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Residue fact sheets for energetic and material use of agricultural crop residues in Ethiopia

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Abstract

Agricultural crop residues such as straw, husks, and leaves provide a rich source of biomass for energy and material use. In Ethiopia, agriculture is one of the most important economic sectors and crop residues can play an important role in meeting the country's growing energy needs. However, there is a lack of comprehensive data and information on the spatial distribution as well as the energy and material potential of crop residues, which hinders their efficient use. To address this problem, we have prepared residue fact sheets for 15 of the most commonly grown crops in Oromia, the largest region in Ethiopia.

Each fact sheet contains a map showing the distribution of the crop production in metric tonnes per square kilometer, based on spatially disaggregated crop production data from the International Food Policy Research Institute (IFPRI). The data have been resampled to provide a visual representation of the availability of crop residues on a regional scale. In addition we included crop-to-residue factors, which are crucial for estimating the amount of residue available for use. The fact sheets further compile information and data on the main crop residues, including chemical parameters and energetic values such as dry mass, methane potential, and heat value and list the most feasible energetic and material use cases.

Our work provides a valuable tool for policymakers, researchers and development agents to better understand the potential of crop residues in Ethiopia. The fact sheets can support decision making on the development of sustainable bioenergy and biomaterials value chains, contributing to the country's socio-economic development and climate change mitigation efforts.

Keywords: Agricultural residues, crop fact sheets, crop production data, Ethiopia, use cases