

Implementation of Modernisation Meat Shredding Production in MSMEs Karanggintung Village, Banyumas

Ria Manurung^{1,a)}, Sutarno²⁾, Erminawati³⁾

¹Computerized Accounting, Sekolah Tinggi Ilmu Komputer Yos Sudarso, Purwokerto, Indonesia

²Mechanical Engineering, Sekolah Tinggi Teknik Wiworotomo, Purwokerto, Indonesia

³food technology, Universitas Nahdlatul Ulama, Purwokerto, Indonesia

^{a)}Corresponding author: ria.manurung74@gmail.com

ABSTRACT

The Abon production process is very conventional and takes one and a half (1.5) days for 5 kg of chicken meat with a workforce of 5 people. The most extended production process is during the pounding and shredding of chicken meat, about one full day for five workers. This impacts the Abon production capacity and the group's monthly turnover. The purpose of the service is to design and provide machine tools for the production modernization process and train the use of machines for the production modernization process. The Pengabdi team carried out the service by providing machine tools to automatically mash and shred chicken meat quickly and accurately with a time that was previously 1.5 days to 15-20 minutes for 5 kg to improve the quality and quantity of shredded production at Partners. Then, I will assist in sustainable industrial management and training on the use and maintenance of engineering machines in a participatory manner. The production process is not optimal, which has an impact on sales turnover, has been resolved by the Service Team by providing 1 unit of shredded meat shredding machine during the implementation of this service activity. The lack of innovation in the product, because it is still one type of original flavour, Chicken Meat Shredded, has also been resolved by the Service Team by diversifying the product through testing the shredded meat shredded rendang flavour machine.

ARTICLE INFO

Article History:

Submitted/Received 13 Sep 2024

First Revised 10 Oct 2024

Accepted 11 Oct 2024

First Available online 21 Oct 2024

Publication Date 21 Oct 2024

Keyword :

Chicken

House

Industrial

Machine

Spicy

INTRODUCTION

Abon is a type of dried food from processed meat or fish in the form of finely shredded fibres (Rahmawati, Sismindari, Raharjo, Sudjadi, & Rohman, 2016). Abon has a soft shape, good taste, distinctive odour, and relatively long durability, lasting 15 days at room temperature (Yang et al., 2023). Abon is a preservation product that combines boiling and frying by adding spices (Marhaeni, Fanani, Hartono, & Nugroho, 2015). Abon can be consumed as a snack or as a side dish. Abon is one IMF (Intermediate Moisture Food) product (Yulia, Bahtera, & Purwasih, 2021). Intermediate Moisture Food (IMF) products have a certain level of durability because they have a moisture content between 10-40% and water activity between 0.60-0.85. In this situation, it is inadequate for bacterial growth because bacteria grow above 0.9 (Wazir et al., 2019).

In Karanggingting Village, Sumbang Sub-district, Banyumas Regency, there is processed shredded chicken meat produced by the BUNDAKU Production House Community Group with group leader Mrs Anastasia Febriana Ida Wilasari. This group was founded by a group of housewives who were laid off due to COVID-19 in mid-2020. Rumah Produksi BUNDAKU has ten members, but there are only five active. The group produces several food products such as Original Flavoured Meat Flakes, Chicken Cremes, Bayem Crisps, Dried Potatoes, and Enggrolla, but the flagship product is Abon. This product has good economic prospects due to its wide range of consumers, high demand, and reasonably high price, which allows for a profitable business model (Sumardi & Hasrin, 2019).

The Abon production process is very conventional and takes one and a half (1.5) days for 5 kg of chicken meat with a workforce of 5 people. The most extended production process is during the pounding and shredding of chicken meat, about one full day for 5 workers. This impacts the shredded production capacity and the group's monthly turnover. 5 kg of chicken meat produces about 2 kg of 100 grams of sliced meat, approximately 42 jars, 50 grams per jar. Forty-two jars: $3 = 14$ packages x Rp 50,000, total sales of Rp 700,000 per production. The cost incurred is IDR 630,000 per production; the remaining IDR 70,000 is for the group treasury, which will be redistributed every three months. The most significant cost is chicken removal labour of IDR 200,000 for 5 people for 1 day.

