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“Bridging the gap between increasing knowledge and decreasing resources”

## From Technology Adoption to Understanding Innovation: Lessons from Plantain Innovation Systems in Four Countries

HILDEGARD GARMING<sup>1</sup>, JOSEFINA MARIN<sup>2</sup>, SONJA PÜRCKHAUER<sup>3</sup>, ALIRAH EMMANUEL WEYORI<sup>4</sup>, CHARLES STAVER<sup>5</sup>, GERMAN RIVERA<sup>2</sup>, FALGUNI GUHARAY<sup>6</sup>

<sup>1</sup>*Thünen Institute of Farm Economics, Germany*

<sup>2</sup>*CATIE, Costa Rica*

<sup>3</sup>*University of Bonn, Germany*

<sup>4</sup>*Leibniz Universität Hannover, Germany*

<sup>5</sup>*Bioversity International, France*

<sup>6</sup>*CIAT, International Centre for Tropical Agriculture, Nicaragua*

### Abstract

In Latin America and West Africa plantains are an important staple food and cash crop for smallholder households, although growing market demand has also attracted medium and large-scale growers to the crop. In recent decades improved production technologies and new varieties have become available and were tested in major producing countries. Uptake of these technologies has been uneven between countries and across different segments of growers within countries. In a GIZ-funded project, aiming to understand and improve technological innovation for small-scale plantain production, we analysed production technology and the innovation systems for the plantain sector in Nicaragua, Panama, Dominican Republic and Ghana. Rather than focusing on individual farmers' adoption decision, an innovation system approach was applied to identify factors stimulating or blocking innovation among farmers. Farmers and different actors related to plantain such as extension, research, associations, finance, other supporting organisations, traders, processors and input dealers were interviewed. In each country a workshop was held applying RAAKS methodology (Rapid Appraisal of Agricultural Knowledge Systems), to map relationships and flows of information between the actors and to identify constraints and options for improving innovation capacity. The four countries represent unique combinations of formal research organisations, agriculture and trade policies, market chain governance and plantain information flows impacting on smallholder innovation and wellbeing. While Ghana has a consolidated plantain research programme at CRI, technology change is characterised by seasonal gluts and minimal input and market infrastructure. With plantains being a priority crop in Dominican Republic, public research has played a strong role in supporting technological innovation and dissemination of new varieties. Strong market demand has stimulated innovation in large and small-scale farmers, too. In Panama, public research and extension programs include plantains, however small-scale farmers' capacity to innovate is constrained by a perceived lack of public support. In Nicaragua, coordination of the plantain sector is provided mainly by a producer organisation. Although public support is nearly absent, farmers respond to market dynamics and have reached an intermediate level of innovation.

The studies identified major bottlenecks for innovation and propose entry points for policies to improve plantain productivity and income for small-scale producers.

**Keywords:** Dominican Republic, Ghana, innovation system analysis, Nicaragua, Panama