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Technical Advice For Students Interested In Poultry Subjects At The Animal Science Faculty - University Of Nusa Cendana

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Abstract

Purpose: To enhance poultry science students' research independence and data validity by addressing practical training gaps in animal science education, ultimately strengthening methodological rigor in poultry research.

Method: Fifteen Animal Science students from Universitas Nusa Cendana participated in a structured program integrating theoretical lectures, simulation demonstrations, and hands-on practice in experimental poultry facilities to evaluate competency development.

Practical Applications: Improved technical proficiency enables reliable experimental data collection for poultry nutrition and production studies, directly supporting agricultural research, farm management optimization, and evidence-based industry practices.

Conclusion: The training significantly increased research independence, methodological understanding, and experimental discipline, providing an effective educational strategy to advance accuracy and innovation in poultry science.

Introduction

The poultry sector constitutes a critical component of national animal protein supply chains, necessitating continuous advancement in research capacity and technical expertise (Smith & Johnson, 2023). Within this context, students enrolled in the Animal Science Study Program at Universitas Nusa Cendana represent a pivotal demographic whose competency development directly influences regional agricultural innovation. Scientific research serves as the culminating academic requirement for these students, demanding rigorous methodological adherence, particularly in specialized domains such as poultry nutrition and production (Anderson et al., 2024).

The strategic prioritization of poultry research in Kupang and the broader Nusa Tenggara Timur (NTT) region is justified by persistent challenges related to food security, market price volatility, and underutilization of local feed resources (Pratama & Dewi, 2025). Poultry enterprises in this region function not merely as production units but as instrumental mechanisms for rural economic empowerment and household nutritional resilience. Consequently, enhancing research capability among local scholars is essential to generating context-specific solutions that optimize productivity while aligning with socio-ecological constraints (Lee & Martinez, 2023).

Research in poultry nutrition demands precise feed ration formulation and comprehensive understanding of physiological responses to nutrient variations, whereas production-oriented studies require expertise in environmental management, disease prevention, and performance monitoring (Brown et al., 2024). These technical competencies are frequently underdeveloped in conventional classroom settings, creating a discernible gap between theoretical instruction and field application. This disconnect often impedes students' ability to design and execute valid, reliable research protocols during their academic projects (Wilson, 2025).

To address this competency gap, field-based technical guidance was implemented as a targeted community engagement intervention. The program integrated theoretical lectures, simulation-based demonstrations, and supervised hands-on practice within experimental poultry facilities. This pedagogical approach aligns with experiential learning frameworks that emphasize active skill acquisition and contextual problem-solving (Kolb & Kolb, 2023). The intervention aimed to equip participants with transferable technical skills necessary for independent, methodologically sound poultry research.

Projected outcomes of this engagement include enhanced research independence, improved data validity, and strengthened methodological discipline among participating students. These objectives are grounded in both qualitative feedback and quantitative performance indicators collected throughout the training cycle. By situating this initiative within the broader scholarly discourse on agricultural education and community-based capacity building (Taylor & Nguyen, 2024), the study contributes empirical evidence supporting structured field guidance as an effective strategy for advancing poultry science competency in resource-constrained settings.

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Method

This training is provided to 15 students (sixth semester) from the Animal Husbandry study program at the Faculty of Animal Husbandry, Nusa Cendana University, Kupang, NTT. Student participants are students who will conduct research in the field of poultry, especially poultry nutrition and production. The activities were carried out in the classroom and at the research pens located within the Undana campus. The activities were carried out in several ways, including short lectures (theory), demonstrations (simulations), and hands-on practice in the experimental cage. The theory provided is about the research methods commonly used in nutrition research, such as the Completely Randomized Design (CRD) and Randomized Block Design (RBD). In addition, theory on feed formulation for broiler chickens for the starter and finisher periods was also provided. Furthermore, theory on daily rearing management,

such as feed and water management, housing management, and disease prevention management (Mulyantini, 2011).

Figure 1. Preparing Feeder and Drinker

Source: Private Documentation, 2025.

Additionally, students were provided with guidance through demonstrations on research data collection techniques in chicken cages. Students were trained to create experimental layouts, calculate feed requirements, determine the number of experimental units (chickens), and correctly randomized treatments. Demonstrations in the chicken cages were also conducted to regulate the temperature and ventilation of the cages, sanitation techniques, prepare hygienic drinker and feeder and handle chickens to avoid stress. Students practiced attaching leg bands to signal research chickens, accurately using measuring tools (digital scales), filling out daily research logbooks, and tabulating raw data before further processing. Data collection and processing techniques in the field, such as feed consumption data, body weight gain, calculation of feed conversion ratio, and blood and fecal sample collection for laboratory analysis.

Figure 2. Attaching Leg Band

Source: Private Documentation, 2025.

Result

The technical guidance program was implemented at the experimental poultry facilities of the Animal Science Faculty, Universitas Nusa Cendana, Kupang, involving fifteen undergraduate students as primary participants. The intervention comprised a structured sequence of activities, including theoretical lectures on poultry research methodology, simulation-based demonstrations of technical procedures, and supervised hands-on practice in broiler management, feed formulation, and data collection protocols. This multi-modal approach ensured that participants engaged with both conceptual frameworks and practical applications relevant to poultry nutrition and production research within the local NTT context.

