

Feeding management evaluation of duck farmer groups in Brebes

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ABSTRACT: This study was conducted to evaluate duck feeding system of farmer groups in Brebes region. Four duck farmer groups, namely Maju Jaya (MJ), Sumber Pangan (SP), Harapan Mulya (HM), and Adem Ayem (AA) were involved. Each group consisting of 10 farmers was evaluated for this study. Data collected were the number of duck, age, feed ingredient, and egg production. Feed consumption and protein intake were calculated. The average duck number of MJ, SP, HM, and AA groups were 355 ± 103 , 551 ± 372 , 361 ± 216 and 330 ± 54 , whereas the duck age were 15.6 ± 5.1 , 15.2 ± 6.2 , 14.6 ± 4.7 and 8.0 ± 1.6 respectively. The same feed ingredient for all groups were used, there were dried rice, rice polishing, and fresh fish. Feed composition in each group was relatively uniform pattern, but among the groups varied widely in percentage and amounts. Based on calculation, the protein consumption for MJ, SP, HM, and AA groups were 32.2, 33.0, 56.7 and 55.0 g/ bird/day. The HDA average of the four groups were 65.5, 63.3, 62.3 and 63.6% respectively. It could be concluded that various percentage and amount of feed ingredient did not influent on the egg production. The ration used for MJ and SP groups was sufficient for normal egg production, while HM and AA groups using excessive feed were almost twice of MJ and SP.

Key words: feeding management, duck farmer, protein consumption,

INTRODUCTION

Java duck (*Anas javanica*) is local ducks developed in Java. This group includes, among others, Magelang, Mojosari, Turi and Tegal. Tegal duck is the best known to be more productive (Srigandono, 1997). Duck name is associated with areas where duck is developed. In several regions, farmers keep the duck mostly on a small-scale conditions. Many farmer take care the ducks intensively by maintaining feeding and housing, but others by extensively with herding system.

According to FFTC (2009), under small-scale conditions, the main challenge is how to encourage farmers to shift toward a more intensive and efficient production system, and to help them overcome problems faced by the duck industry such as low-quality breeding stocks, scarce and unpredictable quality of locally available feedstuff, source of quality day-old ducklings (DODs), lack of information on the nutrient requirement of ducks, and high cost of commercial feeds.

One of the centers of duck farming in Indonesia is in Brebes area, Central Java. This area is known as salted egg producers, with a raw material is duck eggs. Because of that, Brebes known as The City of Salted Egg. Duck number in Brebes every year was declined. Duck population in 2005, 2006, 2007, and 2008 were 889,372; 612,089; 509,882 and 479,704 birds respectively (Kabupaten Brebes Dalam Angka, 2008). One of the causes of that was inappropriate between the feed cost to egg production. In Brebes region there are several groups of farmers, four of which were Maju Jaya in Limbangan, Sumber Pangan in Gandasuli, Harapan Mulya in Tanjung, and Adem Ayem in Pakijangan area.

Duck farmers in several regions in Indonesia were generally feeding the duck based on experience. Feeding patterns varied from one to the other regions, even among farmers in one area. On one hand, these variations has resulted in many formulations that have been believed to produce high egg production. On the other, feed formulations were not prepared to comply with the nutrients requirement or feed efficiency. In many regions, duck farmer seemed to give excessive feed, because there were abundance of feed ingredients.

Scott and Dean (1991), reported that researcher in Taiwan investigated the protein and energy requirements of White Tsaiya Duck, a local egg laying breed. Ingredients of a practical corn-soya based diet were adjusted to provide 15, 17, 19 and 21% protein at each of two energy levels (2648 and 2849 kcal ME/kg). Egg production and egg weight were maximized when protein level was increased to 19%. Rate of egg production was not significantly affected by energy levels.

MATERIALS AND METODE

The survey was conducted among 4 duck farmer groups in Brebes, each of which was randomly selected 10 farmers. The survey was conducted among the farmers by a prepared questionnaire. The questionnaire was prepared according to the objectives of the study. The various parameters considered in the study were number and age of duck, feed or feedstuff given, and egg production. Feedstuff intake was calculated by dividing the amount of feedstuff with the number of ducks (g/bird/day). Crude protein intake was calculated by multiplying the feedstuff intake with crude protein content of each.

RESULTS AND DISCUSSION

Number of Ducks and Egg Production

Based on data of 10 farmers from each group, ducks number, age, egg production, and HDA can be seen in Table 1. The largest average of ducks number was SP group, namely 551 ± 103.1 and the smallest was the AA, namely 330 ± 53.7 . All respondents were small-scale duck farmer, with number of the ducks below 1000. Duck age of MJ, SP and MH groups were relatively uniform, around 15 months, while for the AA group were younger, 8 ± 1.6 months. The age of the ducks kept by MJ, SP, and HM were in the second egg period, while the AA in the first egg period. Egg production (HDA) for all groups was not significantly different, ranging from the lowest of HM group $62.5 \pm 14.5\%$ and the highest of MJ group $65.5 \pm 13.4\%$.