The Bundaku production house group carried out the shredded production process in the following stages: Stage 1) Steaming using chicken breast takes approximately 30 minutes (Witriansyah, Kristiningsih, & Prabowo, 2021). Stage 2) Pounding the chicken while hot until smooth by pounding little by little because it uses conventional equipment. Pounding chicken while hot is easier to do smoothly than pounding in a cold position because you have to pound until it is smooth to produce fibrous chicken (Aydin, Gundogdu, Altuntas, Ulas, & Eroglu, 2017). Stage 3) Shredding the meat until it is soft so the shredded meat remains fibrous. The difference when shredded is that the shredded beef is not fibrous, and the result is soft (Raseetha et al., 2021). Stage 4) Chicken seasoning is done by smoothing all the spices, sautéed using a little oil, adding lemongrass, Laos, coconut milk, and bay leaves, then add the chicken and leave until the coconut milk is just a little (Kassim & Omojola, 2020). Stage 5) Frying the chicken mixed with spices for 10 minutes (Ravikumar, Hashmi, Shankar Ganesh, Bikkannavar, & Vivek, 2019).

Stage 6) Drain the oil with a spinner to remove the oil and shredded dry (Zhuang et al., 2022). Stage 7) Frying for 15 minutes to make the shredded meat crispy and durable (Moldavanova et al., 2018). Stage 8) Packaging with three sizes, 50 grams sold for Rp 18,000, the price of Rp 50,000 can be three jars and the size of a 30-gram pouch sold for Rp 12,000 (Сухенко, 2013). Stage 9) Sales, where the Abon produced, is still one type of Abon Chicken Meat's original flavour. Abon BUNDAKU also applies the reseller concept, where we partner with community members, individuals, and groups who act as our sales representatives, promoting and selling our products in their local areas in exchange for a commission. The following photos show the process of making shredded by hand.

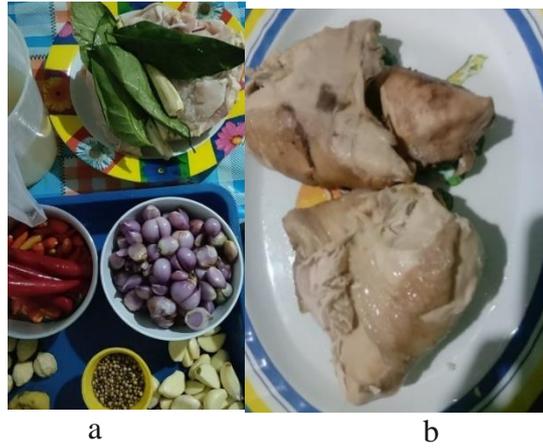


FIGURE 1. (a) Meat Shredding Seasoning (b) Steamed Chicken Meat



FIGURE 2. Pounding of Chicken Meat



FIGURE 3. Pounding and Shredding Chicken Meat



FIGURE 4. Shredded Chicken Meat

PROBLEMS

The Abon BUNDAKU production process is still straightforward, so comprehensive assistance from the Service Team is needed. The main problems faced by the BUNDAKU Business Group are: The production process of Abon Daging Ayam is still conventional, with simple equipment in the form of grinding stones to pound chicken meat so that it is smooth and using hands to shred, which takes 5 kg of chicken meat all day with five workers. It is very inefficient and ineffective, which requires considerable labour operational costs. This also affects the capacity and quality of Abon production.

METHOD

Problems with Quality and Quantity of Production at Partners by providing machine tools that automatically mash and shred chicken meat quickly and accurately with a previous time of 1.5 days to 15-20 minutes for 5 kg (Adediran & Abdul, 2022). Assist in sustainable industrial management and training on the use and maintenance of engineering machines in a participatory manner. It provided assistance and training for manufacturing new products from different flavours, namely spicy and rendang flavours (Siavichay, 2021). The method of implementing this service can be seen in the flow chart below.

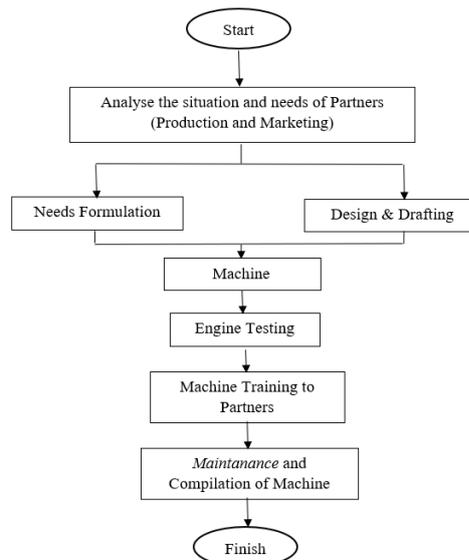


FIGURE 5. Flowchart of Service Implementation

The description of the activity stages is as follows (Witriansyah et al., 2021) :

