



Analysis on Different Phases Cycle in Production of Laying Hens

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Abstract

This study aims to determine the productivity of the eggs produced in each phase of production of laying hens. The research was conducted in the village Bende Wundulako District of Kolaka that lasted approximately one month i.e. October to November 2011. The number of chickens is kept as many as 1,577 animals, strain CP 909. The productivity of egg laying hens is very different. Where in each cycle has increased from the initial production to experience the peak of production, which then slowly decreased. Daily egg production (hen-day production) at an early stage about 18.11%, 87.45% and the peak production of the final phase of 44.75%. While the percentage of egg production average weekly Phase I (17.45%), phase 2 (87.09%) and phase 3 (45.20%), for the production of eggs early (Hen-Housed Production EEG) the initial stage 18, 03%, peak production of 89.84% and 32.17% reject rate. Ties The result shows that the peak of egg production is high both in the production of eggs daily, weekly or early egg production Hen-Housed EEG) average is above 80%. So, it can be concluded that the productivity of egg laying hens are very different. Where in each cycle has increased from the initial production to experience the peak of production, on the cusp of production the number of eggs that produced very high.

Keywords: laying hens, the analysis phase of the cycle, hen-day production, hen-housed production EEG

A. Introduction

Livestock in Indonesia is one of the subsectors of agriculture that is needed to meet the food needs of the community, especially the nutritional needs of the animal protein. The livestock commodity in Indonesia at this time comes from the poultry sector, almost 70% of the poultry industry. Ranch chicken laying during this time has grown very remarkable and today is a scale business industry that is very modern which is supported by four subsystems that is enough sturdy, i.e., upstream, downstream, subsystem cultivating and supporting industries (Malik, 2003). Laying chicken population to date has spread throughout the region in Indonesia. With the increasing demand and the need for eggs, it is necessary to increase the production and development of business by breeding companies especially laying hens. The success of a livestock business of laying hens is influenced by three main factors, namely; feed, seed, and management (Murtidjo, 1994). Companies that have ignored the management and the resources tended not to survive and thrive. One effort that can be done to meet the needs of commercial eggs is not enough just to do with increasing the number of existing farms, but an existing business should be supported by good maintenance management.

Chicken laying an excellent result of cross breeds of chickens nations that have high egg productivity. Characteristics of chicken egg is capable of producing 200 grains / head / year, the efficiency in the use of feed, and do not have the nature of the brood (Johari, 2004). The population of laying hens in Southeast Sulawesi continued to increase from year to year, which since the year 2005 - 2011 recorded increases. This indicates that the level of consumption would result from animal production primarily of eggs continues to rise, so it is necessary to increase production to meet consumer needs.

It can be seen from the increasing demand for eggs from year to year. Enterprises laying hens attracted many farmers. Increased consumption of eggs will increase the poultry farm, both in terms of livestock numbers and the number of farmers continues to increase, both farmers with a small or large scale. During his life laying hens will have three production phase or three production period, i.e. the initial production period (0-6 weeks), or grower juvenile production period (7-14 or 7-16 weeks), the nesting period (15 or 17 and 52 or 55 weeks). At the start of the age of one day up to 6-10 weeks of age chickens grow proportionally (Kartasudjana & Suprojanta, 2006). However, up to 15-16 weeks, growth has begun to diminish. At this time the chicken production system began to grow and the reproductive hormone system began to develop properly. This is what determines the quality of laying hens in the egg-laying period later.

