PRINT: ISSN 0970-9274 ONLINE: ISSN 2456-6608
JOURNAL OF HUMAN ECOLOGY
International Interdisciplinary Journal of Man-Environment Relationship

PRINT: ISSN 0970-9274 ONLINE: ISSN 2456-6608
J Hum Ecol, 71(1-3): 236-244 (2020)
DOI: 10.31901/24566608.2020/71.1-3.3260

Climate Change Effects on Agricultural Productivity in the Smallholder Farming Systems of the Eastern Cape Province, South Africa

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KEYWORDS Adaptation. Farm Revenue. Livelihoods. Rainfall. Ricardian Model

ABSTRACT Smallholder farmers in South Africa are particularly vulnerable to climate variability and change. Hence, the need for adaptation strategies within the agricultural sector to mitigate the effect of climate change is imperative to ensure food security. The study investigates the effect of climate change on agricultural productivity and the corresponding strategies employed by smallholder farmers. A multistage sampling procedure was used in the selection of the study population of 200 smallholder farmers. The analysis from regression revealed that climate change effect on agricultural productivity varies across the seasons. In a summer season, a 10°C increase in temperature led to a reduction in the net farm revenue per hectare by R321.40 while a 10°C increase in temperatures during winter, spring and autumn raise net farm revenue per hectare by R277.30, R358.23 and R579.83, respectively. Analysis of the study findings suggests that there is a need to support farmers' adaptation capacity and improve their agricultural production efficiency to overcome future scenarios of climate change effects.