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Improvement of Village Chicken Management Practices to Enhance Their Productivity in Podosoko Village, Candimulyo

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Abstract: Podosoko Village, Candimulyo Subdistrict, Magelang Regency, is characterized by a high proportion of low-income households, many of which keep small flocks of native chickens as informal savings. Despite this potential, traditional and non-commercial management practices have limited productivity and income generation. This community empowerment program aimed to improve native chicken productivity and enhance household income through the adoption of improved management practices.The intervention was implemented through a participatory approach, beginning with Achievement Motivation Training (AMT), followed by technical training on semi-intensive native chicken farming, locally sourced feed formulation, construction of semi-intensive housing systems, and utilization of chicken manure as organic fertilizer. Mentoring and monitoring activities were conducted to support technology adoption and behavioral change among participants. Program effectiveness was evaluated using structured questionnaires and field observations.Evaluation results showed that 100% of participants demonstrated improved understanding of proper native chicken management practices, while 80% actively applied the acquired skills in feeding, housing, and manure utilization. A semi-intensive demonstration poultry house was established, accompanied by stimulant assistance in the form of ten laying-ready female native chickens and one male chicken. A livestock rotation (*babonisasi*) system was implemented under the supervision of the Women Farmers Group (Kelompok Wanita Tani, KWT) and local PKH facilitators to ensure sustainability and equitable distribution. Within one year, the beneficiary group successfully constructed an additional poultry housing unit independently. Overall, the program demonstrated that community-based adoption of semi-intensive native chicken farming, supported by locally available resources and continuous mentoring, can effectively improve poultry productivity and contribute to increased household income in rural communities.

Keywords: native chicken farming; feed technology innovation; semi-intensive poultry management; community-based agribusiness; sustainable livestock systems

1.0 Introduction

Podosoko Village is located in Candimulyo Subdistrict, Magelang Regency, Central Java Province, covering an area of 220.335 hectares and consisting of nine hamlets, 11 neighbourhood units (RW), and 20 community units (RT). In 2024, the village population was recorded at 1,844 residents, comprising 919 males and 925 females across 592 households (Badan Pusat Statistik Kecamatan Candimulyo, 2024). A total of 184 households were classified as poor households (Rumah Tangga Miskin, RTM), of which 147 were beneficiaries of the Family Hope Program (Program Keluarga Harapan, PKH), organized into five PKH groups. Most of these households raise small flocks of approximately 5-10 native chickens.

Native chickens are among the most commonly raised poultry species in rural communities and play an important role in household livelihoods. When managed intensively or semi-intensively, native chicken farming has strong potential as a poverty alleviation strategy. Livestock production contributes significantly to income stability and food security among rural and low-income populations in developing countries (Hadi et al., 2021). Furthermore, livestock has been widely recognized as a strategic asset for poverty reduction and an essential component of sustainable rural livelihoods (Amelia Puspitasari et al., 2023).

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In Indonesia, the development of native chicken farming should be directed toward increasing ownership scale and improving production techniques by transitioning from traditional free-range systems to more intensive or semi-intensive management. Such transformation is expected to enhance productivity, generate employment opportunities, and increase farmers' incomes. This approach is feasible given Indonesia's abundant natural resources, including locally available feed ingredients, genetic potential of native chickens, and access to veterinary inputs that support efficient poultry production systems (Mangisah et al., 2018).

When properly managed, native chickens can provide substantial economic benefits. A single hen is capable of laying eggs up to four times per year, producing approximately 60 eggs annually or yielding 40–50 chicks per year. Semi-intensive native chicken management therefore offers promising potential as a key commodity to enhance household nutrition and generate additional income in rural communities.

Feed management is a critical determinant of poultry productivity, accounting for approximately 60–70% of total production costs. Diets for native chickens must meet specific nutritional requirements, including crude protein levels of 14–17%, metabolizable energy of 2,600–2,700 kcal/kg, calcium at 0.9%, and phosphorus at 0.45%, alongside adequate vitamin and mineral supplementation. Feed quantity should be adjusted according to bird age, and clean drinking water must be provided ad libitum. Supplementation with amino acids, vitamins, and minerals can further support productivity (Amelia et al., 2023).

Egg production and growth performance of native chickens are closely influenced by feed availability and environmental conditions (Geng et al., 2018). Chickens raised under minimal management rarely achieve optimal production levels. High feed costs, limited land availability, and low investment in housing and health management often constrain small-scale poultry enterprises. As a result, household flock sizes remain small, and egg production is largely limited to household consumption or small-scale local sales. Under extensive systems, native chickens typically produce only 50–60 eggs per year, whereas intensive systems can increase production to more than 150–200 eggs annually (Suprijatna, 2010; Nataamijaya, 2010). Continuous provision of nutritionally balanced rations is therefore essential to improving productivity.

In Podosoko Village, the primary challenges faced by native chicken farmers include small ownership scales, high mortality rates during disease outbreaks, non-business-oriented management practices, and limited utilization of locally available feed resources. Environmental sanitation around poultry-rearing areas is generally poor, increasing disease risks, particularly under traditional free-range systems. These constraints limit the contribution of native chickens to household income.

