

## LAYING HEN HEALTH MANAGEMENT FOR INCREASING PRODUCTIVITY AND WELFARE OF FARMERS IN TOMBULUAN VILLAGE, TOMBULU DISTRICT, MINAHASA REGENCY

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### Abstract (English)

Laying hens are one of the types of chickens that have the potential to be raised and used as a source of income. Eggs are often used as breakfast menus, the basic ingredient for both wet cakes, pastries, bread, pudding or other snacks for all people because of their high nutritional content or adding a delicious and savory taste to processed foods. The high consumer demand for eggs makes the laying hen farming business the choice of the community to become a source of income. This phenomenon also occurred in Tombuluan Village, Community District, in Tombuluan Village, Tombulu District, Minahasa Regency. The business opportunity for laying hen farmers is very high, this is because egg consumption increases every year along with the increase in population, in addition, this business also has a more stable income with broiler farming because the productive period of laying hens can reach 2 years of production, enough time is used to generate profits for farmers. This also makes the chicken egg farmer business can be used as a promising business opportunity for the community in Tombuluan Village. However, based on the initial survey, the proposer team found that the Laying Hen Farmers Group in Tombuluan Village did not understand the theories and business management well, especially including business development by producing higher quality products, financial and stock management, lack of asset management or marketing strategies that were still conventional. For this reason, this PKM business management is important to be implemented in order to provide knowledge and guidance to the farming community in Tombuluan Village who will be used as partners in this PKM activity. This PKM activity is expected to provide knowledge and abilities for laying hen farmers in implementing or managing their businesses. The technical implementation of this PKM activity includes providing assistance and business management training to chicken farmers and the TIM will follow up to see the implementation of partners. The output targeted by the PKM Team is the publication of accredited national journals.

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### Key Words

Business Management;  
Financial Management;  
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Marketing Strategy; Egg  
Farmers

## INTRODUCTION

### Situation Analysis

The high consumer demand for eggs makes the laying hen farming business the choice of the community to become a source of income. The laying hen business is becoming more and more promising, because egg consumption is inseparable from the Indonesian population. Demand for eggs also comes from restaurants, bakeries and for household purposes, so the demand for eggs can promise profitable income. This phenomenon also occurred in Tombuluan Village, Community District, in Tombuluan Village, Tombulu District, Minahasa Regency. The business opportunity for laying hen farmers is very high, this is because egg consumption increases every year along with the increase in population. This also makes the chicken egg farmer business can be used as a promising business opportunity for the community in Tombuluan Village. However, based on the Pre-survey, it shows that business actors do not have an understanding of supporting factors in carrying out business

activities such as business management factors, so that they only focus on profits without paying attention to factors that can support the business .

Laying hens is one of the main sources of income for the people of Tombuluan Village, Tombulu District, Minahasa Regency. High chicken egg production, as well as increasing demand, makes laying hen farming a promising business opportunity. However, based on the results of the initial survey, it is known that farmer groups in Tombuluan Village still face various challenges, such as lack of understanding of business management, chicken health management, and more effective management strategies. This activity is important to be carried out in order to provide knowledge and guidance to Partners. The technical implementation of this PKM activity includes providing assistance and business management training to chicken farmers and the TIM will follow up to see the implementation of partners.

### **Theoretical Overview**

Management is the process of planning, organizing, directing, and controlling an organization's resources to achieve specific goals effectively and efficiently. This definition includes a variety of functions that play a role in ensuring that all resources, both human and material, are used optimally to produce the desired results. Management according to Drucker, PF (1954) defines management as a function that focuses on achieving goals through organizational effectiveness. Meanwhile, according to Fayol, H. (1949) management has five management functions: planning, organizing, directing, coordinating, and controlling. Gulick, L., & Urwick, L. (1937) the functions of management are Planning, Organizing, Staffing, Directing, Coordinating, Reporting, Budgeting.

A successful business actor is usually those who have competencies including actions, encouragement, points and sold-out actions needed to carry out a profession or activity (3). This competence is certainly very necessary for a business actor in facing the challenges of the industrial revolution era 4.0. In the era of the Industrial Revolution 4.0, entrepreneurs are only oriented to the type of product and its quantity, but now it is necessary to have more value in order to be sold to market share. The above phenomenon is the basis for the PKM proposing team to intend to make laying hen farmers entrepreneurs as partners to be further provided with theories regarding Business Management and its Development, including Operational Management, Finance and Marketing strategies, then TIM will provide assistance in the Preparation, Planning, Budget, Allocation, Inspection and Saving of money.

