

# IDE Research Bulletin

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Research project summary based on papers for academic journals  
with the aim of contributing to the academic community

## **Substandard Fertilizer and Agricultural Performance: Evidence from Southeast Asia and sub-Saharan Africa**

Project Leader

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Substandard Fertilizer and Agricultural Performance:  
Evidence from Southeast Asia and sub-Saharan Africa

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### **Background and Objective**

We investigate the spread of substandard fertilizer in the market and its possible consequence on the application and the agricultural performance in Southeast Asia and sub-Saharan Africa. Low quality fertilizer discourages farmers to adopt modern technologies, and this leads to stagnant productivity growth. Based on careful observations and quantitative evidence from field surveys, we discuss the potential causes and consequences of the prevalence of substandard fertilizer. We also examine the role and effectiveness of the regulations and inspection institutions in dealing with this widely observed issue. Our goal is to provide valuable information and implications for the policies to address the problem of substandard inputs in the developing world.

### **Summary of the Papers**

Fertilizer quality and application in East Africa: Cases of Kenya, Uganda and Rwanda  
Tomoya Matsumoto and Yukichi Mano

Abstract: Fertilizer application is important to improve the food and nutrition security in sub-Saharan Africa. But farmers are known to apply less than recommended levels. Although numerous subsidy programs have been put in place, they do not seem to be sufficient to solve the problem. This paper examines fertilizer quality and application in Kenya, Uganda, and Rwanda. In fact we find problems in fertilizer quality. The three key nutrients, nitrogen (N), phosphorus (P), and potassium (K) actually contained in almost the entire sample fertilizers substantially deviate from the content levels indicated on the level. In particular, sample NPK fertilizers under-contain N and P, but over-contain K. According to our informal interviews with local agro-input dealers, there are some distributors selling low-cost types of NPK as high-price types of NPK. Public interventions are justified to secure the product quality and encourage farmers to apply recommended amount of fertilizers.

Low quality fertilizer in Vietnam: Current situation, policy and implications

Emi Kojin, Do Van Hoang, Nguyen Thiet, Yutaka Arimoto, Vo Hong Tu, Yukichi Mano, Nguyen Duy Can and Kazunari Tsukada

This paper studies the current situation of the low quality fertilizers in Vietnam. Vietnam is one of the largest rice producer and exporter but continued to suffer for low quality fertilizers that do not contain nutrient content as labelled. We randomly collected and tested 141 samples of fertilizers sold at the retail stores in the Mekong Delta Region. On average, fertilizer quality is under control, but there are variations in nutrient content levels both below and above the labeled level. We then describe public and private initiatives to control fertilizer quality in the market. We discuss that the combination of government control, private branding and warranty, and reputation mechanisms driven by social learning and information aggregation by retailers, might have been effective in mitigating the problem.

Cumulative effects of triple rice crops on fertilizer use in the Vietnamese Mekong Delta  
Yutaka Arimoto, Emi Kojiny, Yukichi Mano, Kim Lan Nguyenz,a and Kazunari Tsukada

This paper examines the cumulative effects of triple rice crops on fertilizer use in the Vietnamese Mekong Delta. Regionally representative data on farm households are combined with a commune level panel data on cropping pattern so that the casual impact of intensified cropping practice can be identified for the first time. Our empirical results show the existence of long term effects of triple rice cropping. The fertilizer costs per planted area increases as triple cropping is continued for longer periods. We also find the substitution among fertilizer under triple crops from single nutrient to compound fertilizer. These findings suggest that intensified cropping practice has adverse impact in the long run both on economic and environmental sustainability of rice farming.