SEMI-AUTOMATIC SHREDDED BEEF MACHINE

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ABSTRACT

The purpose of this study is to provide solutions to existing problems in SMEs Abon Beef Surabaya. The production process still conventional and tools used are still relatively simple. The method used is by utilizing Gear Box technology as the mechanism of power distributor from Electric Motors to the meat counter. This machine also equipped with Electric Motor so that shredded beef process can run automatically. The expected result is to increase 1.5 times the productivity of the Abon Beef Cow's SMEs, so that from 40 Kg / day can produce up to 60 Kg / day.

Keywords : abon, shredded beef machine, SMEs shreeded beef, semi -automatic

I. INTRODUCTION

Beef abon is a kind of food or side dish made of beef which it dried. It seem black bright brown because added by some seasoning like sugar etc. it also seem soft like cotton fiber because the beef had been sliced and dried. This dried process make the beef abon is safe to be storaged in long time (material Encyclopedia).

Today, beef abon has many of functions and benefits. Many of people use it as side dish of traditional food snacks etc, because of its sweet crisp delicious taste. Every 100 grams beef abon that eaten by us contains many of high nutrients such as 212 kilocalori energy, 18 grams of proteins, 59 grams of carbohidre, 10,6 grams of fat, 150 miligrams calcium, 209 miligrams fosfor, and vitamins. Because of its high nutrients, beef abon is good to be consumed to fulfill our nutrient's body needs.

II. BACKGROUND

Based on survey's result that have done at mrs. Sarti's SMEs beef abon, in production process found a problem happen there, and it needs a solution,especially at beef pounding process until the beef soft. At that process the producer still use simple tools or manual process by pounding the beef until soft. This process cause the result of the pounding process not efficient, need more energy and lack of hygiene.

Therefore it is necessary that machine innovation can help increase productivity and effectiveness of SME Abon Beef. The right solution is to create a cattle beef machine semi-automatic system with low power consumption.

The purpose of this research activity is to provide solutions by creating an easy-to-use machine that can improve the productivity and effectiveness of beef production abon with crushing system equipped with pe filters in the industry is expected to be a solution to the problems in SMEs and can increase SME Abon productivity Beef is 1.5 times more than before.

III. METHOD

The research method used is research and development (R & D). Research and development method is a research method used to produce a specific product and test the effectiveness of the product (Sugiyono, 2013).

To achieve the objectives of this activity, in addition to conducting research and development also conducted a series of activities in the manufacture of cattle Machine Semi Automatic System in the implementation of Student Creativity Program This technology is displayed on the flowchart as follows.

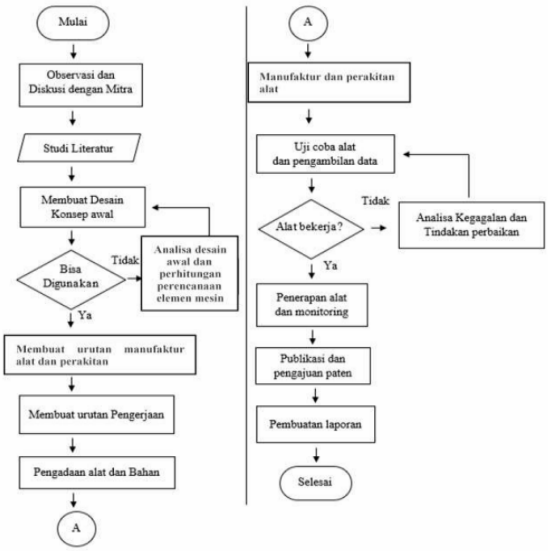

Figure 1. Flowchart Semi-Automatic Shredded Beef Machine

Observation and Discussion activity with SME's

This is the first activity to search the data of problem that happen in SMEs, such as the production capacity, time to work, the product that be processed, waste processing, and other problem's relationship on economy aspect, social and SMEs health.

Literature's Study

The literature's Study contain the combination of searching activity and relevant sources's assesment and the most believed in collecting the materials and it be the reference of technology's application in making our CREATIVITY PROGRAM OF STUDENTT machine. The literature that we use are the book of *Mechanical Design Of Machine Elements And Machines* : *analysis, prediction, prevention, 2nd ed* , by J.A. Collins., the elements of machine in mechanical's design (the second book) by Robert L Moot, transleted by Ir Rines M.T and friends, include the journal and articles about the explanation of beef shredding machine, and the last of research's results or machine's technologies which have relationship.

Making The First Design Or Concept Drawing

Every of idea or concept that appears will be drawn as the first design or mentioned as drawing sketch or drawing concept. The making of MARISA's design uses *Autodesk Inventor 2015 student version's software*.

The First Design Analysis And The Count Of Machine Element's Planning

Based on the first design that has been made, the count of components at machine's elements has been analysed, planned and fitted to the books that we used as the literatures, so we can know various of possibility in its processing, what it can be used, what it fits as the SMEs want, the production cost, what are the problems, how to resolve it, and then what is the alternative can be used.

