main rice-producing provinces in Luzon representing either rainfed or irrigated agriculture systems. Structured surveys administered to 600 rice farmers were complemented by focus group discussions and the sampling and analysis of soil attributes and grain yields.

The law caused the Philippines to be flooded with cheap, imported rice that halved the price of palay (freshly harvested rice) increasing the uncertainties on economic revenues of rice farmers. Just after three years of its implementation, we observed major changes in land use and agronomic practices in the main rice-producing provinces. Mean Paddy area decreased in each site (2–20%), with significant decrease in Aurora ($P = 0.023$). Least decrease in rice cultivation area was observed in Pangasinan (2%, rainfed favorable), whereas highest reduction was observed in Nueva Ecija (20%, irrigated favorable). Interestingly, the dry season (DS) crop establishment shifted to direct seeding due to high cost of transplanting in Bulacan (81%), Nueva Ecija (13%), and Pangasinan (21%), whereas wet season (WS) direct seeding increased in Aurora (69%) and Pangasinan (52%). N application per hectare decreased in DS Aurora ($P = 0.000$) and Nueva Ecija ($P = 0.049$) and WS Bulacan ($P = 0.05$) and Pangasinan ($P = 0.005$). These might have affected decreased yield per hectare in DS Aurora ($P = 0.000$) and Nueva Ecija ($P = 0.000$) and in WS Bulacan ($P = 0.006$), and Nueva Ecija ($P = 0.010$). We identified new trends and likely drivers at both pre-and post-implementation of the rice trade liberalization law, and highlight major pathways of changing rice production in the Philippines.

Keywords: Cropping system shift, DPSIR, food security, *Oryza sativa*, rice tariffication

Contact Address: Richelyn Rose Clavero, University of Bonn, Inst. Crop Sci. and Res. Conserv. (INRES) - Plant Nutrition, 53115 Bonn, Germany, e-mail: richelyn.clavero@yahoo.com