Interdisciplinary International Journal of Conservation and Culture
Volume 3, Issue 1, April 2025, (Page 24-31)
DOI: https://doi.org/10.25157/iijcc.v3i1.4871

IIJCC
ISSN 2988-2923

Boosting sustainable livestock business management skills through field school interventions

Ruhyana Kamal[1] ,Budiman[1], Ridwan Juliansah[1], Asep Matin[1], Farid Nursoba[1]
Dinas Pertanian, Ketahanan Pangan, dan Perikanan, Kabupaten Tasikmalaya, Indonesia[1]

Abstract
This study investigated the effectiveness of the Field School Livestock Business Management program in enhancing the knowledge and skills of livestock farmers in Tasikmalaya Regency, a region implementing the Upland Areas Project (UPLAND). Employing a quantitative pre- and post-test design, the research assessed the impact of the Field School on participants from Batch 1 (n=25) and Batch 2 (n=25). The curriculum encompasses crucial aspects of livestock management, including feed cultivation, barn management, seed selection, husbandry techniques, and reproduction management, with Class 2 also participating in practical forage crop cultivation. The findings revealed statistically significant improvements in the mean knowledge and skill scores for both classes following the Sekolah Field intervention. Batch 1 demonstrated an increase from a pre-test mean of 69.60 to a post-test mean of 84.40, while Batch 2 demonstrated a more substantial gain from 60.40 to 83.20. Inferential statistical analysis on the normalized gain scores indicated a significantly higher learning efficiency in Batch 2 compared to Batch 1, suggesting that factors such as the practical forage cultivation session may have contributed to enhanced learning outcomes. These results underscore the efficacy of the Field School as an impactful extension methodology for improving livestock farmers' competencies, aligning with the UPLAND project's goals of fostering integrated and sustainable agricultural systems. The study highlights the potential of participatory, hands-on learning approaches in promoting knowledge acquisition and skill development crucial for modern livestock management. Future research should focus on longitudinal assessments of knowledge retention and the actual adoption of sustainable practices, as well as exploring the socio-economic and environmental impacts of the Sekolah Field program in the long term.
Keywords: Farmer Education, Field School, Livestock Management, Sustainable Agriculture

Corresponding author:
Ruhyana Kamal
Dinas Pertanian, ketahanan Pangan, dan Perikanan, Kabupaten Tasikmalaya
Jalan Sukapura VI Bojongkoneng
ruhyanakamal@gmail.com

Article history
Received April 18, 2025
Revised April 24, 2025
Accepted May 2, 2025
Published Online May 4, 2025

Cite this article:
Kamal, R., Budiman, B., Juliansah, R., Matin, A., & Nursoba, F. (2025). Effectiveness of field schools in increasing livestock farmers' capacity for sustainable livestock business management practices in the Tasikmalaya highlands . *Interdisciplinary International Journal of Conservation and Culture*, *3*(1), 24–31. https://doi.org/10.25157/iijcc.v3i1.4871

INTRODUCTION

Past research consistently illuminated the multifaceted challenges and considerable opportunities inherent in Indonesia's livestock farming sector. A recurring theme identified across studies was the detrimental impact of farmers' limited knowledge and skills, which significantly impeded the adoption of optimal and sustainable livestock management practices (Pratama, 2019; Purnamasari et al., 2022). Consequently, farmers experienced difficulties in implementing proper animal husbandry techniques and effective waste management strategies, ultimately compromising both productivity levels and the efficient utilization of available resources (Purnamasari et al., 2022). While the pivotal role of farmer groups in empowering livestock farmers through avenues of collective learning, enhanced production capacities, and strengthened cooperative frameworks was acknowledged (Mauludin, 2012), the studies also indicated that farmers' actual performance in their capacities as both animal caretakers and farm managers had not yet reached its full potential (Mauludin, 2012). Despite these limitations, the livestock sector was recognized as possessing substantial potential to contribute to broader societal welfare through enhanced food security, the

creation of income-generating opportunities, the promotion of sustainable agricultural practices, and the crucial alleviation of poverty (Subekti, 2008). Nevertheless, the continued reliance on traditional management practices was shown to constrain the sector's overall capacity to effectively fulfill these strategically important roles (Subekti, 2008). Prior investigations strongly suggested that targeted interventions aimed at enhancing farmers' knowledge and practical skills through the provision of comprehensive training programs and consistent support mechanisms held the key to unlocking improved productivity levels and fostering greater self-sufficiency within Indonesia's livestock farming communities (Pratama, 2019; Purnamasari et al., 2022).

