

ABSTRACT

Malian households depend, in majority, on rain-fed agriculture for their food production. Overreliance on rain-fed agriculture limits the production output due to unreliable rainfall in the country. To mitigate this, the government has invested in rehabilitation of irrigation schemes to reduce dependence on rainfall. Through appropriate irrigation technologies and improved agronomic management practices agricultural productivity will be increased. This study determines the contribution of different irrigation systems to produce vegetables on household welfare in rural communities. The objective of the study was to contribute to improved livelihood of smallholder farmers in rural areas by use of irrigation systems in vegetables production. Three localities corresponding to two specific climatic regions favorable to vegetable crops production in Mali (Baguineda, Kati, Koulikoro region and Mopti region) was the study area. This study was guided by the production theory. Primary data was collected from 273 farmers selected proportionately from four wards (Fanafiecoura and Tieman, in Koulikoro region and Mopti and Dialango, in Mopti region) using face-to-face interviews. Secondary data from literature reviews was also used. Descriptive statistics and DEA functions were used for analysis. The Statistical Package for Social Scientists (SPSS), Stata and Excel programs were used for analysis. This study found that the irrigation systems as used in production of the three main crops to be characterized by inefficiency. Drip and sprinkling irrigation systems was relatively more economically efficient as compared with Californian system. The use of drip, sprinkling and Californian irrigation systems lead to greater benefits as compared to costs. The excess benefit (compared to costs) is realized more with drip followed by sprinkling and the third being California irrigation system. This study recommends more training and capacity building to the farmers in the study area with an aim of reducing their levels of inefficiencies in horticultural crop production. Farmers should be supported to adopt the use of drip, sprinkling and Californian irrigation systems which lead to greater benefits as compared to costs. Drip, sprinkling and Californian irrigation systems present a good opportunity for superior technical efficiency in vegetable production. These irrigation technologies should be promoted.