

Identification of Alabio Ducks (*Anas platyrhynchos* Borneo) Beak and Shanks Colour in Two Farming Center in South Kalimantan

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ABSTRACT

Alabio ducks (*Anas platyrhynchos* Borneo) as germ plasma of Indonesia were highly populated in South Kalimantan. These ducks developed rapidly and well known as an excellent duck breed with high genetic potential for egg production. However, presumably of neglected crossing in the fields, the originality (purity) and the egg productivity of Alabio ducks decreased. The study was conducted in two Alabio centre regions in South Kalimantan: Hulu Sungai Utara (district of Sungai Pandan) and Hulu Sungai Tengah (district of Labuan Amas Utara) to identify and to provide information about the colour of feather, beak, and shanks of Alabio ducks. The observed ducks were at the same age (around 20 weeks of age). The results indicated the colour variation of feather, beak, and shanks of Alabio ducks. The feather colour varied as *mengelaras*, *membatik* (stripe), or non *membatik* (non stripe) with cream as the basic colour. Meanwhile, the colour of the beak and shanks spread between light yellow, dark yellow, and orange.

Key words: Alabio ducks (Anas platyrhynchos Borneo), identification, colour variation

INTRODUCTION

Alabio duck (*Anas platyrhynchos* Borneo) as germ plasma in South Kalimantan is well known as laying duck type. Nowadays, Alabio ducks are also oriented as meat producer (meat type). Registered duck population in South Kalimantan is around 3.487.002 head which are spread in 13 regencies of South Kalimantan (Dinas Peternakan Kalimantan Selatan, 2006). Concerning the benefits of Alabio duck, several research have been done. Through several Livestock Research Center, the researches in Alabio ducks are growing widely which produce crossbred of Alabio and other local ducks (Prasetyo and Susanti, 2007).

Several crossing have been done to produce high quality of duck as egg and meet types. Suharno and Amri (2003) in Rahmatullah (2008) reported that Alabio ducks can produce around 200 – 250 eggs/year with an average of 65 – 70 gram/egg and body weight standard of 1.8 – 2.0 and 1.6 – 1.8 kg for male and female, respectively.

The Alabio crossing with other ducks outside Kalimantan was rapidly developed from year to year. This crossings improved the genetic quality of Alabio but it can change the origin

characteristics of Alabio duck such as the colour of feather, beak, and shank. Meanwhile, this characteristics belong to be specific for Alabio duck.

There were several factors affecting the colour pattern. Especially in poultry, the feather colour was determined by pigment, physical structure, and combination between them. Meanwhile, beak and shank colour was derived from skin pigment such as lipochrom (Winter and Funk, 1960).

The objective of this study was to find information about the colour variation of beak and shank of Alabio ducks in two different areas in South Kalimantan.

MATERIALS AND METHODS

Time and Place

This study was carried out for four months (1 January to 30 April 2008) in two Alabio duck farming centres in South Kalimantan (Sungai Pandan District/Alabio (Hulu Sungai Utara Regency); and Labuan Amas Selatan District / Pantai Hambawang (Hulu Sungai Tengah Regency).

Materials and Equipment

This study involved the farmers and the male and female Alabio ducks (≤ 6 months old) from the farmers in Sungai Pandan District / Alabio (HSU Regency) and Labuan Amas Selatan District / Pantai Hambawang (HST Regency). Several equipment were used such as digital cameras, writing utensils and a Roche yolk colour fan which was used to measure the yellow colour level of the beak and shank of Alabio duck.

Methods

Purposive sampling as survey method was applied to determine the location sample and to interview the local farmers through questionnaire. An observation of Alabio ducks (male and female) in these locations was conducted without experimental design.

Data Analysis

This research using description data for explain result, because in experimental research only observation Alabio duck in 2 (two) farming duck in South Kalimantan.

RESULTS AND DISCUSSION

Characteristics of Alabio Duck Famers

Several characteristics of Alabio duck farmers are presented in Table 1. The farmers as respondents aged 47,2 years old in average (farmer from HSU, age is 52, and farmer from HST age is 42) and belong to the productive age. At this age he farmers still have ability and good skill to keep ducks intensively or extensively. The respondents from HSU have been involved and experienced for about 18 years in duck farming following the tradition of inherited knowledge and the respondent from HST have been experienced for about 10,2 years.

All of DODs (day old ducks) were originated from Mamar village in Amuntai region as this region produced good quality of DODs. Meanwhile the farmers from coastal area of Hambawang obtained the DODs either from the market or from hatchery in Mamar village.

