

Optimization of Coffee Plantation Waste into Certified Cascara Based on a Circular Economy

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Article Info	Abstract
Article history: Received: February 13, 2026 Accepted: March 12, 2026 Published: March 23, 2026 Keywords: Cascara Coffee husk Circular economy Product legality MSMEs This article is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License © 2026 Bubungan Tinggi: Jurnal Pengabdian Masyarakat	Peron Village, Kendal Regency, is one of the coffee production centers in Central Java that generates large amounts of coffee husk waste. This waste has the potential to cause environmental problems if it is not properly managed. Coffee husks can be processed into cascara, a value-added product that supports the concept of a circular economy. This article aims to describe efforts to optimize coffee plantation waste into certified cascara products through assistance in fulfilling food safety standards and business legal requirements. This activity is part of the Student Organization Capacity Building Program (PPK Ormawa) implemented in Peron Village, involving the Sekar Group as a partner. The implementation method employed a participatory approach through several stages, including problem identification using Participatory Rural Appraisal (PRA), assistance in the cascara production process, socialization on the importance of SP-PIRT certification, technical and administrative assistance, sanitation counseling, as well as monitoring and evaluation. The indicators of success for this activity included active member participation, administrative readiness, successful processing of coffee husk waste, a more hygienic and standardized production process, increased understanding of food safety, and the issuance of an SP-PIRT certificate (one document). The results show an increase in the partners' capacity for the hygienic and sustainable processing of coffee husk waste, improved understanding of food regulations, and enhanced business administrative readiness. This assistance successfully facilitated the issuance of an SP-PIRT certificate for the cascara product "Peronara Tea," which has contributed to increased consumer confidence and expanded product marketing opportunities. Thus, the optimization of coffee husk waste based on a circular economy approach, supported by business legality, has proven to strengthen the competitiveness and sustainability of community-based MSMEs. To cite this article: Putri, A.A.W., Jabbar, A., & Haris, A. (2026). Optimization of coffee plantation waste into certified cascara based on a circular economy. <i>Bubungan Tinggi: Jurnal Pengabdian Masyarakat</i>, 8(1), 267-278.

INTRODUCTION

Peron Village is one of the villages in Central Java Province where 70% of its residents work as coffee farmers. Coffee production in Peron Village reaches 350 tons per year in the form of wet coffee, which causes coffee husk waste to become a serious problem in the village. Coffee husk waste that is not properly managed can pollute the environment, such as contaminating water sources and causing unpleasant odors in the surrounding area ([Razi et al., 2026](#)). The residents mainly focus on processing coffee beans, even though processing coffee husks also presents valuable opportunities. Coffee husk waste is one of the raw materials that has the potential to be processed into value-added products.

Awareness of the importance of a circular economy is also still limited among the residents. Therefore, efforts to utilize coffee husk waste have become a serious concern in Peron Village.

Through the Student Organization Capacity Building Program (PPK Ormawa) conducted by Hima IPA and Lingkungan UNNES in 2025, an appropriate solution was introduced to address this problem. The empowerment of a women farmers' group established by the implementing team, namely the Micro, Small, and Medium Enterprise (MSME) "Kelompok Sekar," has resulted in the production of cascara as a marketable product ([Naufal et al., 2025](#)). Cascara is produced from dried coffee husks and contains bioactive compounds such as polyphenols and flavonoids ([Wibowo et al., 2024](#)). It also contains 10.4% crude protein and a relatively high fiber content of 17.2% ([Halimatussa'diyah et al., 2023](#)).

The circular economy provides a solution for optimizing waste utilization, particularly coffee husks, by applying the principles of reduce, reuse, and recycle to minimize waste and maximize added value ([Roni et al., 2026](#)). In its implementation, cascara is no longer positioned as post-harvest waste but as a potential raw material that can be reprocessed into economically valuable products. The utilization of cascara encourages efficient resource use and extends the life cycle of materials. In addition to its social and economic benefits, the implementation of a circular economy can also contribute to reducing waste and environmental pollution ([Putri et al., 2022](#)). The added value generated from processing coffee husk waste can increase income, create new business opportunities, and strengthen the competitiveness of local products that possess high sustainability value.

