

Design and Build Onion Cracker Drying Rack Krajan Hamlet, Randuagung Village, Singosari District

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ABSTRACT

Home business is one of the driving forces of the economy in Indonesia, but its existence is always faced with various problems, including production, equipment, management, and marketing. One of the home businesses in the class of onion crackers owned by Yuyun's mother is located in RT 03 RW 05 Krajan Hamlet, Randuagung Village, Singosari District. This business is an income field for the surrounding community because the production process is simple, so, in the drying process, onion crackers only use a makeshift base with bamboo as a support for cracker bases. This business is an income field for the surrounding community because the production process is simple, so, in the drying process, onion crackers only use a makeshift base with bamboo as a support for cracker bases. The cracker dryer mat is the most crucial means to obtain a completely dry and hygienic cracker result. The purpose of community service is to solve the problem of cracker drying racks. Solutions designing and manufacturing cracker dryers with rack models. The implementation method is by collaborating with partners and students to make a more modern and innovative onion cracker drying rack from elbow iron and Kalimantan wood, making cracker mats from filter nets and hygienic as many as 25 units. The results obtained dry crackers are evenly distributed and cleaner, the shelves are more efficient to accommodate the crackers to be dried in the sun, the production capacity tool increases by 46% of the increased production amount and the revenue rise to 70%.

Keywords: Onion Crackers, Shelf Design, MSMEs, Innovative



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INTRODUCTION

Crackers are the most popular snack food by everyone from toddlers to seniors, and they as a compliment when eating, (Indranata et al., 2022). The texture of the crackers has the characteristics of crispy, Sa, light, and onion flavoured. Therefore, the business of making crackers is in great demand by the public. One of the small and medium-sized enterprises in the MSME class owned by Yuyun's mother has been producing onion crackers since six years ago. The address of this MSME is Krajan Hamlet, Singosari District, Malang Regency. Onion crackers are produced from wheat flour, tapioca flour, garlic, and added spices and salt, (Diniari et al., 2021). The next process is by

stirring and adding water to make a dough that can be steamed and then cooled, sliced and dried. The number of workers is 2 people, namely husband and wife, onion cracker business is life support so that in 1 month it can produce an average of Rp. 3,500,000 to Rp. 4,000,000. marketing of onion crackers only around Singosari, Malang regency. Consumer demand is quite high, but due to the limitations of dryers and plinths and limited land, this production cannot meet consumer demand. The drying rack is made of bamboo and has been damaged, and the base of the cracker dryer is also limited, therefore equipment is a problem that must be above to increase business productivity, (Rachmawati1 et al., 2022).

Mrs Yuyun's MSMEs in the drying process still use shelves made of bamboo that are about to fall, it is feared that this will interfere with the drying process, figure 1.



Figure 1.

Rack clothesline crackers from rickety bamboo and only one

Source: Observation Results of the Existing Conditions of MSME Partners, Mrs Yuyun, 2022

Meanwhile, the base used to dry crackers is still very simple and has been damaged a lot. The condition of the base will affect the number of results obtained due to the limitations of the shelves and the base on which the crackers are placed, here figure 2 shows the crackers when drying on a bamboo base.



Figure 2.

The bamboo pedestal where the crackers will be dried

Source: Observation Results of the Existing Conditions of MSME Partners, Mrs Yuyun, 2022

The drying process deserves special attention since the quality of crackers is largely determined by the degree of proper dryness. This condition causes crackers to be easy to fry and produces onion crackers that are crispy, crunched, and kranci. Dry crackers can be seen from the moisture content that is still contained in the cracker slices, if the crackers are less dry then when fried they are not crispy. (Hidayat & Purnomo, 2014). In addition, the cracker dryer also has a big role in drying onion crackers. Dryer with a rack model, able to increase production capacity, (Yulianto et al., 2018). While drying with sunlight can be more effective if the heat is stable, but if the heat generated by

sunlight is always changing the weather and unstable heat levels will cause the dryness level of crackers or dried goods to be not optimal, (Rahmi et al., 2020).

METHODS

Based on the identification of the most crucial problem faced by the service partner, namely MSMEs, Mrs Yuyun, is to make a design of the onion cracker drying rack that is simply affordable from the cost and easy to imitate by the same business owner, the process flow and stages of work can be seen in figure 3.

