**PAPER NUMBER #264**

**The Impact of the Adoption of CGIAR's Improved Varieties on Poverty and Welfare outcomes: A Systematic Review**

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**Objectives/aims**

This study assesses the impact of agricultural research on poverty and welfare by performing a systematic review synthesis of experimental and quasi-experimental impact evaluations of improved varieties interventions. The literature has not reached a firm conclusion on the impacts of adoption of improved seeds on poverty and welfare primarily because, it is well-acknowledged that this empirical literature is subject to multiple potential biases that would tend to inflate the contribution of agricultural technologies to reducing poverty. The International Fund for Agricultural Development (IFAD) has funded many improved seeds interventions, led by the Consultative Group for International Agricultural Research (CGIAR) research institutes over 2007 to 2015. In this paper, we assess the overall impact of these CGIAR interventions over this period.

**Methods**

After conducting a systematic review of experimental and quasi-experimental impact evaluations a random-effects meta-analysis was performed on 7 papers for poverty, 12 papers for income, and 8 papers for expenditure over different food crops and included unpublished studies. Our major contribution of this paper is thus the systematic treatment of this imperfect literature, coding and classifying each study according to its risk of bias, and examining the correlation between bias scores and the outcomes from each study.

**Main findings**

Nevertheless, we found that improved varieties reduced poverty by 16 per cent (albeit not statistically significant), increased income by 35 per cent and expenditure by 14 per cent of adopting households in rural areas. In the meta-regression, welfare improvements associated with improved seeds varieties uptake was found to be positively correlated with the studies' risk of bias. These results point to the fact that although agricultural research and improved varieties have been effectively contributing to welfare improvements through direct channels, that is productivity gains, the quality of the counterfactual based evaluative evidence upon which to base such statements, remains remarkably low. Further efforts need to be made to improve the evidence base to further demonstrate the positive impacts and to encourage donors to invest in this area of agricultural research.