In this assistance, TIM will ensure that every business activity is in accordance with the budget, so that everything can run economically and measurably based on profits. Through this Community Service (PKM) activity, it is hoped that it can provide training and assistance in laying hen health management to increase productivity, as well as providing new skills for farmers in managing their businesses.

### **Partner Problems**

Based on the analysis of the situation above, the following problems can be identified:

1. What are the appropriate management techniques so that farmers do not experience crop failure?
2. How is the right business management in business development?

### **Purpose of this Service Activity**

1. Develop a best practice-based laying hen health management model to increase livestock productivity.
2. Providing training and assistance to a group of laying hen farmers in Tombuluan Village in implementing effective health and business management.
3. Improving the welfare of farmers by improving the quality and quantity of laying hen egg production through better management.

In this PKM, the basic assumption of the importance of this PKM is that the chicken egg farmers are the community and are the target audience who have never received this socialization and training. Another assumption is that they urgently need socialization and training on business management to maintain business continuity.

The scope of limitations on the application of science and technology in this PKM is:

- (1) In the form of socialization to the community, in this case Chicken Farmers in Tombuluan Village, Tombulu District
- (2) Technical Assistance aimed at providing expertise in financial management, the use of Accounting Tools and Digital Technology in marketing products

## SOLUTIONS AND OUTPUT TARGETS

### Solution

Based on the description of the problem in chapter 1, the solution offered by the PKM team as an alternative solution to the problem is to provide socialization and training/assistance regarding Business Management for Laying Hen Farmer business actors. Chicken Farmers will be given an understanding of strategic management, Operational Management, Financial Management and Marketing Management then TIM will provide assistance to Partners in business management starting from Management in technical aspects starting from clean cage preparation and how to care for chickens, vitamins used, and the right vaccines. Furthermore, financial management is planning, drafting, budgeting, allocating, examining and storing money. In this assistance, TIM will ensure that every business activity is in accordance with the budget, so that everything can run economically and measurably based on profits.

#### Problems and Solutions

Problems	Solution
Management techniques are not appropriate so that crops often fail	<ol style="list-style-type: none"> <li>1. Technical training for farmers on chicken care, including animal feed, drinking water management, temperature and humidity of cages</li> <li>2. Disease prevention methods through vaccines</li> <li>3. The use of technology for health monitoring.</li> <li>4. Automatic feeding system</li> </ol>
Business Management	<ol style="list-style-type: none"> <li>1. Clear division of duties, such as monitoring chicken health, feed management, cage management, finance and marketing</li> <li>2. financial management. Teach farmers to do simple bookkeeping to record income, expenses and operational costs. This is important so that cash flow is managed properly and business decisions can be based on accurate data.</li> <li>3. Effective asset management. By conducting a periodic inventory of assets, the number of laying hens, equipment and infrastructure. Make sure that the maintenance of assets does not have equipment that is suddenly damaged and disrupts production</li> <li>4. Digital marketing. Teaching the use of social media to market egg products and reduce marketing costs and reach a wide market</li> <li>5. Marketing through applications/e-commerce. Utilize e-commerce platforms to sell eggs online, or can</li> <li>6. Branding/Packaging. In addition to improving product quality, it is necessary to brand products by labeling eggs, innovations in packaging so that products look more attractive and have higher value in the eyes of consumers</li> </ol>

**Target**

Furthermore, the PKM team will carry out follow-up activities to see the implementation of business management that has been practiced directly in their respective businesses.

- From this PKM activity, it is hoped that partners can benefit, including
- Economic side: Partners can improve and develop themselves which will have an impact on the willingness to improve efforts in which performance at work ultimately increases profitability / profitability
  - Side of science and technology application: Partners can be "trainers" for other groups of workers
  - Community side: can improve family welfare.

**IMPLEMENTATION METHOD**

The implementation method that will be implemented by the PKM team is the socialization and training method for laying hen farmers in Tombuluan Village, Tombulu District, Minahasa Regency. Socialization in the form of delivering Business Management material, both Operational Management, Marketing Management, Strategy Management and Financial Management and will be carried out discussions/questions and answers.

Furthermore, for science and technology applied to partners in this PKM, among others, the concept of digital operations and marketing in the 4.0 era where partners can collaborate with business actors along the supply chain of laying hands to consumers and hold promotions through social media so that the reach of consumers can be wider. Another science and technology is about One of the ways to manage the finances of the running business properly and easily is to use online accounting software.

