

Optimizing the Halal Certification System through Community-Based Assistance for Poultry Slaughterhouses

Salmia¹, Munawaroh², Mar Atun Saadah³ Karlina Rahayu⁴

Institut Agama Islam Muhammad Azim Jambi, Indonesia^{1,2,4}
Universitas Jambi, Indonesia³

{salmiaamy@gmail.com¹, maratunsaadah@unja.ac.id², saadahalfikri@gmail.com³,
rahayu.karlina86@gmail.com⁴}

Submission: 2026-02-18

Received: 2026-06-20

Published: 2026-06-30

Keywords: Halal Certification; Halal Product Assurance System; Halal Supply Chain; Poultry Slaughterhouse.

Abstract. *The limited number of halal-certified poultry slaughterhouses in Indonesia represents a critical bottleneck in strengthening the halal supply chain. Empirical evidence shows that small-scale slaughterhouses often lack halal certification due to low technical capacity, inadequate facilities, and weak managerial systems, which undermine halal traceability and increase compliance risks. This community service aims to strengthen the halal supply chain by enhancing capacity and facilitating halal certification for a poultry slaughterhouse group in Jambi City, selected due to its strategic role as a local supplier and its low initial readiness for certification. This program applied a Participatory Action Research (PAR) approach involving 19 participants, including slaughterhouse workers and managers. Activities were conducted over three months, including needs assessment, halal regulation socialization, technical training, slaughter practice, development of Halal Product Assurance System (SJPH) documents, facility improvement, and certification mentoring.*

The results show measurable improvements. Participants' knowledge increased from an average pre-test score of 52.3 to 81.6 in the post-test, and all participants obtained halal slaughterer training certificates. Two SJPH documents were successfully developed, including halal policies, SOPs, and monitoring forms. Facility improvements included the separation of clean and dirty areas, provision of sanitation equipment, and improved production flow. By the end of the program, two business units had applied for halal certification, and all participants met the initial administrative requirements.

Katakunci: Rantai Pasok Halal; Rumah Potong Unggas; Sertifikasi Halal; Sistem Jaminan Produk Halal.

Abstrak. Keterbatasan jumlah rumah potong unggas (RPU) bersertifikat halal di Indonesia menjadi hambatan utama dalam penguatan rantai pasok halal. Bukti empiris menunjukkan bahwa RPU skala kecil umumnya belum tersertifikasi halal akibat rendahnya kapasitas teknis, keterbatasan fasilitas produksi, dan lemahnya sistem manajerial, sehingga melemahkan ketertelusuran halal dan meningkatkan risiko ketidakpatuhan. Pengabdian kepada masyarakat ini bertujuan memperkuat rantai pasok halal melalui

peningkatan kapasitas serta pendampingan sertifikasi halal pada kelompok RPU di Kota Jambi, yang dipilih karena perannya sebagai pemasok lokal ayam pejantan dan rendahnya kesiapan awal terhadap sertifikasi. Kegiatan ini menggunakan pendekatan Participatory Action Research (PAR) dengan melibatkan 19 peserta yang terdiri dari pekerja dan pengelola RPU. Program dilaksanakan selama tiga bulan melalui tahapan identifikasi kebutuhan, sosialisasi regulasi halal, pelatihan teknis, praktik penyembelihan, penyusunan dokumen Sistem Jaminan Produk Halal (SJPH), perbaikan fasilitas, serta pendampingan proses sertifikasi. Hasil kegiatan menunjukkan adanya peningkatan terukur, di mana rata-rata nilai pengetahuan peserta meningkat dari 52,3 menjadi 81,6, serta seluruh peserta memperoleh sertifikat juru sembelih halal. Selain itu, berhasil disusun dua dokumen SJPH meliputi kebijakan halal, SOP, dan formulir monitoring. Perbaikan fasilitas meliputi pemisahan area bersih dan kotor, penyediaan sarana sanitasi, serta penataan alur produksi sesuai standar halal. Pada akhir program, dua unit usaha telah mengajukan sertifikasi halal dan seluruh peserta memenuhi persyaratan administrasi awal.

