Analysis of Quality Control of Onion Paste Products Using Fishbone Diagram and Pareto Diagram Methods Case Study: Home Industry Nounna Saritie Indramayu

Lili Isnayanti[1,*] and Reffy Dwi Mahdi[1]

[1]*Widyatama University, Indonesia*
[*]*Corresponding author. Email: lilisna08@gmail.com*

ABSTRACT

Home Industry Nounna Saritie Indramayu is a company engaged in the food sector. The high level of damaged products in the production process, the number of which in each month exceeds the standard set by the company, which is 10%. The absence of Standard Operating Procedures (SOP) and lack of supervision in the production process causes deviations in the production process. The method used in this study is the Fishbone Diagram to determine the type of damage and the factors causing the damage. From the results of this study, five factors causing product damage were obtained, namely human factors, raw materials, methods, machines, and the environment. Research methods include interviews, observations and documentation.

Keywords: Product quality, defective products, Statistical Quality Control (SQC).

1. INTRODUCTION

Companies or organizations that produce a product try to design a good production process that is carried out. Where companies must force themselves to increase their competitiveness, whether they are small or large companies. Quality issues have led to the company's overall strategy in order to be competitive and survive competition with other companies' products. Good product quality will be produced from a good process and in accordance with predetermined quality standards based on market needs or demands. Quality control activities can help companies maintain and improve the quality of their products by controlling the level of product damage. Control is an activity that monitors performance activities as planned by the company, why is that because control is important in every company, this is the core of maintenance in carrying out quality procedures to ensure good performance. In the study by Budiman, Saori et al entitled analysis of quality control in the food industry (case study: UMKM mochi kaswari lampion, Sukabumi city) in (2021) stated that the implementation of quality control must be implemented because to maintain the quality of the company's performance so that it remains good and runs according to the desired target.

Home Industry Nounna Saritie Indramayu is one of the companies engaged in the food sector in the Sliyeg Indramayu area. One of the food products produced by Home Industry Nounna Saritie Indramayu is chili paste with onions (siwang). There are various flavors of chili paste with onions (siwang), namely original siwang, original siwang with anchovies, original siwang mix, original siwang with shrimp, spicy siwang mix, spicy siwang with sontong, spicy siwang with shrimp, spicy siwang, siwang mix, original bagor, and spicy bagor.

Home Industry Nounna Saritie Indramayu already has 11 permanent agents and several resellers because Nounna Saritie's chili paste (siwang) products have penetrated many markets outside the city and even abroad. The company that is the object of this research is Home Industry Nounna Saritie Indramayu. The selection of objects in Home Industry Nounna Saritie Indramayu found problems, where there is a product there must be some damage that occurs in the process of making the product. The problems in Home Industry Nounna Saritie Indramayu have similarities with the discussion that will be discussed in this study, namely control over quality and the sample to be taken is the chili paste (siwang) product because in the process of making chili paste.

In producing chili paste (Siwang) Home Industry Nounna Saritie Indramayu has obstacles including, the type of damage to burnt raw materials, the second type of damage is the type of damage to broken or damaged packaging, then the type of damage to damaged label installation, then the type of damage to the contents is not appropriate, and the last is the type of damage to the composition is not appropriate. In addition, there are several other factors that influence the type of damage, including human factors (man), raw material factors (material), method factors (method), machine factors (machine) and environmental factors (environment). Research conducted by Syryatman, Kosim and Juleha with

the research title Controlling Roma Sandwich Production Quality Using the Statistical Quality Control (SQC) Method in an Effort to Reduce Rejects in the Packing Section in (2020) resulted in the results of the cause-effect diagram analysis, it was found that the main cause of the high reject rate of Roma sandwich biscuits was due to human factors, material factors and method factors.

Human factors, the cause is that the biscuits are missed in the packing table area, the man power skill is lacking, the biscuits that pass through the packing table are not neatly arranged, the biscuits fall from the sandwiching output to the packing table irregularly, then the root case is that there is no path in the packing table and the distance between the sandwiching machine output and the packing table is not right. Material factors, the cause is that the cream is under weight, the nozzle is often clogged, the cream comes out of the Teflon, then the root case of the material factor is that the Teflon nozzle is worn/damaged. Method factors, the cause is that the biscuits are messy in the stacking path area, the stacking path is not in the opposite direction, then the main cause of this method factor is because the original stacking design is intended for different products.

