JOSAR, Vol.8 No.1 March 2023
ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

DIFFERENCES BETWEEN POSTAL AND STAGE CAGE FOR PEKING DUCKS PERFORMANCE

Risma Novela Esti[1*]
Salnan Irba Novaela Samur[2]

[1,2]Animal Science Department, Faculty of Agriculture and Animal Husbandry, Universitas Islam Balitar, Jl. Majapahit No.2-4, Sananwetan, Kec. Sananwetan, Blitar City, East Java 66137, INDONESIA

Abstract

This study conducted to determine the differences of Postal cage and Stage cage on the performance of Peking Duck in Body Weight, feed conversion, and mortality. The material used in the study was 600 Peking ducks were raised separately in postal cage and stage cage with common diet from DOD (Days Old Duck) to 35 day of age. This research was a quantitative descriptive research that interpreted data from research samples, analyzed by student T test that is used to compare the means of two groups that is Peking ducklings were raised in postal cage and stage cage. The results showed that the Body Weight, FCR, and Mortality of Peking Ducks were reared in Postal Cage is 1,54, 1,94 and 1,5% while the ducks that were kept in Stage Cage is 1.53, 1,95 and 2,5%. The results indicated that there was no difference in the performance (Body weight, FCR, and Mortality) of Peking ducks housed in postal and stage cage. However, based on the average values for body weight, FCR, and mortality, the postal cage provides the best results.

Keywords: *Peking Ducks, Postal Cage, Stage Cage, Performance.*

[1*]Corresponding author, email: novelarisma@gmail.com.

Citation in APA style: Esti, R. N., & Samur, S. I. N. (2023). DIFFERENCES BETWEEN POSTAL AND STAGE CAGE FOR PEKING DUCKS PERFORMANCE. *JOSAR (Journal of Students Academic Research), 8*(1), 192-198.

Received:	**Revised:**	**Published:**
January, 30th 2023	March, 1st 2023	March, 31st 2023

DOI: https://doi.org/10.35457/josar.v9i1.2784

ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

1. INTRODUCTION

The growing income per capita in recent years has affected people's consumption patterns of poultry meat such as local chicken meat, broiler commercial meat, laying hens and ducks (Nurlaelah *et al*., 2022). This growing consumption pattern has caused poultry farming, especially duck farming, to be increasingly in demand and used as a source of income for both rural and urban communities. In addition, the market for duck meat is starting to widely open and able to encourage the development of duck farming in Indonesia (Taufik *et al*., 2023). This is evidenced by an increase in duck meat production, especially in East Java. Duck meat production in 2022 was 7,148.04 tons, while it was 6,973.70 tons in 2021 (BPS, 2023). Increasing duck consumption patterns encourage breeders to maintain the productivity and health of the poultry they keep (Brata *et al*., 2020).

The productivity of broiler ducks is determined by genetics and it life environment. The environment includes maintenance management. Genetic improvements and maintenance management environment can increase the productivity of broiler ducks (Brata *et al*., 2020). According to Nova et al. (2019) The body weights of Lohman strain roosters can be affected by different types of cages (postal cages and stage cages), with postal cages being lower than stage cages. This is due to the effect of the temperature in the stage cage being cooler than the postal cage during the day.

The postal cage is a solid cage with flooring litter system. The walls of the cage are cemented to a height of 75 centimetres from the top of the ground floor, the temperature ofthe cage is high due to a lack of air circulation, the cost of making the cage is lower, but it is less comfortable for the birds because chickens are easily stressed by the heat of the litter once they are no longer in the brooding phase (Nova *et. al.*, 2019). Alternatively, stage housing consists of cages with a floor made of bamboo or wood, slat that are spaced apart to enable for litter disposal. The litter or coop floor serves as a floor mat for the broiler (Tammaludin, 2012). Rice hulls, sawdust, wood shavings, sections of straw, and dried grass can be utilised as litter materials.

Cage management, particularly the type of floor, can have an impact on the performance of hybrid Peking ducks. Mesa et al. (2017) noted that the cFCR (corrected feed conversion ratio) of broilers kept on a concrete floor is superior to that of broilers kept on a soil floor. Bai et al. (2022) found that rearing broiler ducks in flooring cages resulted in a lower body weight of 1914.89 g compared to rearing broiler ducks in furnished cages, which resulted in a body weight of 1968.41 g.

The purpose of this study was to compare the effect of postal cages and stage cages on Peking duck performance (body weight and FCR) based on the description provided.

ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

2. RESEARCH METHODS

600 of 1-day old Peking ducklings were raised separately in postal cage and stage cage with common diet from hatch to 35 day of age. During this period, water and feed were provided ad libitum, and lighting was continuous. The ducks were raised with feed and water provided ad libitum from dod to 35 day of age. At 35 day of age, weight gain, feed intake, and FCR were measured. Feed intake and feed: gain were all corrected for mortality.

