

The relationship of altitude closed house location between weight and mortality on broiler

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Abstract

The aim of research was study relationship altitude between body weight and mortality performace in many location Central Java. Data collected was altitude of broiler closed housed, body weight and mortality. Data were analyzed linier regression altitude of various land between body weight and mortality performace of broiler chicken. Result of study showed altitude of various land not signficantly effect ($P>0,01$) on body weight and mortality performace of broiler chicken. Conclusion any various altitude optimally for closed housed considered from body weight and mortality of broiler chicken.

Keyword: altitude, broiler, body weight, mortality

Introduction

Broiler chickens in Indonesia were the largest contributor to national meat needs. Central Java as a shared province the second largest broiler population in Indonesia amount 576,111,535 birds [1]. In several years there has been a progressive increasing population of broiler chickens. These are supported by closed housed technology affected increasing productivity, index performance, and efficiency when compared to opened houses [2].

Various environmental and geographical factors affected broiler chickens productivity, one of factor is the land altitude. Suarjaya and Nuriyasa [3] describe lowland areas whose altitude ranges from 0-250 meters mean sea level (MSL), medium lands between 250-750 meters MSL and highlands above 750 meters MSL. The various altitudes of land, namely low, medium, and high influenced on the macroclimate [4]. The altitude of land influenced macroclimate factor on chicken housed, related with microclimate in building [5]. Differences in macroclimate at various altitudes affect the microclimate in closed house cages which directly caused negative effects on the growth and development of broiler chickens [6].

The altitude of closed houses were important concerns that influenced chicken performance [7]. To preventive macro and micro climatic condition affect, temperature and humidity management in closed house adjusted as

needed [8]. From this phenomenon, The previous research especially in Indonesia discussed the relationship between altitude and body weight and mortality of closed houses was limited and small-scale samples were used. The aim of research was study relationship altitude of various land (low, middle and high) between body weight and mortality performance in many location Central Java.

Materials and Methods

The material used on research were recording of broiler chickens from 33 pen with population 586,490 birds in lowland category, 17 pen with population 225,052 birds in mediumlands and 9 pen with population 146,761 in highlands. Samples observed were 40 chickens random from every pen without considered strain and sex. The data observed were body weight and mortality aged 28 days. The calculation body weight and mortality of broiler chickens were follows:

- Body weight was calculated by weighing broiler chickens at the age of 28 days.
- The mortality rate calculated from the number of chickens dead until the aged 28 days divided by the number of chick in and then multiplied by 100 percent.

Data on altitude, body weight and mortality were performed by linear regression analysis using SPSS 23.

Results and Discussion

Relation of Altitude Between Broiler Weight

Body weight performance used to determining development of chickens. The results linear regression of altitude between broiler weight aged 28 days showed Table 1.

Tabel 1. The Linear Regression of Altitude Between Broiler Weight Aged 28 Days

Jenis Dataran	Rata-rata $\pm$ SE Bobot Badan (Kg)	R Square	Regresi	Sig
Low	1,49 $\pm$ 0,16	0,088	$Y = 1,418 + 0,010X$	NS
Medium	1,44 $\pm$ 0,19	0,055	$Y = 1,584 + 0,001X$	NS
High	1,32 $\pm$ 0,18	0,055	$Y = 0,957 + 0,001X$	NS

Based on statistical analysis results showed that various land altitudes of closed houses had no relationship on body weight of broiler chickens. The linear regression of various altitudes on body weight was $Y = 1.418 + 0.01X$ in the lowlands, $Y = 1.584 + 0.001X$ in the mediumlands and $Y = 0.957 + 0.001X$ in the highlands. Finals weight of broiler chickens in closed house located in various altitude were low, medium and high namely 1,49 $\pm$ 0,16 kg, 1,44 $\pm$ 0,19 kg, and 1,32 $\pm$ 0,18 kg. These result of body weight were accordance with standards performance of broiler chickens aged 28 days. The body

weight of broilers aged 28 days is 1.39 kg [9]. These results are contrary to Marom et al. [10] experienced that various altitudes affected broiler body weight. Various altitudes had no relationship to body weight indicated that implemented good management practice of closed houses so that livestock are comfortable and achieve broiler performance standards. Wurlina and Meles [11] explained closed houses has stability in maintaining temperature and humidity, namely 24°C and 60-70% so given comfortable environment for broilers. Rajab [12] showed that the difference of altitude has no effect on performance of chickens in intensive management.

Relation of Altitude Between Broiler Weight

Mortality rate is an important performance indicator, usually used in broiler production [13]. The results linear regression of altitude between broiler mortality during 28 days showed Table 1.

Tabel 1. The Linear Regression of Altitude Between Broiler Mortality During 28 Days

Dataran	Rata-rata ± SE Mortalitas (%)	R Square	Regresi	Sig
Low	2,71±1,84	0,031	$Y = 2,220 + 0,004X$	NS
Medium	3,85±1,63	0,034	$Y = 4,797 - 0,002X$	NS
High	2,40±0,40	0,001	$Y = 2,438 - 6,505X$	NS

Based on statistical analysis results showed that various land altitudes of closed houses had no relationship between mortality of broiler chickens. The regression of various altitudes on mortality was $Y = 2.220 + 0.004X$ in the lowlands, $Y = 4.797 - 0.002X$ in the mediumlands and $Y = 2.438 - 6.505X$ in the highlands. Mortality of broiler chickens in closed house located in various altitude is relatively low, medium and high namely 2,71±1,84 %, 3,85±1,63 %, 2,40±0,40 %. Based on Bell and Weaver [14], mortality rate during broiler rearing is not more than 5%. In fact, contract opinion with Lima et al. [15] that the factor problem of mortality on farm were altitude. These happened cause environmental management in houses good practiced so the litter and air quality were comfortable for chickens. Its directly minimized media source of disease. The environmental factors were correlated with high mortality were litter and air quality [16]. These factors in poor quality influenced development of pathogenic virus and bacteria disease caused negatif health status of chicken.

Conclusion

The altitude condition optimally for broiler closed housed considered from performance body weight and mortality.

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