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STUDY OF FEATHER COLOR PATTERN AND EGG'S EXTERNAL APPEARANCE OF NATIVE CHICKEN IN EAST LOMBOK

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ABSTRACT

The purpose of this study was to determine the color patterns of feathers and external appearance of native chicken eggs in East Lombok Regency. This study was conducted from August to September 2025. The material used was 135 native chickens. Sampling was conducted using random sampling in three subdistricts, namely Sembalun, Suralaga, and Jerowaru. The variables observed included feather color, egg weight, egg index, and shell color. The data obtained were analyzed using the formulas for proportion, mean, and standard deviation. The results showed that native chickens in East Lombok Regency had a proportion of striped feather color (0.28) with brownish eggshell color, egg weight of 36.16±2.81 grams, and egg index of 0.76±0.03. Black feather color was obtained with a proportion of 0.2, with a white shell color, egg weight of 36.97±2.71 grams, and egg index of 0.76±0.02. Wild feather color was obtained with a proportion of (0.2), with a brownish shell color, egg weight of 36.31±3.03 grams, and egg index of 0.77±0.03. White feather color was obtained with a proportion of (0.12), with white shell color, egg weight of 35.59±3.06 grams, and egg index of 0.75±0.05. Golden feather color was obtained with a proportion of (0.15) and brown shell color, with an egg weight of 36.56±3.56 grams and an egg index of 0.78±0.04. Gray feather color was obtained with a proportion of (0.05) and white shell color, with an egg weight of 36.5±2.73 grams and an egg index of 0.75±0.02.

Keywords: Feather color, External appearance of eggs, Native hens.

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INTRODUCTION

Native chickens are a term used in Indonesia to refer to chickens that are raised traditionally and do not originate from commercial breeds. There is no such thing as a native chicken that lays eggs or is raised for meat. The term "native chicken" was originally the opposite of the term "breed chicken" and refers to chickens found roaming freely around residential areas. Native chicken farms play a significant role in supporting the rural economy

because they are highly adaptable to the environment and relatively easy to raise. Yaman (2010) explains that the history of native chickens began with the first generation of native chickens, which were descendants of red junglefowl (Gallus gallus). Native chickens have been known since the Kutai kingdom era. At that time, native chickens were one of the types of offerings to the kingdom as tribute from the local community. The obligation to pay tribute meant that native chickens were always raised by villagers, ensuring their preservation. The custom of raising native chickens meant that they were easy to find throughout the country. Until now, the tribute system in the form of the transfer of goods (native chickens) from villages to cities still exists. The difference is that today, this transfer is more commercial in nature.

Native chickens are very easy to raise because they are resistant to environmental conditions, do not require a large area of land, have a stable and relatively higher selling price, are not easily stressed by rough treatment, and have stronger immunity compared to other types of broiler chickens (Nuroso, 2010). The first characterization of livestock is done using external genetic characteristics. The external genetic characteristic stage is the basic method for determining the type of livestock that will be passed on to the next generation. External genetic characteristics including feather color, shell color, egg weight, and egg index (Nishida, et al 1982).

The external quality of eggs is influenced by genetic and environmental factors. The diversity of shell color and egg shape is influenced by genetic diversity or genetic factors. Genetic factors are factors that greatly influence the external quality of eggs, including egg weight, egg index, and shell color (Islam et al., 2001). White-feathered chickens produce white eggs, while red or brown-feathered chickens produce brown eggs (Joseph et al., 1999). Although the color of the eggshell differs, the quality and nutritional value of these eggs are the same.

METHODS

This study was conducted over a period of two months in East Lombok Regency, and the subdistricts were selected using purposive sampling. This study involved 27 farmers/ranchers, consisting of nine ranchers from each of the three subdistricts. The chickens used were native chickens. Each breed of chicken has different colors and egg indices. Based on the above description, this study aims to determine the diversity of feather color patterns and the external appearance of native chicken eggs.

Research Objectives

The objective of this study is to determine the feather color patterns and external appearance of native chicken eggs in East Lombok Regency.

Research Benefits

The results of this study are expected to provide information for students and farmers regarding the study of feather color patterns and the external appearance of native chicken eggs 135 female chickens that had already produced eggs. This was done using a survey method and direct observation of the color patterns of the native chickens' feathers and the external appearance of the eggs produced. Research samples were taken using random sampling. Data tabulation was calculated using the following formula :

$$P = \frac{\Sigma Xi}{n}$$

Explanation:
P = proportion
Σ = number of individuals

xi = i-th observation value
n = number of samples

Shell color is converted to a number where 1 is white and the higher the number, the browner the color. Shell color, egg weight, and egg index are calculated using Excel to find the average and standard deviation.