The development of cascara as a food product emphasizes aspects of processing, nutritional content, food safety, and product legality to ensure sustainability ([Renovan et al., 2024](#)). Food products marketed without food safety standards and proper permits may pose health risks and legal issues ([Sindi et al., 2026](#)). Therefore, legality becomes an important factor in enhancing the competitiveness of MSME products. One form of legality that plays a crucial role in ensuring food safety and product quality is the Home Industry Food Production Certificate (SP-PIRT). SP-PIRT is a written guarantee issued by the Regent or Mayor through the local Health Office to producers who have fulfilled the requirements for obtaining SP-PIRT in relation to the distribution of home industry food products ([Fauzi & Sulianta, 2022](#)).

Cascara has been developed by the community as one of the flagship products under the brand name "Peronara Tea." This product is intended to be marketed widely; therefore, it must meet requirements related to food safety and product legality. Within the national food system, the government is responsible for ensuring that food products meet quality and nutritional standards, are safe for consumption, and are accessible and affordable for the public ([Suprpto et al., 2020](#)). The impact of this community service activity is an improvement in the community's ability to manage coffee husk waste into value-added products and an increased understanding of the importance of business legality as a standard of food safety. It is important for both the government and food producers to pay greater attention to the safety of the food being produced. Therefore, it is necessary to optimize coffee husk waste into the cascara product "Peronara Tea." This product is expected to meet food safety standards through the possession of a Home Industry Food Production Certificate (SP-PIRT). This effort aims to implement a circular economy approach in order to increase consumer confidence and open opportunities to enter modern markets and export markets.

This article is motivated by a research gap identified in previous studies. Based on research conducted by [Wibawa et al. \(2025\)](#), it was concluded that coffee husks can be transformed into cascara, which contributes to improving the local community's economy.

This article is also supported by studies conducted by [Naufali et al. \(2023\)](#) and [Rosdiana et al. \(2024\)](#), who carried out community outreach activities related to cascara production. The difference between this study and previous research is that this study attempts to present a cascara product that has already obtained certification and is developed based on a circular economy approach.

METHODS

This community service activity was carried out in Peron Village, Limbangan District, Kendal Regency. It involved members of the local community, particularly women farmers who are members of the Sekar Group and are involved in coffee and cascara processing. The activity was conducted from September to November 2025.

The implementation method employed a participatory approach that involved partners in every stage of the activities, starting from problem identification using Participatory Rural Appraisal (PRA), assistance in cascara product development, socialization on the importance of SP-PIRT certification, technical and administrative assistance, sanitation counseling, as well as monitoring and evaluation. This approach was chosen to encourage the development of knowledge and skills so that the partners' capacity could improve optimally and sustainably.

This article represents an output of a non-experimental community empowerment intervention focusing on strengthening the capacity of women farmers' groups. The activities were conducted in a participatory manner through several stages, including problem identification, cascara product assistance, SP-PIRT socialization, technical administrative assistance, sanitation counseling, as well as monitoring and evaluation. The flow diagram of the implementation method is presented in Figure 1.