Building upon the established understanding of challenges and opportunities in Indonesia's livestock sector, the integration of crop and livestock farming systems emerged as a promising strategy for enhancing land productivity, promoting environmental conservation, and augmenting farmer income (Utami & Rangkuti, 2021). This integrated approach inherently supported sustainable agriculture by strategically leveraging locally available resources, exemplified by the utilization of crop residues like straw as valuable livestock feed and the recycling of cattle manure as nutrient-rich organic fertilizer. Indeed, the proper management of livestock waste, particularly cattle manure, was further highlighted for its potential to generate high-quality organic fertilizer, thereby contributing to the long-term improvement of soil fertility (Minardi & Hartati, 2017). Complementary to these practices, the maintenance of adequate barn sanitation was recognized as a critical factor in disease prevention among livestock, safeguarding the health of farmers, and ultimately elevating the quality of livestock products (Fajri et al., 2024). While intensive agricultural practices were historically viewed as the primary pathway to achieving high levels of productivity, contemporary perspectives increasingly emphasized the necessity of adopting a more holistic approach. This comprehensive framework necessitates the seamless integration of biotechnical, socio-economic, and institutional considerations to effectively realize the overarching goals of sustainable agricultural development within the Indonesian context (Dahuri, 2003). The findings from the Field School activities, therefore, held the potential to contribute valuable insights into the practical application and effectiveness of such integrated and sustainable practices at the farmer level.

Farmer Field School has shown effectiveness in improving farmers' knowledge and skills related to sustainable agricultural practices. Studies indicate that Field School significantly increases participants' knowledge about various agricultural technologies, including hybrid corn seed production (Risna et al., 2020) and terrestrial orchid cultivation (Hexa et al., 2019). The method has been successful in changing farmers' behavior and attitudes towards adopting new practices in cattle farming (Risna et al., 2017). Field School employs adult learning approaches, utilizing lectures, demonstrations, and practical applications to enhance learning outcomes (Alam et al., 2023; Risna et al., 2017). Research shows substantial improvements in farmers' knowledge and skills after participating in SL programs, with increases in knowledge scores from 267 to 896 and skill scores from 146 to 489 in one study (Alam et al., 2023). However, there is still room for improvement in utilizing Field School as a learning medium to further enhance farmers' skills (Risna et al., 2017).

The Upland Areas Project (UPLAND) in Tasikmalaya Regency directly addressed these identified needs and potentials within the local agricultural context. As an integrated farming system development initiative in the highlands, UPLAND aimed to cultivate location-specific agricultural commodities for export and import substitution. Recognizing that qualified human resources are paramount for regional development, a key component of UPLAND involved enhancing the knowledge and skills of farmers, particularly in the livestock sector, to establish reliable livestock entrepreneurs. Consequently, the Field School Manajemen Usaha Peternakan was organized within the UPLAND program in 2024. This initiative specifically sought to improve the human capital of livestock farmers, ultimately supporting the primary goal of developing organic rice cultivation by ensuring the availability of organic fertilizer derived from livestock waste. The Field School was designed with the objectives of equipping farmers with the necessary knowledge for managing their livestock enterprises according to recommended practices, providing them with the skills to meet the organic fertilizer demands for organic rice farming within the UPLAND area, and establishing livestock farming

as a viable livelihood option. The anticipated benefits included a comprehensive understanding of livestock management principles, the ability to implement intensive management practices, the knowledge to sustainably utilize local resources in livestock farming, and the capacity to develop and apply effective quality management systems.

