Acceleration of Laying Chicken Business Development in Response to Egg Demand in Southeast Sulawesi Province

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Abstract. The high demand for broiler eggs in Southeast Sulawesi at this time requires efforts from all parties to jointly think about how to fulfill them. The average egg production by farmers in Southeast Sulawesi only reaches 13,021 tons annually, which means that 60\% of local farmers’ needs are met and the rest (40\%) is supplied from South Sulawesi and East Java. The average increase in egg production per year in the region reached 157,787-kilo grams or 12.57 percent. This can have an impact on the scarcity of stock and soaring egg prices in certain seasons that cause inflation. The solution that has been made to anticipate this condition, the government has played an active role together and the community. Hope in the future is to release dependence on egg supply from outside the region. In the last few years, there has been an increase in business in the field of animal husbandry, especially in laying hens. The participation that has been carried out by the government, among others, is to provide skills training on laying hens, including business management. The government has also facilitated the procurement of capital from banks, must be accompanied by the availability of funds as capital for business development. Likewise, the breeders have tried to develop their businesses, which has been proven to have increased production by 13.23\% one year.

Keywords: Acceleration, demand, supply, breeder, eggs

1. Introduction
Eggs that produce high protein compared to other foods must be consumed every day. In addition to protein, eggs also contain 18 types of vitamins and minerals. There is also a content of micronutrients such as choline, lutein, and zeaxanthin. These nutrients are found in the yolk or egg white section. Likewise, eggs have the benefits of helping pregnancy, full length, both for nerves and brain function, contain vitamins, free of cholesterol, improve skin health.

The many benefits obtained from egg consumption, resulting in demand from time to time is increasing. Demand is no longer comparable to supply in the market, resulting in prices increasing as well, especially in Ramadan and other religious holidays. Price increases can reach 10-30 percent so that it gives a significant influence on rising inflation.

The production of purebred chicken eggs in Southeast Sulawesi has now reached a significant increase from 1,191 tons in 2014 to 3,437 tons in 2018. The average egg production by breeders in Southeast Sulawesi currently reaches 13,021 tons annually. The average increase in egg production per year in the area reached 157,787 kilograms or 12.57 percent. Three districts are the biggest
contributors to broiler egg products, Bombana, Konawe Selatan and Muna. The increase in products that have been achieved is very encouraging in anticipating demand now.

The Southeast Sulawesi government continues to encourage farmers, especially livestock farmers in the area to develop poultry and increase egg production. Hopefully in the future, it will no longer depend on the supply of eggs from outside the region but can supply the needs of eggs in other nearby provinces. This is supported by the availability of land and very promising feed raw materials from rice and corn bran. Feed can be produced, by farmers and farmers themselves with the help of experts from animal husbandry extension workers.

Based on this thinking, the researchers are motivated to analyze the extent of the role of the government and the breeder community in accelerating the development of laying hens to respond to egg demand in Southeast Sulawesi. How big is the development of broiler egg production in Southeast Sulawesi and how is the comparison of demand and supply of broiler eggs in Southeast Sulawesi.

Objectives and Benefits Describe the role of the government in accelerating the development of laying hens in Southeast Sulawesi. Analyzing how big the development of broiler egg production in Southeast Sulawesi, and How is the comparison of demand and supply of eggs in Southeast Sulawesi.

2. Methods
This research was conducted in Southeast Sulawesi using secondary data from the Central Statistics Agency of Southeast Sulawesi Province and supported by data from the Department of Agriculture and Animal Husbandry of Southeast Sulawesi. Besides that, primary data from farmers is also added as supporting information. This research takes place from April to June 2019. Data analysis is carried out using descriptive analysis [1].

3. Results and Discussion
3.1 Increasing the number of Breeders and Populations of Laying Hens
Based on data obtained from the Central Statistics Agency (BPS) of Southeast Sulawesi, almost all regencies/cities have produced laying hens. However, it has not been evenly distributed. In Table 1 it can be seen that four districts dominate the number of entrepreneurs, namely South Konawe District, Muna Regency, Konawe Regency, and West Muna Regency. The four districts referred to on average were chosen because they were located not far from the location of consumers (markets), locations that were still relatively inexpensive, and were supported by transportation facilities to obtain production inputs.

There are several things that farmers complain about, especially the small scale ones (capacity under one thousand chickens are: venture capital, feed prices and the absence of significant protection provided by the government from large scale farmers entering Southeast Sulawesi. There is a tendency that small scale breeders had been crushed by large-scale breeders who came from outside Southeast Sulawesi, such as from Sidenreng Rappang Regency, South Sulawesi Province. Egg needs for residents in Kendari City reached 2,140 tons per year.

