

Rice Yield and Levels of Agrochemical Use in Ghana: A Dose-Response Function Approach

Wencong Lu¹ and kwabena addai¹

¹Zhejiang University

May 5, 2020

Abstract

The study assesses rice yield response to levels of agrochemical use in Ghana. We employed the Dose-Response Model Approach under continuous and heterogeneous responses to treatment. The dose-response model of rice yield with chemical fertilizer treatment indicates that averagely, chemical fertilizer use is associated with a 10% kilograms per hectare surge in rice yield. This upsurge in rice yield subsequently reduces and turns out to be immaterial as chemical fertilizer quantities move from 20% to 70% and afterwards increases. On the other hand, the dose-response function of rice yield with herbicides treatment shows that, averagely, herbicide use is related to a 7% kg/ha rise in rice yield. This increase in rice yield reduces substantially as herbicides volumes move from 40% to 100%. It can be concluded that rice yield responds to an increase in the intensity of use of chemical fertilizer but not herbicides. The implication is that even though the Green Revolution agricultural technologies were meant to be adopted as a package, their right mix in terms of levels or intensity is also critical.

Hosted file

Paper 2_updated_edited_anonymous.doc available at <https://authorea.com/users/307389/articles/438342-rice-yield-and-levels-of-agrochemical-use-in-ghana-a-dose-response-function-approach>