

## Laying Hens Breeding's Contribution to Indonesia's Small-scale Farmers' Economic Income - A Review

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### Abstract:

This paper reviews the development of regional laying hen farming in Indonesia in an illustrative way, in addition to the economic contribution made by small farmers to the development of the country through the production of laying hens on their modest holdings and their ability to support self-sufficiency. By achieving the largest possible production of eggs and chickens, the aim is to determine the contribution of laying hens to the national economy and the self-sufficiency of small farmers. The study focused on small farmers in the regions of North Sumatra, West Java, Central Java, East Java, South Sulawesi, and West Nusatenggara. It was concluded from this study that the small farmers who had little capital for raising laying hens benefited from the net present value of IDR 36,213,611 in their favor. 4,233 heads were used, resulting in an average of 5,644 kg of eggs per month, IDR 98,996,826,00 in average monthly revenue, and IDR 16,418,183 in net profit. This meant that the laying hens' business was profitable for both community and personal gain.

**key words:** Laying hens, small-scale farmers, economic income.

## Kontribusi Peternakan Ayam Petelur terhadap Pendapatan Ekonomi Petani Kecil Indonesia - A Review

### Abstrak:

Tulisan ini mengulas perkembangan peternakan ayam petelur daerah di Indonesia secara ilustratif, di samping kontribusi ekonomi yang diberikan oleh peternak kecil untuk pembangunan negara melalui produksi ayam petelur pada kepemilikan sederhana dan kemampuan mereka untuk mendukung swasembada. Dengan tercapainya produksi telur dan ayam yang sebesar-besarnya, tujuannya adalah untuk mengetahui kontribusi ayam petelur terhadap perekonomian nasional dan swasembada peternak kecil. Kajian difokuskan pada petani kecil di wilayah Sumatera Utara, Jawa Barat, Jawa Tengah, Jawa Timur, Sulawesi Selatan, dan Nusa Tenggara Barat. Disimpulkan dari penelitian ini bahwa peternak kecil yang memiliki sedikit modal untuk beternak ayam petelur mendapatkan keuntungan dari net present value sebesar Rp 36.213.611. Jumlah telur yang digunakan sebanyak 4.233 ekor, sehingga menghasilkan rata-rata telur 5.644 kg per bulan, pendapatan rata-rata per bulan Rp 98.996.826,00, dan laba bersih Rp 16.418.183. Ini berarti bahwa usaha ayam petelur menguntungkan bagi masyarakat dan keuntungan pribadi.

**kata kunci:** Ayam petelur, petani kecil, pendapatan ekonomi.

### 1. Introduction:

The right to food and food security are two of the fundamental tenants of human rights. realized food security at the level of homes, communities, districts, and even the national level is crucial (Zalazar, L., Pancapalaga, W., Indratmi, D., & Jani, Y, 2018). One of the livestock sectors in Indonesia that has the potential for rapid growth is poultry. Due to its ability to produce enough chicken meat and eggs for self-sufficiency, the poultry industry is significant to the economy (Wibisono, F. J.,

Sumiarto, B., Untari, T., Effendi, M. H., Permatasari, D. A., & Witaningrum, A. M., 2020). The growth of the livestock subsector is a crucial component of the expansion of the agricultural sector, which is essential for meeting Indonesia's growing food demand and raising the average incomes and living standards of its citizens (Hartono, 2021).

Economically speaking, the animal husbandry sector has the impact of promoting economic growth, which can raise local living standards and lessen poverty. The three