While the production ability of layer chicken farmers in Kendari is only able to meet the needs of 250 tons per year [2]. Kendari egg needs are obtained from outside the regional supply reaching 1,890 tons per year.

The current constraints of farmers claim to lack of capital to develop their business so that production is not optimal. Low capital results in declining business scale and productivity decreases. Efficiency is not reached which results in the business being threatened with bankruptcy [3]. The government provides facilities to access banks in the form of People's Business Credit (KUR). Likewise, private banks always provide business credit opportunities with relatively low-interest rates.

Table 1 shows the lowest, highest and average population of laying hens. The lowest population is 90 animals which is far from economical scale. This condition is found in local farmers
with small capital. The highest is 23,000 heads which are cultivated by farmers who migrate from South Sulawesi.

**Table 1. Number of Breeders and Populations of Laying Chickens in Southeast Sulawesi, 2019**

| No. | Kabupaten/Kota | Number of Breeders (per attempt) | Total Population (tail) |
|-----|----------------|---------------------------------|-------------------------|
|     |                | Lowest | Highest | Average |
| 1.  | Buton          | -      | -       | -       |
| 2.  | Muna           | 20     | 180     | 3.700   | 1.047   |
| 3.  | Konawe         | 16     | 1.000   | 6.000   | 3.031   |
| 4.  | Kolaka         | 1      | 5.100   | 5.100   | 5.100   |
| 5.  | Konawe Selatan | 25     | 1.000   | 23.000  | 4.920   |
| 6.  | Bombana        | 9      | 300     | 3.500   | 1.111   |
| 7.  | Wawatobi       | 2      | 600     | 2.400   | 1.500   |
| 8.  | Kolaka Utara   | 6      | 3.000   | 12.000  | 4.844   |
| 9.  | Buton Utara    | 3      | 180     | 1.000   | 767     |
| 10. | Konawe Utara   | 2      | 400     | 800     | 600     |
| 11. | Kolaka Timur   | 3      | 5.500   | 20.000  | 13.500  |
| 12. | Konawe         | 1      | 300     | 300     | 300     |
| 13. | Kota Kendari   | 2      | 150     | 3.000   | 1.575   |
| 14. | Kota Bau-Bau   | 2      | 1.465   | 21.600  | 11.532  |
| 15. | Muna Barat     | 16     | 300     | 5.000   | 1.564   |
| 16. | Buton Tengah   | -      | -       | -       | -       |
| 17. | Buton Selatan  | 3      | 90      | 1.000   | 463     |

Source: Kantor Dinas Pertanian da Peternakan, 2019

In Table 1, it can be seen that the average number of livestock population owned by breeders is at a level below five thousand, meaning that in general, laying hens in Southeast Sulawesi are still in the small scale category. One is classified as a medium business and there are only two that are classified as large businesses. This is based on the business scale classification based on the determination of the Secretariat General of the Ministry of Agriculture (2015) that small scale does not exceed 5,000, medium scale has a population of 5,001 to 10,000 and large scale has a population of more than 10,000 chickens.

The right strategy for small-scale laying hens is suitable for remote areas or areas far from the locations of laying hens. In fact, in Southeast Sulawesi, it is in the same location. So that many small-scale farmers feel defeated by large-scale breeders which results in a decrease in livestock population. The cause is the lack of capital and product price competition. These conditions can be seen in Table 2.

**Table 2. Development of Production of Broiler Eggs (Kg) Four Years (2015-2018) Finally in Southeast Sulawesi, 2019**

| No   | Kab/Kota     | 2015     | 2016     | 2017     | 2018     | Nature of Development Production |
|------|--------------|----------|----------|----------|----------|----------------------------------|
| 1.   | Buton        | 13.351   | -        | 1.506    | 1.130    | Decreasing                      |
| 2.   | Muna         | 240.696  | 188.845  | 225.471  | 259.288  | Increasing                      |
| 3.   | Konawe       | 146.270  | 168.213  | 168.213  | 176.624  | Increasing                      |
| 4.   | Kolaka       | 117.137  | 130.269  | 139.395  | 143.288  | Increasing                      |
| 5.   | Konawe       | 341.568  | 779.769  | 815.499  | 839.946  | Increasing                      |
Table 2 shows that out of 17 districts/cities three districts experienced a decline and 14 districts/cities that experienced an increase. This condition is encouraging because it is in line with the government's program to reduce dependency on egg demand from other provinces. The need for broiler eggs lately has increased. Based on data from the Department of Food Security of Southeast Sulawesi, the shortage of eggs supplies is as much as 8,000 tons. This means that the development of laying hens is still in need of 60%.