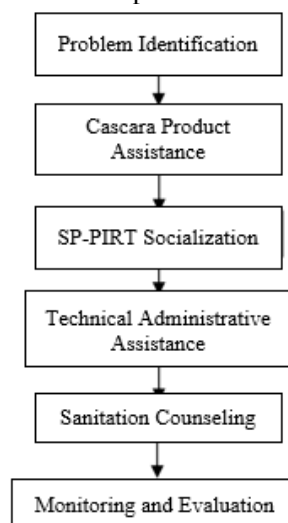


Figure 1 Implementation flow diagram

The analysis technique used in this study was descriptive qualitative analysis by comparing the initial and final conditions based on the results of observations, interviews, group discussions, and documentation. The analytical steps in this community service activity were carried out gradually and systematically, including data reduction, categorization, and comparison of the initial and final conditions. Data reduction was conducted to simplify, focus, and select information from all data obtained through observations, interviews, group discussions, and documentation. At this stage, triangulation methods were used as sources and techniques to ensure data validation, consistency, and credibility. Furthermore, the obtained data were categorized based on the predetermined

program achievement indicators, namely member participation, administrative readiness, the success of coffee husk waste processing, hygienic and standardized production processes, understanding of food safety, and the issuance of SP-PIRT. The initial condition of each indicator was then compared with the final condition using descriptive qualitative analysis. Each indicator was analyzed in depth to identify the changes that occurred.

Identification of Partner Problems

The PPK Ormawa team of Hima IPA and Lingkungan conducted data collection through field observations and interviews with the Sekar Group to map the fulfillment of business legality requirements. The method used was Participatory Rural Appraisal (PRA), which can be interpreted as an assessment of village conditions. Data collection was carried out on May 17, 2025, for the initial survey and identification of village problems.

This assessment can be used in various ways depending on the needs, such as examining aspects of the community's economy in the agricultural sector, the potential of natural resources and human resources, as well as non-agricultural sectors ([Azman et al., 2023](#)). The problems identified were the community's limited knowledge regarding waste processing, particularly coffee husk waste, as well as the lack of awareness about SP-PIRT business legality. In response to these issues, the PPK Ormawa team and the Sekar Group requested assistance from the Kendal Office of Trade, Cooperatives, and MSMEs (DISDAGKOP UKM Kendal) to provide guidance and support. The village location map is presented in Figure 2.

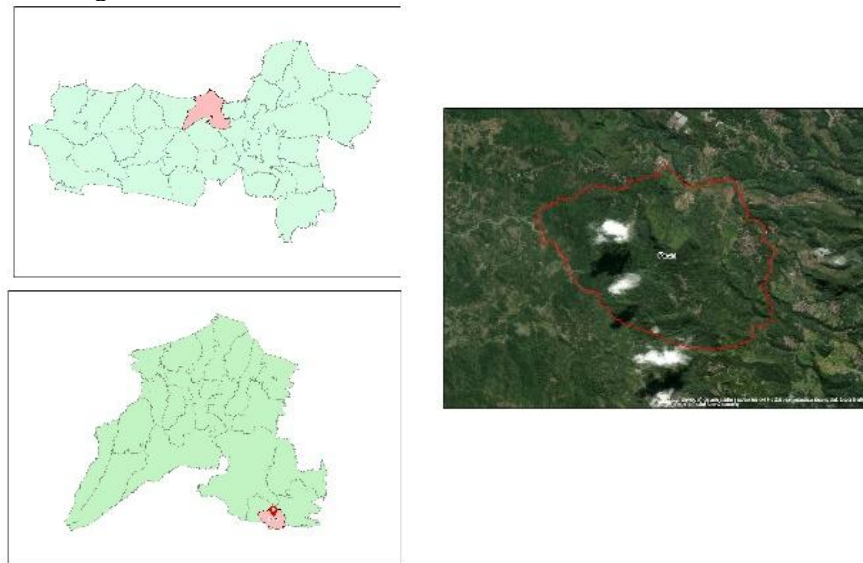


Figure 2 Community service location

Cascara Product Assistance

The materials used in the production of cascara were robusta coffee husks (*Coffea canephora*) obtained from red cherry harvests by farmers in Manggung Hamlet, Peron Village, Limbangan District, Kendal Regency. The assistance focused on implementing cascara production stages that comply with hygiene and food safety principles. The cascara production process is presented in Figure 3.