From a broader development perspective, commodity-based production systems have been identified as a viable strategy for promoting economic development in disadvantaged rural areas (Tarigan, 2021). However, prevailing farming systems remain largely traditional, with limited adoption of appropriate technologies. Farmers often face constraints related to access to capital, limited technical knowledge, low adaptability to mechanization, and weak market linkages.

The babonisasi system offers a practical strategy to increase household poultry ownership through a controlled livestock rotation mechanism. Under this system, productive breeding hens are distributed to selected members, who are required to return replacement hens after a defined rearing period. Chickens are managed under intensive or semi-intensive systems emphasizing high-quality feeding, improved housing, and disease control. Feed resources are sourced from household organic waste and agricultural by-products processed through fermentation-based technologies. Successful implementation of the babonisasi system depends on strong community discipline, transparency, and effective coordination among village leaders, PKH facilitators, and community groups.

At present, native chicken husbandry in Podosoko Village remains predominantly traditional and minimally influenced by technological innovation. Chickens are commonly perceived as emergency financial reserves rather than productive economic assets. Free-ranging management combined with inconsistent feeding has resulted in low productivity and limited population growth. This condition highlights the need for transformation toward improved management systems to achieve sustainable productivity enhancement (Utomo et al., 2021).

Intensive or semi-intensive native chicken farming, supported by cooperative management, shared housing facilities (kandang umbaran), improved feed technology, and preventive health measures, has been identified as a viable approach to enhance productivity. Such systems facilitate better disease control, improved feed efficiency, and reduced mortality rates. The utilization of locally sourced feed ingredients and natural microbial cultures (MOL) further supports cost efficiency and sustainability (Windari, 2021).

2.0 Methods of Implementation

This community service program (PPM) was implemented using a structured and participatory approach designed to promote sustainable adoption of improved native chicken farming practices. The implementation process consisted of five sequential stages: (1) awareness raising, (2) training and hands-on practical activities, (3) provision of stimulant assistance, (4) mentoring and monitoring, and (5) program evaluation. This staged approach was intended to facilitate gradual capacity building, encourage behavioral change, and ensure effective application of the introduced technologies. The program began with awareness-raising activities aimed at enhancing participants' knowledge, attitudes, and motivation, particularly with respect to transforming traditional perceptions of native chicken farming into a more economically oriented and sustainable practice. Awareness development was conducted through Achievement

Motivation Training (AMT), which was implemented over one day by the Universitas Mercu Buana Yogyakarta (UMBY) team. The AMT focused on fostering mindset change, increasing participants' confidence, and strengthening their commitment to adopting intensive or semi-intensive native chicken farming systems.

Following the awareness phase, training and hands-on practical sessions were conducted to equip participants with technical knowledge and practical skills related to native chicken production. Training activities emphasized improving egg and meat production through better management practices, including housing, feeding, and health management. Particular attention was given to ration formulation using locally available feed ingredients, with the objective of reducing production costs while maintaining adequate nutritional quality. Simple and easily applicable technologies suitable for community-level implementation were prioritized. Resource persons for the training sessions were drawn from Universiti Pendidikan Sultan Idris (UPSI) and Universitas Mercu Buana Yogyakarta (UMBY). Additional training was provided on processing household organic waste into poultry feed and organic fertilizer to promote resource efficiency and environmental sustainability.

The training program comprised the following components: (i) Achievement Motivation Training (AMT); (ii) training on intensive native chicken production management; (iii) training on ration formulation using locally sourced feed ingredients; and (iv) training on processing household organic waste into poultry feed and organic fertilizer.

To support the practical implementation of training outcomes, stimulant assistance was provided to participants as an initial catalyst for technology adoption and improved management practices. This assistance aimed to increase participant motivation and facilitate the application of newly acquired knowledge at the household and group levels.

Mentoring and monitoring activities were conducted through three scheduled field visits. These visits focused on providing practical guidance in native chicken husbandry, livestock care, disease prevention, and utilization of egg production. Continuous mentoring ensured that all program components were implemented in accordance with the planned methodology and allowed timely identification and resolution of challenges encountered during field implementation.

Program evaluation was conducted at the end of the PPM among all active participants. Key evaluation indicators included participants' level of understanding of intensive native chicken farming practices, awareness of the importance of high-quality feed for improving poultry productivity, and the number of poor households (*Rumah Tangga Miskin*, RTM) that adopted and implemented the training outcomes. Data collection was carried out through structured interviews using standardized questionnaires, complemented by direct field observations to assess the practical application of improved management practices.

To ensure sustainability beyond the program period, the project team committed to providing continued mentoring and technical guidance for the community. This commitment was formalized through a memorandum of understanding (MoU) between Podosoko Village, the Animal Science Study Program, and the Institute for Research and Community Service (LPPM) of Universitas Mercu Buana Yogyakarta (UMBY). In addition, coordination was established with the Magelang Regency Office of Livestock and Marine Affairs to facilitate ongoing institutional support. These collaborative arrangements were intended to enable the community to continue accessing technical assistance and to promote long-term adoption of appropriate technologies after completion of the main program activities.