Concerning the aim of farming to produce eggs, the majority of respondent chose the female ducks. However, there were several male ducks were included as the sex was relatively difficult to determined at 2 weeks of age.

Actually, the DOD was sexed by differentiation of voice or protrusion in cloacae.

General Characteristic of Alabio Duck

General characteristics of Alabio ducks were obtained from age, sex, body weight, body position (elevation angle), and body form as performed in figure 1 and Table 2. The body weight was different according to sex. According to farmer's information 127 samples female Alabio at age ≤ 6 months (20 – 24 weeks) weight between $\leq 1,5 - 1,6$ kg (in HSU and HST). This finding was in line with Abdul (1992) who reported that Alabio duck entering eggs production phase weighed 1,5 – 1,6 kg. Meanwhile, at the age of < 5 months, the duck weighed 1,3 – 1,4 kg which is in line with Gunawan (1987) who found that the Alabio duck weighed 1,405 kg at the age of 8 - 16 weeks. Based on farmer's information, at the age of > 6 months, the duck weight was 1,6 kg. This finding was in line with Suharno and Amri (2003) who reported of 1,6 kg at the age > 24 weeks until 40 weeks.

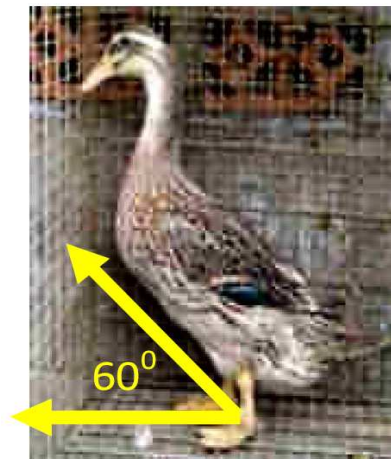


Figure 1. General Characteristics of Alabio Ducks with Elevation Angle

Concerning the elevation of body posture, the ducks demonstrated the same level of 60° to the ground. Suharno and Amri (2003) and Wasito and Rohaeni (1994) found the same case. The Alabio ducks body showed the bottle shape form when they observed from head to foot in upright position. From beside and at stand still position, meanwhile, the ducks formed the triangle. This finding was also observed by Marhiyanto (1996) and Suharno and Amri (2003): like bottle formed and triangle shaped.

Table 1. Description of respondents

No	Description	Data	
		HSU	HST
1	Farmer age (year/s)	52	42
2	Farming experience (year/s)	18	10,2
3	Education	SD / SR = 50 % (3 farmer) SMP = 50 % (3 farmer) SMA = - (0 farmer) PT = - (0 farmer)	SD / SR = 25 % (1 farmer) SMP = 25 % (1 farmer) SMA = 25 % (1 farmer) PT = 25 % (1 farmer)
4	Age of ducks and percentage	Age ≤ 6 months (100%)	Age ≤ 6 months (100%)
5	Number of ducks (head) and percentage	10- 50 heads 33,3 % (2 farmer) >50 – 100 heads 33,3 % (2 farmer) >100 – 200 heads 0 % (0 farmer) >200-400 heads 16,7 % (1 farmer) > 400 heads 16,7 % (1 farmer)	10- 50 heads 40 % (2 farmer) >50 – 100 heads 40 % (2 farmer) >100 – 200 heads 10 % (1 farmer) >200-400 heads - (0 farmer) > 400 heads - (0 farmer)
6	Modus of obtaining DOD		
	a. From the farmer breeder	a. 83,3 % (5 farmer)	a. - (0 farmer)
	b. From the market	b. 0 % (0 farmer)	b. 100 % (5 farmer)
	c. From self hatchery	c. 16,7 % (1 farmer)	c. - (0 farmer)
7	The DOD origin (farmer or market)	Mamar village	Mamar village
8	Frequency of DOD buying	Depends on financial status and need (for example once in 3 or 6 months)	Depends on financial status and need (for example once in 3 or 6 months)
9	Dominant species chosen	Alabio duck	Alabio duck
10	Dominant duck sex chosen	Female	Female
11	Method of sexing	Self sexing	Self sexing
	a. Self sexing		
	b. Other help		
12	Aim of Alabio duck farming:		
	a. Production of consumption eggs	Egg production (2 farmer)	Egg production (4 farmer)
	b. Fattening for meat production	Egg production and fattening (3 farmer) Fattening (1 farmer)	Egg production and fattening (0 farmer)
	c. Breeding	Egg production and breeding (1 farmer)	Fattening (0 farmer) Egg production and breeding (0 farmer)
13	Method of sexing	From:	From:
	a. Differentiation of voice	c. Colour of feather, beak, and shank	c. Colour of feather, beak, and shank
	b. Protrusion in cloacae		
	c. Colour of feather, beak, and shank		
	d. Direct information from the seller		