In alignment with the broader goals of the UPLAND project to foster integrated and sustainable agriculture, and recognizing the established effectiveness of the Farmer Field School approach in enhancing agricultural knowledge and skills, this study sought to evaluate the impact of the Animal Husbandry Business Management Field School program in Tasikmalaya Regency. Specifically, this research aimed to analyze the enhancement of knowledge and skills in livestock business management among participants of both Batch 1 and Batch 2 of the Field School. Furthermore, it is intended to compare the effectiveness of the Field School intervention between these two cohorts in bolstering the capacity of local livestock farmers to adopt more sustainable practices within their operations, ultimately contributing to the overarching objectives of UPLAND and the advancement of environmentally sound and economically viable agricultural systems in the region.

METHODOLOGY

The methodology of this study was grounded in the principles of the Field School, an extension method intentionally designed to maximize farmers' learning opportunities through direct engagement with real-world scenarios and the facilitation of self-discovery of agricultural principles. This participatory approach moves beyond passive learning, empowering adult learners to actively master a dynamic process of knowledge acquisition directly applicable to their farm management and daily lives. Recognizing the dynamic nature of modern agriculture, the Field School framework aims to cultivate resilient farmers capable of navigating present and future challenges. Key characteristics of the Field School employed in this research included the farm or specific location serving as the primary learning environment, emphasizing hands-on experience and observation followed by reflection and conclusion, using practical and relevant methods and materials readily adaptable by farmers, and employing a curriculum directly addressing the skills deemed essential for expertise in areas such as organic fertilizer production and integrated livestock management. The Field School for Batch 1 was conducted at the UPPO-BIO GAS Poktan Sadar Bakti III in Bantarkalong Village, while Batch 2 took place at the UPPO-BIO GAS in Padawaras Village, both within Cipatujah Subdistrict. Each batch involved 25 participants, representing farmer groups from distinct villages within the subdistrict.

To rigorously assess the impact of the Field School, a quantitative research design using a pre- and post-test approach was implemented, a method commonly used for evaluating educational interventions (Farradinna et al., 2023; SP Rahayu et al., 2021). The study population comprised all participants (a census) from both the Livestock Business Management Field School Batch 1 and Batch 2 in Tasikmalaya Regency, totaling 50 individuals. Data on the participants' knowledge and skills in livestock business management were collected at two critical junctures: before the commencement of the Field School program (pre-test) to establish baseline understanding, recognizing the importance of initial knowledge levels in learning (Indrarosa et al., 2024a), and immediately following the completion of all training sessions (post-test) to measure the immediate learning outcomes. A standardized questionnaire, carefully developed based on the specific curriculum and materials of the Field School, served as the primary instrument for data collection. This instrument incorporated a combination of multiple-choice questions to assess theoretical knowledge and Likert-scale items to gauge understanding and intended application across various facets of livestock management, including animal husbandry techniques, feeding practices, waste management strategies (particularly concerning organic fertilizer production), disease protocols prevention, and fundamental farm economic principles.

The quantitative data obtained from the pre- and post-test assessments were subjected to comprehensive statistical analysis. Descriptive statistics, including means and standard deviations, were calculated to characterize the levels of knowledge and skills within each class at both the initial and final evaluation points. To ascertain the magnitude of knowledge and skill improvement within

each individual group, paired sample t-tests were performed, directly comparing the mean scores of the pre-test and post-test for Batch 1 and Batch 2 separately. This statistical procedure allowed for the identification of significant gains in knowledge and skills directly attributable to participation in the Sekolah Field program for each cohort. Furthermore, to directly compare the effectiveness of the Field School intervention in enhancing participants' capacity for sustainable practices between Batch 1 and Batch 2, independent samples t-tests were conducted. These tests compared the mean gain scores (the difference between individual post-test and pre-test scores) between the two groups, providing statistical evidence as to whether one group demonstrated a significantly greater improvement in their knowledge and skills relevant to sustainable livestock management practices compared to the other.

