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Development of Appropriate Mechanisms for Cassava Peeling

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Abstract

Cassava (*Manihot esculenta* Crantz) as a major source of carbohydrate is utilised extensively for human and livestock consumption. Largest quantities of produced cassava are consumed in processed forms, which are labour intensive. Some processes had been mechanised successfully in the production line of cassava products. However, cassava peeling remains a major challenge to food/design engineers involved in cassava processing. These problems stem from the fact that cassava tubers are irregular in shapes, sizes as well as peel thickness. Obviously, variety, cultural and management practices, soil type and soil environmental conditions are part of the reasons for the varied mechanical and rheological properties which are pertinent to cassava peeling automation. Several options are available to the design engineers in the desperate search for appropriate mechanisms for cassava peeling. However, it is important that the problem be considered wholly in order to develop an appropriate machine for cassava peeling. Such machine is basically required in the production line of the following products: cassava grit, gari, cassava flour, cassava chips and pellets, lafun, pupuru, etc. In this study, some mechanisms for cassava peeling are presented. The potentials and limitations of each mechanism were subjected to objective appraisal with the view to determining the most appropriate mechanism for cassava peeling. The peeling mechanisms were eventually developed into a full fledged cassava peeler. The result showed that the optimum peeling device was dependent on some constraints to the objective function. The major constraints include: location, cassava variety adopted for mechanisation and the economic implications of selecting the device for cassava peeling.

Keywords: Cassava grit, food and design engineers, gari, *Manihot esculenta*, peeling mechanism