### 3.2 Government and Farmer Efforts to Speed Up Chicken Egg Production

The high dependency of supply of eggs from other regions has triggered the government and layer chicken producers to work together to accelerate the increase of agribusiness-based production systems. These efforts are grouped into four agribusiness subsystems, namely (1) Upstream Subsystems; (2) Production or on-farm subsystems, (3) Marketing subsystems. And (4) Supporting Subsystems. The four agribusiness subsystems are expected to work optimally and harmoniously [4]. Each agribusiness subsystem can work together to support one subsystem with another. For example supply of production, inputs are always available for the needs of livestock businesses. Likewise, the egg sellers can guarantee a fair price in the market.

#### 3.2.1 Upstream Subsystem

In the upstream subsystem, the most basic thing to consider is the procurement of DOC (Day Old Chick) and animal feed. The breeders in Southeast Sulawesi, the needs of DOC and feed still rely on from outside Southeast Sulawesi, including from Makassar and Surabaya. The scarcity of animal feed felt by many laying hens until now, because of the ability of the production results of a feed factory in Kendari City, Southeast Sulawesi only able to produce between 30-40 percent of the total needs, so that around 60-70 percent still have to be imported from outside Southeast Sulawesi. To increase livestock production in Kendari City, the city government will continue to maximize the animal feed factory built-in Watulondo Village, Puuwatu District by building partnerships with various parties, especially those that provide raw materials for factory needs. Expansion in the future will be increased in the hope that local chicken farmers will no longer have to buy feed from outside the area. In line with opinion [5] the growth of the poultry sector is largely due to the success of poultry breeding.

So far, 60-70 percent of animal feed needs in Kendari City are still supplied from Makassar and Surabaya. The risk that is received by farmers by taking animal feed from outside is quite high shipping costs. Whereas Southeast Sulawesi is known as a producer of corn and bran which is the main raw material for making animal feed. More is sold outside the region, where the processed products are returned to Southeast Sulawesi as feed. Likewise, the procurement of DOC still relies on supplies from outside Southeast Sulawesi.

| District/City         | DOC  | Animal Feed  | Egg Production | Total Production |
|-----------------------|------|--------------|----------------|------------------|
| Central Sulawesi      |      |              |                |                  |
| Bombana               | 356.922 | 293.030      | 70.406         | 16.912           | Decreasing       |
| Wakatobi              | 3.765  | 5.181        | 40.828         | 57.379           | Increasing      |
| Kolaka Utara          | 13.178  | 53.930       | 206.789        | 792.909          | Increasing      |
| Buton Utara           | -      | 3.765        | 9.586          | 8.283            | Decreasing      |
| Konawe Utara          | 11.295  | 7.530        | 18.825         | 24.849           | Increasing      |
| Kolaka Timur          | -      | 122.739      | 376.500        | 364.829          | Decreasing      |
| Konawe Kepulauan      | -      | -            | -              | -                | -               |
| Kota Kendari          | 208.355  | 293.612      | 297.864        | 329.663          | Increasing      |
| Kota Bau-Bau          | 71.535  | 55.722       | 150.600        | 158.130          | Increasing      |
| Muna Barat            | -      | 135.314      | 189.440        | 237.669          | Increasing      |
| Buton Tengah          | -      | 25.022       | 7.530          | 9.036            | Increasing      |
| Buton Selatan         | -      | 8.509        | 16.340         | 16.830           | Increasing      |
| Total                 | 1.524.072 | 2.217.449   | 2.734.791      | 3.436.782        | Increasing      |

Source: Kantor Dinas Pertanian da Peternakan, 2019
3.2.2 Production Subsystem
The entrepreneurs are trying to make a representative cage in the form of houses on stilts. Chicken laying chickens will be maintained in the form of adult hens specifically for eggs taken. Production of laying hens can begin from the age of 5 months and can continue to produce eggs until they reach 1.5-2 years of age. After that, it is sold as broilers. The price ranges from Rp. 60,000 per head after 90 weeks of age. Generally, the best egg production is in the early years of chickens starting to lay eggs [6].