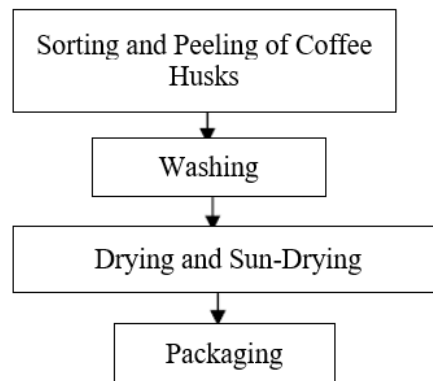


Figure 3 Cascara production flow diagram

SP-PIRT Socialization

At this stage, the team organized a counseling activity by inviting a representative from the Kendal Regency Office of Trade, Cooperatives, and MSMEs (DISDAGKOP UKM) as the speaker. The material presented covered aspects of policies, licensing requirements, and the procedures for obtaining SP-PIRT certification. This activity aimed to increase understanding of the importance of fulfilling food product legality as an effort to strengthen consumer trust and enhance product competitiveness. The activity took place on September 11, 2025, at the Sekar Group Production House, together with technical assistance and sanitation counseling.

Technical Administrative Assistance

The assistance focused on providing technical support in fulfilling the requirements for SP-PIRT application, including completing application forms, preparing administrative documents such as identity cards (KTP), Business Identification Numbers (NIB), and designing product labels in accordance with the applicable regulations.

Sanitation Counseling

The speaker provided guidance on the implementation of hygienic and sanitation standards, which included the condition of the production room, the adequacy of equipment, the cleanliness of the production environment, and the hygiene of workers in accordance with the regulations of the Health Office.

Monitoring and Evaluation

After the activities were completed, the PPK Ormawa team conducted an assessment of the partners' understanding and readiness to proceed with the SP-PIRT application stage independently. This assessment was based on administrative preparedness and the partners' confidence in implementing sanitation standards in the production process. Monitoring and evaluation were conducted on November 6, 2025, at the production house. This activity is expected to improve the capacity of Sekar Group members in fulfilling business legality requirements, as indicated by the issuance of an SP-PIRT certificate for the cascara product "Peronara Tea."

RESULTS AND DISCUSSION

Identification of Partner Problems

Based on the results of observations and discussions with the Sekar Group, it was found that several issues still hinder the development of the business. One of the main problems is the community's limited knowledge in managing coffee husk waste into value-added

products. Coffee husk waste has not been optimally processed and is generally considered merely as a by-product that does not possess economic value ([Nadila et al., 2024](#)). In addition, the Sekar Group also lacks understanding of the importance of fulfilling food business legality as part of sustainable business development. This limitation has resulted in the products that have been produced not yet meeting the requirements to be marketed legally and more widely.

Another problem identified was the low level of understanding regarding the procedures and requirements for obtaining business legality, such as SP-PIRT. Knowledge about the application process, document preparation, and food safety standards that must be implemented in the production process was also still lacking. As a result, the Sekar Group continues to face difficulties in understanding regulatory requirements, and the products produced have not yet been equipped with official legality. This condition may potentially hinder the increase of consumer trust and the expansion of sales access.

Based on these findings, continuous assistance is required to improve the capacity of the Sekar Group. In line with this situation, the PPK Ormawa team proposed the idea of processing coffee husk waste into cascara products as an alternative solution for the development of the partner's business. Collaboration with the Kendal Regency Office of Trade, Cooperatives, and MSMEs (DISDAGKOP UKM Kendal) became a strategic step to provide understanding regarding the fulfillment of business legality aspects. This assistance is expected to increase the knowledge and awareness of the Sekar Group regarding the importance of food product legality. Through this effort, the utilization of coffee husk waste can be developed into an independent business with economic value and long-term sustainability.