1 Introduction

The global halal industry has expanded significantly in recent years, driven by increasing demand for halal-certified food products and the growing recognition of halal certification as an indicator of food safety, quality assurance, and ethical production (Fauzi et al., 2024). As a result, the halal supply chain has emerged as a critical framework to ensure halal integrity from upstream raw materials to downstream consumption (Ali & Suleiman, 2018). Among the various stages of the halal supply chain, animal slaughter represents one of the most critical control points, as non-compliance at this stage may compromise halal integrity throughout the entire system (Hanoum et al., 2023).

In Indonesia, halal assurance has been institutionalized through Law No. 33 of 2014 on Halal Product Assurance, which mandates halal certification for products circulated and consumed within the country. This regulation positions halal certification not merely as an administrative requirement, but as a governance mechanism that integrates religious compliance, consumer protection, and food safety standards (Anwar et al., 2022). The regulatory framework emphasizes a systemic approach to halal assurance, requiring compliance across

multiple dimensions, including management commitment, material traceability, halal processing, documentation, and continuous monitoring (Prathama et al., 2025). Consequently, halal certification is inseparable from the broader concept of halal supply chain management, particularly at the upstream level (Aziz & Firdaus, 2025).

Despite this comprehensive regulatory framework, the implementation of halal assurance in Indonesia continues to face substantial challenges, especially among small-scale upstream actors (Sucipto et al., 2026). Reports from the Halal Product Assurance Organizing Agency (BPJPH) and recent empirical studies consistently identify the limited number of halal-certified poultry slaughterhouses as a major structural bottleneck in strengthening halal food supply chains (Andriani, 2023). Poultry products constitute a primary source of animal protein for Indonesian consumers and serve as essential raw materials for micro, small, and medium enterprises (MSMEs) in the food sector (Zhang et al., 2026). However, the absence of halal-certified slaughterhouses (SH) undermines traceability and weakens halal assurance for downstream businesses, particularly under simplified self-declare certification schemes that do not involve comprehensive audits (Ashfia, 2022).

Field-based evidence from various regions in Indonesia further illustrates that small-scale poultry slaughterhouses frequently operate without halal certification due to interrelated constraints (Hapsari et al., 2025). These include limited knowledge of halal assurance standards which in Indonesia is institutionalized to Halal Product Assurance System (HPAS), insufficient technical skills in halal-compliant slaughtering practices, inadequate facilities, and financial barriers associated with certification processes (Jiwana Era Rahmadha & Karim, 2024). In many cases, halal compliance is perceived as a formal obligation rather than an integrated management system, resulting in weak internal controls, absence of standard operating procedures, and limited capacity for monitoring and evaluation. Such conditions increase the risk of non-compliance and compromise the integrity of the halal supply chain at its most critical entry point (Wagner et al., 2019).

These challenges are particularly pronounced in regions experiencing rapid growth in halal food demand, such as urban and peri-urban areas surrounding higher education institutions and economic hubs (Haque et al., 2025). In such contexts, the mismatch between rising demand for halal-certified food products and the limited availability of certified upstream suppliers constrains market access for slaughterhouse operators and exposes downstream food businesses to regulatory and reputational risks.

Against this backdrop, this community engagement initiative focuses on strengthening the halal supply chain through capacity building and halal certification assistance for poultry slaughterhouses. By integrating training on halal assurance systems with hands-on mentoring throughout the certification process, the program seeks to address structural barriers faced by small-scale operators while reinforcing halal compliance as a foundational element of sustainable halal food supply chains.