categories of macroeconomic policies, public investment policies, and price policies can be used to categorize policies that have an impact on the agriculture sector, including cattle, according to (Yuzaria, D., Wahyuni, A. R., & Fajrin, M., 2021). The benefit of good laying hen farming practices is that people may easily get affordable animal protein, their immunity will improve, and they will be more productive, working tirelessly to promote the nation and the world. Eggs are a more affordable form of animal protein than other sources since they are available to people at practically all socioeconomic levels. Due to these circumstances, the community consumes eggs frequently and in great quantity. The drawback is that if the laying hen farming industry is not performing well, a region's condition will likewise be poor. Therefore, it is important to pay more attention to the livestock industry (Hartono, B., Akhiroh, P., & Febrianto, N., 2021). The term "laying chicken" refers to female chickens that are raised on laying farms to produce eggs. This breed of chicken can lay eggs nearly every day for three years, after which its meat can be consumed. Laying chickens typically live from five to seven years. Native chickens are frequently raised in various Indonesian regions and play an important part in food production, frequently serving as the principal source of protein in the diet of the populace. At least 34 different native breeds or groups of chickens exist in Indonesia (Henuk, Y. L., & Bakti, D., 2018).

Indonesia is one of the countries that have achieved success in agricultural production, and livestock breeding, there are many animal production centers in Indonesia, especially poultry. Egg production accounted for 75% of the egg demand in East Java (2016). In the towns of Srengat, Ponggok, and Kademangan, there are several egg-producing facilities (Hartono, B., Febrianto, N., & Akhiroh, P., 2021). The city of Kendal dominates the chicken egg production in Central Java by a factor of 40%, placing it second in Indonesia. Both the community's need for eggs and their production, which has climbed by more than 10% annually, are constantly rising (Setiadi, A., Santoso, S. I., & Sumalde, Z., 2022). It has been established that purebred chickens account for about 71% of the country's need for eggs in animal food products (Sanjaya, I. G. P., Sudita, I. D., Irianto, K., & Yudiastari, N. M., 2021). Based on the background, this study

aims to: Identify the contribution of laying hen breeding in encouraging economic growth in Indonesia by focusing on small farmers to contribute to the national economy. According to the points mentioned above, the problems can be formulated as: How do laying hens contribute to achieving Indonesian economic growth? What are the indications of raising laying hens in Indonesia that contributes to supporting self-sufficiency?

## **2. Laying Hens Breeding in Indonesia (The Origin and Production Performance):**

Laying hens are a type of bird that breeders raise to produce eggs (Shobirin, A. N., Nurfajerin, R. A., Gita, F. R., & Widianingrum, D. C., 2022). Layer chicken farms are a popular agribusiness in Indonesia. The demand for chicken eggs in Indonesia, particularly in Boyolali, Central Java, is the foundation of this industry. Central Java has several commercial centers for laying hens with sufficient numbers of laying hens. The three largest egg-laying centers are located in Central Java in 2016, which is the Kendal district, which has an enumeration of 3,799,915 laying hens, and Boyolali district, which has an enumeration of 2 hens. 357,886 chickens and Karanganyar region up to 1,830,430 chickens, trying to develop laying hens trade in Boyolali (Wibowo, 2019).

Domestic chicken is an Indonesian breed of bird that comes in a variety of forms, including Kedu chicken, Sentul chicken, Pelung chicken, Cemani chicken, Kokok Balenggek chicken, and others. One of the facilities devoted to protecting and advancing West Java's indigenous genetics, especially the Sentul chicken, is the Poultry Breeding Development Center Jatiwangi. To produce Sentul chicks that will produce high-quality Sentul hens, producers must take into account maintenance management, housing, food and water management, reproductive management, health management, waste management, and production performance (Ihsani, H. F., Rukmiasih, R., & Fitriati, M., 2022). Also, one of the breeds of chicken in Indonesia is the domestic chicken (*Gallus dominicalus*). The red junglefowl is an ancestor of the indigenous Indonesian chicken (*Gallus gallus*), and in the past, there were four species of wild chicken—the green junglefowl (*Gallus varius*), the red junglefowl (*Gallus gallus*), and the gray Indian

junglefowl (*Gallus soneratti*) Ceylonese orange forest fowl - domesticated and became the national chicken of Indonesia (*Gallus lafayetti*) (Fajri, D. N., & Ulum, M. F., 2019).

