

Effectiveness of Brem Production Process Through the Application of Brem Press Machine at Madiun Brem SMES

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ABSTRACT

Brem is one of the typical souvenirs of Madiun, made from fermented sticky rice essence and then molded into rectangular pieces. Based on the results of observations and interviews conducted by the team proposing this activity with partner SMEs groups, data was obtained that the problem that needed to be resolved in the implementation of this activity was the pressing process. This is because the process of pressing the raw material for brem (glutinous rice) to extract the juice is done manually by using simple tools such as square wooden placemats and levers made of bamboo. This causes the process of squeezing the raw material for brem (sticky rice) which is less hygienic and takes a relatively long time (30 minutes/5 kg). So far, this group of SMEs often has difficulty meeting market needs due to the limitations of inadequate production equipment. The methods used to achieve these objectives are by designing, manufacturing, assembly, function testing, handover, machine operation/maintenance training, mentoring and monitoring. Based on the application of the machine in partner SMEs, the result is that the process of pressing the raw material for Brem is faster. It takes 30 minutes to press 5 kg of original Brem raw material to 5 minutes. In addition, the quality of the pressing results becomes more hygienic because it uses foodgrade material (stainless steel). With this activity, it indirectly participates in the success of government programs in supporting the existence of SMEs in supporting the national economy.

Keywords: the effectiveness of the production process, pressing machine, brem.

1. INTRODUCTION

The Brem is one of the snacks or souvenirs made from fermented sticky rice extract and then printed like rectangular pieces [1]. Brem is a superior product of Madiun Regency. Kaliabu Village, Mejayan District, Madiun Regency is one of the centers for making Brem. In this village there are several hamlets, in each of which there is a Brem Madiun entrepreneur. Several Small and Medium Enterprises (SMES) in Kaliabu Village in the form of Trading Enterprises (UD), namely UD. Maju Sentosa (Partner 1) led by Mr. Samiran and UD. Sinar Abadi (Partner 2) led by Mr. Sutrisno. Brem making has been going on for a long time, the business they do has been passed down from generation to generation from the previous family. Brem is a food made from sticky rice tape (white sticky rice).

Despite being a typical food icon of the city/district of Madiun, the support from the local government is still not optimal. When visiting Kaliabu Village, do not expect to see modern presses, dryers, and mixers which are produced on a large scale just like in a factory but only simple machines, some of which are made by Brem entrepreneurs to support their activities.

Brem produced is usually used as souvenirs from Madiun, the consumers are also diverse. Starting from the bottom, middle, to the top. The price that is set is quite affordable, in the range of Rp. 4,000.00 – Rp. 7,500.00 per pack (1 pack contains 3 Brem sticks). In addition to producing in bar packaging, entrepreneurs also produce wholesale. These wholesale orders are usually sent outside the island such as Bali and Kalimantan.

Brem's order capacity, in particular, will be crowded during the fasting month. This is because many shops

have started stocking their goods, for souvenirs during Eid. Requests will return to normal on normal days, which will be ordered by customers from various regions. At first glance the process of making Brem seems simple and anyone can make it, but on a large and industrial scale, making Brem is very complicated to do. Starting from the selection of quality sticky rice raw materials for the manufacture of Brem. Because if the raw material for Brem is not good, then the Brem produced will not be maximal.

The two partner SMEs get the raw materials for making Brem from the traditional market in the Mejayan sub-district. In addition, they also cooperate with wholesalers of glutinous rice outside Madiun Regency to get good quality in order to obtain quality Brem as well.

Brem production capacity per day for partner SMEs 1 is around 1.5 quintals which is supported by 10 workers. Meanwhile, in SMEs 2, it is around 2 quintals with 12 employees with the last education being SMA. The capacity depends on how many brem ordered by the customer. Briefly explained the process of making Brem. The first step is soaking and squeezing the glutinous rice, then steaming the glutinous rice using a stove. After that, the process of stirring the steamed glutinous rice is carried out which is then added with the flavoring of brem (essen), until the last process is kneading (Javanese). The tools used are very simple. In the process of squeezing the juice of just soaked glutinous rice, the squeezer uses wood and bamboo that are linked together. The cooking process also still uses firewood so that the process of cooking glutinous rice juice takes longer and does not use a temperature controller. The drying process also still relies on the heat of the sun, if the conditions are cloudy or rainy, the drying process will take 2 times longer.

