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ANALYSIS OF TECHNICAL EFFICIENCY AMONG SMALL-SCALE IRRIGATED CROP FARMERS IN TARABA AND GOMBE STATES, NIGERIA

[1]Umaru, I. I. and [2]Maurice, D. C.
[1]Department of Agricultural Economics, University of Nigeria, Nsukka
[2]Department of Agricultural Economics and Extension, Modibbo Adama University of Technology PMB 2076 Yola, Adamawa State, Nigeria
Corresponding Authors' E-mail: dmchinda2003@yahoo.com **Tel:** 08036554382

ABSTRACT
The study determined the technical efficiency of small-scale irrigated crop farmers in Taraba and Gombe States, Nigeria. Data were collected from a cross section of 337 irrigated crop farmers in five Local Government Areas of Taraba State and eight Local Government Areas of Gombe State using purposive and simple random sampling techniques. Structured questionnaire was the main instrument for primary data collection. The analytical tools employed were descriptive statistics and stochastic frontier production function model. The socio-economic characteristics of the respondents revealed that majority (92.28%) of them were males, with mean age of 44 years and had some form of formal education. Most (59.05%) of them cultivated an average of 2.54 hectares using personal savings. On their cropping systems, fourteen cropping systems were identified with mixed cropping system accounting for 61.12% of the cropping systems and 83.56% of the total hectares allocation, an indication that mixed cropping was the dominant cropping system among the irrigated farmers. The result of the maximum likelihood estimates of the stochastic frontier production function revealed that the coefficients of farm size ($p = 0.01$), seed ($p = 0.01$) and agrochemicals ($p = 0.05$) were all significant and positively related to crop output among the respondents. The technical efficiency indices of the sampled farmers ranged from 0.44 - 0.96 with a mean of 0.78, indicating that crop farmers in the study area were technically efficient in their production systems although were operating below the frontier output. The inefficiency model revealed that age, gender, farming experience and extension contact were found to increase technical efficiency of the farmers. The study recommends more subsidies on farm inputs, more extension services and the training of farmers on farm management among others.

Keywords: Cropping systems, Irrigation, Small-scale farming, Technical efficiency.