The Sidenreng Rappang Regency is where South Sulawesi's layer farm industry is developing. Small, medium, and large-scale farms with distinct features make up this region (Nuraliah, S., Taufik, D. K., & Dagong, M. I. A., 2021). KUB Chicken is a brand-new, high-end domestic chicken that was created in Indonesia. 2014 saw the Republic of Indonesia's Minister of Agriculture releasing KUB chickens for public consumption. KUB chickens have an annual egg production capacity of 160–180, with an average daily egg production of 45–50% and a maximum of 65% during peak production. In order to expand and increase the production capacity of chicken breeders in KUB, establish chicken breeding sites, and create farmer organizations, the breeding program for this bird began in 2017. The initial flock of hens came from a number of locations in West Java Province, namely Cianjur Regency, Magalenka, Depok, and Bogor. Additionally, KUB chickens were given out to different farmers in five provinces as the nucleus and plasma breeder groups (North Sumatra, West Java, Central Java, East Java, South Sulawesi, and West Nusatenggara), (Bakrie, B., Rohaeni, E. S., Yusriani, Y., & Tirajoh, S., 2021).

Domestic chicken, commonly referred to as kampung chicken in Indonesia, is primarily raised in rural areas. Reached was the quantity of laying chickens (263,918,004 birds). In contrast, Indonesia produces only 251 tons of domestic chicken eggs, or 4.44%, of the world's poultry egg production (Bakrie, B., Rohaeni, E. S., Yusriani, Y., & Tirajoh, S., 2021). West Sumatra is an important laying hen production area in Indonesia. The laying hen farming business has developed throughout West Sumatra, including West Pasaman Regency. The population development of laying hens in this area is fairly good, but it has not been able to meet the needs of the local community for eggs. In 2018, the number of requests for purebred chicken eggs in West Pasaman Regency was 38,441,861 kg, while the number of new production reached 1,344,112 kg (Yuzaria, D., Wahyuni, A. R., & Fajrin, M., 2021). Kampung hens have been genetically modified to produce more eggs. The chickens were gathered from numerous locations in West

Java across six generations, with egg production selection criteria. Finally, the fowl was given the moniker KUB G6 chicken. KUB is an abbreviation for Kampung Unggul Badan Litbang Pertanian (Iskandar, S., & Sartika, T., 2014).

Most farmers raise laying hens as a side business. The Kedu region's laying hen associations include Berkah Telur Makmur, Kenzo, and Komunitas Petelur Kebumen (KPK), which is located in the Purworejo, Kebumen, Magelang, and Wonosobo districts. This organization offers its members direction and inspiration (Mudawaroch, R. E., Zulfanita, Z., Utami, D. P., & Wicaksono, D., 2020). In general, raising local chickens for the community is a part-time endeavor because the primary goals are to provide meat and eggs for family nourishment and as a source of income or life savings.

### **3. Small farmers' contribution to the growth of the national economy through the production of laying hens:**

Long-term economic growth is the process of raising per capita output. The economic system's internal workings are dynamic or change with time. The rise can be observed in the GDP per capita divided by population. Economic growth occurs constantly or throughout the long term, not only for a year or two (Vermila, 2020). Explore the impact of the characteristics of individual farmers (age, formal education, knowledge, number of livestock ownership, and height as a farmer) on the level of income of laying hen farmers and identify the indicators of the characteristics variables of individual farmers that have the predominating impact.

The findings of the direct effect test demonstrate that the traits of certain farmers have a favorable and significant impact on the amount of farmers' income (Sanjaya, I. G. P., Sudita, I. D., Irianto, K., & Yudiastari, N. M., 2021). laying hen farms in West Nusa Tenggara was dominated by small farms with ownership scales ranging from 500 to 9000 birds. The average breeder has directed the application of a good farming system (Tamzil, M. H., & Indarsih, B., 2020). The investigation of smallholder-class farms in Indonesia's Kendall Regency was the primary emphasis of the study, along with corporate sustainability strategies. 120 active layer chicken farmers

with 300 to 10,000 birds each were chosen as research participants from Sokuriju, Pajiruyong, Batin, Lembangan, and Buga provinces using a purposive sampling technique. The findings demonstrated that both internal and external variables satisfied the modeling requirements and that social, economic, institutional, and income variables had a substantial and favorable impact ( $P < 0.05$ ) on the long-term viability of stratified enterprises in Kendall Regency (Sofyan, A., Suprijatna, E., Santosa, S. I., & Setiadi, A., 2019).