Cascara Product Assistance

The production of cascara begins with the selection of raw materials in the form of coffee husks obtained from red robusta coffee cherries (*Coffea canephora*) harvested directly by residents of Peron Village. The peeling of the coffee husks is carried out manually, followed by sorting to separate impurities and husks that are not suitable for use. The next stage is washing using clean water to remove dirt and attached contaminants. After the washing process, the coffee husks are dried by sun-drying under direct sunlight for approximately three days, depending on weather conditions, to ensure optimal drying. Once fully dried, the coffee husks are packaged into cascara products in accordance with hygiene and food safety standards.

The implementation of controlled and hygienic production stages has a positive impact on the quality of the cascara produced. The results of the assistance show that the Sekar Group has begun to understand the importance of maintaining the cleanliness of equipment, the work environment, and the handling of raw materials during the production process. This aspect is essential for meeting food safety standards required for obtaining legal certification, such as SP-PIRT. The processing of waste into cascara that meets these standards reflects the application of a circular economy, in which agricultural waste is reused as a value-added product ([Renovan et al., 2024](#)).

Cascara has various benefits, both in terms of health and economic aspects ([Nugraha et al., 2025](#)). This product is known to contain bioactive compounds and antioxidants that potentially provide health benefits when consumed appropriately ([Wijayanti et al., 2025](#)). In addition, cascara can be processed into a brewed beverage with a distinctive flavor and serves as an alternative processed coffee product that does not use coffee beans. From an economic perspective, utilizing coffee husks to produce cascara can increase the added value of materials that were previously underutilized ([Nadila et al., 2024](#)). Therefore, the

development of cascara contributes to the diversification of processed coffee products while supporting sustainable waste management efforts.

SP-PIRT Socialization

This socialization activity was part of the PPK Ormawa program conducted by Hima IPA and Lingkungan at the Sekar Group production house in Peron Village. The activity invited a representative from the Kendal Regency Office of Trade, Cooperatives, and MSMEs (DISDAGKOP UKM) as the speaker. The materials presented included food business policies, licensing requirements, and the procedures for obtaining SP-PIRT certification. The production house was chosen as the venue for the activity so that the Sekar Group could more easily understand the material, as it could be directly related to the real conditions they face. This activity served as an initial step in introducing the importance of legality in the development of food products. Documentation of the activity can be seen in Figure 4.



Figure 4 SP-PIRT socialization

The results of the activity show that the Sekar Group has begun to understand that product legality is not merely an administrative requirement but also plays an important role in ensuring product safety and increasing consumer trust. The Sekar Group gained a clearer understanding of the procedures and requirements that must be fulfilled to obtain legal certification. This understanding is essential for the development of cascara products as a form of coffee husk waste processing. Through this counseling activity, the group became prepared to begin the production process in accordance with the applicable regulations. In addition, this counseling activity also helped the partners view the potential of coffee husk waste from a different perspective. Waste that was previously not utilized optimally is now understood as a resource that can be processed into value-added products through the concept of a circular economy ([Wibawa et al., 2025](#)).

Technical Administrative Assistance

The assistance provided focused on technical support in fulfilling the requirements for submitting the SP-PIRT application for cascara products derived from the optimization of coffee plantation waste in Peron Village. The results of the assistance show an improvement in the Sekar Group's capacity in administrative and legal aspects, as indicated by the completion of required documents such as identity cards (KTP), Business Identification Numbers (NIB), and SP-PIRT application forms filled out in accordance with the regulations. In addition, the group was also able to prepare the cascara product label design in compliance with the applicable requirements.

Sanitation Counseling

In addition to preparing the required documents, the Sekar Group was also provided with an understanding of hygiene in the production process. Basic knowledge regarding the importance of maintaining cleanliness in the workspace, equipment, and raw materials was emphasized to ensure that the production process results in safe products. The delivery of this material was conducted directly at the production house so that the group could immediately practice proper workspace arrangement, equipment organization, and hygienic work habits. The results of this activity indicate that the partners' understanding of sanitation in the production process has had a positive impact on the quality of the products produced. With the implementation of better hygiene practices, trust in cascara products can increase. This can strengthen the market position of cascara products from Peron Village, as they have met the required food safety aspects, thereby supporting the sustainable development of community-based coffee enterprises.

