BUSITEMA UNIVERSITY
Pursuing Excellence

FACULTY OF ENGINEERING

DEPARTMENT OF AGRICULTURAL MECHANISATION AND IRRIGATION ENGINEERING

DESIGN AND CONSTRUCTION OF A MANUALLY OPERATED SUKUMA WIKI SLICING MACHINE

BY

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ABSTRACT

Sukuma wiki slicing is done mainly by women using a hand knife which is tedious, labor intensive and time consuming especially for bulk production.

Their different types of manual slicers on market but most of them are for home use and the electric operated slicers are not convenient for village setting where there is no electricity yet expensive.

Therefore this study was aimed at designing and constructing a manually operated sukuma wiki slicer that will be used by both men and women and still maintain the quality of the sliced product and facilitate bulk production for homes, schools, hotels and business.

The machine was designed with an output capacity of 4kg/hr. and efficiency of 64.2% over the hand knife slicing method.

From the test results, it clearly shows that the fabricated vegetable slicing machine is more effective and efficient in terms of slicing as compared to hand knife slicing.

The operation and maintenance of the machine is easy and it was designed and fabricated using the readily available, reliable and affordable materials.

Key words: Sukuma wiki, slicing machine, output capacity, slicing efficiency

DECLARATION

I Malinga Tadeo Jude do solemnly declare to the best of my knowledge that the work in this report is as a result of my efforts and has not been submitted to any institution of learning for the award of a degree or any professional award.

Signature..Malinga.....

Date..16...../..06.../...2015....

APPROVAL

This project was compiled and submitted to the department of Agricultural Mechanization and Irrigation Engineering under the supervision as approved below.

MAIN SUPERVISOR

Signature..... Date.....16/05/2015.....

MR. SALANJAYE WILBERFORCE

CO-SUPERVISOR

Signature..... Date.....

MR.SSAJJA SSALLI

DEDICATION

This report is dedicated to all my friends who have dared to step out of the dominant culture of dishonesty and selfishness and endeavor to contribute and support my personal development. I honor and salute you all.

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CHAPTER ONE: INTRODUCTION

1.1 Background

The importance of vegetables for example, lettuce, mustard greens, Swiss chard, spinach, cabbage, cauliflower to human cannot be over emphasized as they are high in fiber, vitamins, water, minerals, varying proportions of sugar, proteins and various phytochemicals such as flavonoid, tannin and anthocyanin **(Gruda, 2005)**

The increasing scientific evidence that consumption of vegetables decreases the risk of several chronic diseases has created a firm basis for policy initiative yet insufficient consumption of vegetables was among the risk factors recognized as contributing to worldwide non communication disease burdens and the reason why leafy vegetables are not much included in meals served in institutions of learning is not because they are expensive but because of the drudgery involved in slicing when large quantities are required and yet experts have recommended a daily intake of atleast 400g of fruits and vegetables in the prevention of a wide range of diseases including several types of cancers **(WHO, 2002)**

From time memorial, the use of knives and plastic graters were the major tools for slicing and grating vegetable items such as tomatoes, lettuce, spinach, cabbage, cauliflower, pepper, carrot, collards and so on. But as time went on, technology began to advance and different manufacturers looked forward to how to eradicate injuries and time wastage incurred when slicing using hand held knives **(Bird, 1995)**

1.2 Problem statement

The use of kitchen knives to slice sukuma wiki vegetables requires holding them using hands increasing the level of exposure to injuries, takes long time to slice large quantity and requires skill to produce uniform sliced products. The electrical slicing machines can solve the above issues but their expensive, require proper care and not fit for areas without electricity.
Because of the above inconveniences there is need to design a vegetable slicer that will create a quick, safe and easy way to slice sukuma wiki that are aesthetically appealing in size and quality

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