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PRINT: ISSN 0970-9274 ONLINE: 2456-6608

J Hum Ecol, 28(2): 113-119 (2009)
DOI: 10.31901/24566608.2009/28.02.06

Resource Use Efficiency among Small - Scale Irrigated Maize Producers in Northern Taraba State of Nigeria

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KEYWORDS Water. Irrigated Maize Production. Resource Use. Taraba State

ABSTRACT Inefficiency in the use of available scarce resources has been the bane on increased food production hence low income among the cream of farmers across the nation. The study examined resource use efficiency (with water as the key variable) in irrigated maize production in the Northern part of Taraba State. The study revealed that water was over-utilized in irrigated maize production in the area of study since it had an MVP of less than unity. Multi-stage stratified random and purposive random sampling techniques involving six wards and eighteen villages were used to select respondents. One hundred and twenty (120) questionnaires were administered on one hundred (100) irrigated maize growers. Only one hundred and seventeen (117) of the questionnaires were retrieved for analysis. Data were analyzed using descriptive statistics, gross margin and net farm income analyses and production functions. Data were fitted to four functional forms based on the OLS techniques. The Cobb-Douglas (power function) production function gave the best fit. All the co-efficients except those of agro-chemical and education carried the expected positive signs. The specific objectives of the study were to determine resource use efficiency, describe socio-economic characteristics of irrigated maize growers, estimate cost and returns and identify constraints to irrigated maize production among respondents. The study revealed the cost and returns per hectare as ₦ 55, 152.61 and ₦ 105,937.50 respectively. About 73.1% variability in the dependent variable was accounted for by the independent variables. The result revealed that all the scarce resources were not used efficiently hence not to optimum economic advantage. This was attested to by the high ratios (greater than unity) of MVP/MFC for fertilizer, seeds, labour and land and low ratio (less than unity) for the key variable, water. For optimum resource allocation to water about 233% decrease in MVP was required while seeds, labour, fertilizer and land required 92.8%, 87.1%, 71.8% and 98.7% increase in MVP respectively. The estimate of elasticity of production summed up to 0.961 meaning decreasing return to scale. Irrigational facilities such as water pumps, sprinklers, pipes and relevant accessories should be made available to farmers to encourage them expand the scale of production thereby boosting increased food production