BEP Calculation Education for Laying Chicken Farming Business, Tuntang, Semarang Regency

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Abstract

This community service activity was carried out to improve the understanding and skills of laying hen farmers in Tuntang District, Semarang Regency, in calculating and applying Break Even Point (BEP) analysis as a basis for business decision-making. Based on the results of an initial survey, most laying hen farmers in this area still run their businesses traditionally without financial planning and without understanding the minimum production volume that must be achieved to avoid losses. This condition makes it difficult for them to deal with fluctuating feed and egg prices, which often change. This activity was carried out using an educational-participatory approach through training and direct mentoring. The training materials included an introduction to the BEP concept, identifying fixed and variable costs, how to determine the break-even point, and its application in pricing and profit planning. The results of the activity showed a 68% increase in participants' knowledge based on a comparison of pre-test and post-test results. Farmers also began to maintain simple financial records and were able to calculate the BEP of their respective businesses. This activity demonstrated that practice-based training can improve financial literacy, business efficiency, and economic independence among poultry farmers in the Tuntang wetland area.

Keywords: Education, Break Even Point, Laying Hens, Financial Literacy, Community Service.

Introduction

The laying hen farm industry has made a significant contribution to the national supply of animal protein and the economic development of rural communities. The poultry sector is a major contributor to the community's protein needs and a driver of local economic development (Pamungkas, 2020). Laying hens are the primary source of eggs for consumption, a staple food with relatively stable market demand. In Semarang Regency, especially Tuntang District, the laying hen farm industry is growing rapidly due to favorable geographic conditions and the availability of natural resources.

The wetlands in Tuntang District have high potential for poultry farming due to access to local feed, labor, and adequate water sources. The average income of laying duck farmers in the area reaches IDR 47,830,353 per year, with feed costs accounting for 67.24% of total production costs. This confirms that cost efficiency, particularly feed, is a key determinant of the success of poultry farming businesses, including laying hens (Viancca et al., 2024).

However, field conditions indicate that most egg-laying chicken farmers in Tuntang lack a sound understanding of financial management. They generally set egg prices solely based on daily market prices without accounting for cost structures. As a result, when feed prices rise, farmers are uncertain whether they are still making a profit or experiencing a loss. Many small business owners are unaware of how much product they need to sell to cover operational costs and break even (Indonesia & Nur, 2025).

"Break Even Point or break-even point is one of the important analytical tools in managerial accounting that can help business actors understand the relationship between costs, sales volume, and profit. BEP shows the point at which total revenue equals total costs, so that the business does not make a profit and does not experience a loss Darmasaputra & Sudibya (2019). The BEP concept is the basis for business actors to determine the minimum production scale and optimal selling price strategy. In the context of the egg-laying chicken business, BEP can be used to calculate the number of eggs that must be sold to cover all production costs.

Lack of understanding of the Break-Even Point (BEP) calculation results in poor business decision-making. Farmers are unable to measure cost efficiency or effectively plan profits. A weak understanding of financial management and break-even point calculations is a major cause of the stagnation of many MSMEs in the region (Darmasaputra & Sudibya, 2019). Therefore, education about the Break-Even Point (BEP) is crucial for implementing in laying hen farming businesses so farmers can understand their financial position and determine efficient production strategies.

This community service activity aims to provide farmers with practical knowledge and skills in calculating the break-even point (BEP) of their laying hen businesses. Through an educational and participatory approach, this activity is expected to improve farmers' financial literacy, encourage the implementation of simple financial record keeping, and strengthen analytical skills in data-driven business decision-making.

Literature Review

The Break-Even Point concept was first developed in managerial accounting to help entrepreneurs understand the relationship between fixed costs, variable costs, selling price, and production volume. The Break-Even Point (BEP) is the point at which total revenue equals total costs, resulting in zero net profit. Calculating the BEP is important because it can serve as the basis for sales planning and business performance evaluation (Darmasaputra & Sudibya, 2019).

The Break-Even Point (BEP) calculation for the egg-laying chicken business at KR Farm in Cilacap shows that the break-even price point is reached at IDR 438.49 per egg, and the production BEP is 454,281 eggs per year. These results illustrate the minimum production scale required to cover fixed and variable costs. If sales volume exceeds the BEP, the business begins to generate profits (Pamungkas, 2020).

BEP training is very helpful for MSMEs in understanding how to set sales and profit targets. Most small business owners have never calculated BEP and often determine selling prices based on intuition. After receiving this training, participants are able to conduct sales planning based on BEP analysis (Indonesia & Nur, 2025).

In the context of poultry farming, factors influencing the Break Even Point (BEP) include feed prices, egg production levels, egg selling prices, and labor costs. Feed prices have the most significant impact on farmer income in Tuntang District. Feed accounts for 60–70% of total production costs, and feed efficiency is a key factor in the success of poultry farming (Viancca et al., 2024).

