

## Agricultural Mechanization Indices, Productivity and Profitability for Sorghum Value Chain in Busia County, Kenya

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The use of agricultural Mechanization technologies in Sorghum value chain is limited as compared to other value chains such as maize. A study on the agricultural mechanization indices, productivity and profitability was undertaken in Sorghum value chain Busia-County. The overall goal of the study was to contribute to the understanding of the agricultural mechanization indices, productivity and profitability for the sorghum value chain for purposes of recommending research and policy interventions in Kenya. A survey was undertaken to collect data from four sub counties of Busia County with a focus on the sorghum value chain. A multistage sampling procedure was adopted with the first stage being the county, second, sub-county, third, the ward and finally the respondents. While the random sampling procedure was preferred this was combined with purposive sampling in order to get the correct and appropriate sampling unit. Both descriptive and analytical models were used to analyze and report the data collected. Descriptive statistics used included graphs, tables and histograms, while the models included multiple regression models, Mechanization index (MI), productive and profitability functions. The results indicate that mechanization of sorghum value chain was limited with overall MI of 0.18, without oxen but increases to 0.4 when draught power (oxen) was included. Low MI maybe associated with relatively small sizes of plots under sorghum cultivation. The sorghum productivity was estimated using a Cobb Douglas production function, which indicated that investment on machinery, and draught power were positive and significant in influencing sorghum productivity. Thus a shift in policy is recommended to empower farmers afford small-scale machinery either through purchase or service distribution model. While use of draught power was positive, this would eventually be replaced by investing in affordable small-scale machinery.

### References:

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