At busy times, the turnover of demand for brem in partner SMES 1 reaches 9 large boxes (1 box contains 1100 stems of brem) while the turnover of demand for brem in partner SMES 2 is 12 large boxes. The order was obtained not from one agent, but several agents. Meanwhile, in the quiet months, he does around 3 boxes of orders per week. From these orders, entrepreneurs take a profit of Rp. 650 per stick. So, Rp 150,000 per box can be pocketed. This amount is of course after deducting the cost of labor, plus the materials for making it, as well as eating and drinking for the employees three times in his workshop.

The products produced by the two partners SMEs have various flavors such as original, chocolate, strawberry, orange, and mango. In marketing their products, the two partners do not face any obstacles because so far they have been marketed in traditional markets, minimarkets, and supermarkets, both within the city and outside the city. Marketing techniques use conventional media to online media.

The facilities owned by the two partners include the administration room, production room, drying area, and showroom. Meanwhile, access to the highway is quite easy because it is located on the side of the Kaliabu village road (2 km from the provincial route) with adequate electricity and telecommunications networks.

The problem faced by partner SMEs is in the process of pressing raw materials. This is because the process of pressing the raw material for brem (glutinous rice) to extract the juice is done manually, using simple tools such as square wooden placemats and levers made of bamboo. This causes the process of squeezing the raw material for brem (glutinous rice) which is less hygienic and takes a relatively long time (30 minutes/5 kg). So far, this group of SMEs often has difficulty meeting market needs due to the limitations of inadequate production equipment. This can cause Brem's order to be rejected if ordered in a short time and large quantities.



Figure 1. Conventional Brem pressing process in partner SMEs

The application of appropriate technology, according to [2], appropriate technology, especially those related to their business as well as demonstrations and submissions of designed tools, received a good response, especially for entrepreneurs who desperately needed solutions to problems in the production process. Through the use of appropriate technology, [3] though, it can increase production and income because it uses the right machine technology automation to expand marketing. the result of the dedication to implement automation of technology machines so that prices can be affordable, and production increases 100%.

Regarding business productivity, a new business can be said to be productive if the business can be carried out efficiently and effectively, or can use minimal resources with the most accurate results possible. It has been discussed in [4]. So if you want to increase the productivity of a business you can do it by increasing the efficiency and effectiveness of the business.

According to [5], several ways can be taken by entrepreneurs to improve the efficiency and effectiveness of their business, namely by 1) improving the skills or skills of their employees, and 2) updating their production equipment. The second way is rarely taken by small entrepreneurs. This is not only due to limited

capital but also due to limited knowledge, which generally cannot access the latest information, especially those related to the development of increasingly sophisticated production equipment. According to [6], It is different from the way usually taken by entrepreneurs who are already big (professional), they on average prefer to choose a way to upgrade their production equipment to increase the efficiency and effectiveness of their business.

Regardless of the group of large entrepreneurs or small entrepreneurs, before determining the steps/methods that will be taken to increase efficiency, entrepreneurs must consider the method to be taken so as not to lose money. SMEs in this activity are small entrepreneurs who have problems as above, namely wanting to increase efficiency and effectiveness to increase business productivity. SME leaders are also aware that this can be done by upgrading their equipment. But because they are not financially capable, and their knowledge in the development of production equipment is also weak, and they do not have the innovation to develop their equipment, it is necessary to find the right solution to solve it.

In general, the production problems faced by Indonesian small and medium enterprises (SMEs) are not suitable to be solved through the application/use of machines with the latest/sophisticated technology, but many are more suitable to be solved through the application of appropriate technology use (TTG) [7]. Because the investment costs for implementing TTG are relatively cheap, and mastery of technology does not require too high a level of knowledge.