#### 4. Results and Discussion:

To assess the profitability, economic factors of the laying hen industry, and income contribution for smallholder laying hen farmers in rural Indonesia. The data showed that the average laying hen ownership was 4,233 heads, with an average egg output of 5,644 kg month<sup>-1</sup>, an average monthly revenue of IDR 98,996,826.00, and a net income of IDR 16,418,183 (Agus, S., Imam, S. S., Ahmad, S., Dwi, M. A., Suryani, N., & Kadhung, P., 2020). When rearing 2,136 birds, the net present value (NPV) was IDR 36,213,611 in favor of small farmers who have limited capital for raising laying hens. The cost-benefit (B/C) ratio for the five-year investment was 1.05, and the internal rate of return (IRR) was 22.8 percent (Wantasen, E., Umboh, S. J., Leke, J. R., & Sompie, F. N., 2022). Analysis of the profitability, competitiveness, and effects of government policy on establishing a chicken company in West Basaman Regency. She discovered that the laying hen's industry was profitable based on both personal and societal gain (Yuzaria, D., Wahyuni, A. R., & Fajrin, M., 2021). An analysis of COVID-19's effects on the viability of producing laying hens in Sempergo village. The monthly cost per 5,000 laying hens was \$120,5600; the monthly revenue was \$109,411,764.71; the monthly income was Rs. 11,148,235.29 (Sholihin, N., Haryuni, N., & Lestariningsih, L., 2022).

According to the findings of numerous types of research, domestic laying hens can enhance their output if they are kept and taken care of permanently. This shows that laying chicken breeding is of particular importance in terms of the return it generates for the farms, and this is reflected in the national income of the state. Additionally, the income contribution

of small laying chicken farmers from the local chickens that were raised on the breeders' farms was increasing continuously.

According to (Agus, S, et al., 2020), the cost/benefit ratio was feasible, as the net income of egg production amounted to 16,418,183 Indonesian rupiah as a return to the breeder, and as mentioned (Wantasen, E, et al., 2022) & ((Yuzaria, D, et al., 2021), the 36,213,611 Indonesian rupiahs as a net income for small farmers contributes directly to the profitability of raising laying hens. As mentioned (Sholihin, N, et al., 2022), the profitability of raising laying hens may be affected by several factors, whether from nature or the intervention of the human factor, but the net return remains feasible for the breeder. The increase in yield from raising laying hens is mainly due to the frequency and interest of breeders in the renewed development of egg-producing breeds, mainly due to the methods used in breeding to increase the domestic product. Based on the above, breeding Laying hens are a clear indicator that contributes to supporting the self-sufficiency of small farmers and supports the development of the country's economic growth.

#### 5. Conclusion:

The research concentrated on raising laying hens and the degree to which its profitability contributes to the national income because it is very popular among Indonesian small farmers and the community consumes eggs frequently and in large quantities as well as its capacity to grow rapidly and its effect in promoting economic growth, which can raise local living standards and decrease poverty. In addition, Indonesia's laying chicken industry is widely spread because of the benefits that its people cannot live without. On the other hand, the revenues generated by raising laying hens from small projects are considered feasible, in addition to the ease of marketing them.

The study found Keeping and caring for domestic laying hens permanently can increase their productivity. This demonstrates the critical role that breeding laying hens play in the cash it brings in for the farms, which is reflected in the country's national income. In 2021-2022 the cost/benefit ratio was feasible, as the net income of egg production amounted to 16,418,183 Indonesian rupiahs as a return to the breeder. The 36,213,611 Indonesian rupiah as a net income for small farmers contributes

directly to the profitability of raising laying hens. According to the aforementioned, rearing Laying hens is a definite indicator that supports the development of small farmers' self-sufficiency and the expansion of the nation's economy.

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