2 Method

The Participatory Action Research (PAR) approach was employed as it enables collaborative problem identification, needs assessment, and solution development between the community service team and partners prior to implementing transformative actions. In this approach, training and mentoring are not treated as final solutions but as capacity-building processes to encourage sustainable behavioral and managerial changes. This program aims to improve managerial practices and transform poultry slaughterhouse (SH) production standards toward halal certification. A total of 19 participants, consisting of workers and managers, were actively involved in all stages to ensure participatory engagement. The activities followed a continuous PAR cycle to support sustainable change.

The implementation stages included: (1) socialization of halal policies, certification urgency, and mechanisms using a socio-structural approach; (2) technical training through hands-on slaughtering practices; (3) application of technology through mentoring in facility design, sanitation improvement, and implementation of the Halal Product

Assurance System (HPAS/SJPH); (4) assistance in halal certification processes, including document preparation, system registration, and submission; and (5) monitoring and evaluation of managerial, production, and certification progress.

This program involved pentahelix stakeholders, including government (Jambi City authorities), halal inspection bodies (LPPOM MUI), academia (UIN Jambi and Universitas Jambi), the partner slaughterhouse (Budy Cahaya), and media (Tribun Jambi). Monitoring was conducted periodically, including post-certification evaluation to ensure sustainability and identify follow-up programs.

3 Results

This Community Service (PKM) activity is planned and implemented over a three-month period, from October to December 2025, from the preparation stage to the final reporting stage. The implementation timeframe is adjusted based on the needs of the partners, the effectiveness of the mentoring program, and the established output targets.

In its implementation, we apply a structured and systematic approach to halal certification assistance for poultry slaughterhouses. In the first month, activities focused on the preparation and initial identification phase, which included coordination with partners, initial data collection, and mapping the level of understanding and implementation of halal product assurance at the Budy Cahaya SH. This phase also identified the main obstacles faced by partners in fulfilling halal certification requirements.

There are five (5) criteria of HPAS that should be implemented to obtain halal certification namely commitment & responsibility, materials, halal product processes, products, and monitoring & evaluation. HPAS is a management instrument designed to ensure consistent implementation of halal principles throughout the entire production chain, including in the poultry slaughtering services sector. In the context of poultry slaughterhouses (SH), HPAS has characteristics that emphasize the process aspect more than the product, because halalness is largely

determined by slaughtering practices as the main critical point in the halal supply chain. The implementation of HPAS in SH is very strategic because failures at this stage cannot be corrected downstream, thus directly implicating the halal integrity of poultry derivative products (Ramli et al., 2024).

The first criterion in the HPAS is commitment and responsibility, which reflects management's commitment to internalizing halal principles into the operational system. In SH practice, this commitment is manifested through a written halal policy, the establishment of a halal management team, and the appointment of a halal supervisor. The critical point in this criterion lies in the weak implementation of the policy, which is merely a formality without consistent oversight, and the lack of a clear division of roles between halal supervisors and field operators. Our initial observations found that there were major weaknesses in this criterion because SH did not yet have officially certified halal slaughterers, as well as halal policies and halal supervisors. Studies show that low managerial commitment is one of the main causes of the failure of HPAS implementation in small-scale businesses (Syaiful Huda et al., 2024)

The second criterion is materials, which in the context of SH includes live poultry as the primary ingredient and supporting materials such as water, cleaning agents, and equipment that encounters the product. Critical points in this criterion include the unclear origin of the poultry, the potential for poultry to be in a condition unfit for slaughter, and the use of cleaning agents that contain impurities or do not meet halal standards. Material control is crucial because it is the starting point for ensuring the halal nature of the overall process (Rejeb et al., 2021). Our observations show that the male poultry at Budy Cahaya SH are clearly traceable to good feed sources.

The third criterion, the halal product process, is the core of SJPH in poultry slaughtering services. This process encompasses all stages, from handling poultry before slaughter, through the slaughtering process, and post-slaughter handling. Key critical points in this criterion include the competence of the halal slaughterer, the requirement to mention the name of Allah during slaughter, the cutting technique that must cut the

required channels, and the prevention of cross-contamination between clean and dirty areas.

