Title: Application of Mathematical Model to the Production Capacity of a yam Flour Producing Company

Author(s): A. O. Odior, F. A. Oyawale and E. S. Orsarh


Date: 2009

Abstract: Yam flour is usually required for the preparation of pounded yam which is a daily nutritional food requirement for most Africans. It facilitates the preparation of pounded yam for both domestic and commercial consumption. The production process and the basic operations involved in the production of pounded yam flour have been investigated in order to estimate the production capacity of the company studied. A time study model was developed and applied to analyze the various basic operations involved in the production of pounded yam flour. These basic operations include; the selection of yam, weighing of yam, washing of yam, peeling of yam, slicing of yam with a slicing machine, parboiling of sliced yam with a parboiler, drying of parboiled yam with a dryer, milling of dried yam into yam flour with a hammer mill, packaging of the yam flour and sealing of the packages with a sealing machine.

In this paper therefore, a mathematical model was developed with the application of different techniques of differential calculus to the component elements of the production process of yam flour. The study reveals that the time it takes to produce some kilogram unit of pounded yam flour is directly proportional to the number of production stages involved and the time spent at each of these production stages. This time is being represented by some structural equations which are characteristics of the system being studied.