3.0 Results and Discussion

3.1 Program Coordination and Institutional Engagement

Initial coordination was conducted between the PPM implementation team, village authorities, and PKH facilitators to ensure alignment of program objectives, implementation schedules, and target beneficiaries. This coordination meeting (Figure 1) played a critical role in strengthening institutional support and ensuring community readiness prior to program implementation. Agreement was reached regarding training materials, participant selection, and the integration of program activities with existing PKH group structures. Strong institutional engagement at this early stage contributed to smooth program execution and high participant attendance throughout subsequent activities.

Fig. 1: Coordination meeting with the Head of Podosoko Village and PKH facilitators

3.2 Socialization, Focus Group Discussion (FGD), and Motivation Development

Socialization and Focus Group Discussion (FGD) activities were conducted at the Podosoko Village Hall to introduce the program objectives and identify key challenges faced by participants in native chicken farming. As shown in Figure 2, these activities facilitated open discussion regarding existing management practices, constraints related to feeding, housing, and disease control, as well as participants' expectations of the program.

Achievement Motivation Training (AMT) was integrated into this phase to foster mindset transformation and strengthen participants' motivation to engage in native chicken farming as an income-generating activity. The high level of participant engagement during these sessions (Figure 3) indicates strong community interest and acceptance of the proposed intervention. This finding supports previous studies highlighting the importance of motivation and awareness in facilitating technology adoption among smallholder farmers.

Fig. 2: Socialization Activities at the Podosoko Village Hall

Fig. 3: Group Photo of Training Participants with the Secretary of Podosoko Village

3.3 Training on Integrated Native Chicken Farming and Housing Models

The training activity was conducted on Thursday, 17 July 2025, at the Podosoko Village Hall. The session was attended by 16 members and administrators of the Women Farmers Group (KWT), local PKH facilitators, and four students from the Animal Science Study Program. The event was officially opened by the Head of Podosoko Village, followed by delivery of training materials.

The first session focused on the utilization of household yards as a strategy to enhance family income. This was followed by training on semi-intensive native chicken farming practices with an emphasis on profitability, including guidance on the formulation of poultry feed using locally available raw materials. The session also addressed the production of local microorganism starters (MOL) derived from rice and palm sugar, which are used for feed fermentation and nutrient improvement.

The concept of an integrated poultry housing model utilizing household yard areas was introduced to highlight the productive potential of underutilized residential spaces. Many households possess yard areas that are not optimally used for income-generating activities. Through this program, participants were expected to acquire relevant knowledge and be motivated to apply integrated poultry production practices within their daily household environments.

During the training, the project team also announced the provision of a stimulant support package for the construction of an integrated poultry housing unit to be used as a demonstration model by a selected community group. Additional stimulant assistance included the provision of ten laying-ready female native chickens and one male chicken as initial breeding stock.

Figure 4 illustrates the delivery of training materials by the PPM team, highlighting active interaction between facilitators and participants. The integration of theory and hands-on practice enabled participants to better understand the

relationship between feed quality, management practices, and poultry productivity. Evaluation results indicated that participants demonstrated improved understanding of intensive native chicken management following the training sessions.

Fig. 4: Delivery of Training Materials by the PPM Team

3.4 Distribution of Poultry Housing and Stimulant Assistance

As part of the practical implementation phase, stimulant assistance was provided in the form of a semi-intensive poultry housing unit and initial breeding stock. The poultry housing unit, shown in Figure 5, was constructed through community mutual cooperation (*gotong royong*) and served as a demonstration model for improved management practices. The housing design facilitated better sanitation, easier management, and integration with vegetable cultivation using chicken manure as organic fertilizer.

Distribution of native chickens to beneficiary groups (Figure 6) marked the operationalization of the *babonisasi* livestock rotation system. Beneficiary groups received ten laying-ready female native chickens and one male chicken, with the obligation to return replacement hens after a defined rearing period. This system ensured equitable distribution of benefits and promoted sustainability of the intervention.

Fig. 5: Semi-intensive poultry housing unit provided by the PPM team

Fig. 6: Distribution of native chickens to beneficiary community members

4.0 Conclusion

Based on the results of the community service program (PPM), it can be concluded that native chicken farming practices in Podosoko Village remain highly traditional, characterized by minimal feed provision and a lack of profit-oriented management. Training and continuous mentoring in both feed management and poultry husbandry are therefore essential to improve the productivity of native chickens maintained by the community. As part of the program outcomes, one semi-intensive demonstration poultry housing unit was constructed, accompanied by stimulant assistance in the form of ten prospective breeding hens and one rooster. Evaluation results indicated that 100% of training participants expressed satisfaction, while 80% had already implemented the knowledge and skills gained from the training. By the end of the program, one Women Farmers Group (KWT) had independently constructed an additional poultry house for their privately-owned native chickens, demonstrating early evidence of community adoption and sustainability of the intervention.

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Conflict of Interest

The authors declare no conflict of interest.

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