RESULTS AND DISCUSSION

The Field School Livestock Business Management Batch 1 and 2 employed a multifaceted approach to enhance participants' knowledge and skills in key areas of livestock management. The curriculum encompassed both theoretical material and practical application, delivered by experienced facilitators from the local Agricultural Extension Center Cipatujah and the UPLAND Project Team. Fundamental to successful livestock farming, the module on Feed Cultivation introduced participants to various grass species, techniques for cultivating Forage Crops, and methods for calculating livestock feed requirements, emphasizing the crucial role of feed for daily sustenance, production (growth, meat, milk), and reproduction. In line with this, various studies also highlight the importance of training in cultivating high-quality forage crops such as odot grass, elephant grass, and indigofera to enhance feed availability and quality (Badaruddin et al., 2024; Sanjaya et al., 2024; Yulianto et al., 2022). These initiatives aimed to increase farmers' understanding of superior forage cultivation techniques and feed management, including nutrient calculation for daily rations (Sanjaya et al., 2024).

The Barn Management session in the SL highlighted the importance of proper housing for the safety, comfort, and productivity of sheep and goats, covering site requirements, construction techniques, and calculating housing needs. This aligns with research emphasizing the improvement of barn design to meet animal health, comfort, and productivity standards (Fitriana et al., 2025). Furthermore, the Livestock Seed Selection module aimed to equip participants with the ability to identify quality breeding stock based on criteria for both male and female animals, focusing on health, physical attributes, and productive potential. Livestock Husbandry Techniques covered essential practices such as barn maintenance, animal health care (including hoof trimming, wool shearing, and herbal remedies), and practical exercises in mineral block production. Finally, Livestock Reproduction Management addressed crucial aspects of breeding programs, including identifying breeding-ready females, selecting superior sires, and recognizing signs of impending birth. For Batch 2, a hands-on Practice Session on Forage Crop Cultivation was conducted, allowing participants to work in small groups to prepare land, treat planting material, plant various high-quality grasses (Odot, Raja, Gajah, Benggala, Setaria, and Kalikiria), and learn basic maintenance techniques. These training programs generally employed interactive teaching methods, field practices, and technical assistance to enhance farmers' skills (Badaruddin et al., 2024; Sanjaya et al., 2024), and also included education on feed preservation technologies, such as silage production, to address seasonal feed shortages (Yulianto et al., 2022). These interventions aimed to support sustainable livestock production and improve farmers' livelihoods.

The implementation of this comprehensive curriculum through the Field school methodology yielded significant improvements in the participants' knowledge and skills, as evidenced by the pre- and post-test evaluations. For Batch 1, the initial mean score of 69.60 indicated a moderate baseline understanding. Following the intensive training, the mean score significantly increased to 84.40, representing a substantial gain of 14.80 points. This improvement suggests that the material presented on feed cultivation, barn management, seed selection, husbandry techniques, and reproduction management effectively enhanced the participants' theoretical knowledge and practical

understanding. Similarly, Batch 2 demonstrated a notable learning progression. With a lower initial mean score of 60.40, indicating a wider range of baseline knowledge, the participants achieved a post-test mean score of 83.20, resulting in an even more considerable average gain of 22.80 points. The hands-on practice in forage crop cultivation for Batch 2 likely contributed to this substantial increase, reinforcing the theoretical knowledge with practical experience in a key aspect of sustainable livestock farming.

The quantitative results from both Batch highlight the effectiveness of the Field school as an impactful extension and learning model for livestock farmers in the UPLAND project area. The structured curriculum, combining theoretical knowledge with practical elements, demonstrably improved the participants' understanding of essential livestock management principles and techniques. The greater average gain observed in Batch 2, despite a lower initial baseline, could be attributed to various factors, including the specific participant characteristics, the nuances of the training delivery, or the inclusion of the practical HMT cultivation session. The following table summarizes these findings:

Table 1 Evaluation Results for Livestock Business Management Field School Batch 1 and 2

Batch	Number of Participants (n)	Mean Pre-Test Score	Standard Deviation Pre-Test Score	Mean Post-Test Score	Standard Deviation Post-Test Score	Mean Gain (Post - Pre)
Batch 1	25	69.60	14.73	84.40	6.58	14.80
Batch 2	25	60.40	16.17	83.20	07.07	22.80

To compare the effectiveness of the Field school in enhancing the capacity of farmers for sustainable practices between Batch 1 and Batch 2, an independent samples t-test was conducted on the normalized gain scores for both knowledge and skills. The normalized gain (g) was calculated for each participant to standardize the learning gains relative to their initial knowledge levels, as suggested by prior research on learning effectiveness. This approach allowed for a more equitable comparison between the two cohorts, accounting for the observed differences in their pre-test scores. The analysis revealed that while both Batch demonstrated statistically significant positive gains in their overall knowledge and skills related to livestock management (as confirmed by paired samples t-tests within each group, $p < 0.05$), there was a statistically significant difference in the mean normalized gain scores between the two Batch ($p < 0.05$). Specifically, Batch 2 exhibited a higher mean normalized gain in knowledge and skills compared to Batch 1.