Table1. The number of ducks, age and egg production of four farmer groups in Brebes

Farmer Group	Birds	Age (months)	Eggs	HDA (%)
Maju Jaya	$355,0 \pm 103,1$	$15,6 \pm 5,1$	$237,2 \pm 92,5$	$65,5 \pm 13,4$
Sumber Pangan	$551,0 \pm 371,8$	$15,2 \pm 6,2$	$329,0 \pm 169,2$	$63,8 \pm 13,7$
Harapan Mulya	$361,0 \pm 216$	$14,6 \pm 4,7$	$225,5 \pm 147,4$	$62,5 \pm 14,5$
Adem Ayem	$330,0 \pm 53,7$	$8,0 \pm 1,6$	$211,0 \pm 58,6$	$63,6 \pm 10,6$

Feeding Management

Each duck farmer group formulated their own rations using the same feed ingredients available locally, such as dry rice, rice polishing, and fresh fish. Feed formulation that was used by four farmer groups is seen in Table 2. Fresh fish is a major feed ingredients used by the entire groups of duck farmers in Brebes. As a coastal area, Brebes produces a lot of fresh fish. Small fish that is not consumed by human has low price. The price of one kg of small fresh fish is equal to one duck egg. With this low price, duck farmers generally give excessive fish. There was an evident that in the duck farm a lot of fish was left that was not consumed by the ducks. Based on various literature, the protein content of fresh fish is about 17%, 76% water content, 4.5% fat, vitamins and minerals from 2.5 to 4.5. Dried rice are the remains of rice, which is not consumed by humans and then dried in the sun.

Before feed mixing, dried rice was soaked until soft. Soaked dry rice, rice bran and ground fish were then mixed homogeneously.

Table 2. Feed ingredient used by four farmer groups in Brebes

Farmer Group	Dried Rice	Rice Polishing	Fresh Fish
Maju Jaya	$78,9 \pm 12,2$	$29,6 \pm 6,2$	$135,9 \pm 25$
Sumber Pangan	$39,6 \pm 20,9$	$72,4 \pm 33,1$	$126,2 \pm 24,5$
Harapan Mulya	$80,1 \pm 0,4$	$59,8 \pm 1,2$	$259,0 \pm 3,2$
Adem Ayem	$52,7 \pm 8,4$	$193,4 \pm 14,1$	$165,5 \pm 16,7$

SP group used the smallest part of rice brand, namely 39.6 g / bird / day, but with very large variations within the group, namely 53%. HM groups providing the highest portion of rice polishing,

namely 80.1 g / head / day, but with a very small variation, ie only 0.5%. Similarly, for the provision of fresh fish, the smallest was SP group, ie 126.2 g / head / day with 32.6% variation, while the HM group gave 259 g / head / day, with 0.6% variation. Judging from the variation of the feed, SP group showed significant differences between group members. This means that every member has its own feed composition for their ducks, whereas the HM group gave almost the same rations among members.

Variations of feeding on each group of farmers can be seen from the value of standard deviation for each feed ingredient. SP group had the highest variation, namely for the provision of dry rice, bran and fresh fish, respectively 52.8%, 45.8%, and 32.3%, while the lowest was the HM groups, respectively 0, 5%, 2%, and 1.2%. It showed that in SP group each member has its own formulations, while in the HM group preparing the feed follows the agreement from the group.

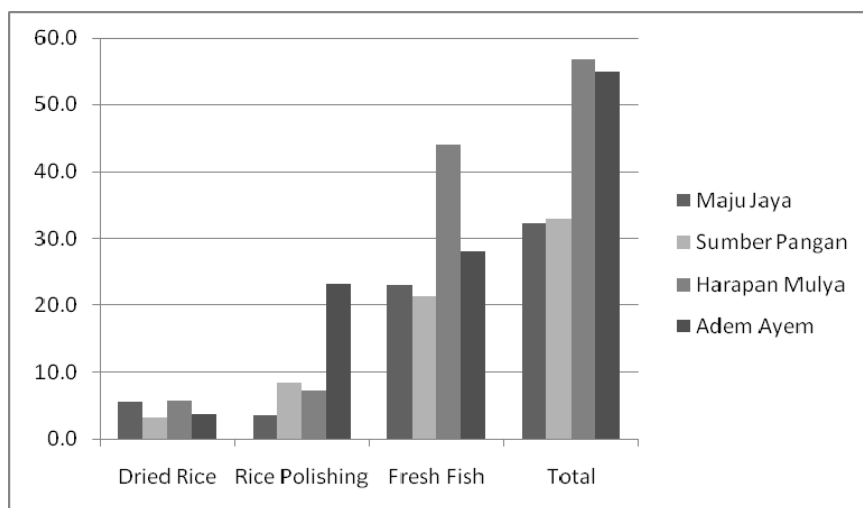


Figure 1. Comparison of daily protein intake (g/bird/day) of ducks in four farmer groups in Brebes

Calculated protein consumption for the 4 groups of duck farmers can be seen in Figure 1. From the figure, it can be seen that there is an extreme picture, ie protein intake of the rice bran of the AA group is much higher than the other groups. As for the fish protein intake, HM groups is much higher than other groups. Based on the total protein given, it can be seen that the HM and AA groups was significantly ($P < 0.05$) higher than MJ and SP groups. Protein intake for HM and AA groups were 34.1 and 35.3 g/bird/day, whereas MJ and SP were 56.7 and 55.0 g/bird/day. Based on the calculation of protein requirements, for ducks feed with 17% CP content and the 200 g / head / day consumption (Sasongko, 2007), a duck consume protein 34 g / head / day. According Scott and Dean (1991) calculated protein requirement for laying duck is 30.5 g/bird/day, with details of approximately 10 g/day for maintenance and 20.5 g/day for egg production. For MJ and SP groups respectively in compliance with these standards, whereas the HM and AA provided excessive protein. In association with egg production rates, there were not significantly different among 4 groups, about 65%. The most efficient feeding system were MJ and SP groups.

CONCLUSION

According this study, it could be concluded: 1) Feed ingredient used by all duck farmers in Brebes region were similar, ie dried rice, rice polishing and fresh fish; 2) Composition and amount of feed among four farmer groups varied widely. MJ and SP groups were giving feed in compliance with calculated standard, whereas HM and AA groups were giving excessive feed; 3) Average daily egg production of all groups were almost the same, there were about 62.5 – 65.5%; and 4) Various proportion of feed ingredient and protein intake given by all farmer groups did not affect on eggs production.

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