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Technology Adoption and Commercialisation of Dryland Legumes in Eastern and Southern Africa: Determinants, Impact and Future Outlook

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Abstract

Despite the crucial role of dryland commodities for poverty reduction in dryland economies, market inefficiency and imperfections and lack of technological change have often locked small producers into subsistence production and contributed to stagnation of the sector. In the last few years, research and development interventions have attempted to facilitate the development of new technologies and market linkages for smallholders. The opportunities for market development and commercialisation are particularly favourable for legume crops like peanuts, chickpea and pigeonpea which tend to have higher domestic, regional and international demand. The objectives of this study are to **(a)** assess the role of market institutions, infrastructural and household assets in determining access to new technologies and markets for small farmers **(b)** examine the level of adoption of new legume varieties and its effects on the level of market participation and **(c)** evaluate how technology adoption would affect marketed surplus and market-orientation of production (commercialisation) and poverty outlooks for small producers. The study conceptualises commercialisation as the process by which dryland farmers are increasingly integrated into different markets such as input markets, food and non-food consumption markets, output markets and labour markets. Data were collected by means of farm household surveys in four countries of Eastern and Southern Africa, namely Ethiopia, Kenya, Tanzania and Malawi during 2007/08 cropping year. Overall, a total of 2321 households were selected randomly for the interviews - 700 from Ethiopia, 414 from Kenya, 613 from Tanzania and 594 households from Malawi. Different econometric models are applied to address the research questions. Treatment effect model and propensity score matching techniques are used to investigate the linkage between new variety adoption and integration of smallholders to markets whereas 2SLS is used to establish the link between market integration and poverty. There seems to be a two-way link between markets and technology adoption. Increased market integration may facilitate adoption of new varieties and increase incomes for smallholders but it may also be that adoption of new varieties and greater income leads to more integration. The two-way relationship or endogeneity problem can be corrected by instrumenting the endogenous variable using instrumental variable techniques.

Keywords: Commercialisation, dryland crops, impact, technology adoption

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