The nesting period is calculated from the chicken reaches 5% hen-day that is lower than 50% hen-day. Hen-day is a measure of technical efficiency of egg production which compares the production of the day by the number of chickens that live in the day so early nesting period is varied for each type of chicken (Yunanta, 2004). Medium type chickens (laying hens or chicken endowment) will start stepping on the nesting period longer than laying hens' mild type (chicken white leghorn laying hens). Mild type chickens will start laying eggs at the age of 15 or 16 weeks, while the medium type chickens will start laying eggs between 22 to 24 weeks. The determining factor when it is started laying genital maturity of laying hens is kept (Malik, 2003). In adolescence maintenance has been described that the decisive factor is the provision of additional light, quality, and quantity of rations given. Laying hens were given additional light at night will spawn faster with tiny eggs early in the nesting period, since that treatment in the early years and adolescence will be visible result after chickens reach egg-laying period. Based on the description above, it is aimed at doing this study is to analyze the different phases of the production cycle of laying hens

B. Methodology

1. Materials

This research has been conducted in the village of Bende Wundulako, District Kolaka that lasted approximately one month i.e. October to November 2011. The study population was laying hens that have been entered into adolescence and already started production. Strain of chickens is kept, namely CP 909 and the number of laying hens as many as 1,557 birds. Sampling was done by means of random sampling by dividing stratified 3 categories / phases: the initial phase of production (5-6 months), the peak production phase (7-8 months) and late phase (17 -55 weeks).

2. Method

The technique of data collection is done in two ways, namely: primary and secondary data. Primary data is data obtained through direct interviews with respondents, by using a list of questions (questionnaire). While secondary data is data obtained from the offices and agencies with research

3. Technique of Data Analysis

The data obtained will be taken using Quantitative Analysis. Analysis of the data using the formula:

a. Daily Production of Eggs or Egg Hen-Day Production::

Which is a measure of production of laying hens that live every day? The formula:

$$\text{Hen-day (HD)} = \frac{\text{the amount of egg production (grain)}}{\text{the existing number of laying hens}} \times 100\% = \dots\% \text{ PPH}$$

b. production Weekly

In principle, the same as the first treatment only measured in one week (seven days). The formula:

$$\text{Production Weekly (\%)} = \frac{\text{total production of eggs every week}}{\text{the average number of laying hens every week} \times 7} \times 100\% = \dots\%$$

c. Early or production Laying Hen-Housed Egg Production

Hen-Housed Egg Production which is a measure of productivity is calculated based upon the number of laying hens start laying eggs.

Formula:

$$\text{Hen-house Production HHP} = \frac{\text{the amount of egg production (grain)}}{\text{the amount of the initial layer}} \times 100\% = \dots\% \text{PPA}$$

C. Result and Discussion

1. Daily Egg Production or Hen -day

Daily egg production or hen-day can be seen in Table 1.

Table 1: Production of Eggs Early Stages of Production, Peak Production, and Rejected.

No.	Productivity Eggs	Item number	Percentage (%)
1.	Early stage	8533	18.11
2.	Production peaks	42 502	87.45
3.	Final phase	15 221	44.75

Data Source: Data Primer (2011)