Feather Colour Characteristics of Alabio Duck

The result of feather colour characteristic that was observed from the back, tail, breast, neck and wings was presented in Table 3. The characteristic of back colour was differentiated from dotted and branched black fleck: dotted/branched 1; dotted/ branched 2, and dotted/ branched 3. This finding proved the occurrence of black fleck variation in Alabio duck as shown in Figure 2. In HSU, back feather was varied in colour: greyish brown (95,71%) and greyish black (4,29%), and in HST, back feather was varied in colour almost finding greyish brown. Suharno and Amri (1996) reported that the colour of Alabio duck was greyish yellow and greyish black for male and female, respectively. Meanwhile, Puslitbangnak (2007) found there were two colours (greyish brown and greyish black).

This finding showed that the pigment played a big role especially melanin (the black pigment). Stevens (1991) mentioned that besides pigment, the sight elevation and light effected the colour perception. Therefore, the green feather colour was observed.

The greyish brown or greyish black was found at the edge of the tail feather. This colour was well known among the farmers as *membatik* (batik coloured) or *mengelas* (the colour of dry banana leaf). All ducks owned "*mengelas*" in tail feather. In HSU, Black spotted differentiated between male and female, a total of 4,29 % was greyish black (male) and 95,71% was greyish yellow (female), but in HST, 57 samples (100 %), finding was greyish yellow.

The breast feather was divided into two type of colours: *membatik* (batik coloured) and non *membatik*. Furthermore, this feather colour was divided into the occurrence and absence of black shield. The breast colour became a criteria in breed selection. It was observed that in HSU, 71,42 % were *membatik* and 28,57 % non *membatik*, but not much different observed in HST result, 70,17 % were *membatik* and 29,82 % non *membatik*.

The neck coloured was uniform of greyish yellow (*mengelas*). The wing feather was distinguished in 2 types, light *cerminan* and dark *cerminan*. *Cerminan* feather was located at the end of the wing and lighted to bluish green if it is exposed to the light. From this *cerminan*, the farmers predicted the beginning of laying period. This *cerminan* was well developed if the ducks

had access to water. According to the farmers, the more shine the *cerminan* feather, the worst the egg production.

Characteristic of Beak Colour of Alabio Duck

The colour of beak was measured by Roche yolk colour fan. The observed colour variation ranged between yellow or orange which is the specific beak colour of Alabio duck. His finding was in line with Suharno and Amri (2003) in Rahmatullah (2008). The observation results are shown in Table 1 and figure 2.

In Alabio region, the beak colour of the light yellow scored 1 – 5, dark yellow scored 5 –10, orange scored 10 - 15, and black were found accordingly 44,29%; 2,86%; 50%; and 2,86% from the sample population.

The orange colour was mainly found in semi intensive farming (Rohaeni, 2005). The farmers choosed this beak colour based on their experience that these ducks had good laying intensity independed from feed influence. The farmers used mix ration from sago, kalambuai, salted fish, and rice hull with maximum 25% commercial feed.

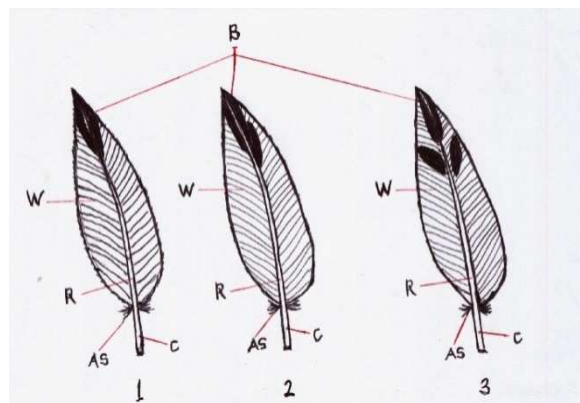


Figure 2. The Characteristic of Back Colour was Differentiated from Dotted and Branched Blackfleck.

The population of Alabio ducks with black beak colour was relatively smaller compared to other beak colour. This was corresponding with the recessive gene. This recessive gene occurred as the result of interaction between homozygote and heterozygote genes during breeding. This black colour might be occurred because of inbreeding which was happened in SPAKU that has large population with uncontrolled breeding program.



Figure 3. The Characteristic of Feather Colour of Alabio Duck Male and Female.

