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Exploring Smallholder Farmers' Preferences for Climate-Smart Seed Innovations: Empirical Evidence from Southern Ethiopia

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Abstract: Rapid plant breeding is essential to overcome low productivity problems in the face of climatic challenges. Despite considerable efforts to improve breeding practices in Ethiopia, increasing varietal release does not necessarily imply that farmers have access to innovative varietal choices. Prior research did not adequately address whether varietal attributes are compatible with farmers' preferences in harsh environmental conditions. With an agricultural policy mainly aiming to achieve productivity maximization, existing breeding programs prioritize varietal development based on yield superiority. Against this background, we estimated a multinomial logit (MNL) model based on choice-experiment data from 167 bean growers in southern Ethiopia to explore whether farmers' attribute preferences significantly diverge from those of breeders' priorities. Four important bean attributes identified through participatory research methods were used. The results demonstrate that farmers have a higher propensity toward drought-tolerant capability than any of the attributes considered. The model estimates further show the existence of significant preference heterogeneity across farmers. These findings provide important insight to design breeding profiles compatible with specific producer segments. We suggest demand-driven breeding innovations and dissemination strategies in order to accelerate the adoption of climate-smart and higher-yielding bean innovations that contribute to achieve the national and global sustainability goals in Ethiopia.

Keywords: bean attributes; climate-smart variety; drought; Ethiopia; MNL; preference heterogeneity

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