2. RESEARCH METHODS

The methods used in this study to achieve the three objectives are qualitative, descriptive and exploratory methods. The data collection techniques in this study are by conducting interviews, observations and documentation to determine the factors causing defective products.

3. RESULTS AND DISCUSSION

Table 1. Type of damage

Number	Type of damage	Production Amount (product)	Production Amount (product)	Percentage
1	Burnt raw materials	650000	23367	34,5%
2	Broken or damaged packaging	650000	16071	23,8%
3	Damaged labeling	650000	12858	19%
4	Incorrect content	650000	8228	12,2%
5	Incorrect composition	650000	7084	10,5%
Total			67608	100%

Source: Results of interviews with sources, 2025

In table 1, the first type of damage can be seen, namely the type of damage to raw materials of burnt onions or shrimp paste, which is the highest type of damage or the type of damage that often occurs in the process of making chili sauce from onions (siwang) because the manufacture of these products still uses a lot of human labor. This type of damage is the largest type of damage, namely 34.5%, which is caused by carelessness during the manufacturing process or lack of concentration of workers during the process of frying raw materials. This carelessness causes the product to fail to be produced or marketed.

The second type of damage is the type of damage to the product packaging that is broken or damaged, this type of damage is the second highest type of damage that often occurs in the product production process. The type of damage to the product packaging that is broken or damaged is 23.8% where this type of damage is caused by the packing process that is less careful and too forceful in stacking the product so that the product jar breaks.

The third type of damage is the type of damage to the installation of damaged labels with a percentage of 19%, this type of damage is usually caused by the negligence of workers who are not careful in installing labels and other causes that often occur are caused by oil from the chili paste (siwang) itself which makes the label wet and even torn so that consumers think that the product is old and no longer good for consumption.

Next is the machine factor, this machine factor also often causes the onion paste (siwang) chili sauce product to be damaged, due to the limited equipment available at the Nounna Saritie Indramayu Home Industry and the lack of maintenance of the existing machines, so that the machine breaks down quickly and will hinder the process of making onion paste (siwang) chili sauce products and often experiences damage due to machines that are no longer suitable for use.

Then the last factor is the environmental factor, this environmental factor is the factor that causes the least damage to the chili paste onion product (siwang). In this environmental factor, it is usually because the scope of the workplace is inadequate or does not make the workforce comfortable so that workers often make mistakes that damage the product

due to the uncomfortable production place. Of the factors that cause damage to the chili paste onion product (siwang), there are five that cause the chili paste onion product to be damaged, the first is the human factor (man), the second is the raw material factor (material), the third is the method factor (method), the fourth is the machine factor (machine), and the last is the environmental factor (environment).
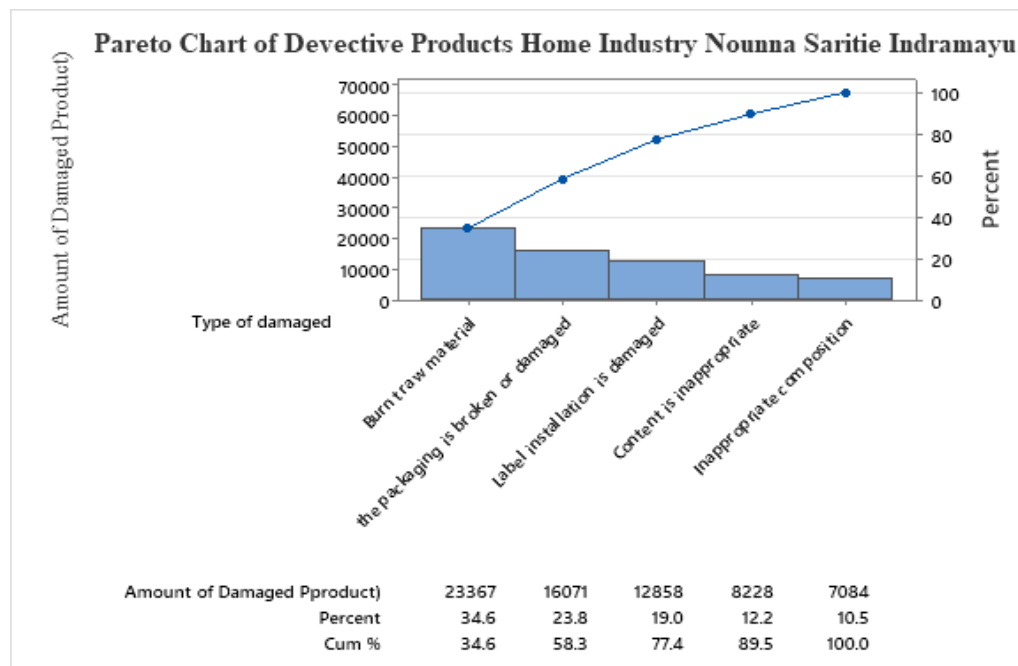