Monitoring and Evaluation

The series of assistance activities resulted in tangible changes in business readiness, particularly in aspects of administrative compliance, counseling, and the processing of coffee husk waste into cascara. At the end of the program, the Sekar Group was able to independently produce cascara and successfully obtain an SP-PIRT certificate. This certificate serves as a form of legal recognition that strengthens the business position, particularly in developing innovations based on the safe and sustainable utilization of coffee husk waste.

The possession of the SP-PIRT certificate (Figure 5) provides a significant impact on increasing consumer trust in the safety and quality of the product. This legality opens opportunities for the Sekar Group to expand its marketing network while aligning with the concept of a circular economy, which emphasizes the optimization of added value from production waste. The success of this certification also encourages greater awareness and commitment from the Sekar Group to implement production standards in accordance with regulatory requirements and food safety standards.



Figure 5 SP-PIRT certificate document

Thus, the business assistance carried out through this community service program has successfully strengthened the capacity of MSMEs, particularly in developing products based on waste utilization. Business legality has proven to enhance the competitiveness and sustainability of MSMEs. In this context, the application of a circular economy and product legality in cascara products ensures legal compliance and expands opportunities for the sustainable and long-term development of local cascara products from Peron Village.

The results of the activity indicate changes across all indicators, namely member participation, administrative readiness, the success of coffee husk waste processing, hygienic and standardized production processes, understanding of food safety, and the issuance of SP-PIRT, as presented in Table 1.

Table 1 Program indicator achievements

Indicator	Initial Condition	Final Condition
Member Participation	The group had not yet been formed	An active group of 25 members was established
Administrative Readiness	Documents were incomplete	Documents were completed
Success in Processing Coffee Husk Waste	Did not yet understand how to process coffee husk waste	Waste was processed into cascara products
Hygienic and Standardized Production Process	The production process was not yet hygienic	The production process became more hygienic and standardized
Understanding of Food Safety	Not all community members understood food safety	Socialization regarding food safety had been conducted
Issuance of SP-PIRT	Not yet obtained	SP-PIRT certificate issued

The utilization of coffee husk waste into cascara products by the Sekar Group represents an application of the circular economy concept. The implications of this activity for MSMEs can be seen in the increased capacity of the Sekar Group in product processing, improved understanding of food safety, and enhanced business administrative readiness. The assistance provided successfully facilitated the issuance of an SP-PIRT certificate for the cascara product “Peronara Tea,” which provides legal legitimacy and increases consumer confidence in the product. The possession of this legal certification also opens broader marketing opportunities and strengthens the competitiveness of MSMEs based on waste utilization. Therefore, the integration of product innovation, the implementation of food safety standards, and business legality can serve as an important strategy in supporting the sustainability and development of circular economy-based MSMEs.

In addition, this activity provides insight that the successful implementation of a circular economy must be supported by institutional and regulatory aspects, such as the fulfillment of food safety standards and business legality. Waste-based product innovation will be more sustainable if accompanied by hygienic production systems, an understanding of regulations, and the possession of certifications such as SP-PIRT. Thus, this activity emphasizes that the integration of waste utilization, capacity building for business actors, and the fulfillment of legal requirements are important factors in supporting the sustainability of circular economy-based MSMEs.