The fourth criterion is the product, which in the context of the RPU refers to the poultry carcass as the final product of the slaughtering process. Critical points in this criterion relate to the potential for contamination during handling, storage, and distribution, as well as mixing with non-halal products. Furthermore, the lack of a product labeling or identification system can also lead to the loss of halal traceability, a crucial element in a modern halal assurance system

The fourth criterion is the product, which in the context of SH refers to poultry meat products as the end result of the slaughter process. Critical points in this criterion relate to the potential for contamination during handling, storage, and distribution, as well as mixing with non-halal products. Furthermore, the lack of a product labeling or identification system can also lead to the loss of halal traceability, a crucial element in a modern halal assurance system (Ali & Suleiman, 2018). At Budy Cahaya SH, the chicken products produced consist of meat and offal, which are shipped directly to consumers. Budi Cahaya SH also slaughters only one type of poultry, sourced from its own farm, ensuring it is free from non-halal meat contamination.

The last criterion is monitoring and evaluation, which includes internal audits and management reviews to ensure the system is running effectively. In SH practice, critical points in this criterion include the lack of regular internal audits, the lack of documentation of evaluation results, and weak follow-up on non-conformance findings. This situation prevents the HPAS from developing as an adaptive system but rather remains a static document.

Based on these findings, we developed a systematic approach to implementing HPAS at Budy Cahaya SH. In the first month, our activities focused on initial preparation and identification, which included coordination with partners, initial data collection, and mapping the level of understanding and implementation of HPAS within the slaughterhouse unit. This phase was crucial for identifying key challenges, particularly in meeting the administrative, technical, and managerial requirements for halal certification. Findings from this initial

phase revealed that the challenges were not only related to limited slaughter infrastructure and halal policies but also to gaps in knowledge of halal poultry slaughter, documentation readiness, and an internal management system.

In the second month, we moved into the core implementation phase, which emphasized intensive training and mentoring on the application of HPAS in poultry slaughterhouses. This phase was designed to translate conceptual understanding into practical competency through structured capacity-building activities and the implementation of various HPAS slaughtering standards.

First, we provided halal poultry slaughter training to slaughterers at Budy Cahaya SH. The training lasted two days using a hybrid system. In addition to classroom-based instruction, this phase incorporated hands-on practical training conducted directly at the slaughterhouse facility. Participants were guided through real-time demonstrations of halal-compliant chicken slaughtering, including pre-slaughter handling, the act of slaughter, and post-slaughter processing.

A resource person delivered the training via Zoom meetings, supplemented by online lectures by veterinarians. The second day included practical poultry slaughtering, supervised directly by veterinarians. During this practice, the slaughterers' first attempts were not always successful. There were errors in slaughtering according to Islamic law in various aspects, such as not completely severing the respiratory tract, forgetting to face the Qibla, and making more than one cut. On the second attempt, all participants successfully slaughtered according to Islamic law. This experiential approach enabled participants to internalize proper techniques, correct previously identified errors, and align their practices with both religious and operational standards.

Furthermore, the implementation phase included technical assistance aimed at strengthening institutional readiness for halal certification. This involved mentoring partners in preparing required documentation, such as halal policies, standard operating procedures (SOPs), internal monitoring records, and other components of SJPH. Assistance was also provided to improve facility layout, sanitation practices, and workflow organization to meet halal compliance

standards. These activities were carried out in a focused, iterative, and sustainable manner, ensuring that improvements were not only achieved but also maintained. Through this integrated approach, the program significantly enhanced the partners' technical, managerial, and administrative capacity, thereby accelerating their readiness to undergo and successfully complete the halal certification process.

