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The Opportunity Cost of Growing Local Landraces: Challenges and Implications for the Design of Incentives for *in situ* Conservation of Wheat Genetic Resources in Ethiopia

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Abstract

Throughout the centuries, farmers have been maintaining and developing crop seeds from the rich genetic diversity of naturally occurring crop species. It is only since the early twentieth century that a commercial production of crop seeds has started to replace these landraces. This trend has called for an intensive discussion in the literature motivated by the replacement hypothesis. The modern breeding activities as well as farmers' participation will continue to change the production systems of all farmers including those economically and ecologically marginalized. Even though the replacement hypothesis is not as straight forward as it might seem, a rapid change of production systems and uncontrolled loss of endemic plant genetic resources for food and agriculture may occur.

To control this trend, there is a need to understand forces deriving farmers to maintain or replace landraces on farm. One of these forces is the opportunity cost foregone by farmers while planting local landraces. This enquiry will, among other things, help policy to design community based, location specific and flexible incentives for those landraces threatened with extinction. This, in turn, ensures the future existence of wheat genetic diversity for the long-term national objective of over-all food security. To shed light on these issues, this paper analyses the 1999 Ethiopian rural household survey data collected by the Addis Ababa University in collaboration with USAID.

The results suggest that opportunity costs differ not only across farmers of different features but also across localities. Therefore, designing *in-situ* conservation strategy, which targets all farmers and localities uniformly, is a waste of resources. The remaining challenge, however, is identifying hot-spots for conservation and designing incentive mechanisms which are feasible considering social, economic and agro-ecological dimensions of the problem. Even though identifying hot-spots needs further genetic study, the financial and socio-economic incentives required for farmers to plant local landraces can be inferred from the results of the paper.

Keywords: Crop genetic resources, incentives, *in-situ* conservation, opportunity costs