CONCLUSION

The program to optimize coffee plantation waste into certified cascara products in Peron Village, Kendal Regency, successfully improved the capacity of the Sekar Group in managing coffee husk waste in a productive and sustainable manner. Through a participatory approach that involved partners at every stage of the activity, coffee husk waste that had previously not been optimally utilized was processed into cascara products with added value, supporting the implementation of the circular economy concept. The assistance provided focused on technical aspects of production as well as strengthening the partners’ understanding of the importance of food safety and business legality. Socialization activities, administrative assistance, and sanitation counseling successfully improved the partners’ readiness to meet food certification requirements. This is demonstrated by the success of the Sekar Group in obtaining legal certification, such as the

SP-PIRT certificate for the cascara product “Peronara Tea.” With this legal certification, market access has become more open, and opportunities for product marketing have expanded. The possession of such legality has a positive impact on increasing consumer confidence, improving product image, and creating greater opportunities for market development. Overall, this community service activity demonstrates that strengthening business legality integrated with waste utilization based on a circular economy can serve as an effective strategy to enhance the competitiveness and sustainability of MSMEs based on local resources. Future empowerment programs will focus on consistent marketing through social media, participation in MSME bazaars and exhibitions, and establishing partnerships with souvenir shops and local markets.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS STATEMENT

AAWP: conceptualized, designed, compiled, and edited the manuscript, original drafting. AJ: supervision, review. AH: supervision, review. All authors gave final approval for publication.

AI DISCLOSURE STATEMENT

The author used ChatGPT during the preparation of this work for prereview and checked the language of the manuscript. After using this tool, the author thoroughly reviewed and edited the content as needed and takes full responsibility for the publication's content. The authors declare that this research was prepared, researched, written, and edited without the aid of artificial intelligence (AI) techniques.

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REFERENCES

- Azman, H. A., Lusya Putri, S., & Sari, P. E. (2023). Strategi pengembangan desa wisata dengan pendekatan participatory rural appraisal (pra) pada nagari talang. *Jurnal Ekonomi dan Bisnis Dharma Andalas*, 25(1).
- Fauzi, R. M., & Sulianta, F. (2022). Sistem informasi sarana pendaftaran digital spp-irt berbasis web di dinas kesehatan kabupaten bandung barat. *Syntax Idea*, 4(9), 1339. <https://doi.org/10.36418/syntax-idea.v4i9.1910>
- Halimatussa'diyah, E., Fadilla., A., & Rahma, A. (2023). Cara pengelolaan limbah kopi. *El-Mujtama: Jurnal Pengabdian Masyarakat*, 4(2), 743–750. <https://doi.org/10.47467/elmujtama.v4i2.4337>
- Nadila, S. P., Damayanti, T., Saniyah, U., Puryantoro, P., Mayangsari, A., & Fitriyaningsih, F. (2024). Mewujudkan sdgs bidang ekonomi dan lingkungan: limbah kulit kopi menjadi cookies rendah lemak di sentra produksi kopi desa kayumas. *Mimbar Integritas : Jurnal Pengabdian*, 4(1), 98. <https://doi.org/10.36841/mimbarintegritas.v4i1.5594>
- Naufal, M. A., Revalina, A. D., Primagati, A. T., Najwa, R., Hidayat, F. N., Nabila, H., Rahmawati, R., Salwa, L., Erdana, R. J., Anam, M. S., & Haris, A. (2025). Edukasi dan pelatihan pemanfaatan kulit kopi menjadi teh kaskara melalui program ppk ormawa di desa peron kabupaten kendal. *Jurnal Dharma Indonesia*, 3, 92–99.