1. Analysis of partner conditions

The Service Team's direct observations at the partner location provided us with the actual conditions of the current partners. The output of this direct observation, in the form of production, financial, and organisational data, is invaluable. The implementation team played a crucial role in this process, conducting interviews and Focus Group Discussions (FGDs) with partners to identify the main problems felt by partners and internal and external conditions. The results of these interactions will be the primary reference in providing improvement strategies to enhance the quality and production capacity of partners, both for businesses and group members.

2. Preparation and engineering of technology in the process of shredding Abon products

The technology offered is the production process at the stages of pounding and shredding shredded meat by identifying prototype designs for pounding and shredding machines in the form of tool and material requirements for the technology engineering process to help provide solutions to partners.

3. Provide assistance and training for manufacturing new products with different flavour types, namely spicy and rendang flavours. In addition, the Executive will conduct systematic production planning and control that helps partners increase the quantity and type of production, including determining inventory management, production scheduling, and resource requirements. The implication of this activity is to help partners meet production targets and reduce the occurrence of errors in business processes. The implementer will also conduct maintenance management to reduce the possibility of damage to production machinery.
4. Training on the Use of Technology:
 - Training on the use of machines for pounding and shredding shredded products was conducted using the machines provided. This training is important so that the process is optimised.
 - Training on planning and production of new types as a diversification of shredded products with production planning to ensure the partner's production quantity increases.

RESULTS AND DISCUSSION

The Service Team has tested the shredded meat machine with rendang flavour. The result of the application of the shredded meat machine is that it speeds up the shredded meat production process because the machine automatically mashes and shreds in 15-20 minutes per 5 kg of chicken meat that has been steamed. Increase the capacity of shredded meat production because the machine is automatic and fast. It saves production costs and time efficiency and creates a new type of shredded flavour innovation as a product diversification with a kind of rendang flavour. Using this machine can increase the production of shredded meat faster than using human hands. Furthermore, the knife can be modified to shred all beef, not just chicken. This shredded machine uses an electric motor and a drive motor and easy to operate. The activities for the implementation of the service of making shredded rendang flavour using a meat shredding machine can be seen below:



FIGURE 6. (a) Preparation of Abon Seasoning, (b) Boiled Chicken Meat



FIGURE 7. (a) Chicken meat has been shredded by machine, (b) Chicken Meat Dispensing Process



FIGURE 8. (a) Inner Tube of Shredded Meat Machine, (b) Together with Bundaku Production House Group and STIKOM Students

CONCLUSION

The problem of the BUNDAKU Production House, namely not having a meat mashing and shredding machine so that the production process is not optimal, which has an impact on sales turnover, has been resolved by the Service Team by providing 1 unit of shredded meat shredding machine during the implementation of this service activity. The lack of innovation in the product, because it is still one type of original flavour, Chicken Meat Shredded, has also been resolved by the Service Team by diversifying the product through testing the shredded meat shredded rendang flavour machine.

ACKNOWLEDGMENTS

Thank you to the KEMDIKBUDRISTEK Directorate General of Vocational Education for the Beginner Community Empowerment (PMP) grant, which was approved for funding in fiscal year 2024. LPPM STIKOM Yos Sudarso Purwokerto and the Bundaku Production House Group, Karanggintung Village, Sumbang District, Banyumas Regency, Central Java.