This statistically significant difference in normalized gain suggests that the Field school intervention had a differential impact on the two cohorts in terms of learning efficiency, even after accounting for their initial knowledge levels, which aligns with broader research highlighting the importance of sustainable agricultural practices and farmer training programs in improving smallholder farming outcomes (Slameto et al., 2016; Corfietd et al., 2008; Indrarosa et al., 2024; Rajendran et al., 2016). Several factors could potentially explain this disparity. The inclusion of the practical session on forage crop cultivation in Batch 2 might have contributed to a more profound and applicable understanding of sustainable feed management, a crucial component of sustainable livestock practices, an area where participatory approaches have previously addressed constraints in cattle performance in Indonesia. Additionally, subtle variations in the delivery of the curriculum, the specific characteristics and engagement of the participants in each Batch (as learning processes can vary, even among ethnic groups, as noted by Slameto et al. (2016)), or even the different learning environments at the two locations could have influenced the learning outcomes. The potential influence of socio-demographic factors on knowledge acquisition, as observed in livestock waste management training (Indrarosa et al., 2024b), could also be relevant here. Furthermore, the adoption of such practices is often influenced by factors indicating higher learning and management capacity, as well as the role of facilitation and economic motivation, highlighting the complementary role of

non-governmental organizations and rural institutions alongside public extension services in providing training. Further qualitative research, such as follow-up interviews with participants and facilitators from both Batches, could provide deeper insights into the specific elements of the Field school that contributed to these differential learning gains in the context of fostering capacity for sustainable livestock farming practices, potentially revealing nuances related to tailored training programs and participatory approaches emphasized in existing literature.

CONCLUSION

In conclusion, the Field school Manajemen Usaha Peternakan Batch 1 and Batch 2 in Tasikmalaya Regency demonstrably achieved their objective of enhancing the knowledge and skills of participating livestock farmers. The quantitative analysis of pre- and post-test evaluations revealed statistically significant improvements in both cohorts, affirming the effectiveness of the Field school as an impactful agricultural extension method. Notably, Batch 2 exhibited a significantly greater normalized learning gain compared to Batch 1, suggesting a more efficient knowledge and skill acquisition relative to their initial baseline. This difference could be attributed to factors such as the inclusion of practical forage crop cultivation in Batch 2, variations in training delivery, participant characteristics, or the learning environment.

The findings underscore the potential of the Field school model to empower livestock farmers with essential competencies for improved management practices, which are foundational for the adoption of more sustainable approaches. The curriculum's emphasis on practical, experiential learning, coupled with expert facilitation, appears to be a successful strategy for adult agricultural education. The statistically significant learning gains in both Batch indicate a positive step towards building a more knowledgeable and skilled cadre of livestock farmers in the UPLAND project area, ultimately contributing to the project's broader goals of integrated and sustainable agricultural development. Further research, including qualitative investigations, is recommended to delve deeper into the factors contributing to the differential learning outcomes between the two Batch and to explore the long-term adoption of sustainable practices by the participants.

Limitations and future direction

This study, while providing valuable insights into the immediate impact of the Field school, was limited by its focus on short-term knowledge and skill acquisition as measured by pre- and post-tests. Future research should incorporate longitudinal studies to assess the long-term retention of knowledge and, more importantly, the actual adoption of sustainable livestock management practices learned during the Field school. Additionally, exploring the influence of socio-economic factors, access to resources, and the role of farmer networks on the implementation of these practices would provide a more comprehensive understanding of the factors facilitating or hindering the transition towards sustainable livestock farming in the UPLAND project area. Qualitative research, including in-depth interviews and focus group discussions with participants and other stakeholders, could further enrich the findings by providing nuanced perspectives on the perceived benefits, challenges, and enabling factors related to the adoption of sustainable practices learned through the Field school.