RESULT AND DISCUSSION

Research Area Conditions

East Lombok Regency is located at the eastern tip of Lombok Island and is one of the regencies in West Nusa Tenggara Province. The majority of the community's livelihood is in agriculture. Animal husbandry is a side business for the community in East Lombok Regency. One of the animals raised by the community is native chickens.

Feather Color

According to Crawford (1990), the feathers of native chickens can be classified into black, blue, red, yellow, and white. The diversity of native chicken feather colors occurs due to the mixing of genes from red junglefowl, gray junglefowl, Sri Lankan junglefowl, and green junglefowl, resulting in a wide variety of colors (Rasyaf, 2011). Feather color in chickens is a qualitative trait influenced by several gene pairs or allele sequences (Warwick et al, 1990). Feather color is influenced by the presence of melanoblast pigments formed during the early embryo stage around 8 hours of incubation (Scanes et al, 2003). The results of the study found six types of feather colors in female native chickens, namely striped, white, wild type, golden, and gray.

Table 1. Proportion of Parent Feather Color, Shell Color (SC), Egg Weight (EW), and Egg Index (EI).

Feather Color Prop.	External Egg		BT (gram)	IT
	Shell			
	Value	Color		
Gold (0.15)	4.94±1.00	Brown	36.56±3.56	0.78±0.04
Wild (0.2)	4±1.02	Brownish	36.31±3.03	0.77±0.03
Striped (0.28)	2.87±1.04	Brownish	36.16±2.81	0.76±0.03
Black (0.2)	2.1±0.88	White	36.97±2.71	0.76±0.02
Gray (0.05)	1.63±0.06	White	36.5±2.73	0.75±0.02
White (0.12)	1.12±0.49	White	35.59±3.06	0.75±0.05
$\bar{x}$	**2.77±0.91**	-	**36.35±2.98**	**0.76±0.03**

Based on the study's results, striped feathers were found most frequently in East Lombok Regency, accounting for 0.28, followed by black feathers at 0.2, wild feathers at 0.2, white feathers at 0.12, golden feathers at 0.15, and gray feathers at 0.05.

Shell Color

The results of the study found that shell color varied from the highest value of 6 in chickens with golden feathers, which had brown shells, followed by wild and striped feathers, which had brownish shells, and the lowest shell color value of 1 in chickens with white, gray, and black feathers, which had white shells. Sugiharto (2005) stated that several factors,

including age, feed, and genetics influence differences in eggshell color between chickens. He further explained that there are two types of chicken eggshell colors, namely brown and white. Differences in eggshell color are caused by the presence of pigments.

Egg Weight

Based on research results in East Lombok Regency, the highest egg weight was found in black feathers, namely 36.97±2.71 grams, followed by white feathers with an egg weight of 33.59±3.06 grams, golden feathers with an egg weight of 36.56±3.56 grams, wild feather color with an egg weight of 36.31±3.03 grams, striped feather color with an egg weight of 36.16±2.81, and gray feather color with an egg weight of 36.5±2.73 grams. Yuwono (2006) states that egg weight is influenced by seed quality (genetics) and feed quality, in addition to other factors. Latifah (2007) states that the size of poultry eggs is greatly influenced by the protein and amino acid content in the feed. North and Bell (1992) state that eggs produced by newly laying hens or young hens are smaller than those produced by older hens.

Egg index

Based on research results in East Lombok Regency, the highest egg index was found in golden feathers at 0.78±0.04, followed by wild feather color with an index of 0.77±0.03, striped feather color with an index of 0.76±0.03, black feather color with an index of 0.76±0.02, gray feather color with an index of 0.75±0.02, and white feather color with an index of 0.75±0.05.

According to Romanoff and Romanoff (1963), one of the factors affecting egg index is laying age, and Card (1961) states that egg index is greatly influenced by differences in reproductive tract conditions. Sodak (2011) states that factors influencing egg shape index include the age of the parent, genetic traits, breed, and processes that occur during egg formation, especially when the egg passes through the magnum and isthmus. The higher the egg index value, the more

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CONCLUSION

In East Lombok Regency, six types of feather colors were found, namely golden (0.15), wild (0.2), striped (0.28), black (0.2), gray (0.05), and white (0.12). Three types of eggshell colors were found, namely brown (4.44±1.00), brownish 4±1.02 to 2.87±1.04, and white 2.1±0.88 to 1.12±0.49. The average egg weight was 36.35±2.98 Average egg index 0.76±0.03.

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