Referring to various existing literature studies, the proposing team from Unesa intends to help overcome production problems faced by partner SMEs through the application of the Brem pressing machine. This condition is highly desired by SMEs because continuity and quality of production can be maintained. This will have an impact on increasing the income earned by SMEs and increasing the welfare of both entrepreneurs and employees

2. IMPLEMENTATION METHOD

To design, build and implement Brem pressing machine is arranged in several stages as follows:

- (1) Machine preparation and design stage, including:
 - on-site needs survey,
 - make machine detail drawings,
 - identification and procurement of materials and equipment needed in the fabrication process.

(2) Manufacturing and assembly stage Brem pressing machine tailored to the needs of partner SMEs.

(3) Machine testing stage, including machine testing, machine evaluation, and revision.

(4) The handover and training stages include:

- machine operation training,
- machine maintenance training, and
- machine safety training.

(5) Periodic monitoring stage

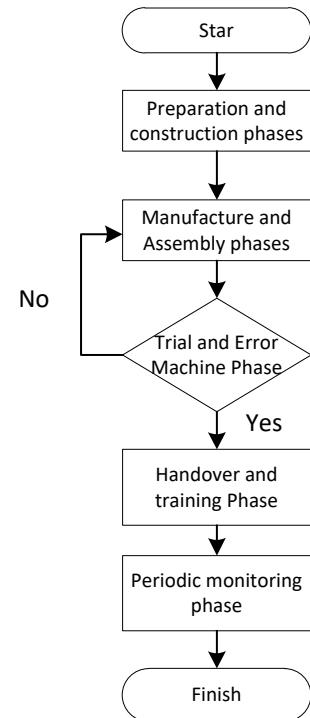


Figure 2. Flowchart action method 3. Math and equations

3. RESULT AND DISCUSSION

3.1. Result

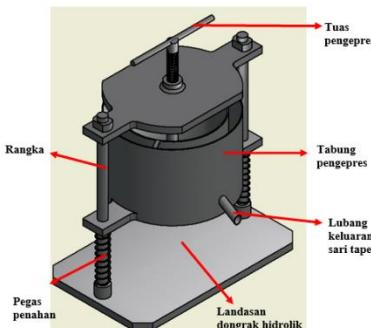
Based on the results of manufacturing and assembly, it is obtained Brem pressing machine as shown in Figure 3



Figure 3. Brem pressing machine

Table 1. Machine specifications brem press

No.	Description	Information
1	Dimension	(60 x 60 x 170) cm
2	Capacity	5 kg
3	pressing system	Electric thread
5	Material	Mild steel and stainless steel


Figure 4. pressing machine parts

3.2 Discussion

Community Service Activities (PKM) carried out by the author and the team focused on helping to overcome the problems of partners, namely the Brem Small and Medium Enterprises (SMEs) group in Madiun district. The problem experienced by partners is in the process of pressing the starch of glutinous tape for making brem


Figure 5. before and after using the machine

Therefore, the author and the team provide a solution, namely by applying a brake press machine with a hydraulic system. Based on the results of the activities that have been carried out, the SME partners are very happy with this activity because the process of pressing the brem can be done practically and easily which does not require special skills to operate the brem pressing machine. For more detailed results, see figure 5 and Table 2.

Table 2. Results of machine application brem press

Descripti on	Before machine application	After machine application
Equipment	Manual	Brem Pressing Machine
Pressing time (5 kg)	30 minutes	5 minutes
Labor	Easily tired	Not easily tired and during the pressing process can be left to move other work
Pressing quality	Less hygienic Less than optimal results	More hygienic because the machine material is made of stainless steel. Optimum pressing results

4. CONCLUSION

Based on the application of the machine in partner SMEs, the result is that the process of pressing the raw material for Brem is faster. To press 5 kg of raw material Brem originally took 30 minutes to 5 minutes. In addition, the pressing results are also more hygienic because the machine material is made of stainless steel. The realization of this activity indirectly participates in the success of government programs in supporting the existence of SMEs in supporting the national economy.

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