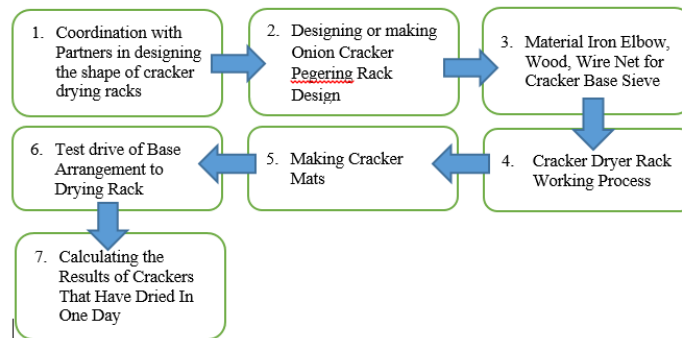


Figure 3.
Grooves of the Stages of Making Onion Cracker Clothesline Racks
Source: Data processed, 2022.

The implementation method that will be carried out by following per under the stages that have been made in the pipeline according to figure 3 is as follows:

1. Coordination with partners is expected to result in a joint agreement between the service implementer and the business owner. The deal came to fruition with the creation of onion cracker drying racks and adapted to the conditions of the land owned by the partners.
2. Design or Design Cracker Clothesline Racks, Racks are made in two forms, this is intended to provide comfort in laying the cracker base and easy to move when one part is dry and the next part as a substitute. The flow of onion crackers that will be dried with a base, along with the design or snag of the shelf image can be seen in figures 4 and 5 below.

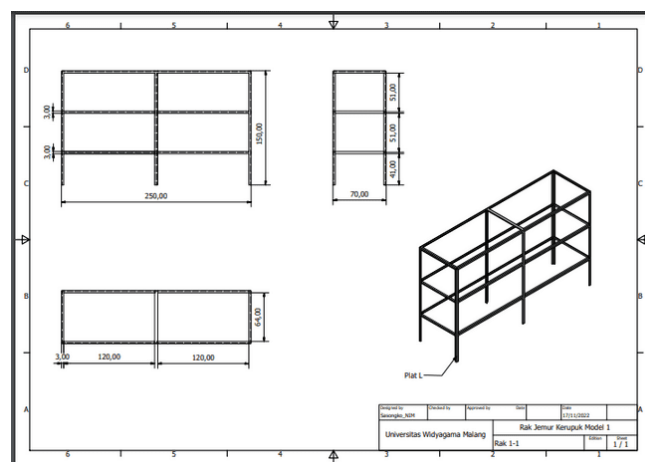


Figure 4.
Design of Rectangular Clothesline Rack from Elbow Iron
Source: Image documentation and processing, 2022.

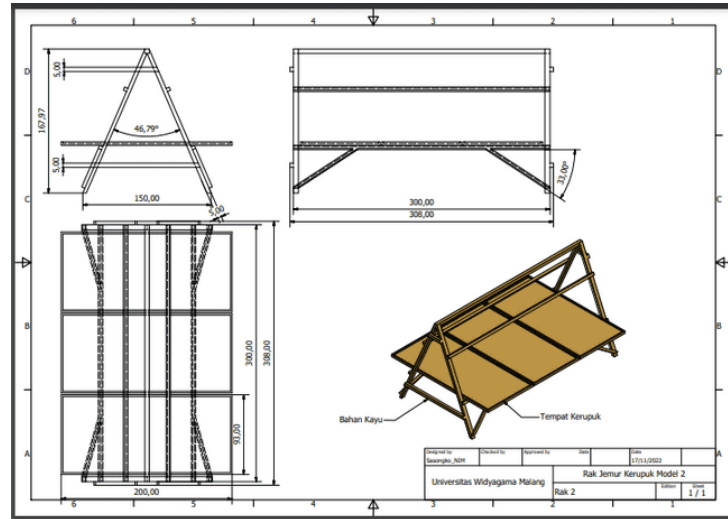


Figure 5.

Design or Design of Onion Cracker Clothesrack from Kalimantan Wood

Source: Image documentation and processed, 2022.

1. The third stage, purchasing various materials that will be used to make cracker drying racks, including elbow iron, Kalimantan wood, wire netting, nails, bolts, and plywood. Figure 3. Grooves Stages of Making Onion Cracker Clotheslines. The tools used are Burrs, Saws, Nails, Locks 12, Nuts and bolts.
2. The work process is carried out in a team, done together with the help of students. The implementation of rack-making takes one week for two types of drying racks. Racks are made in two types namely from wood and elbow iron, the following work process can be seen in figures 6 and 7.



Figure 6.

The Process of Making Cracker Clotheslines from Kalimantan Wood
(According to the grooves of arrows)

Source: Service documentation, 2022.