Table 1. Duck feed obtained from PT Sreya type number B401.

Feed nutrient content	Value
Water content (maks)	14 %
Ash (maks)	8%
Crude protein (min)	22%
Crude fat (min)	3%
Crude fiber (maks)	5%
Calsium (Ca)	0,8 – 1,2%
Phosphor (P)	0,5%
Aflatoxin total (maks)	25µg/kg
Amino acid	
-Lysin (min)	1%
-Metionin (min)	0,37%
-Metionin + Sistin (min)	0,7%
-Treonin (min)	0,6%
-Triptofan (min)	0,16%

Data were analyzed as a t test that is used to compare the means of two groups that is peking ducklings were raised in postal cage and stage cage. It is used in testing to determine whether a treatment actually has an effect on the population of interest, or whether two groups are different from one another. If a p-value reported from a t test is less than 0.05, then that result is said to be statistically significant.

ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

3. RESULTS AND DISCUSSION

Body weight, FCR and mortality of duck rearing separately in postal cage and stage cage attached in the table below :

Table 2. Body weight, FCR and mortality of duck rearing separately in postal cage and stage cage

Number	Variable	Treatment 35 days	
		Postal cage	Stage cage
1	Body weight (kg)	1,54 ± 0,03	1,53 ± 0,05
2	FCR	1,94 ± 0,14	1,95 ± 0,14
3	Mortality (%)	1,5	2,5

Means with different superscripts within the same column are not significantly different (P>0.05).

Results are means with n = 30 per treatment

3.1 Body Weight of Duck.

Our study showed that body weight of duck rearing separately in postal cage and stage cage were not significantly different (P > 0.05). The results of the study were body weight maintained in the postal cage with a value of 1.54 and stage cage with a value of 1.53. The results of the study were not much different from the study of Liu *et al.* (2019) which stated that peking ducks kept for 40 days with dietary energy treatment showed an average body weight of 1.58 to 1.60 kg.

The body weight of peking ducks is also influenced by other factors. According to Fenita *et al*. (2010) the substitution of amino acids lysin, methionine and tryptopan tends to increase ration consumption in purebred chickens although it is not yet real. The level of ration consumption can also be influenced by environmental conditions, as well as ambient temperature. In addition, environmental factors such as health, ration quality, temperature, ration feeding system and genetic traits can also affect duck ration consumption (Ismoyowati *et al*., 2018).

3.2 Feed Conversion Ratio (FCR)

On the basis of the FCR value, there was no significant difference (P>0.05) between Peking ducks raised in stage cages and those raised in postal cages. This is supported by table 2, which indicates if the t statistic value is less than the table t value. The FCR value of ducks housed in the postal cage was 1.94, and the FCR value of ducks housed in the stage cage was also 1.94. According to Nova (2019), the average FCR in stage cages is lower than in postal cages because

ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

the stage cage is cooler because air circulates from all sides of the cage and from under the cage due to the cage's perforated floor.

In this study, the same FCR was affected not only by rearing management, but also by feed type, feed consumption, temperature, gender, and body weight. This is consistent with Siregar's (2005) assertion that FCR is affected by a variety of factors, including genetics, feed form, temperature, environment, feed consumption, body weight, and sex.

The FCR value of Peking ducks in this study was lower than the FCR value of Peking ducks found in the NRC (1994) study at the same age, which was 2.80. The lower the FCR value, the more efficiently poultry feed can be utilised. According to Risnajati (2012), a high FCR value is linked with economic value. The greater the quantity of feed given, the greater the reduction in profit. According to Adi et al. (2019), the FCR of female tegal ducks reared in a semi-intensive system is 1.43. The FCR in this study was greater than 1.43.

3.3 Mortality

Our study showed that mortality of duck rearing separately in postal cage and stage cage were not significantly different ($P > 0.05$). The results of the study were mortality maintained in the postal cage with a value of 1,5% and stage cage with a value of 2,5%. The results of the study were not much different from the study of Kunharjanti and Sujani (2016) which stated that laying hens with postal and battery cage treatment showed that mortality not significantly different ($P > 0.05$). According to Bai *et al*. (2022) the study showed that mortality of duck rearing cage and floor were not significantly different ($P > 0.05$). The mortality rate in the cage rearing system is 2,38% and in the floor rearing system is 2,86%.

4. CONCLUSION

The results indicated that there was no difference in the performance (Body weight, FCR, and Mortality) of Peking ducks housed in postal and stage cage. However, based on the average values for body weight, FCR, and mortality, the postal cage provides the best results.

5. SUGGESTION .

The feeding of Peking ducks in each cage requires additional testing and determine feed metabolism in peking ducks in different cages.

ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

ACKNOWLEDGMENTS

We express our profound appreciation to the Faculty of Animal Husbandry at Islamic Balitar University, which has enabled researchers to conduct quality research, as well as to the editors of this publication. Its articles are extremely beneficial to us, and we're sure to other readers as well. This journal will hopefully continue to serve as a source of inspiration and knowledge for everyone.

