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‘Game Changers’ Towards Greater Nutritional Diversity in Cereal-Based Smallholder Farming Systems, Ethiopia

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Abstract

About ten percent of the Ethiopian population still struggle to meet their basic needs for safe and nutritious food in years of low yields. In 2014, about 2.7 million people in Ethiopia faced a severe lack of food resources. An increasing cereal production is needed to achieve national food security. The success of this mission lies in the hands of Ethiopian smallholder farmers who contribute about 98 % of the national cereal production.

Besides teff, maize and sorghum, wheat is one of the most important cereal crops in Ethiopia in terms of farm area and household consumption. The increased wheat production in the Ethiopian highlands has improved national food security and local farm incomes. The dominance of wheat however has decreased the regional nutritional diversity of the landscape and led to the disappearance of local grazing grounds as well as forest resources, constituting a major pressure for the traditionally cattle dominated farming systems. New technologies such as combined harvesters for barley and teff, small scale irrigation for vegetable production and new processing and storage methods to prevent post-harvest losses might function as ‘game changers’ enabling an increase in crop and nutritional diversity as well as overall productivity of individual farms and of the landscape.

This study analyses and explores features, dynamics and potentials of smallholder farming systems in the wheat-belt of Ethiopia. The aim is to understand how these farms are operated, what challenges they face and what opportunities exist to improve their performance, e.g. in terms of crop yields, on-farm nutritional diversity, income, labour and soil fertility. A farm typology was developed to choose representative farms for detailed farming systems analysis in the whole farm model FarmDESIGN. The study reveals substantial differences among farm types in their ‘room to maneuver’, not only due to their resource endowment but mainly as a result of differing growing and harvesting conditions. The above mentioned ‘game changers’ such as innovative combined harvesters, small scale irrigation and improved post-harvest storage appear to be potent drivers of change towards greater food security and nutritional diversity.

Keywords: Drivers of change, farm typology, farming systems analysis, trade-off analysis, whole farm model FarmDESIGN