Making The Final Design or Detailed drawing

After the first design has been analysed, planned, and agreed together by the team and the adviser, next decided what the model like that will be made, then the final design or blue print is made to be used as the reference to make the machine.

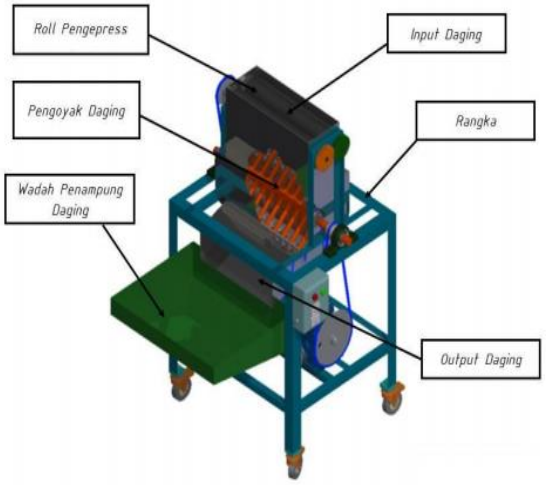

Figure 2. semi-automatic shredded beef machine

Making The Arrangement of Manufacturing and Assembling

The arrangement of manufacturing need to be made to easier the making of machine, so the process arrangement of processing can be done systematically.

Provisioning of Tools and Materials

Before the working started, certainly buying of materials and tools that used in manufacturing have done.

Machine's Manufacturing and Assembling

After all of materials and tools available, then the next step is manufacturing or assembling. Usually this process need long time but it must be done in a month as the target. If meet problems usually use the service of public garage or rent mechanics to finish the making of machine.

Machine Trial

At this step done to know the ability of the machine that has been made, what it has fit with the SMEs need. The machine is tested several times to get the best result. The result of testing, then counted to know the machine ability in increasing the productivity of SMEs.

Failing Analyse And Repairing Step

It is not always machine trial can get the best result directly, because if found the result which unfit need to be analysed and repaired.

Machine's Applying and Monitoring

After the machine has been tested and get the best result, then the machine applyed at the SMEs and ask a testimony to get the SMEs opinion about the machine ability. Monitoring is used to monitor the machine's conditions which used by SMEs, then it is documented and taken its data.

Publication and Submission for Patent

The result of programs that done will be publicated as an scientific or community media with the purpose people know the benefit of our machine. Remember many of benefit produced by CREATIVITY PROGRAM OF STUDENT which it submissed and made a patent through State University of Surabaya's LPPM and HKI.

Making The Report

After all of data about all activities collected,then making the report is made to be submission as a responsibility of activities, which it will be uploaded to sibelmawa.

IV. RESULT

Based on the manufacturing and assemblying process, then it is received a semi automatic beef shredding machine with low power consumption method, and two basic process, they're beef pressing process by a pair of roller and beef shredding process by blades.

Table 1. Machine specifications

No.	Specification	Description

1.	Dimension	(60 x 50 x 60) cm
2.	Capacity	60 kg/process
3.	Main activator	Electricity motor 0,5 PK
4.	Container and blades	Stainless steel's material

Based on the data that we get when observation at Abon SMEs, the process still use manual methods and simple tools , especially at shredding process it use manual wood beater. It needs more energy, unhygiene and need longer time, at beef shredding process for 40kg need time until 30 minutes.

From the observation data, the machine that has been finished manufacturing is expected to operate well and useful to partners with views of several aspects including the following :

- The economic aspect : The increase of productivity from 40kg/30 minutes become 60kg/30 minutes. From this productivity's increase then the income will more increase so it can increase the economic side from SMEs
- The health aspect : By shredding process use the machine ,the shredding process more hygiene, while use the manual process the shredding process is not hygiene
- The social aspect : This machine can increase the productivity so the economic of beef abon SMEs can increase and automatically the social situation too.
- The production aspect : The production process certainly can be done fastly and easy because the process don't use manual method so it more efficient and able to increase SMEs effectiveness. By used this machine,then the number of worker who before shred the beef are four people,it can be done by one people. This condition can reduce the release of worker's wages
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DISCUSSION

Based on the result of applying machine and monitoring at SMEs, then it's received a result that shredding process become more practical and more hygiene,because it's done by the machine that the main activator is elctricity motor and a method before enter beef shredding process by blades, the beef has pressed by a pair of roll so the beef will easier to be shreddimg. This method can accelerate and increase the productivity from 40kg become 60kg with a same time. In addition the beef abon SMEs also feel happy with this CREATIVITY PROGRAM OF STUDENT activity, because it expected can increase the productivity of SMEs and as a education's media for CREATIVITY PROGRAM OF STUDENT team.

V. CONCLUSION

The applying of semi automatic beef shredding machine with low power consumption give a very benefit to beef abon SMEs ,so the productivity can increase from 40kg/day become 60kg/day. This is the result of the beef shredding process use a machine with an electricity motor as the main activator,so it become faster,don't need more energy and the result more hygiene,because the material of the machine especially the roller,blades and the shredding container made of stainless steel material which it's save for food material.

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