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Applicability and Spillover Effects of ICRISAT Technologies – Enhancing Benefits to the Global Farming Community

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Abstract

Sustained, well-targeted, and effectively used investments in agricultural R&D improved productivity worldwide and thereby contributed to food security. In this context, research spillover effects refer to situations in which a technology that is developed for a specific target region or product is also applicable to other locations or products that are not targeted during the research process.

This study examines the impacts of ICRISAT groundnut breeding research with particular attention on the most critical production constraints facing smallholder farmers in sub-Saharan Africa and Asia. Based on a review of literature and expert elicitation among groundnut experts, it is hypothesised that new technologies addressing the most binding productivity constraints ranked in order of importance (*i.e.* 1. drought, 2. leaf spots and 3. rosette virus) will produce a significant level of direct and spillover impacts as the new technologies developed generates new knowledge which could be adapted far beyond the locations or regions where ICRISAT research is originally targeted. The approach builds on the international trade model using the principle of economic surplus and applies recently developed tools in GIS and spatial analysis of inter-country and inter-regional research applicability of new technologies across a range of ago-climatically homogeneous research domains and thereby estimates the research spillover benefits of crop breeding research globally.

Utilizing these information will lead to further spread of new varieties that were developed to fit better in the current farming system or aim at improving this. Furthermore, the increased uptake of groundnut technologies will improve soil fertility as well as nutrition of the rural population based on a diversified diet and the nitrogen fixation abilities of legume crops.

Keywords: Agricultural research, impact, spillover effects, targeting