Acknowledgements

We extend our deepest gratitude to the implementers of the UPLAND Project in Tasikmalaya for their invaluable contributions, enabling the project to be successfully executed and yielding significant benefits for the farming community of Tasikmalaya Regency.

Declarations

The authors declare that all individuals credited as authors have made substantial contributions to the conception, design, execution, or interpretation of this research. Specifically, Author 1 contributed to the study design and data collection; Author 2 performed the statistical analysis and

interpretation; Author 3 drafted the manuscript and revised it critically for important intellectual content. The data and materials used in this study are available upon reasonable request from the corresponding author. The authors further declare that there are no conflicts of interest that could have influenced the conduct or reporting of this research.

REFERENCE

Alam, A. S., Hamid Kusuma, H. A., & . Z. (2023). Analisis Peningkatan Pengetahuan dan Keterampilan Melalui Field school dalam Program Bertani untuk Negeri. *AGRITA (AGri)*, *5*(2), 135. https://doi.org/10.35194/agri.v5i2.3819

Badaruddin, R., Saili, T., Ido, I., Ibrahim, I., Syamsuddin, S., & Munadi, L. O. Muh. (2024). Peningkatan Keterampilan Peternak Melalui Pelatihan Budidaya Hijauan Makanan Ternak Unggul di Kelurahan Watumotobe, Kecamatan Kapontori, Kabupaten Buton. *MAJU : Indonesian Journal of Community Empowerment*, *1*(6), 434–439. https://doi.org/10.62335/rx159b07

Dahuri, R. (2003). *Pembangunan Pertanian Berkelanjutan: Dalam Perspektif Ekonomi, Sosial dan Ekologi*.

Fajri, Pratiwi, D. M., Afrianti, Wahyuni, S., Asnar, & Risalati, M. (2024). Penyuluhan Terpadu Sanitasi Kandang dan Pembuatan Pupuk Organik untuk Menciptakan Pertanian Berkelanjutan. *TOLIS MENGABDI : Jurnal Pengabdian Kepada Masyarakat*, *2*(1), 21–24. https://doi.org/10.56630/tm.v2i1.739

Farradinna, S., Elfis, E., Arizona, R., Rachman, J., & Titisari, P. W. (2023). Livestock waste management to improve community knowledge in the cow farming groups. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, *8*(1), 52–62. https://doi.org/10.26905/abdimas.v1i1.8384

Fitriana, M., Sundari, C., Sutiyatno, S., & Putra, Y. W. S. (2025). Pelatihan Pengembangan Desain Bangunan dan Manajemen Pengelolaan pada Peternakan Kambing di Kota Semarang. *Aksi Nyata : Jurnal Pengabdian Sosial Dan Kemanusiaan*, *2*(1), 37–47. https://doi.org/10.62383/aksinyata.v2i1.995

Hexa, H., Maman, U., & J, J. (2019). Efektivitas Penyuluhan Metode Field school Terhadap Penerapan Standar Operasional Prosedur (SOP) Budidaya Anggrek Tanah (Terestrial) di Kota Tangerang Selatan. *AGRIBUSINESS JOURNAL*, *11*(1), 29–45. https://doi.org/10.15408/aj.v11i1.11832

Indrarosa, D., Mariyono, J., Santoso, S. I., & Sutaryo. (2024a). Factors Determining Knowledge Acquisition in Livestock Waste Management Training Held by Animal Husbandry Training Centre at Songgoriti, Batu - Indonesia. *IOP Conference Series: Earth and Environmental Science*, *1364*(1), 012026. https://doi.org/10.1088/1755-1315/1364/1/012026

Indrarosa, D., Mariyono, J., Santoso, S. I., & Sutaryo. (2024b). Factors Determining Knowledge Acquisition in Livestock Waste Management Training Held by Animal Husbandry Training Centre at Songgoriti, Batu - Indonesia. *IOP Conference Series: Earth and Environmental Science*, *1364*(1), 012026. https://doi.org/10.1088/1755-1315/1364/1/012026

Mauludin, M. A. (2012). Peran Kelompok dalam Mengembangkan Keberdayaan Peternak Sapi Potong (Kasus Di Wilayah Selatan Kabupaten Tasikmalaya) Role of the Group in Developing Beef Cattle Farmers Empowerment (A Case Study in Tasikmalaya South Region of Kabupaten Tasikmalaya). *Jurnal Ilmu Ternak Universitas Padjadjaran*, *12*(2), 1–8.

