

Abstract: Smallholder Drip Irrigation: The Hope for Home Nutritional Gardens and Food Security

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Moving on from the Millennium Development Goals (MDGs) of 2015, the quest to end hunger, achieve food security and promote sustainable agriculture still remains a key target area in the Sustainable Development Goals (SDGs) to be achieved by 2030. In particular, focus is centred on poor and vulnerable people as well as small-scale farm producers such as women and family farmers. Sustainable agricultural practices are also of great importance, in light of the effects of climate change.

Smallholder drip irrigation thus appears to be a more feasible option for improving food security and promoting sustainable agriculture at the household level, in an environment of continual and worsening water supplies. In Asia, this has proven to be the case (Postel et al., 2001). In Zimbabwe, smallholder drip irrigation has been and is still being promoted by various organisations, under the Linkages for the Economic Advantage of the Disadvantaged (LEAD) program. However evaluations of the program have revealed that drop outs rates from the project have been very high especially during the project implementation phase (Belder et al. 2007; Merrey et al. 2008). The current challenge is to identify avenues that can be used to encourage smallholder farmers to stay in the project long enough to realise the full benefits.

To this effect, this paper using data from the 2013 Smallholder Drip Irrigation survey conducted by the author in Zimbabwe, seeks to identify the determinants of dropout rates and of the duration a beneficiary lasts in the drip irrigation project. Binary response models and duration analyses are employed to analyse the data.

Results obtained show that experiencing water related problems and the presence of a chronically ill household member significantly increase chances of dropping out in beneficiaries. On the contrary, early adoption of drip irrigation, realising yield increases in leafy vegetables during the drip irrigation phase and household wealth status (rich household) significantly reduce a beneficiary's chances of dropping out. Yield increases in rain-fed field crops also matter with an increase in the yield of high value field crops such as groundnuts significantly increasing chances of a beneficiary dropping out of the project.

The same factors, with the exception of the presence of a chronically ill household member also influence the duration a beneficiary lasts in the project. Early adoption of the project, realising leafy vegetable yield increases and household wealth status significantly increase the duration beneficiaries use drip irrigation. Conversely, experiencing water problem and realising a yield increase in groundnuts reduces the length of time farmers use drip irrigation. Addressing these issues can perhaps result in

better uptake rates for the project in the future and this will in turn lead to improvements in household food security for smallholder farmers.