

## **Energy use patterns in tomato paste production: a case study of savannah integrated farms limited, Dadin-kowa, Gombe State, Nigeria**

### **ABSTRACT**

A study was conducted on the evaluation of energy use patterns in tomato paste production in Integrated Farms Limited, Dadin-kowa, Gombe State. Energy use and production data in this agro-allied company for seven years (1998-2004) were collected through the administration of a structured questionnaire. Results show of the two energy sources examined diesel fuel consumed accounted for 98% of the total energy inputs over the years under review. The balance of 2% was in the form of manual energy. The minimum and maximum values of energy use ratios were 11.3:1 and 31.1:1 in 2003 and 2002, respectively. A correlation between energy inputs and outputs with R<sup>2</sup> value of 0.94 was obtained. Some energy use lapses were identified in the course of the study, which includes malfunctioning of some electric motors and other auxiliary equipment and general wastage. Manufacture, Transport and Repair (MTR) energy was not evaluated due to insufficient data on the masses of machines available in the industries and on their usage. Thus, the results of energy use obtained from the industries are incomplete because the MTR energy plays a significant role in energy use analysis. The significance of the results obtained in this work is that since the level of use of each energy source was determined, the agro-allied industry would be able to relate energy use with commodity production so as to enhance production with minimum energy input.

**Keyword:** Energy use; Manual energy; Diesel fuel energy; Tomato paste production; Nigeria