Figure 1 Pareto diagram

It can be seen from the data in figure 1 that the highest type of damage is burnt raw materials with a total of 23,367 pcs with a percentage of 34.5%, broken or damaged packaging as many as 16,071 pcs with a percentage of 23.8%, damaged label installation as many as 12,858 pcs with a percentage of 19%, inappropriate contents as many as 7,084 pcs with a percentage of 12.2%, and inappropriate composition as many as 10.5%.
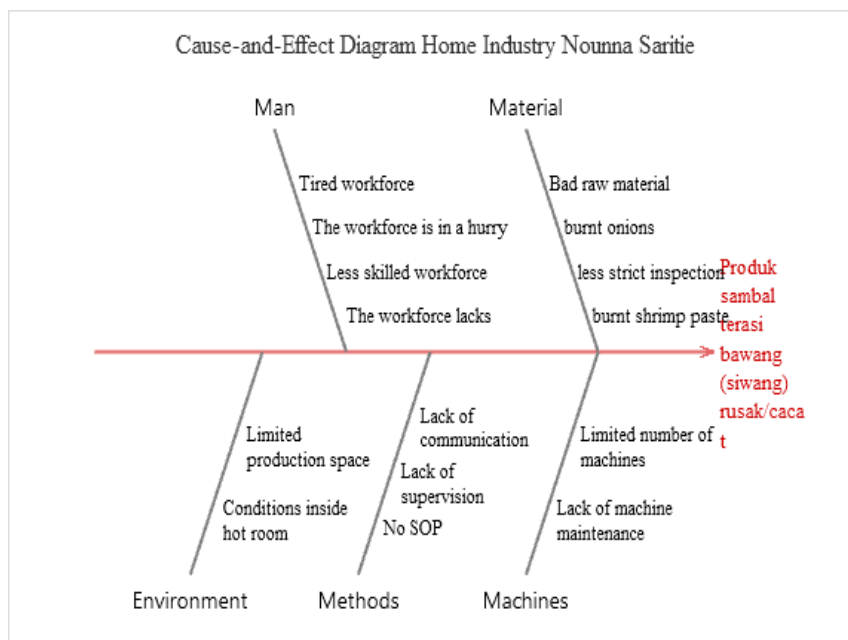

Figure 2. Factors Causing Damaged Products

Based on Figure 2, it can be seen that there are several factors that cause damage to the chili paste (siwang) product, namely human factors (man) due to fatigue, unskilled workers, negligence and hasty workers. Method factors (method) are caused by the absence of SOP, lack of supervision, and lack of communication. Machine factors (machine) are caused by lack of machine maintenance and limited number of machines. Raw material factors (material) are caused by

poor raw materials, burnt onion raw materials, burnt shrimp paste raw materials, and less strict inspection. Environmental factors (environment) consisting of limited production space and conditions in the room that are too hot.

3. CONCLUSION

Many factors were found to cause damage to the chili paste products owned by Home Industry Nounna Saritie Indramayu, this was obtained by looking at the fishbone diagram. After knowing the factors that caused damage to the chili paste products at Home Industry Nounna Saritie Indramayu, the company experienced several obstacles that caused damage, especially those that often occurred due to human factors, and were followed by other factors such as raw material factors, method factors, machine factors, and environmental factors that caused the company to experience significant losses or higher costs for each production.