Making a wooden clothesline frame, as an example for other communities around the partner location so that the cost is not too expensive, but the function and benefits can be felt for drying onion crackers. The cost of making shelves is also not too expensive can still be reached, it is simpler, and the innovation of shelf models has become more exclusive.



Figure 7.

The Process of Making Onion Cracker Clothesline Racks From Elbow Iron
(according to the groove of the arrow)
Source: Service documentation, 2022.

1. Making the base, the base is a means to place the crackers that have been sliced with drops then placed onto the base and then placed on a drying rack, further can be seen in figure 8. The base is made of a net or wire gauze so that crackers that are dried with moisture when exposed to sunlight can dry from above and from below. The number of pedestals made is 25 units.



Figure 8.

Manufacture and handing over of the base from gauze or wire
Source: Location at Mitra UMKM Mrs Yuyun, 2022

2. Trial of the arrangement of the base to the rack, this is done to see the adequacy of the shelves and the base made. Figure 9 shows the process of arranging a base that has been filled with cracker slices and then placed on iron and wood shelves.



Figure 9.

Onion Cracker Clothes rack From wood and Iron Elbow

Source: Service documentation, 2022.

3. Calculating the number of dry crackers and comparing to before there was a shelf made from the results of community service by the service executor.

RESULTS AND DISCUSSION

The manufacture of manual cracker drying racks has made it easier for MSMEs to run a business. Manual racks are made simply, but have a very important function for the cracker drying process, especially for large locations. Drying, which is carried out directly with solar heat, has maximum heat, so the degree of dryness in onion crackers is very optimal, and crispier, (Novarini & Sukadi, 2019). Drying done with an LPG Gas stove and using a dryer from stainless steel can also be done for cracker dryers, (Fajri et al., 2017). The weakness of the dryer with LPG gas drought level has not been maximized, this can be seen when frying crackers, then the results are not too crispy. The onion cracker dryer rack is ergonomically designed, and made from very simple materials but has innovations that can facilitate the drying process well, neatly, and more hygienically, (Adiyanto et al., 2020).

The design of the shelf also pays attention to user anthropometry in terms of the height, width and length of the shelf, (Adiyanto et al., 2020). The innovation of wooden shelves can be moved around and is easy to store. The wooden shelf is able to hold 6 units of onion cracker mats, and 1 base is able to produce 2.5kg of dried onion crackers so that 1 wooden shelf can produce 15kg of dry crackers, as can be seen in figure 10



Figure 10.
Wooden Racks for Drying Onion Crackers
Source: Documentation results, 2022.

The second shelf is made of elbow iron to be made more permanent without being moved around and adjusted to the area of the land. The rack is made with rectangular dimensions, with 2 sap or it can be 3 sap at the bottom of the board, one sap can hold a base of onion crackers as much as 5 units. So one shelf can hold as many as 10 bases or if 3 sap 15 bases and 1 unit of onion cracker base can produce dry onion crackers in the amount of 2.5 kg, so 1 shelf can reach 25kg up to 37.5kg of dried onion crackers. It can be seen in figure 11.



Figure 11.
Elbow Iron Rack for Drying Onion Crackers
Source: Service documentation, 2022.

Dryers from sunlight the dryness level of crackers becomes more optimal and cheaper without spending money, and healthier, (Adiyanto et al., 2017). The results of crackers becoming fresher, drought levels reaching 99% and onion crackers becoming brighter, can be seen in figure 12.



Figure 12.

The yield of dried onion crackers is 89%
Source: Community service documentation, 2022.

The success of the cracker drying process plays an important role, because it is related to the quality of crackers, and drying with sunlight has an ugly effect, namely: it needs a large place, it is dusty, it breaks easily, the colour is unattractive, depending on the weather, and there is additional work if there is rain at any time to come, this is in line with the opinion of (M. Imron Rozikin, Yuri Ariyanto, 2020); (W Restu et al., 2018). The dryer becomes very important, since related to the quality of the crackers after frying crispy or not, crispy crackers are also determined by the moisture content. Besides the dryer driven by an electric dynamo, or with a boiler kettle, the results are also still quite optimal, (Rusdjijati, 2018).