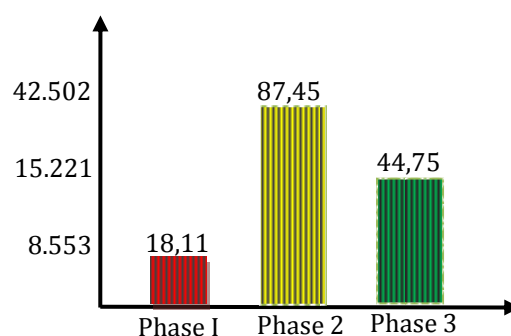


Figure 1. Graph of the average daily production of eggs in or called hen-day

From the graph above can be explained that in phase 1 or the early stages of egg production reaches approximately 8553 items with a percentage (18.11%), while in the second phase of egg production has increased significantly to reach 42 502 items with a percentage (87, 45%). Thus, the difference in the percentage of the initial phase to the second phase amounted to 69.34%. At this stage the chickens begin laying eggs after the age of 5 months or from the age of 19-24 weeks and gains have stabilized or reached its peak at the age of 25 -34 weeks, due to the level of chicken production increased at the beginning of the first cycle. Chickens produce at the beginning of the first cycle of egg production will increase until it reached its peak. It is also explained by Wahyu (2008) that egg production will increase from the start of first cycle to the peak point, this percentage is increasing, and after two months of production reached peak and then slowly diminishing return. In the first two months of production, not only the percentage of eggs increased, weight and large size of eggs also increased. In this phase, the need for food also increased, as described by Rasyaf (2005) that this phase should get a chicken meal maximum intake, diet provided adds libitum. Feeding is done twice daily in the morning and sere day as much as 110-120 g / head / day. Food rations consisting of maize and bran concentrate. While the drinking water supplied add libitum (continuous). Added by Rasyaf (2008) that the intake is insufficient that cause peak achieved lower production, as well as the size of an egg. Similarly, egg production decreased faster than the chicken gets enough food intakes. A shortage of nutrients will cause decreased egg production.

There are three levels of food intake is usually worn during the production to meet the needs of food substances remain primary. In terms of nutrition, the first 20 weeks is important. During this time the chicken will reach its peak egg mass dam will reach the maximum level. By feeding program now, the production peak will occur between ages 26 dam 32 weeks. It is described by

Rukmana (2007) that the peak of egg masses will usually occur at about 10 weeks later. Laying hens fed actually is to meet the needs of all substances amount of food at different levels of production. So, there are three things that must be known exactly how many nutrients are consumed laying every day, how the laying requirement for a certain level of production and how the content of nutrients available in the ration (Amrullah, 2003).

At peak production, more than 90% of egg production will be achieved by the majority of laying hens. It requires about 18 g of dietary protein per day, including those necessary for the growth and production of fur. The protein requirement for egg-laying chickens were closely related to the rate of egg production and weight of the protein would be expected for laying hens in the menu is much lower than that required during the initial period is 18 to 20%. The period of enlargement until late pullet production, protein needs only 13%; but once the egg production reached its peak demand for feed will increase to 17 to 19%. Adjustment of feed production levels in the period of production necessary to sustain maximum production and efficient business. While in phase 3 or phase to the end of the number of eggs produced reached 15 221 grains, with the percentage reached 44.75%. So the difference from the second phase to the final phase amounted to 41.59%.

In phase chicken production has experienced a decline in production. The decrease in production due to the age old chicken, and has begun to diminish their ability to utilize calcium (Anonymous, 2000). The older age of laying hens increasingly reduced egg production while increasing their rations. This means the protein needs are also diminishing. To save protein, phase feeding is done two or three different types of rations. Thus, phase feeding is not intended to re-stimulate the production of eggs, but it is for breeding laying hens during production more economical (Sudaryani, 1996) and besides that at the age of 72-74 weeks the chickens are no longer productive.

2. Egg Production Weekly

Weekly egg production can be seen in Table 2. From the above chart can be explained comparison of the production of eggs produced by a matter of a week in phase 1, phase 2 and phase 3. In the initial phase of production of eggs per week has increased continuously, with the percentage increasing from week 1, to -2, 3rd, and 4th week. Total percentage in the first week reached 11.36%, 14.47% the second week. Thus, the difference is of 3.11%. At three weeks the percentage reached 19.27%. Thus, the difference is in the second and third week to 4.8%. In the fourth week the percentage reached 24.70%. The difference from the third week and the fourth week reached 5.43%. So the difference in the percentage of each week continues to grow.

Table 2: Production of Eggs Early Stages of Production, Production Peaks and Rejected in the Weekly.

Sunday	Productivity Eggs					
	Phase 1		Phase 2		Phase 3	
	Total grains	Percentage (%)	Item number	Percentage (%)	Item number	Percentage (%)
1	1254	11.36	8882	83.34	3,950	48.83
2	1592	14.47	9141	86.12	3684	45.98
3	2119	19.27	9,356	88.43	3,499	44.36
4	2708	24.70	9538	90.50	3,239	41.64

Data Source: Data Primer (2011)

