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“Competition for Resources in a Changing World:
New Drive for Rural Development”

Resources Use Optimisation in Main Food Legume Crops Production in River Nile State (RNS) of Sudan

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Abstract

In Sudan, the tenants have embraced numerous crops in order to intensify production in an attempt to improve home food security and income. Seasonal legume crops are regarded as essential crops within the crop combination in RNS namely, faba beans, kidney beans and chick peas. They are a major part of the daily diet for the Sudanese. Moreover, they play an important role in sustaining the productivity of the farming systems through the fixation atmospheric nitrogen. The RNS is considered as one of the main supplier of legume crops to the country. The crops are commonly produced under pump irrigation from the River Nile. The production of seasonal legume crops in the State are faced by numerous constraints namely inefficiency of resource use, low level of productivity and high cost of production. The paper aims to optimise the available resources use in Winter seasonal crops vis-a-vis food legume crops production. It was on this basis that a paper was prepared out in RNS to establish resource combination levels that maximise gross margins from food legume crops that commonly grown within the combination. Primary data was collected by using structured questionnaire for (70) randomly selected respondents. A linear programming technique through the General Algebraic Modelling System (GAMS) programme was used to assess the optimally combining resources in seasonal legume crops. The model results revealed that tenants would get higher returns by allocating more resources namely land, water, labour and capital to the food legume crops production. Higher net benefits would be from food legume crops production and least from exclusion them. The RNS tenants should therefore, be guided on how to optimally and efficiently utilise their resources and be encouraged to grow food legume crops that give production and yield advantages, earn high returns and contributed significantly to farm sustainability and alleviates malnutrition in RNS.

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