

## **The Possibility of a Maize Green Revolution in the Highlands of Kenya:**

### **An Assessment of an Emerging Intensive Farming System**

Rie Muraoka, Tomoya Matsumoto, Songqing Jin and Keijiro Otsuka

**Abstract:** This study aims to explore the determinants of the new maize farming system, which is characterized by adoption of high-yielding maize varieties, application of chemical fertilizer and manure produced by stall-fed improved dairy cows, and intercropping, especially the combination of maize and legumes, and its impact on land productivity and household income. We examine not only the impacts of new technologies and production practices but also the impacts of the entire new maize farming system by generating an agricultural intensification index based on a principal component analysis. Our estimation results show that an increase in sub-location level population density and a decrease in the land-labor ratio of an individual household accelerate farming intensification, and that adoption of each new technology and production practice has positive and significant impacts on land productivity. These findings are further supported by the significantly positive impacts of the agriculture intensification index on land productivity.

**Keywords:** Farming system • Agricultural intensification • Population pressure • Maize • Green Revolution • Kenya