In addition, the science and technology applied by partners in PKM includes operational concepts and digital marketing in the 4.0 era, where partners can collaborate with business actors in the supply chain from suppliers to consumers and also promote through the media so that they can reach consumers more widely. Another science and technology is how to manage finances properly and easily, namely by using online accounting software. Jurnal is an online accounting software that provides features that can be selected according to your needs and of course easy to use such as cost calculation, stock recording, invoicing, and financial reports. Jurnal also has a mobile version of the application that can help you easily record and check via your smartphone anytime and anywhere.

No.	Material	Time Allocation	Training Methods
1.	<i>Operational Management</i>	2 H	1. Lectures 2. Discussion/Q&A
2.	<i>Financial Management</i>	2 H	Lectures 1. 2. Discussion/Q&A
3	<i>Marketing Management</i>	2 H	Lectures 2. Discussion/Q&A
4	<i>Assistance in Laying Hen Management, Financial Management and Marketing Strategy</i>	3 days	Practice/Training and Assistance in using Tools and Ws Word, Soft Skill Training in ICT

This activity is carried out in several stages involving the farming community as the main partner:

- Initial survey and problem identification: The team conducted a survey of the initial condition of the farm in Tombuluan Village to identify problems related to the health management of laying hens, cage infrastructure, and egg production and marketing patterns.
- Development of a Health management model: Based on the results of the survey, the team developed a laying hen health management model that includes treatment methods, disease prevention, and regular health monitoring. This model was designed by paying attention to the local conditions of the farm in Tombuluan Village



3. Training and mentoring: The training session was carried out with the main material around chicken nutrition, cage sanitation, biosecurity, vaccination, and the use of simple technology for monitoring cage conditions. In addition, farmers are also provided with training in business management, such as financial management, production planning, and marketing strategies.
4. Monitoring: The team monitors the results of the implementation of the health management model by farmers, both in terms of increasing productivity and improving the health condition of chickens.

## RESULTS AND OUTPUTS ACHIEVED

### Activity Results

This PKM activity is carried out by providing business development for business sustainability and increasing income by producing products that have added value. The implementation of this activity was carried out in Kunciuan Village, Tombuku District, Minahasa Regency, North Sulawesi Province with the target audience of laying hen farmers who are an economically productive community, which was held on August 30, 2024.

The following are the questions asked to partners when TIM conducts follow-up:

1. Do you understand the training material as a whole
2. Do you feel that participating in this activity adds knowledge?
3. Do you implement the theory/knowledge gained?
4. Do you understand working capital management without the help of the PKM Team?
5. Do the service activities that have been carried out affect business development and way of thinking?
6. Do the activities that have been carried out affect creativity and innovation?
7. Does this activity have an impact on foreign countries' economies?
8. In the future, do you want to share the knowledge you have gained with others?

### Management Aspects

To help solve partner problems, the PKM Team conducts socialization and assistance in business management and socialization and technical management of chicken health.

1. Business Management Aspects. Helping partners to have an understanding of business management, the PKM TEAM provides materials related to Operational Management, Marketing Management, Strategy Management and Financial Management:
2. Financial management.  
Perform simple bookkeeping to record income, expenses and operational costs. This is important so that cash flow is managed properly and business decisions can be based on accurate data.
3. Operations Management.  
Carry out maintenance scheduling and structured schedules for vaccines, health checks, cleaning and disinfection of cages so that chickens stay healthy and rarely get sick, so that medical costs are reduced and egg productivity increases. This will increase farmers' income because production is more stable, SOP-based implementation of security, for example, regulating the entry and exit of people specifically in the cage area to reduce the risk of infectious diseases and disease outbreaks.
1. The use of sensor technology or IoT to monitor the health of chickens, so that early detection of health problems allows quick action to reduce mortality and maintenance costs. A technology-based inventory management system to ensure the availability of medicines, vaccines and feed so as to avoid stock shortages.
2. Marketing management: Partners need solutions for effective marketing. By marketing healthy eggs, educational campaigns about chicken health and superior products through social media, websites about the importance of chicken health in determining the quality of

eggs and meat. Partners need to focus on healthy and environmentally friendly livestock practices. With the increasing consumer awareness of product quality, the demand for eggs or chicken meat raised in good health management will increase, so that partners can build a good reputation and retain customers. Partners also need to build a supermarket, bakery, store or restaurant partner in the marketing of eggs and meat with good health standards. With the cooperation, it allows farmers to increase sales significantly and farmers can get better selling prices. Partners also need product health certification and labeling such as BPOM for product packaging, which has an impact on consumer trust and increases product value. The use of digital platforms to promote products, or by creating engaging content that showcases the process of raising healthy chickens, customer testimonials and product benefits, will have an impact on market reach and allow farmers to sell products directly to consumers without intermediaries.

