FACULTY OF ENGINEERING

DEPARTMENT OF AGRICULTURAL MECHANIZATION AND IRRIGATION ENGINEERING

DESIGN AND FABRICATION OF A MOTORISED CHICKEN DE-FEATHERING MACHINE.

BY

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ABSTRACT.

Chicken (gallus domesticus) have been reared by diverse cultures across Uganda .Relative the domestic animals including sheep, cattle, and pigs, chicken are currently the most preferred source of animal proteins(Wang et al., 2020). Chicken is popularly consumed among non-vegetarians due to its low fat, calorific content and provides the most important health benefits such as proteins, micronutrients, and high poly-unsaturated fatty acids.

In Africa, the continent's largest poultry meat producers are South Africa ,which produces 1.5 million metric tons of chicken meat followed by Egypt with 685,000 metric tons and then Morocco comes third with 560,000 metric tons among others (Clare Narrod, 2017).

There are numbers of activities involved in the production of poultry meat among which is defeathering. De-feathering process involves removing feathers from the slaughtered chicken after it has been soaked in hot water of a given temperature. The manual process of defeathering in Uganda results in low production rate, high time consumption, skin damage, tedious and may cause skin rashes. Various machines have been designed and fabricated but unfortunately some farmers in rural areas are not using them due to different associated constraints like initial cost, lack of electricity, skin damage, time consumption among others.

The design and fabrication of a motorized chicken defeathering machine with cleaning was designed, fabricated and its performance evaluated to help eradicate the problems by reducing on time, produce a hygienic, attractive and saleable chicken of consistent appearances and quality of standards hence increasing output and eventually income increase in the medium and large-scale farmers. The machine consists of power source seat, V-belt, driven pulley, shaft, bevel gears, main shaft, rotating plate with protruding finger pluckers attached and static outer drum with protruding static finger (de-feathering chamber), Bearings, Main Frame, Outlet Chute and the main frame. It was fabricated with sheets and angle iron on basis of impact forces.
Average Defeathering efficiency of 83% for local chicken and 90.15% for exotic chicken, machine capacity of 480 chicken per hour with no damages and a feed rate of **2chicken/15 sec** The production cost of the machine was 2,973,100 Ugshs, with a payback period of 0.08years Which is affordable.

Key words: Chicken, Motorised, Defeathering, Belt, Bevel gear, and hygienic.

APPROVAL

This final year project report was submitted to the Department of Agricultural Mechanization and Irrigation Engineering for examination with approval from:

MR. ODONG SAMUEL ATOCHON

SIGNATURE: **…….**

DATE**: …….**

DECLARATION

I **OPURONG ISAAC** declare to the best of my knowledge that work presented in this project proposal report is mine and has never been presented to any University or Institution of higher learning for any academic award.

SIGNATURE: **……...**

DATE……

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