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Energy Management as a Means of Rural Development- Case Studies of Selected Crop Processing Operations in Nigeria

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Abstract

Nowadays the predominant paradigm in conventional agriculture establishes that “technology is adequate whenever an increment in input produces an increase in output”. This kind of statement usually results in an oversimplification of agricultural systems and loss of biodiversity in rural space. Energy management and energy balance measurement in agricultural production and processing are some of the important indicators of the authenticity of this paradigm. The primary objective of any energy measurement scheme is to minimise the energy cost components of the production costs, but not at the expense of product quality or higher overall costs. The knowledge of energy consumption in each unit operation of a production system is useful for determining high energy consuming areas. This study summarises the results of energy audits conducted in selected poultry industries, palm-kernel oil mills and cashew nut mills in south western Nigeria. The results of the study revealed that scalding and defeathering are the most energy intensive unit operations in poultry processing in Nigeria, accounting for about 44 % of the total energy consumption. Out of the seven readily defined unit operations in palm-kernel oil production, cracking, roasting, crushing and oil expression are identified as the most highly energy-intensive operations accounting for more than 90 % of the total energy consumption. Only two unit operations (drying and roasting) have been identified as the most highly energy intensive operations in cashew nut processing mills. This represented over 80 % of the total energy consumption in the mills. These studies have established baseline data upon which energy conservation strategies in these industries can be put in place.

Keywords: Cashew nut, energy audit, energy management, Nigeria, poultry