In addition to the BEP, business feasibility analyses typically also use the R/C Ratio (Return Cost Ratio). If the R/C value is greater than 1, the business is considered feasible and profitable (Pamungkas, 2020). However, the BEP calculation remains the basis for determining whether current production volume is sufficient to cover costs. Therefore, BEP training is a strategic step in helping farmers improve their business efficiency and economic analysis skills.

Method

This community service activity was conducted in Tuntang District, Semarang Regency, from November 2023 to April 2024. The method used was an educational-participatory approach. This approach was chosen because it actively engages participants in the learning process and allows them to directly apply the material taught.

The activity began with field observations to identify business conditions and training needs. The team conducted interviews with 25 egg-laying chicken farmers from three villages: Kesongo, Rowosari, and Lopait.
Interview results show that most farmers do not understand the BEP concept and do not have business financial records.

The training phase was conducted in two sessions. The first session presented theory regarding the concept of BEP, types of costs, and the benefits of calculating the break-even point. The second session included hands-on practice using participants' business data. Each participant was given a worksheet containing fixed and variable cost data and then asked to calculate the BEP for price and BEP for production. The formula used was BEP for production = Total Cost / Selling Price. Evaluation was conducted through pre- and post-tests to measure participants' understanding.

The final stage is post-training mentoring, where the team provides guidance to participants who want to implement simple financial record-keeping and perform periodic BEP calculations. This activity model mimics the community service approach of Indonesia & Nur (2025), which successfully improved the understanding of culinary MSMEs in Parepare through a combination of theory and practice.

Results and Discussion

An educational activity on calculating the Break Even Point (BEP) for laying hen farmers in Tuntang District was conducted with 25 participants from three villages: Kesongo, Lopait, and Rowosari. Participants consisted of small- to medium-scale farmers with chicken populations ranging from 500 to 3,000. All activities were conducted face-to-face at the Kesongo village hall over three days of intensive training and two months of field mentoring.

Prior to the training, a baseline survey and interviews with farmers were conducted to determine their level of understanding of the concept of Break Even Point (BEP) and business cost management. The survey results showed that most farmers were unfamiliar with the term BEP and had never even kept regular financial records. They simply estimated profits based on the difference between egg sales and daily cash expenditures, omitting fixed costs such as depreciation of cages, equipment, and land rent. This situation prevented farmers from accurately assessing whether their businesses were profitable or incurring losses.

After the training, participants' understanding was measured using pre- and post-tests. The pre-test results showed an average score of 32%, while the post-test results increased to 81%. This 68% increase indicates that the educational-participatory approach is highly effective in improving farmers' understanding. This aligns with the results of a community service study conducted by Indonesia & Nur (2025), which found that training activities using interactive lectures and simulations increased participants' knowledge by up to 70% in the context of culinary MSMEs.

During the training, participants were introduced to the basic concepts of BEP, cost structures, and the benefits of calculating them. In the practical session, each participant used actual data from their business to calculate the BEP price and BEP production. For example, one participant with a population of 1,000 chickens recorded a total production cost of Rp250,000,000 per year, with a selling price of Rp25,000 per kilogram of eggs and a total production of 10,500 kilograms per year. Based on the production BEP formula = Total Cost / Selling Price = Rp250,000,000 / Rp25,000 = 10,000 kilograms of eggs per year. Therefore, the farmer only reaches the break-even point if he successfully sells 10,000 kilograms of eggs. If production increases to 11,000 kilograms, the profit earned is approximately Rp25,000,000, while if production decreases to 9,500 kilograms, the farmer experiences a loss of approximately Rp12,500,000.

Through these calculations, participants realized the importance of detailed cost recording to determine production targets and appropriate pricing strategies. Before the training, many farmers set egg selling prices solely based on market prices, without considering their business cost structure. After participating, they understood that any increase in feed prices must be followed by an evaluation of the Break-Even Point (BEP) to ensure the selling price does not fall below the break-even point. This aligns with Pamungkas' (2020) findings, which state that BEP calculations can be used to determine the minimum sales volume that must be achieved to avoid losses and as a basis for product pricing decisions.

In group discussions, participants were also invited to analyze the factors influencing the Break Even Point (BEP) calculation in a laying hen business. Most participants stated that feed prices and chicken productivity levels were the most important factors. Increases in feed prices were considered to have a direct impact on production costs and the BEP value, while increased chicken productivity could accelerate the break-even point. Participants also recognized that feed efficiency is crucial because this component absorbs a large portion of total business costs. The results of this activity align with research showing that feed prices significantly influence the income of poultry farmers in Tuntang District, where feed costs account for approximately 67.24% of total production costs (Viancca et al., 2024).