Tangible outputs from the program included the successful completion of three intensive training modules, the development of standardized research protocols for feed adaptation periods and carcass analysis, and the production of fifteen individual research plans aligned with methodological best practices. Participants demonstrated proficiency in executing key technical tasks, such as chicken weighing, ration mixing using NRC (2012) standards,

sanitation procedures, and the calculation of Relative Organ Weight Index. These deliverables serve as measurable indicators of the program's capacity to translate theoretical instruction into actionable research competencies.

The intervention yielded significant improvements in participants' research independence and data validity competencies. Post-training assessments indicated that students exhibited greater confidence in designing and executing field protocols without continuous supervisor oversight, thereby accelerating final project timelines. Emphasis on standardized measurement techniques and bias-minimizing procedures enhanced the scientific rigor of collected data, aligning with principles of accountable research practice (Sudibya, 2013; Tohardi, 2023). Participants reported improved understanding of daily broiler management, including cage sanitation and facility maintenance, which directly supported more reliable experimental conditions.

Furthermore, the program strengthened participants' technological literacy by introducing calibrated digital instrumentation, standardized carcass dissection tools, and statistical software applications essential for poultry research data analysis. Mastery of these tools enabled students to process nutritional and physiological parameters with greater precision, facilitating evidence-based interpretation of research outcomes. This technological competency is particularly valuable in resource-constrained settings, where efficient use of available equipment can significantly influence research quality and reproducibility.

Figure 3. Chick Weighing

Source: Private Documentation, 2025.

Collectively, these outcomes contribute to enhanced graduate employability within the competitive livestock and feed industries. Participants acquired industry-relevant skills—including feed cost calculation, immune organ assessment, and performance monitoring—that align with employer expectations for technical expertise. Supporting evidence from participant testimonials and pre-post skill evaluations corroborates the program's effectiveness in fostering both immediate research capacity and long-term professional readiness. These findings underscore the value of structured field-based guidance as a strategic intervention for advancing poultry science education and community-oriented agricultural development.

Discussion

The technical guidance program successfully achieved its fundamental objectives of enhancing research independence, data validity, and technological competency among Animal Science students at Universitas Nusa Cendana. The observed increase in students' ability to conduct poultry research without continuous supervisor dependency represents a significant pedagogical achievement, aligning with experiential learning theory that emphasizes active skill acquisition through supervised practice (Kolb & Kolb, 2023). This transformation from theoretical dependence to practical autonomy addresses a critical gap identified in agricultural education literature, where students often struggle to bridge classroom

knowledge with field application (Wilson, 2025).

The program's implications extend beyond individual competency development to broader socio-economic impacts within the NTT region. By equipping graduates with industry-relevant skills in poultry nutrition, production management, and carcass analysis, the intervention contributes to strengthening the regional livestock sector's human capital base. Enhanced research capacity among local students enables more rigorous investigation of context-specific challenges, such as optimizing local feed resources and improving broiler productivity under tropical conditions (Pratama & Dewi, 2025). These outcomes potentially catalyze long-term improvements in food security and rural economic empowerment, as evidenced by similar capacity-building initiatives in developing agricultural contexts (Lee & Martinez, 2023).

The sustainability and replicability of this program are supported by its structured methodology and reliance on existing university infrastructure. However, several challenges emerged during implementation, including limited access to calibrated equipment, time constraints for comprehensive skill mastery, and varying baseline competencies among participants. To address these limitations, future iterations should incorporate phased training modules, establish equipment sharing protocols with industry partners, and implement pre-assessment mechanisms to customize instruction intensity (Anderson et al., 2024). Despite these constraints, the program's modular design facilitates adaptation to other agricultural disciplines or institutional contexts, enhancing its potential for broader dissemination.

Comparative analysis with similar community service initiatives reveals that programs integrating theoretical instruction with supervised hands-on practice yield superior competency outcomes compared to lecture-only approaches (Taylor & Nguyen, 2024). The emphasis on standardized protocols for data collection and carcass analysis particularly distinguishes this intervention, as methodological rigor remains a persistent challenge in undergraduate agricultural research (Brown et al., 2024). Active community involvement, manifested through student engagement and faculty commitment, proved essential to program success, corroborating findings that participatory approaches enhance ownership and learning retention in community service contexts (Smith & Johnson, 2023).

Based on these findings, several recommendations emerge for future community service programs. First, establishing longitudinal tracking mechanisms would enable assessment of long-term impacts on graduates' research productivity and career trajectories. Second, fostering partnerships with commercial poultry enterprises could provide authentic learning environments and potential employment pathways for participants. Third, developing digital training resources, such as video tutorials on technical procedures, would extend learning beyond face-to-face sessions and accommodate diverse learning paces. Finally, institutionalizing this program within the Animal Science curriculum would ensure sustainability and systematic competency development across student cohorts, ultimately contributing to the region's agricultural research capacity and food security objectives.

Conclusion

Training programs for students in the field of poultry research is an important investment in producing excellent, and ready-to-use animal husbandry graduates. This activity develops the work ethic, accuracy, and discipline required in poultry research, also strengthening comprehension of scientific technique.

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