The results of drying racks both from wood and elbow iron have shown optimal results, therefore Mrs Yuyun's onion cracker MSMEs are worthy of being a pilot for other cracker business owners. Production optimization has an impact on business profits, more and more cracker orders, and the production process can run smoothly, then customers will feel satisfied, (Rusdjijati, 2018). The temperature in the cracker dryer process with sunlight can reach 50%, (Mukkun & Dana, 2016). So that the ideal drying process can be measured between the placement of cracker rays against the shelves and the lighting from the sunlight, the room temperature reaching a high value compared to the ambient temperature will produce an ideal temperature, (Khathir et al., 2021). The calculation of efficiency on the use of racks from wood and elbow iron with production results from 4 months, starting in July, August, September, and October 2022 can be seen in table 1 below:

Table 1. Evaluation and Efficiency

Moon and Year	Elbow Iron Rack	Wooden Racks	Production Results Onion Crackers
July 2022	100 kg	60 kg	2.800.000
August 2022	150 kg	60 kg	3.675.000
September 2022	150 kg	80 kg	4.025.000
October 2022	125 kg	70 kg	3.412.500

Source: Data processing results, 2022.

The results obtained by MSMEs of onion crackers every month experience fluctuation, this is because consumer demand is uncertain every month. However, when compared to the income before the existence of wooden shelves and elbow iron, the results obtained are less can be seen in table 2 as follows:

Table 2. Evaluation and Efficiency

Moon and Year	Racks from Bamboo	Production Results Onion Crackers
March 2022	83 kg	1.452.000
April 2022	67 kg	1.172.500
May 2022	112 kg	1.960.000
June 2022	105 kg	1.837.500

Source: Data processing results, 2022.

The following is a chart of the comparison before and after using wooden shelves and elbow iron racks with income within a redundant four months, which can be seen in figure 13 below:

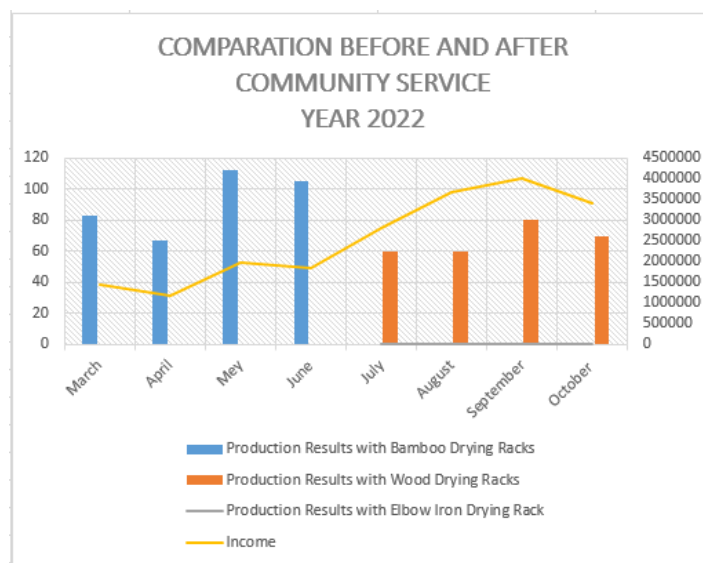


Figure 13. Comparison Results of Shelf Use before and After Community Service Source: Data processing results, 2022.

In the comparison of the results after the service and before the service is carried out, there is a difference in the income from the production of onion crackers. The income before using shelves and additional pedestals for drying crackers was as much as 15 baking sheets, the result was Rp. 6,422,000, - and after using racks from wood and iron elbows, the income of MSMEs onion crackers was Rp. 13,912,500, - or there was an increase in income of 46%. The production results are seen from the quantity while using bamboo shelves with a base of 6 pans, the results are 367 kg for 4 months. Conditions will be different when Yuyun's mother uses a wooden shelf and elbow iron, which is as much as 525 kg. The efficiency rate can be obtained by approximately 70%.

CONCLUSION

Community service is carried out to solve problems that are being faced by partners. The results of the service are very helpful for MSMEs processing onion crackers in Krajan Hamlet, Kecamatan Singosari related to dryers that have been damaged and are unable to accommodate drying mats. Therefore, by designing and making onion cracker drying racks from elbow iron and wood materials, they can accommodate a large and optimal cracker base by following per under the production capacity of Mrs Yuyun's MSME. The utilization of wooden shelves, elbow iron racks and additional bases for the place where crackers will be dried is very useful and makes it easier to dry. Business

productivity is getting better with an increase in revenue and the number of customers ordering onion crackers. In addition, making drying racks only requires economical costs, namely for one unit of racks from elbow iron with a length of 120 cm, a width of 70 cm, and a height of 1.5 cm, the cost of Rp. 235,000. As for shelves made of wood, a fee of Rp. 397,500 is required.

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