In Pantai Hambawang region, the beak colour of light yellow and dark yellow was 49,12% and 12,28%, respectively. The orange and black beak coloured was only found in small number (35,09% and 3,51%). The farmers had no experience and knowledge that the orange beak colour of Alabio duck was corresponding with better laying intensity. The farmers expected the good laying intensity only by using commercial feed. Other influencing factor showed that the farmers in Pantai Hambawang kept also Mojosari-Alabio ducks as egg producer. The beak colour variation was affected by the laying rate. More productive ducks showed more pale beak colour as the xanthophylls pigment was absorb from the beak (originated from the ration) to give yellow pigmentation in egg yolk (Tanudimadja, 1974).

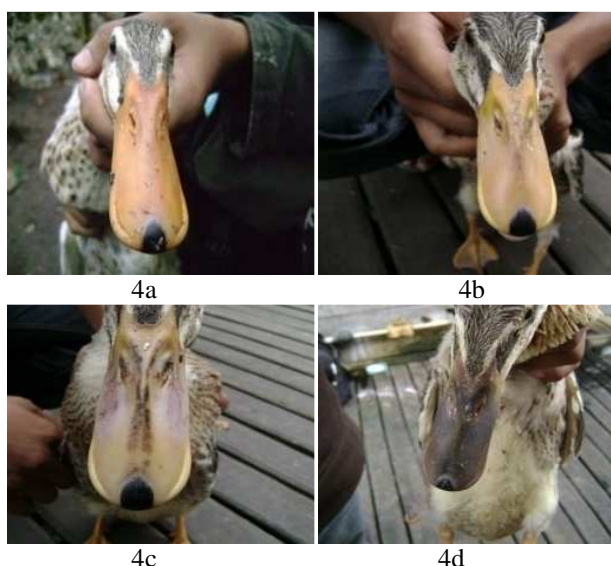


Figure 4. The Characteristic of Beak Colour of Alabio Duck: 4a. Orange Colour, 4b. Dark Yellow Colour, 4c. Light Yellow Colour, 4d. Black Colour.

Characteristic of Shanks Colour of Alabio Duck

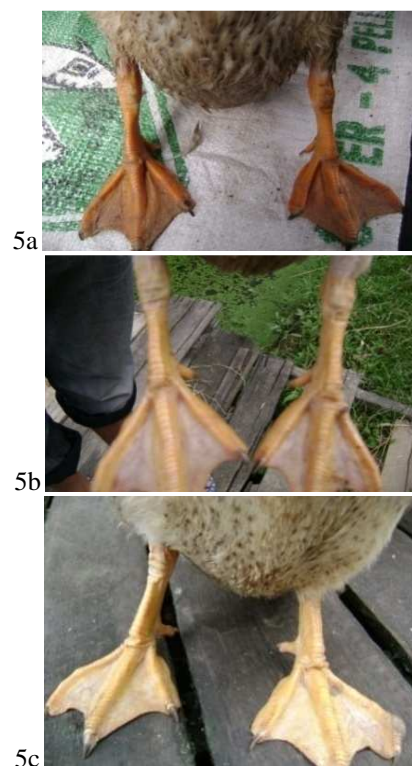


Figure 5. The Characteristic of Shanks Colour of Alabio duck: 5a. Orange Colour, 5b. Dark Yellow Colour, 5c. Light Yellow Colour.

The shanks colour of Alabio duck is yellow (Suryana, 2007). Comparing the Tegal and Mojosari ducks, the shanks colour as well as beak colour belongs to the specific characteristic of Alabio ducks. The shanks colour was determined by Roche yolk colour fan. There was variation in shanks colour of Alabio duck in two different

regions (Alabio and Pantai Hambawang). The shanks colour varied between light yellow until orange (figure 5). From the sample population Alabio (HSU), 14,29%, 34,29%, and 51,43% of the shanks colours were light yellow (scored 1 – 5), dark yellow (scored 5 – 10), and orange (scored 10 -15), respectively. The light and old yellow coloured shanks were not choosed as laying type ducks as the farmer knew that this shanks colour was correlating with the beak colour. Therefore, it was rarely found the ducks with these shanks colours in semi intensive farming.

The light and dark yellow coloured shanks were primarily found in SPAKU and Pantai Hambawang regions, meanwhile, the orange coloured shanks was mainly observed in Alabio region.

Most of the Alabio ducks in Alabio region had orange shanks as the assumption that this colour pattern was correlating with high laying intensity and yellow until orange coloured yolk. The observation of shanks colour was presented in Table 2.