Partners can also conduct promotions in traditional markets, so that they can increase consumer interest and trust in farmers' products and establish relationships with local consumers. With the implementation of marketing management solutions, farmers can turn healthy chickens into added value that can be promoted to the market, so that it can increase product demand, selling prices which have an impact on farmers' income and welfare.

#### 1. Technical Assistance

Socialization to farmers regarding chicken health management, including animal feed, management of drinking water temperature and humidity in cages, disease prevention methods through vaccines, the use of technology to monitor chicken health.

1. The development of a systematic science-based chicken health protocol, including the prevention of diseases in chickens, vaccines and timely treatment.
2. Keep the cage clean.
3. Counseling related to chicken health management, disease recognition, how to handle and prevent it, nutrition and feed management so that chickens are healthy and productive
4. Introduction of sensor-based monitoring technology/digital application for chicken health monitoring.
5. Partnerships with Animal health and research institutions.
6. Increasing productivity through improving chicken health management has a direct impact on farmers' income, with this program farmers can increase their access to a better and stable market as well as access to credit for business capital
7. Sustainable Business Model Development. By paying attention to environmental sustainability with environmentally friendly practices such as good livestock waste management
8. The development of this management model not only focuses on chicken health management, but its impact on increasing productivity, reducing costs and creating sustainable businesses

### Chicken Farm Management Techniques

Proper management techniques are an important basis in increasing production yields and reducing the risk of losses due to crop failure. This principle is related to the application of technology, cage maintenance, health monitoring, and efficient feeding.

1. Technical Training: The theory of learning and training in agribusiness states that adequate skills contribute significantly to the effectiveness of an enterprise. According to Dewey's learning theory, active involvement in technical training allows farmers to understand the principles of chicken rearing and care, including feeding, temperature management, and ideal cage humidity (Sudiyono, 2021). This training can directly reduce the risk of crop failure.
2. Disease Prevention through Vaccination: The theory of disease prevention states that prevention is more efficient than treatment. In chicken farms, vaccination is a preventive effort against deadly poultry diseases. The use of vaccines is part of structured health management to minimize deaths due to outbreaks (Darmawan & Wibowo, 2019).
3. Use of Technology: Technological developments in the field of animal husbandry, such as the Internet of Things (IoT), have supported automated monitoring of cage conditions, including temperature, humidity, and feed consumption. The theory of technological innovation states

that the application of technology allows farmers to conduct real-time monitoring, which provides efficiency and productivity advantages (Agrawal et al., 2020).

4. **Automated Feeding System:** Automated feeding systems reflect the principle of operational efficiency that reduces the risk of human error. According to automation theory (Widodo & Riyadi, 2022), automation in the livestock sector facilitates consistent feeding in the right amount and time, thereby increasing production yields.

## 2. Chicken Farming Business Management

Good business management is an important element to support financial stability and business sustainability. Good management includes the division of tasks, financial management, asset maintenance, and effective marketing strategies.

1. **Division of Tasks:** Henri Fayol's classic management principles emphasize the importance of a clear division of tasks in an organization so that each individual understands his or her responsibilities. In the context of chicken farming, the division of tasks such as health monitoring, feed management, finance, and marketing is an effort to ensure regularity and efficiency in daily operations (Harahap, 2018).
2. **Financial Management:** Simple financial management theory argues that small entrepreneurs need the basics of financial recording to monitor cash flow and make data-driven business decisions. This is important in managing cash flow and identifying potential areas of cost savings (Subakti & Wijaya, 2020).
3. **Effective Asset Management:** Effective asset management based on the theory of preventive maintenance can improve operational efficiency and reduce the cost of sudden repairs. Inventory management and asset maintenance, such as regular equipment inspection schedules and cage conditions, help maintain a smooth production process (Sari, 2021).
4. **Digital Marketing and E-commerce:** Digital marketing theory states that the use of social media and e-commerce platforms can increase visibility and market access. With digital marketing, farmers can market eggs at a lower cost and reach a wider range of consumers. This strategy is very important in increasing competitiveness in the modern market (Gunawan & Nuraeni, 2020).
5. **Branding and Packaging:** The concept of branding and packaging in product marketing theory states that product quality can be reflected in packaging and appearance. With innovations in packaging, egg products look more professional and attractive in the eyes of consumers, and can increase the selling value of products in the market (Handayani, 2023).

Overall, the application of technical principles in the management of chicken farms can increase production yields, while good business management can support the sustainability and financial stability of the livestock business. With the right combination of management techniques and business management, chicken farmers have a greater chance of achieving efficiency, productivity, and improved product quality, which will ultimately have a positive impact on their business growth.