Last month, we registered SH for halal certification with the Halal Inspection Agency, fully funding the certification costs. The halal certification process took one day and was conducted by halal auditors and the Indonesian Ulema Council (MUI) fatwa commission. The community service team and halal supervisors assisted in the certification process. The halal auditors and fatwa commission ensured that all HPAS requirements were met and will further investigate the findings. A week after the audit, Budy Cahaya SH was declared halal certified, and the halal certificate document was issued.

Next, we conduct monitoring and evaluation, as well as the preparation of a final report. Monitoring and evaluation were conducted to assess the effectiveness of the training and mentoring programs, measure improvements in halal product quality, and ensure the sustainability of the halal product assurance system at the Budy Cahaya SH. This stage also documented outputs and formulated recommendations as a follow-up to the Community Service Program (PKM) activities.

4 Discussion

The implementation of this activity at Cahaya Slaughterhouse demonstrated that a participatory halal assurance system mentoring approach was effective in improving the technical, administrative, and institutional capabilities of poultry slaughterhouses in managing halal certification. This community service also identified fundamental challenges in implementing halal assurance in poultry slaughterhouses, not only limited facilities but also a lack of understanding of halal standards. These standards are often interpreted solely in terms of Sharia, whereas the concept of halal in Indonesia is comprehensive,

encompassing goodness, cleanliness, hygiene, and sanitation (Maflahah et al., 2026). Therefore, fundamental aspects of sustainability principles within a quality management system, such as standard procedures, systematic documentation, and integrated governance, have not received sufficient attention from business operators (Ispas et al., 2023). This finding reinforces previous research suggesting that the failure of halal assurance implementation in small and medium-sized enterprises is likely due to low managerial commitment and limited internal capacity (Abdul Halim et al., 2024).

Initial identification indicates that Budy Cahaya SH does not yet have certified halal slaughterers. This obstacle is caused by several factors besides the relatively affordable cost. The owner is not even aware of the obligation to certify halal slaughterers. During the training process, it was discovered that the slaughterers do not know and understand all the halal standards in the slaughtering process. Therefore, it is certain that the halal assurance system in the most crucial aspect, namely the slaughter, has the potential to be implemented. Basic requirements such as reciting bismillah before slaughtering and facing the Qibla are known, but the obligation to place the slaughtered animal slowly after slaughter instead of throwing it into a container or the ground and the obligation to check for signs of life on the slaughtered animal were not previously known. These aspects fulfill the principle of 'thayyib' in halal standards in Indonesia. This aspect is an attraction for non-Muslim consumers to consume halal slaughtered products because it is believed to meet the principles of animal welfare (Suryawan et al., 2022). Therefore, it can be concluded that the commitment and responsibility aspects are the most challenging criteria. Furthermore, in this aspect, the management system can be interpreted simply as an administrative requirement that is created, printed, and posted. In fact, the management system should serve as a reference for the sustainable implementation of a company's business processes (Sohns et al., 2023).

This fundamental change demonstrates that mentoring is not merely a transfer of knowledge but also a process of institutional transformation, leading to a work culture that aligns with halal assurance standards. In terms of materials, Budy Cahaya SH has the advantage of

clearly traceable materials, as their poultry are raised independently. This facilitates the application of traceability principles in the halal supply chain to mitigate the risk of contamination from non-halal materials.

Overall, this community service activity demonstrates that a practice-based, participatory mentoring model has been proven to improve the institutional capacity of poultry slaughterhouses in implementing halal product assurance and obtaining halal certification. This program also enhances the capabilities of individual slaughterhouse workers, while supporting the creation of an institutionalized and sustainable halal assurance system to support the halal supply chain in Jambi City.