Table 2. General description of Alabio Ducks

No.	Characteristics	Percentage	
		HSU	HST
1	Age		
	a. ≤ 6 months	100 % (70 samples)	100 % (57 samples)
2	Sex		
	a. Female	95,71 % (67 samples)	100 % (57 samples)
	b. Male	4,29 % (3 samples)	-
3	Body weight		
	a. ≤ 1,5–1,6 Kg	95,71 % (67 samples)	100 % (57 samples)
	b. > 1,6 Kg	4,29 % (3 samples)	-
4	Body position (elevation)		
	a. 60°	100 %	100 %
5	Body form		
	a. Bottle form	100 %	100 %

Table 3. Observation of feather colour of Alabio Ducks

Parameter	Parameter Detail	Percentage	
		HSU	HST
Feather colour of the back	1.Black fleck with branch		
	a. 1 (one)	34,29% (24 samples)	- (0 samples)
	b. 2 (two)	1,43 % (1 samples)	- (0 samples)
	c. 3 (three)	64,29 % (45 samples)	100% (57 samples)
	2. Colour:		
	a. Greyish brown	95,71 % (67 samples)	66,67 % (38 samples)
	b. Greyish black	4,29 % (3 samples)	33,33 % (19 samples)
Feather colour of the tail	1.Greyish brown (at feather peak)	95,71 % (67 samples)	100 % (57 samples)
	2. Greyish black (at feather peak)	4,29 % (3 samples)	- (0 samples)
Feather colour of the chest	1. Batik formed:		
	a. occurred / <i>mengelaras</i>	71,42 % (50 samples)	70,17 % (40 samples)
	b.absence/ <i>tidak mengelaras</i>	28,57 % (20 samples)	29,82 % (17 samples)
	2. Black shield on feather:		
	a. occurred	25,71 % (18 samples)	- (0 samples)
	b. absence	74,29 % (52 samples)	100 % (57 samples)
Feather colour of the neck	Batik coloured	All sample were uniform in colour	All sample were uniform in colour
Feather colour of the wing	1. Glanced	52, 86 % (37 samples)	100 % (57 samples)
	2. Doped	47,14 % (33 samples)	- (0 samples)

Table 4. Beak colour of Alabio Ducks

Observation		Percentage (%) in Region	
Colour	Score	Alabio (HSU)	Pantai Hambawang (HST)
Light yellow	1 – 5	44,29 (31 samples)	49,12 (28 samples)
Dark yellow	5 – 10	2, 86 (2 samples)	12,28 (7 samples)
orange	10 – 15	50 % (35 samples)	35,09 (20 samples)
Black	≥ 15	2, 86 (2 samples)	3,51 (2 samples)

Table 5. Shanks colour of Alabio Ducks

Observation		Percentage (%) in Region	
Shanks Colour	Score	Alabio (HSU)	Pantai Hambawang (HST)
Light yellow score	1 - 5	14,29 (10 samples)	52,63(30 samples)
Dark yellow	5 - 10	34,29 (24 samples)	26,32(15 samples)
Orange	10 - 15	51,43 (36 samples)	21,05(12 samples)

The scientists and farmers mentioned that yellow is the specific colour of the Alabio shanks. Only few mentioned that Alabio shanks colour is orange. Based on this study, the most colour of Alabio shanks was yellow. However, reported that the specific shanks colour of Alabio ducks was orange.

In Pantai Hambawang region, 52,63 %, 26,32 % and 21,05 % of shanks colour found were light yellow, dark yellow and orange, respectively. This data was corresponding with beak colour as the yellow beak colour was correlated with yellow shanks colour (Suharno and Amri, 2003) in Rahmatullah (2008). In fact, the majority of shanks colour was yellow either light or dark. The occurrence of light shanks colour was higher in Pantai Hambawang region (52,63%). This number was relatively the same with the beak colour.

The farmers in this region were rarely used this shanks colour as laying intensity indicator. They believed that shanks colour had no correlation with higher laying intensity. However, they selected the laying ducks from the body shape. The farming knowledge was not traditionally inherited from the family, but from the try and error learning method. Therefore, they dependt the rate of laying intensity through the commercial feed but not derived from the genetic basic.

The shanks yellow and orange colours were influenced by lipochrom pigment (Winter and Funk, 1960) which was reduced gradually during egg production period. The shank colour reduction started from dorsal to the plantar (Tanudimadja, 1974).

CONCLUSIONS

This study concluded that the feather, beak and shank colours of Alabio ducks varied in two different regions. The feather colour showed black fleck at the feather edge with greyish brown and greyish black colours variation. The breast feather colour was differentiated by membatik or non membatik pattern; and the occurrence or absence of black shield. The beak colour varied between light yellow, dark yellow, orange and black. The shanks colour varied between light yellow, dark yellow, and orange.

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