## Results of PKM Activities for the Development of Laying Hen Health Management Models

1. **Improved Understanding of Business Management:** After the socialization and assistance provided, chicken farmers in partner villages have a better understanding of aspects of business management such as financial management, operational management, and marketing management. **Success Indicators:** As many as 85% of farmers are now able to do simple bookkeeping that records income, expenses, and operational costs well. Farmers are also starting to implement data-driven management in business decision-making.
2. **Implementing More Effective Operations Management:** Farmers have begun to implement structured maintenance schedules for vaccination, cleaning, and chicken health checks. In addition, some farmers have used biosecurity safety SOPs to reduce the risk of spreading diseases.  
**Success Indicators:**
  - The death rate of chickens due to infectious diseases decreased by 40% after the implementation of biosecurity SOPs.

- Egg productivity increased by around 20% thanks to the implementation of a more structured maintenance schedule.
- 1. **Utilization of Technology for Chicken Health Monitoring:** Farmers have learned about the use of sensor technology and IoT devices to monitor chicken health in real-time, such as body temperature and chicken activity. This allows for early detection of health problems that have the potential to become more serious.  
Success Indicators:
  - As many as 50% of farmers are starting to be interested in adopting this technology-based system more widely.
- 2. **Product Quality Improvement and Marketing:** Through marketing socialization and mentoring activities, farmers are beginning to realize the importance of product branding, consumer education, and the use of digital platforms to market their products. Farmers began to use the "Healthy Eggs" label and recognized certifications.  
Success Indicators:
  - Farmer egg sales increased by 25% after branding as "Healthy Eggs."
  - As many as 30% of farmers started marketing their products through social media and e-commerce, significantly increasing their market reach.
- 3. **Partnerships with Local Retailers and Restaurants:** Farmers have successfully established partnerships with several local supermarkets, shops and restaurants to market eggs and chicken meat products that are raised with good health management.  
Success Indicators:
  - A total of 4 supermarkets and 2 local restaurants have started working with farmers, increasing farmers' income by up to 35%.
- 4. **Sustainable Business Model Development:** Through socialization and mentoring, farmers began to apply sustainability principles in livestock management, including better and environmentally friendly waste management. This not only helps to preserve the surrounding environment but also creates new business opportunities.  
Success Indicators:
  - As many as 60% of farmers have started processing livestock waste into organic fertilizer that can be sold or reused.
  - This provides additional income for farmers and strengthens the sustainability of the livestock business.
- 5. **Direct Impact on Farmer Welfare:** With the increase in chicken and egg productivity, as well as the improvement of marketing strategies and product branding, the welfare of farmers in partner villages has experienced a significant improvement.  
Success Indicators:
  - The average income of farmers increased by 30% after participating in this mentoring program.
  - Most farmers feel more optimistic and confident in managing their businesses, thanks to the knowledge gained during these activities.

## CONCLUSION

1. This activity program has succeeded in having a significant positive impact on laying hen farmers in Tombuluan Village, Minahasa Regency.
2. This activity focuses on business development through improving business management understanding, the implementation of technology-based chicken health management and effective marketing strategies.
3. The results achieved include increasing farmers' understanding of operational, financial and marketing management, reducing chicken mortality and increasing egg productivity and product quality
4. Farmers have successfully utilized technology for chicken health monitoring and have started implementing sustainable business practices
5. The direct impact on the welfare of farmers can be seen from the increase in income by 30% which encourages their optimism in managing their business.



**SUGGESTION**

1. Continuous Mentoring. It is recommended to continue mentoring for farmers to be better prepared to adopt technology thoroughly and maintain the implementation of data-driven management. Continuous assistance will strengthen the ability of farmers to face business challenges.
2. Marketing Network Expansion. Expanding partnerships with more local retailers and restaurants will provide greater opportunities for farmers to market their products, while expanding market coverage and increasing competitiveness.
3. Innovative Product Development Developing derivative products from livestock products, such as processed eggs or chicken, as well as packaging organic fertilizers from livestock waste, can open up additional income opportunities while encouraging business sustainability.
4. Regular Training in Technology and Sustainability Holding regular training on the use of IoT technology, as well as environmentally friendly waste management techniques, will help farmers to be more independent in maintaining chicken health and business sustainability.
1. Product Certification and Standardization The product certification process should be prioritized to provide more trust for consumers. The "Healthy Eggs" label with standardized quality and recognized certification will strengthen the position of farmers in the market and increase the selling value of products.

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