REFERENCES

[1] Adi, A. P., Sunarti, D., & Muryani, R. (2019). Performance of Tegal Hen Ducks with Intensive and Semi-Intensive Rearing Systems at the Bulusari Summit, Pemalang Regency. Jurnal Sain Peternakan Indonesia, 14(3), 237-245.

[2] Badan Pusat Statistik. 2023. Production of Manila Duck/Duck Meat According to Provincial Data (ton), 2020-2022. BPS-Statistics Indonesia.

[3] Bai, H., Yang, B., Dong, Z., Li, X., Song, Q., Jiang, Y., Chang, G., and Chen G. 2022. Research Note: Effects of Cage and Floor Rearing Systems on Growth Performance, Carcass Traits, and Meat Quality in Small-Sized Meat Ducks. Yangzhou University,
Yangzhou, China. Poultry Science 101:101520

[4] Brata, B., Soetrisno, E., Sucahyo, T., & Setiawan, B. D. (2020). Patterns of duck population, maintenance management and marketing (a case study in Pematang BalamVillage, Hulu Palik District, North Bengkulu Regency). Jurnal Sain Peternakan Indonesia, 15(1), 98-109.

[5] Eratalar, Sabri Ada. (2021). The Effect of Plastic Slatted Floor and A Deep-litter Systemon The Growth Performance of Hybrid Peking Ducks. Arch. Anim. Breed., 64(1), 1-6.

[6] Fenita, Y., Santoso, U., dan Prakoso, H., 2010. Pengaruh suplementasi asam amino lisin, metionin, tritopan dalam ransum berbasis lumpur sawit fermentasi terhadap performans produksi dan kualitas telur ayam ras. Jurnal Sain Peternakan Indonesia. 5(2): 105-114.

[7] Ismoyowati., Indrasanti, D., dan Sulistyawan, I.H., 2018. The Differences of feed qualityand egg production performance of Tegal and Magelang ducks on farming in central. Buletin Peternakan. 42(3): 197-202.

[8] Kunharjanti, A. W. dan Sujani, E. T. 2016. Pengaruh Perbedaan Kandang terhadap Produktifitas Ayam Petelur Fase Grower. Fakultas Peternakan Universitas Islam Balitar.Blitar. Jurnal Aves Vol. 10 (2) 41-49.

[9] Liu, J. B., Yan, H. L., Zhang, Y., Hu, Y. D., and Zhang H. F. 2019. Effects of Dietary Energy and Protein Content and Lipid Source on Growth Performance and Carcass

ISSN: 2502-8521 (Print) / 2503-1155 (Online)
DOI: https://doi.org/10.35457/josar.v9i1.2784

Traits in Peking Ducks. School of Life Science and Engineering, Southwest University ofScience and Technology, Mianyang, Sichuan. China. Poultry Science 98:4829–4837.

[10] Mesa, D., Muniz, E., Souza, A., & Geffroy, B. (2017). Broiler-housing conditions affectthe performance. Brazilian Journal of Poultry Science, 19, 263-272.

[11] National Research Council. (1994). Nutrient requirements of poultry. National AcademyPress. Washington D. C.

[12] Nova, K. (2017). PPerformance of Medium-Type Rooster Fed Different Dietary RatiosDuring the Day and Night. In Prosiding Seminar Nasional Pengembangan Teknologi Pertanian.

[13] Nova, K., Riyanti, R., Septinova, D., & Santosa, P. E. (2019). The PercentageDifference of Day and Night Diet Feeding on the Performance of Medium-Type Roosterin Postal Cages. Jurnal Ilmiah Peternakan Terpadu, 7(3), 263-269.

[14] Nurlaelah, S., Rahmaniar, Y., Nirmayanti, D., & Ahmad, A. (2022). Contribution of Buras Chicken and Influencing Factors on Purchase Decisions at the "Bebek Gazebo"Restaurant in Makassar. Media Agribisnis, 6(2), 183-194.

[15] Risnajati, D. (2012). Comparison of the final weight, carcass weight, and carcass percentages of different broiler strains. Sains Peternakan: Jurnal Penelitian IlmuPeternakan, 10(1), 11-14.

[16] Siregar, A.P., dan Sabrani. 2005. Techniques for Raising Broiler in Indonesia. Magie Group. Jakarta.

[17] Tamalluddin, F. (2014). Complete Guide for Broiler Chicken. Penebar Swadaya Grup.

[18] Taufik, M., Sulaiman, A., & Habibah, H. (2023). Utilization of Bread Waste as an Energy Source in the Ratio of Peking Ducks' Final Weight, Carcass Percentage, Abdominal Fat Percentage, and IOFC. Jurnal Penelitian Peternakan Lahan Basah, 3(1), 47-56.