low due to local varieties used, which are susceptible to plant diseases, thereby threatening food security. A study was undertaken to assess the major threats to faba bean production, determine farmers' varietal preferences and selection criteria, and assess farmers' perceptions of faba bean diseases with special reference to chocolate spot (*Botrytis fabae*) disease. Participatory rural appraisal methodologies were implemented on 240 households selected from 12 villages of three administrative zones within two regional states. Major threats to faba bean production were chocolate spot disease, which was a persistent problem in the Ethiopian highlands along with lack of improved seeds. Many farmers (>85%) recognized symptoms of chocolate spot disease but had various names for it. Disease severity was associated with growing susceptible local landrace varieties which resulted in low yields (0.56 to 2.8 t ha^{-1}). About 66.4% of the farmers preferred local landraces for their adaptability to the environment, tolerance to frost, early maturity, good food taste and higher straw yield, while improved varieties grown by 10% of the farmers were preferred for high grain yield and bigger grain size. Farmers were also willing to grow improved varieties if the main production constraints are addressed and seeds are accessible. Therefore, opportunities exist to improve farmers preferred landraces for yield and disease resistance through breeding.

PP163: Impact of improved legume varieties on technical efficiency of crop production in Ethiopia: Application of doubly-robust treatment effects model

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This paper presents the impact of improved food legume varieties on technical efficiency and productivity of crop production in a farming system where mono-cropping of cereals is the norm. Data on 600 randomly selected farm households were collected and plot level input and output data were generated on food crop production. We estimated technical efficiency of food crop production using stochastic frontier models. Then, a set of doubly-robust treatment effects models was employed to see whether there is any difference in technical efficiency level and productivity between adopters and non-adopters of improved faba bean and field pea varieties. The results show that the efficiency of crop production does not vary between adopters and non-adopters of improved faba bean and field pea varieties. However, the adopters were found to be more productive when productivity is defined in terms of cereal or energy equivalent per adult equivalent. Although, we are reporting results based on cross-sectional data, it is clear that pulses increase productivity both in terms of quantity of crop produce or nutrition without any apparent contribution towards technical efficiency. Although the immediate need might be increasing productivity per unit of limiting factor, it is important to pay attention to reducing inefficiency in crop production to ensure that pulse crops break into the unsustainable on-cropping production system in the study area.

PP164: Income and nutrition impacts of rotation and adoption of improved faba bean varieties: A Moroccan case

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By applying a combination of the two-step Heckman model, propensity score matching and endogenous switching regression to a nationally representative sample of 1230 farm households from Morocco, this paper provided empirical evidence on adoption and impacts of faba-bean. The paper also provides