Quality control at Home Industry Nounna Saritie Indramayu is still not in accordance with the theory. Home Industry Nounna Saritie Indramayu has sufficient quality control to overcome the damage that occurs in the company, but in reality, Home Industry Nounna Saritie Indramayu still experiences a lot of product damage due to the absence of a special method or Standard Operations Procedure (SOP) so that workers make many mistakes in the product manufacturing process.

After analyzing the damage to the product using the Cause and Effect Diagram (Fishbone Diagram) method, regarding the factors causing the highest damage to the product, namely the human factor with a percentage of 34.5%, then the second factor is the raw material factor with a percentage of 23.8%, the third is the method factor with a percentage of 19%, then the machine factor with a percentage of 12.2%, and the last is the environmental factor with a percentage of 10.5%.

REFERENCES

Aditya Pamungkas, Suhendra, & Fibi Eko Putra. (2024). Journal of Industrial Engineering. Industrial Engineering, 4(01), 10–15.

Abidin, A. A., Wahyudin, W., Fitriani, R., & Astuti, F. (2022). Quality Control of Bread Products with the Seven Tools Method at UMKM Anni Bakery and Cake. Performa: Scientific Media of Industrial Engineering, 21(1), 52. https://doi.org/10.20961/performa.21.1.53700

Ahadya Silka Fajaranie, & Khairi, A. N. (2022). Observation of Packaging Defects in Dry Noodle Products Using Control Charts and Fishbone Diagrams at Dry Noodle Producing Companies in Semarang, Central Java. Journal of Food Processing, 7(1), 7–13. https://doi.org/10.31970/pangan.v7i1.69

Astiana, I., Cesrany, M., & Gunawan, R. H. (2024). Physical Defect Control in Canned Sardine Fish Using Statistical Quality Control (SQC) Method. Indonesian Fishery Products Processing Journal, 27(4), 337–350. https://doi.org/10.17844/jphpi.v27i4.51527

Darmawan, M. R., Rizqi, A. W., & Kurniawan, M. D. (2022). Analysis of Tempe Product Quality Control Using the Statistical Quality Control (SQC) Method at CV. Aderina. SITEKIN: Science, Technology and Industry, 19(22), 295–300. https://ejournal.uin-suska.ac.id/index.php/sitekin/article/view/17413

Hidayat, H. H. (2022). Product Quality Control at Donate Donut UMKM Using the Seven Tools Method. Journal of Agricultural and Biosystem Engineering Research, 3(1), 65. https://doi.org/10.20884/1.jaber.2022.3.1.6384

Rizkiawan. (2021). ◎Report 1 刘为玲 1 孙雅娜 2. Repository.Unej.Ac.Id, 1(10), 93–96.

Sidah, Nuruddin, M., & Andesta, D. (2022). Product Quality Control Using Statistical Quality Control (SQC) Method to Reduce Failed Products at Sri Bakery. Jati Emas (Journal of Engineering Applications and Community Service), 6(2), 1–8.

Simarmata, M. H., Septiari, R., & Studi Teknik Industri S-, P. (2023). Efforts to Control the Quality of Tempe Chips Against Defective Products Using the Statistical Quality Control (SQC) Method at the Sari Tempe Chips Home Industry. Journal of Industrial Engineering Students), 6(2), 220–227.

Suryatman, T. H., Kosim, M. E., & Julaeha, S. (2020). Roma Sandwich Production Quality Control Using the Statistical Quality Control (SQC) Method in an Effort to Reduce Rejects in the Packing Section. Journal of Industrial Manufacturing, 5(1), 1. https://doi.org/10.31000/jim.v5i1.2429Use the "Insert Citation" button to add citations to this document.

Wardah, S., Suharto, S., & Lestari, R. (2022). Analisis Pengendalian Kualitas Proses Produksi Produk Nata De Coco Dengan Metode Statistic Quality Control (Sqc). JISI: Jurnal Integrasi Sistem Industri, 9(2), 165. https://doi.org/10.24853/jisi.9.2.165-175

Yulia Wilda, Meiliati, H., Rafsanjani, M. A., & Rahadi, F. (2023). Analysis of Crude Palm Kernel Oil (CPKO) Quality Control Using the Statistical Statistical Quality Control (SQC) Method. Journal of Applied Industrial Technology and Management, 2(2), 119–127. https://doi.org/10.55826/tmit.v2i2.71