5 Conclusion

This community service program demonstrates that a participatory mentoring approach based on Participatory Action Research (PAR) is effective in improving the technical, managerial, and institutional capacity of poultry slaughterhouses in achieving halal compliance. The main results indicate significant improvements in participants' knowledge and skills, the successful certification of all participants as halal slaughterers, the development of two Halal Product Assurance System (SJPH) documents, and measurable enhancements in production facilities in accordance with halal standards. In addition, the program successfully facilitated the initial stages of halal certification, with several business units meeting administrative requirements and submitting certification applications. These outcomes confirm that capacity building combined with intensive mentoring can address structural barriers faced by small-scale slaughterhouses and strengthen upstream halal compliance. Therefore, it is recommended that similar programs be expanded to other regions with low halal certification coverage, supported by sustained collaboration among government, academia, and halal institutions. Future initiatives should also emphasize continuous monitoring, financial support mechanisms, and policy integration to ensure long-term sustainability and broader impact on the halal supply chain.

6 Reference

- Abdul Halim, N. R., Mutalib, S. A., Abd Ghani, M., & Hashim, H. (2024). Non-conformance report (NCR) on Malaysia halal certification: A case study among small-medium scale food enterprises (SMEs) in Malaysia. *Food Control*, *160*, 110298. <https://doi.org/10.1016/j.foodcont.2024.110298>
- Ali, M. H., & Suleiman, N. (2018). Eleven shades of food integrity: A halal supply chain perspective. *Trends in Food Science & Technology*, *71*, 216–224. <https://doi.org/10.1016/j.tifs.2017.11.016>
- Andriani, A. (2023). Manajemen Rantai Pasok Dan Proyeksi Sertifikasi Halal Pedagang Daging Ayam Kota Kediri. *BISNIS : Jurnal Bisnis Dan Manajemen Islam*, *11*(1), 51. <https://doi.org/10.21043/bisnis.v11i1.19965>
- Anwar, Moch. K., Fahrullah, A., Fahmi, Moh. F., & Ridlwan, A. A. (2022). KEEPING HALAL SUBSTANCE IN THE MIDDLE OF COMPETITION OF HALAL INVESTIGATION INSTITUTIONS AND SELF DECLARE PATHWAY IN INDONESIA. *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah*, *6*(2), 395–409. <https://doi.org/10.29313/amwaluna.v6i2.11715>
- Ashfia, T. (2022). Tujuan Hukum Dalam Pengaturan Self-Declare Pada Sertifikasi Halal Bagi Pelaku Umk. *Journal of Comprehensive Science (JCS)*, *1*(5), 1018–1029. <https://doi.org/10.59188/jcs.v1i5.133>
- Aziz, M. A. A., & Firdaus, R. (2025). Edukasi Sertifikasi Halal Self-Declare bagi Pelaku UMKM: Membangun Wirausaha Halal di Kecamatan Kadungora, Garut. *GUYUB: Journal of Community Engagement*, *6*(2), 569–593. <https://doi.org/10.33650/guyub.v6i2.10905>
- Fauzi, M. A., Mohd Ali, N. S., Mat Russ, N., Mohamad, F., Battour, M., & Mohd Zaki, N. N. (2024). Halal certification in food products: Science mapping of present and future trends. *Journal of Islamic Marketing*, *15*(12), 3564–3580. <https://doi.org/10.1108/JIMA-12-2023-0407>
- Hanoum, S., Sugihartanto, M. F., & Zuhriya, H. (2023). Halal Supply Chain Management: A Bibliometric Study. *Halal Research Journal*, *3*(2), 99–117. <https://doi.org/10.12962/j22759970.v3i2.734>

