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“Global food security and food safety:
The role of universities”

Economics of Biochar and Drip Irrigation Technologies for Okra Production in Ghana

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Abstract

Irrigation is a deliberate application of water to fields to assist in growing of agricultural crops and the maintenance of landscapes, revegetation in dry areas and during periods of erratic rainfall in rainy areas where food crop producers practice rain-fed agriculture. In Ghana it started over a century ago but a small scale practice started in 1880 in the Keta area. One of the vital areas which needs attention for advancement in agriculture in Ghana is irrigation. It is known that 2007, the area under irrigation is about 33,800 ha of the total land area under cultivation which has barely changed. Though food is abundance after the rainy season, it is woefully scarce in the dry season making prices more than double. Gross margin analysis was done to assess the profitability of okra production under biochar and drip irrigation system at Forest and Horticultural Crop Research Centre (FOCREC) Kade, Ghana and found to be Ghana Cedi (GHS) 1551.40 per 0.08 ha (GHS 18942.50 ha⁻¹) and Net Farm Income (NFI) of GHS 885.00 per 0.08 ha (GHS 11067.5 ha⁻¹) for the first two seasons for biochar treated plots. Regression results show that yield of okra depends on the amount of biochar applied, irrigation practice and the number of plants from which fruits are harvested. It is recommended that biochar-irrigation package is adopted by farmers in this area for high value crops production including okra for income generation especially in peasant agricultural practices. Farmers should be educated on the benefit they could derive from the use of the biochar-drip irrigation system through the media such as newspapers and other social media to create the awareness which will ultimately contribute to addressing food security problems in Ghana.

Keywords: Biochar, food, irrigation, okra, security