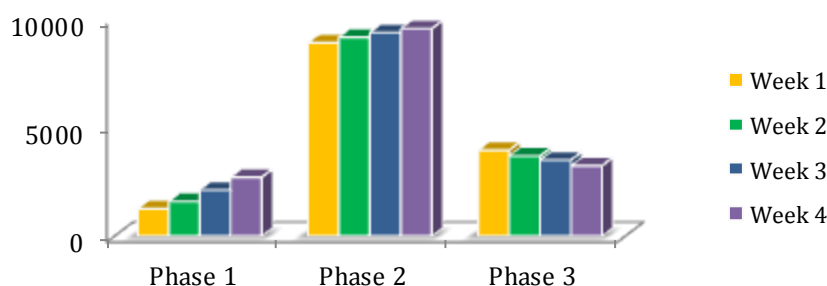


Figure 2. Graph of the average production of eggs by the count per week

In the second phase which at this stage of cattle was experiencing the peak of production, so that the number of eggs produced is higher than in the initial phase. In this phase, the percentage in the first week reached 83.34%, 86.12% reached the second week, third week reached 88.43% and the fourth week reached 90.50%. Difference comparison of each week, from the first and second week to 2.78%, the second and third week of 2.31% and the third and fourth weeks was 2.07%.

While at the end of the third phase or inversely proportional to the first and second phases. In this phase, the number of weekly egg production is already declining (Wahyu, 1997). Which percentage in the first week of production reached 48.83%, and as we enter the second week of egg production dropped up to 45.98%. Likewise rivals 44.36% third week and the fourth week of decline reached 41.64%. In this phase the animal laying power will continue to decline with age cattle.

3. Production of Eggs Early or Hen-Housed egg Production

Early stages of egg production, production peaks and rejects in the calculation of hen-housed can be seen from Table 3.

Table 3. Average Production of Eggs Early Stages of Production, Production Peaks and Rejects in the Calculation of Hen-Housed

No.	Productivity Eggs	Item number	Percentage (%)
1	Early stage	8533	18.03
2	Production peaks	42 502	89.84
3	rejected	15 221	32.17

Source of data: primary data

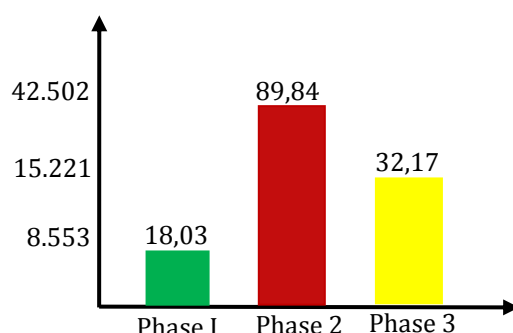


Figure 3: chart production at the beginning of the number of chicken production

Based on the graph above, is seen that the ratio of each percentage of egg production experienced a progressive increase significantly and also decreased significantly (Zainal, 2002). In the initial phase of egg production, the number of eggs produced reached 8533 items with a percentage of 18.03%, while in the second phase, the phase where the animals are already experiencing the peak of production so that the number of eggs produced is very high, reaching 42 502 items with the percentage reaches 89 , 84%. Difference percentage in the first and second phases have reached about 71, 81%. While in the third phase, where the power lay cattle has begun to decline. So at this stage the number of eggs produced is also decreased. So that the eggs produced only reach about 15 221 items with a percentage of 32.17% only. The difference from the second and third phase is of about 57.67%.

Based on the chart above, it is known that the HHP obtained from the comparison of egg production by the number of performance chicken coop while HDP value obtained from the comparison of egg production by the number of chickens at the start of production. HHP and HDP calculations are very important in determining the level of profitability and business efficiency of a poultry farm. This is in accordance with the opinion of Sudarmono (2009) which states that the HD (Hen Housed) and HD (hen day) aims to determine the level of production is generated every day so that it can be compared with previous production.

D. Conclusion

Based on the results of this study concluded that the productivity of egg laying hens are very different. Wherein each cycle has increased from the initial production to experience the peak of production, on the cusp of production the number of eggs that produced very high.

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