

# **Agriculture Food Authority**

## **Shows and Exhibitions Innovations**

### **Innovation 2**

#### **Introduction**

#### **Multipurpose fibre extractor and paper making machine.**

This machine is for extracting fibre and making paper from banana pseudo stems and papyrus reeds that will be used to make the paper. The machine is electrically controlled by a switch that allows the electric current to flow through the single face motor which drives the machine.

#### **KEY WORDS**

- Worm cutters
- Fibre extractor
- Shaft rollers for extraction

#### **TECHNICAL FIELD**

This innovation relates to devices of extracting fibre and paper making.

#### **BACKGROUND OF THE INNOVATION**

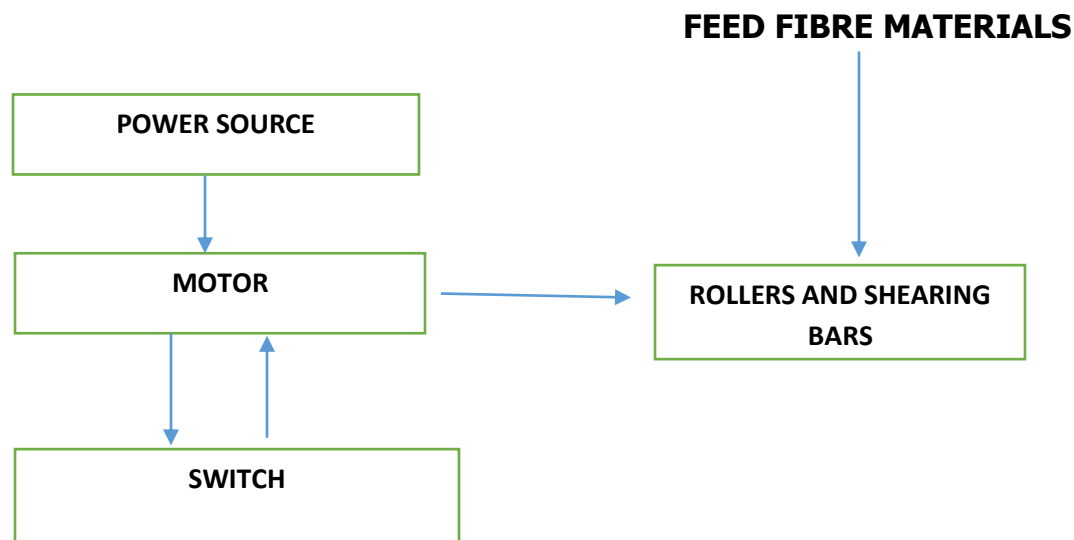
Motivated by the ban on plastic material in our society, this project provides a means in which a more cheaper and affordable eco-friendly products can be introduced into the market. It is the stance of this project that natural resources can attain value in the global market through the demand of industry leading applications.

The project analyses the uses of banana pseudo stem fibres, a naturally occurring resources to be more environmentally friendly as compared to the existing thermoplastics composites. After the extraction of the fibre from the banana pseudo stem and papyrus reeds, variety of products can be made e.g. paper, bags, mats etc.



## DESCRIPTION

- Motion to the shaft is through the motor.
- The shaft rollers which are used to extract the fibre.
- The fibre is then dried and manually cut into smaller pieces.
- The cut fibre is then placed on the in feed tray containing some water.
- The worm cutters therefore cut the fibre to produce pulpy pieces.
- The cooked pulp is then collected on a basin and used to produce paper by pressing it then drying it.



### Feed Fibre Materials

Feed + fodder, Fibre cutting and cooking, Blending, Sieving & Pressing and Drying to paper

### Power source

Single phase A.C motor electricity supply. this ratings are; Voltage 240 V, Current 13ampers and Power{ 13 x240 }=3.12kw

## SUMMARY OF INNOVATION

This innovation discloses fibre extracting and paper making machine. {Banana pseudo stem and papyrus reeds stems}{2}It includes the worm cutters together with the bearing hub, pulley and the driving motor. {3} the cooked pulp basin that is used for cooking the pulp for making the paper.

## **BRIEF DESCRIPTION OF DRAWING**

The purpose of these machine is to extract fibre and make papers. Step one is to soak material in water for certain period of time. Extract fibre by the use of the fibre of the multipurpose fibre extractor. Dry the fibre in solar energy .boil the fibre to soften it after sometime put the pulpy sheet on a flat board with a sleeve thin piece of cloth. Dehydrate the pulpy sheet by use of press machine.

### **The machine is characterised by:**

- Motion to the shaft is through the motor.
- The shaft rollers which are used to extract the fibre.
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## **CONCLUSION**

The multi-purpose fiber extracting machine has be designed with higher efficiency. This will reduce the investment as a single machine is used for various types. The problem of impurities and quality of fiber will be solved. It can be operated by any skilled or unskilled labor and also reduce manual operation. Thus, it is suitable for mass production.

### **AFA Potential Areas of collaboration**

**Market linkages:** Partner with the The Nyeri National Polytechnic, Mechanical Engineering Department, Lecturer Mr Rufus Kiuna [kiunarufus20@gmail.com](mailto:kiunarufus20@gmail.com) to train farmers on Multipurpose Fibre Extractor and Paper Making Machine.