To get maximum production, several things need to be done by breeders, namely choosing superior laying hens. The characteristics are, chicken egg production must be high; good quality eggs; Laying hens come from seedlings known for their superiority. Besides, chicken quickly reaches adulthood, within only 18-20 weeks; normal egg size 60-65 grams; free from incubation; not easily stressed; low conversion of laying hens. Its growth and development must be normal and relatively fast; competitive DOC prices; High adaptability of chickens to the environment. Then it must have a physical condition of the chicken under the weather conditions in the place of laying hens; laying hens do not have physical disabilities and must be healthy; feathers on the chicken must look smooth, full and good growth of feathers.

The breeders at the study site, part of the requirement has been made, but the limitations of manpower. This is due to ignorance (technological mastery) of farmers and employees. This is a weakness that is expected to be the role of the government to prepare and provide counseling on how to manage the chicken farm that is cultivated. Lack of financing is also a problem which causes the production is not optimal. The relatively high price of feed according to farmers makes it difficult to feed the actual portion.

3.2.3 Marketing Subsystem
In the business of laying hens, the main harvest is eggs. However, if you choose Medium type laying hens, then you will get additional results in the form of meat from old chickens (after). Eggs should be harvested 3 times a day. This aims to damage the contents of the egg caused by viruses or cracks caused by urged chicken can be spared/reduced. first, take in the morning between 09.00-10.00, second pick up at 13.00-14.00, and take the third (last) while checking the entire cage is done at 15.00-16.00. Egg collection is done by taking eggs in a cage, then place it on an egg tray. After all the eggs have been collected, the sorter will sort the eggs according to the condition of the eggs. Eggs must be separated between normal and abnormal or cracked eggs. Normal eggs are oval, clean and have smooth skin. It weighs around 57.6 grams with a volume of around 63 cc. [7]. Such is the guide to laying hens that can be done to support the success and income of farmers. Egg supply and demand influence one another. Excessive offers will cause prices to fall.

Conversely, if excess demand will cause prices to rise. Determination of prices will determine the sales and revenue [5]. The selling price of eggs in Southeast Sulawesi is very volatile. During holidays, for example, the birthday of the Prophet Muhammad, the price of eggs must have jumped from the price of Rp. 40,000/kg to Rp. 60,000/kg.

3.2.4 Supporting Subsystem
Various efforts have been made by the central and regional governments to spur increased production of broiler eggs. The efforts meant include: Conducting counseling/coaching on the importance of vaccination to avoid the health of poultry. The breeders who have been scouted will be given a certificate of certification so that later the breeders can get the trust of the bank because they are believed to increase their products and productivity. So the breeders have a great opportunity to obtain loan funds from the bank for business development.

Likewise, the fulfillment of feed, the government has sought the establishment of feed park in centers of chicken farmers. Feed plays an important role in improving the quality and production of eggs. Several strategies need to be done so that laying hens can produce optimum quality. Increased chicken egg production can affect the profits of poultry farmers. To increase egg production, breeders can implement a 3-zone biosecurity system or apply cleanliness in their farm environment.
4. Conclusion
There are indications of an increase in chicken egg production in almost every district/city that is carried out by large-scale farmers. However, it reduces the contribution of small-scale local traders due to lack of capital ownership. Also, there is no private connection to establish proper partners in broiler breeders (Day Old Chick). No regulation allows local farmers to survive and be sustainable especially local feed processing plants. Local farmers cannot determine prices due to the strong influence of chicken farmers from Sidenreng Rappang, South Sulawesi.

References
[1] Suhartanto D. 2014. Marketing Research Methods, Alfabeta Publisher, Bandung
[2] Abidin Z. 2003. Increasing the Productivity of Laying Chickens and Ducks. Jakarta (ID): PTAgromedia Reader.
[3] Kadarsan H. W. 1992. Agricultural Finance and Agribusiness Corporation Financing. PT. Gramedia Pustaka Utama, Jakarta.
[4] David W., Y. Downey and S.P. Erickson. 1992. Jakarta Agribusiness Management. Airlangga Publisher.
[5] Saragih B. 1998. Animal Husbandry-Based Agribusiness. Publisher of the Bogor Agricultural Institute Development Study Center. Bogor
[6] Parawansa, I. N. R. and Sutiyono. 2006. Analysis of income of laying hens. Agrisistem Journal 2: 1-11.
[7] Pramudyati and Prabowo. 2009 Petunjuk Teknis Beternak Ayam Petelur. GTZ Merang Redd Pilot Project (MRPP) Bekerja Sama Dengan Balai Pengkajian Teknologi Pertanian (BTPT) Sumatera Selatan. Palembang.