REFERENCES

- Adediran, O., & Abdul, O. (2022). Physicochemical and Sensory Properties of Meat Floss Developed from Rabbit Meat and Different Oils. *Nigerian Agricultural Journal*, 53(3).
- Aydin, Y., Gundogdu, M., Altuntas, B., Ulas, A. B., & Eroglu, A. (2017). An important risk factor for esophageal foreign bodies in adults: removable dental prostheses. *Indian Journal of Thoracic and Cardiovascular Surgery*, 33(2). <https://doi.org/10.1007/s12055-017-0503-4>
- Kassim, O. R., & Omojola, A. B. (2020). Effects of cooking oils and packaging media on quality of meat floss. *Nigerian Journal of Animal Production*, 47(3). <https://doi.org/10.51791/njap.v47i3.170>
- Marhaeni, Fanani, Z., Hartono, B., & Nugroho, B. A. (2015). The influence of the marketing mix (Product, price, promotion, place, process, entrepreneurs and physical evidence) to customer satisfaction and loyalty in buying shredded beef in Palu City, Indonesia. *International Journal of Economic Research*, 12(1).
- Moldavanova, L., Drachuk, U., Basarab, I., Romashko, I., Halukh, B., & Krynska, N. (2018). Practical experience and perspectives in solving the problem of complex use of bone raw materials at meat industry. *Scientific Messenger of LNU of Veterinary Medicine and Biotechnologies*, 20(90). <https://doi.org/10.32718/nvlvet9014>
- Rahmawati, Sismindari, Raharjo, T. J., Sudjadi, & Rohman, A. (2016). Analysis of pork contamination in Abon using mitochondrial D-Loop22 primers using real time polymerase chain reaction method. *International Food Research Journal*, 23(1).
- Raseetha, S., Aida, F. M. N. A., Chompoorat, P., Murtini, E. S., Fuggate, P., Roslan, N. F. A., & Nur-Diana, S. A. (2021). Disintegration with considerable changes in form: Cutting/dicing, crushing and grinding,

- shredding, sheeting, and pulping. In *Postharvest and Postmortem Processing of Raw Food Materials: Unit Operations and Processing Equipment in the Food Industry*. <https://doi.org/10.1016/B978-0-12-818572-8.00004-8>
- Ravikumar, R., Hashmi, M. A., Shankar Ganesh, L., Bikkannavar, S. V., & Vivek, D. R. (2019). Biofuel production and characterization from waste chicken skin and pig fat. *International Journal of Recent Technology and Engineering*, 8(3). <https://doi.org/10.35940/ijrte.C5312.098319>
- Siavichay, E. G. (2021). An Investigation Of High Moisture Meat Analogues As Mince - The Influence Of Process Parameters And Ingredients On The Final Texture. *Master Thesis*.
- Sumardi, & Hasrin. (2019). Modification Design of Shredded Meat Machine Using 1.5 Hp Motor Driver. In *IOP Conference Series: Materials Science and Engineering* (Vol. 536). <https://doi.org/10.1088/1757-899X/536/1/012094>
- Wazir, H., Chay, S. Y., Zarei, M., Hussin, F. S., Mustapha, N. A., Ibadullah, W. Z. W., & Saari, N. (2019). Effects of storage time and temperature on lipid oxidation and protein co-oxidation of low-moisture shredded meat products. *Antioxidants*, 8(10). <https://doi.org/10.3390/antiox8100486>
- Wittriansyah, K., Kristiningsih, A., & Prabowo, A. S. (2021). Proximate Study and Acceptance of “Abon Ikan” Using Different Fish Meats in Cilacap. *JURNAL AGROINDUSTRI HALAL*, 7(1). <https://doi.org/10.30997/jah.v7i1.3384>
- Yang, S., Xu, L., Huang, R., Xu, Q., Li, Y., Yang, P., ... Liu, H. (2023). Effect of different vacuum frying time on quality of shredded meat. *Food and Fermentation Industries*, 49(1). <https://doi.org/10.13995/j.cnki.11-1802/ts.029540>
- Yulia, Y., Bahtera, N. I., & Purwasih, R. (2021). Analysis of Consumer Assessment in Small and Medium Enterprises “Raja Abon Makmur Lestari” on Shredded Products and Mix Marketing. *Journal of Asian Multicultural Research for Economy and Management Study*, 2(1). <https://doi.org/10.47616/jamrems.v2i1.73>
- Zhuang, J., Zhao, Z., Lian, K., Yin, L., Wang, J., Man, S., ... Ma, L. (2022). SERS-based CRISPR/Cas assay on microfluidic paper analytical devices for supersensitive detection of pathogenic bacteria in foods. *Biosensors and Bioelectronics*, 207. <https://doi.org/10.1016/j.bios.2022.114167>
- Сухенко, В. Ю. (2013). RATIONALE WEAR-RESISTANT STEEL FOR CUTTING SCREW UNITS MEAT SHREDDING MACHINE. *Problems of Friction and Wear*, 0(1(60)). [https://doi.org/10.18372/0370-2197.1\(60\).5783](https://doi.org/10.18372/0370-2197.1(60).5783)