- Naufali, M., Wayan Putu Meikapasa, N., & Aulia Savitri, D. (2023). Sosialisasi dan pelatihan pemanfaatan limbah kulit kopi menjadi teh herbal cascara celup. *Jurnal Ilmiah Pengabdian dan Inovasi*, 2(2), 282-290.
- Nugraha, M., Monika, E., Hadiyana, A., Firmansyah, M., Yusnan, F., Maryani, A., Nur, G. A., Dewi, A. A., & Zahra, T. (2025). Pemanfaatan cascara menjadi bubuk pewarna di desa cilame kecamatan kutawaringin soreang kabupaten bandung. *Empowerment: Jurnal Pengabdian pada Masyarakat*, 5(2), 84-91. <https://doi.org/10.51700/pemberdayaan.v5i2.1257>
- Putri, A., Redaputri, A. P., & Rinova, D. (2022). Pemanfaatan limbah kulit pisang sebagai pupuk menuju ekonomi sirkular (umkm olahan pisang di indonesia). *Jurnal Pengabdian UMKM*, 1(2), 104-109.
- Razi, T. K., Maifrizal, Wahidanur, Salahudin, M., Maulida, D., Luciana, L., Megawati, M., Yusnita, Y., Yulidar, Y., Syahbuddin, S., Hijriana, I., & Syahputra, F. (2026). Pengabdian masyarakat tentang inovasi pemanfaatan limbah kopi untuk meningkatkan sanitasi lingkungan. *Beujroh: Jurnal Pemberdayaan Dan Pengabdian Pada Masyarakat*, 4(1), 58–68. <https://doi.org/10.61579/beujroh.v4i1.777>
- Renovan, A. P., Prawiranegara, B. M., Pareira, P., Situmorang, Y. L. A., & Sugandi, W. K. (2024). Analisis rantai pasok berkelanjutan pada produk limbah kopi dengan pendekatan sirkular ekonomi di perusahaan lestari kopi, kabupaten garut. *Prosiding Semnastek*.
- Roni, M., Rifa'i, A., & Harori, I. (2026). Optimalisasi nilai tambah kulit kopi melalui pendekatan people-profit-planet: Model bisnis sirkular dan dampak sosio-ekologis. *Jurnal Ekobis Dewantara*, 9(1).
- Rosdiana, E., Andi Nugroho, S., Nirmala Kusumaningtyas, R., Santika, P., & Cinantya Anindita, D. (2024). Inovasi produk minuman teh cascara dari limbah kulit kopi sebagai solusi pengurangan limbah pertanian oleh teaching factory pengolahan produk kopi. *J-Dinamika: Jurnal Pengabdian Masyarakat*, 9(3), 524-530. <https://doi.org/10.25047/j-dinamika.v9i3.5496>
- Sindi, S., Amalia, A., Yousif, Z., Ramadhani, M., Putri, S. A., Annisa, N. S., & Syahputra, D. (2026). Perlindungan konsumen terhadap produk makanan yang mengandung bahan berbahaya. *Jaksa : Jurnal Kajian Ilmu Hukum Dan Politik*, 4(1), 15–29. <https://doi.org/10.51903/6mqwdj28>
- Suprpto, R., Wahyuddin Azizi, Z., & Rembang, S. Y. (2020). Pengaruh kemasan, label halal, label izin p-irt terhadap keputusan pembelian konsumen umkm kerupuk ikan. *Riset Ekonomi Manajemen*, 3.
- Wibawa, W., Ramadiyanti, D., Pangestu, S., Rama Setadriya, M., Afganis, O. M., & Azizah, Z. W. (2025). Optimalisasi petani kopi desa girimekar dalam mengolah limbah cascara menjadi teh. *Jurnal Medika: Medika*, 4(4).
- Wibowo, N. A., Wanita, Y. P., Novitasari, E., Amri, A. F., Purwanto, E. H., Yulianti, Y., & Aurum, F. S. (2024). Innovative of cascara as potential in beverage, food and their functional impact: a review. *International Journal of Food Science and Technology*, 59(11), 8082–8092. <https://doi.org/10.1111/ijfs.17562>
- Wijayanti, W., Rosalina, D., Dahlan, A., & Baihaqi, B. (2025). Eksplorasi potensi cascara (cascara) terhadap kesehatan: Kajian pustaka. *Jurnal Minfo Polgan*, 14(2), 3173–3180. <https://doi.org/10.33395/jmp.v14i2.15679>

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