- Hapsari, N. R., Rahmawati, K., Kasih, P. H., & Leuvano, R. A. C. (2025). Understanding Pain Points in Halal Chicken Supply Chains: The Type D Slaughterhouse Experience. *RSF Conference Series: Business, Management and Social Sciences*, 5(2), 181–188. <https://doi.org/10.31098/bmss.v5i2.965>
- Haque, S., Khan, Md. S., Mawa, B., Hossain, Md. E., Hoque, Md. N., Misu, N. J., Akter, M., Sarkar, M. A. R., & Wahid, T. (2025). Ethnographic insights on the livability of migrant ready-made garment workers in peri-urban Bangladesh. *Cities*, 166, 106229. <https://doi.org/10.1016/j.cities.2025.106229>
- Ispas, L., Mironeasa, C., & Silvestri, A. (2023). Risk-Based Approach in the Implementation of Integrated Management Systems: A Systematic Literature Review. *Sustainability*, 15(13). <https://doi.org/10.3390/su151310251>
- Jiwana Era Rahmadha, & Karim, M. (2024). Implementasi Mandatory Sertifikasi Halal terhadap Umkm Usaha Pemotongan Unggas di Desa Poter Kecamatan Tanah Merah. *Al-Maqashid: Journal of Economics and Islamic Business*, 4(2), 84–91. <https://doi.org/10.55352/maqashid.v4i2.1185>
- Maflahah, I., Omar, E. N., Asfan, D. F., & Firmansyah, R. A. (2026). Strengthening halal integrity in the fish supply chain: Early detection approach at the fisherman and collector level. *Journal of Islamic Marketing*, 1–23. <https://doi.org/10.1108/JIMA-10-2024-0486>
- Prathama, M., Baihaqi, I., & Rakhmawati, N. A. (2025). Exploring determinants of halal traceability systems in the Indonesia cosmetics industry. *Production*, 35, e20240144. <https://doi.org/10.1590/0103-6513.20240144>
- Ramli, M. H., Rosman, A. S., & Jamaludin, M. A. (2024). The potential risks related to halal and toyyiba in the poultry supply chain integration system: A review. *Halalsphere*, 4(2), 66–67. <https://doi.org/10.31436/hs.v4i2.106>
- Rejeb, A., Rejeb, K., Zailani, S., Treiblmaier, H., & Karen, H. (2021). Integrating the Internet of Things in the Halal Food Supply Chain: A

Systematic Literature Review and Research Agenda. *Internet of Things*, 13, 1–18. <https://doi.org/10.1016/j.iot.2021.100361>

Sohns, T. M., Aysolmaz, B., Figge, L., & Joshi, A. (2023). Green business process management for business sustainability: A case study of manufacturing small and medium-sized enterprises (SMEs) from Germany. *Journal of Cleaner Production*, 401, 136667. <https://doi.org/10.1016/j.jclepro.2023.136667>

Sucipto, S., Zubir, M., Astuti, R., & Sukoso, S. (2026). Analysis of self-declared halal certification in Indonesia: Regulation, barriers, and opportunity. *Cogent Food & Agriculture*, 12(1), 2660378. <https://doi.org/10.1080/23311932.2026.2660378>

Suryawan, A. S., Hisano, S., & Jongerden, J. (2022). Negotiating halal: The role of non-religious concerns in shaping halal standards in Indonesia. *Journal of Rural Studies*, 92, 482–491. <https://doi.org/10.1016/j.jrurstud.2019.09.013>

Syaiful Huda, I. A., Saadah, M., Sugiarto, A., Bin Ibrahim, M. H., Prasad, R. R., Putra, A. K., & Budianto, A. (2024). Revealing Halal Certification Oversight Gaps for MSEs through ArcGIS Dashboard Integration. *Indonesian Journal of Halal Research*, 6(2), 58–69. <https://doi.org/10.15575/ijhar.v6i2.33308>

Wagner, D. R., Kline, H. C., Martin, M. S., Alexander, L. R., Grandin, T., & Edwards-Callaway, L. N. (2019). The effects of bolt length on penetration hole characteristics, brain damage and specified-risk material dispersal in finished cattle stunned with a penetrating captive bolt stunner. *Meat Science*, 155, 109–114. <https://doi.org/10.1016/j.meatsci.2019.05.006>

Zhang, B.-Z., Moon, J.-W., & Park, J.-M. (2026). Comparative Review of Halal Certification Frameworks for Poultry Meat in Malaysia, Singapore, and Indonesia. *Foods*, 15(4), 659. <https://doi.org/10.3390/foods15040659>