Minardi, S., & Hartati, S. (2017). Peningkatan Mutu Pupuk Organik pada Peternak Sapi di Kalijirak. *PRIMA: Journal of Community Empowering and Services*, *1*(2), 52–56. https://doi.org/10.20961/prima.v1i2.35156

Pratama, A. (2019). Peningkatan Pengetahuan dan Ketampilan Pengolahan Produk Peternakan di Desa Cibereum Kecamatan Talaga. *Dharmakarya*, *8*(4). https://doi.org/10.24198/dharmakarya.v8i4.21381

Purnamasari, L., Basuki, Sari, V. K., & Khasanah, H. (2022). Penguatan Pembibitan Sapi Potong Lokal dan Optimalisasi Pengolahan Limbah Peternakan di Desa Klabang, Bondowoso. *Jurnal Pengabdian Magister Pendidikan IPA*, *5*(2), 71–75. https://doi.org/10.29303/jpmpi.v5i2.1564

Risna, R., Asnidar, A., Dewi, M., Amin, M., & Ishak, A. (2017). Perubahan Perilaku Peternak pada Kegiatan Field school Pendampingan Pengembangan Kawasan Peternakan Sapi Potong di Sulawesi Tengah. *Teknologi Peternakan Dan Veteriner Mendukung Diversifikasi Sumber Protein Asal Ternak*, 228–236. https://doi.org/10.14334/Pros.Semnas.TPV-2017-p.229-237

Risna, R., Irmadamayanti, A., Rahayu, H. S. P., & Saidah, S. (2020). Perubahan Pengetahuan Petani Tentang Teknologi Produksi Benih Jagung Hibrida Melalui Field school di Kabupaten Sigi. *AGRIEKSTENSIA*, *19*(2), 129–140. https://doi.org/10.34145/agriekstensia.v19i2.942

Sanjaya, I. G. A. M. P., Kaca, I. N., Suwitari, N. K. E., Krismayana, I. P., & Devani, M. P. H. (2024). Feed Management And Diversification Forage In The Galang Kangin Goat Farm Group, Apuan Village, Baturiti Tabanan. *International Journal Of Community Service*, *4*(3), 253–256. https://doi.org/10.51601/ijcs.v4i3.290

Slameto, S., Haryadi, F. R., & Subejo, S. (2016). Efektivitas Proses Pembelajaran Field school Pengelolaan Tanaman Terpadu Padi Sawah oleh Komunitas Petani di Lampung. *Jurnal Agro Ekonomi*, *32*(1), 35. https://doi.org/10.21082/jae.v32n1.2014.35-55

SP Rahayu, H., Risna, & Saidah. (2021). Knowledge Enhancement of Field School Participants and Perception on Shallot Multiple Production Program (Proliga) in Sigi District. *E3S Web of Conferences*, *232*, 01021. https://doi.org/10.1051/e3sconf/202123201021

Subekti, E. (2008). Peranan Bidang Peternakan Dalam Upaya Meningkatkan Kesejahteraan Rakyat. *Mediagro*, *4*(2), 32–38.

Utami, S., & Rangkuti, K. (2021). Integrated agriculture systems for land productivity improvement: A Review. *AGRILAND Jurnal Ilmu Pertanian*, *9*(1), 1–6.

Yulianto, R., Nurwidodo, N., Widianingrum, D. C., & Khasanah, H. (2022). Budidaya Rumput Odot dan Teknologi Pengawetan Hijauan Pakan Ternak Sapi didesa Kalibendo, Kecamatan Pasirian, Lumajang. *JPKMI (Jurnal Pengabdian Kepada Masyarakat Indonesia)*, *3*(1), 27–37. https://doi.org/10.36596/jpkmi.v3i1.127