In addition to increasing knowledge, this activity also led to positive behavioral changes among participants. After the training, most participants began implementing simple financial record keeping using a table format provided by the community service team. They recorded daily expenses, distinguished between fixed and variable costs, and calculated weekly net income. Some participants also formed small discussion groups to share information on feed prices and production strategies. This demonstrates that the educational activities not only enhance individual capacity but also build social networks that strengthen solidarity among farmers.

The economic impact of this activity began to be seen within two months of the training. Based on follow-up interviews, approximately 60% of participants reported increased business profits because they were able to reduce feed costs through collective purchasing. They also began setting egg selling prices based on the Break-Equivalent (BEP) calculation, rather than simply following market prices. One participant even said that after determining his business's BEP, he was able to adjust production volume and harvest time, resulting in more stable income.

From a social perspective, this activity raises awareness of the importance of financial literacy among livestock farmers. As noted by Indonesia & Nur (2025), financial education through a participatory approach can help business owners understand the relationship between costs, revenue, and profit, and encourage them to make data-driven decisions. This is evident in the shift in mindset among participants, who begin to view their businesses not merely as production activities but also as economic entities that must be managed professionally.

Another equally important impact is improving farmers' analytical skills in projecting profits and anticipating business risks. Before the training, farmers were unable to estimate the impact of rising feed prices on business profits. After understanding the BEP concept, they were able to calculate changes in the break-even point due to rising production costs and adjust their production strategies accordingly. This allows farmers to manage business risks more rationally.

Darmasaputra & Sudibya (2019) emphasized that data-driven management education is an effective approach to improving the resilience of micro-enterprises. This statement aligns with the results of the Tuntang activity, where farmers demonstrated increased confidence in managing their businesses and conducting financial planning. Overall, this activity not only provided new knowledge but also had a lasting impact on behavioral changes and business decision-making.

This community service activity also has implications for improving business efficiency. By understanding the BEP calculation, farmers can determine optimal production strategies based

on chicken capacity and feed costs. For example, some participants have begun scheduling production so that peak egg production occurs during times of high market prices, thereby increasing profit margins. This strategy demonstrates the ability to plan business based on BEP analysis.

In addition to the economic and managerial benefits, this activity also provides long-term educational value. Farmers are becoming interested in learning other concepts, such as R/C Ratio and B/C Ratio analysis, as a continuation of the BEP. This demonstrates that BEP training can serve as a gateway to broadening financial management knowledge in the livestock sector. Thus, BEP educational activities not only improve financial literacy but also open up opportunities for ongoing learning for the livestock farming community.

Conclusion

An educational activity on calculating the Break Even Point (BEP) for egg-laying chicken farming in Tuntang District, Semarang Regency, significantly improved the knowledge, skills, and financial awareness of farmers. Prior to the training, most participants did not understand the BEP concept and operated their businesses without systematic financial planning. After the training, their understanding of BEP increased by 68%, and all participants were able to calculate their respective break-even points.

Applying the BEP calculation helps farmers determine the minimum production volume they must achieve to avoid losses, while also understanding how changes in feed costs and selling prices affect profits. This allows farmers to plan production strategies and pricing more rationally. These results support Pamungkas' (2020) assertion that BEP is an important tool in determining the minimum sales level that must be achieved to avoid losses.

In addition to increasing knowledge, this activity also impacted managerial behavior among farmers. They began recording costs, categorizing fixed and variable costs, and applying the results of the Break-Even Point (BEP) calculation in business decision-making. These changes demonstrate that educational activities with a participatory approach can shift participants' mindsets from a traditional orientation to an analytical one. Consistent with Indonesia & Nur (2025), a practical educational approach can improve financial literacy and the resilience of small businesses.

The social impact of this activity is the formation of a collaborative network among livestock farmers to achieve shared efficiencies, particularly in feed procurement. This effort demonstrates that economic education can foster solidarity and economic independence in livestock communities. In the long term, improving financial literacy through BEP training has the potential to strengthen the economic structure of rural communities and reduce vulnerability to market price fluctuations.

Overall, this activity demonstrates that BEP education is an effective strategy for improving the efficiency, sustainability, and competitiveness of local laying hen farming businesses. Farmers who understand BEP will be better prepared to face changes in production costs and maintain business stability. Therefore, this type of activity needs to be developed sustainably by adding advanced materials such as R/C ratio analysis, efficient feed management, livestock product marketing strategies, and utilizing livestock waste as a source of additional income.

This activity also demonstrates that improving the financial capacity of livestock farmers requires not only economic theory but also a practical, applicable approach. With continuous education, farmers are expected to become adaptive, productive, and highly competitive entrepreneurs in facing market dynamics and future agricultural economic challenges.

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