



Publisher homepage: www.universepg.com, ISSN: 2663-6913 (Online) & 2663-6905 (Print)

<https://doi.org/10.34104/ajpab.022.055064>

American Journal of Pure and Applied Biosciences

Journal homepage: www.universepg.com/journal/ajpab

American Journal of
**Pure and
Applied Biosciences**



Phenotypic Characterization of Mottled Native Chicken in Davao Region, Philippines

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ABSTRACT

There were 172 heads comprising 141 hens and 31 roosters from Davao region collected and randomly sampled to describe the phenotypic characteristics in terms of qualitative (feather morphology, comb type, skin and shank color) and quantitative (body weight, body length, chest circumference, shank length, height and wingspan) traits of the mottled native chickens. The modified Philippine Native Animal Development survey questionnaire was used in the collection of data. Qualitative traits were analyzed using frequency and percentages while quantitative characteristics were analyzed through one-way ANOVA using tukey's HSD test. There morphological characteristics of native chicken in Davao region vary by province. Nonetheless, mottled native chicken is predominantly of single comb, white skin, yellow shank and of normal feather morphology. Body weight and length, chest circumference, shank length and wingspan for chickens were significantly different except for body height of mottled native chicken across provinces. Meanwhile, all morphometric characteristics of roosters are significantly different across provinces. The mottled type of native chicken in Davao region has been found out diverse as manifested in the quantitative and qualitative characteristics gathered. This study recommends incorporating the results of the genotypic characteristics of mottled native chickens in Davao Region to further determine its diversity and lineages.

Keywords: Mottled native chicken, Quantitative, Phenotypic characteristics, and Davao region.

INTRODUCTION:

Native chicken is well known for their adaptability, disease resistance, distinct taste and quality of meat. Poultry farming using of native strains is being practiced in much in local area in the country and plays the important role in poultry sector, more diverse use and benefits to household level. Utilization of native chicken in tropics especially in the Southeast Asia varies from region to region and from community to community within a region (Dessie *et al.*, 2012). In the archipelagic nature of the Philip-pines there are several strains of Philippine native chicken has sur-

vived and evolved in different areas of the country. The genetic groups are phenotypically unique from each other but not all these strains are recognized nor identified (Lambio, 2000). Due to continuous interbreeding, and crossbreeding of native chicken and mixing of different strains from different provinces without selection, some pure breeds and indigenous breeds possess and exhibits wide variety in terms of qualitative and quantitative traits (Avante, 1989). Several genetic groups of native chicken documented in the country are "Banaba", "Bolinao", "Camarines", "Paraoakan", and "Darag", and "Boholanon"

genetic groups re-present its Provinces or Region. None of these recorded types are found in Mindanao, particularly in Davao Region.

Velasquez, (2009) stated that, there is about 10.63% native chicken from 54% total population of chickens in the country from Southern Mindanao. According to the Department of Agriculture, native chicken breeds in Davao region are disappearing quickly and may soon to become extinct. On the other hand, native chickens do not receive enough attention from their owners because they are raised more for backyard purposes than as a major source of livelihood, adding that the effect was that generations of native chickens gave way to the massive increase in the commercialization of free-range chickens. In the present time, total inventory as of October-December 2018 was estimated to be at 186.37 million birds. Among the inventory, native or improved chicken had the highest inventory of 83.34 million birds. In Davao region, the total native chicken inventory as of 4th quarter of 2018 is 8.95 % or a total of 7.46 million heads of birds (PSA, 2018). Hence, one of the main purposes of the study is phenotypic characterization of the native strain in the region particularly on mottled type native chicken. FAO, (2012) stated that phenotypic characterization is the process of identifying distinct breed populations and describing their qualitative and quantitative characteristic and production environments. Further, to provide a comprehensive view of the diversity of poul-

try breeds kept under a conservation program and establishes the Davao native chicken strain through conservation and sustainable utilization. Keeping the potential of the native chicken in the region, and further improving its productivity.

This present study on phenotypic characterization activity was carried out in five provinces (Davao Occidental, Davao del Sur, Davao del Norte, Davao de Oro, Davao Oriental) and one independent city, Davao City in order to gather actual phenotypic and genetic characteristics of native chicken. The study was conducted in the actual field setting where chicken was being raised.

Objectives of the study

The main objective of the study was to evaluate the phenotypic diversity of mottled native chicken population in Davao Region. Specifically, it determined the qualitative traits of native chicken in terms of feather morphology, skin color, shank color, comb size and comb type. Moreover, it determined quantitative traits of native chicken in terms of body weight, body length, circumference, shank length, height, and wingspan.

METHODOLOGY:

The mottled native chicken is randomly collected in the provinces of Davao Region from October 2017-March 2018 using modified Philippine Native Animal Development survey questionnaire.



Fig. 1: Data gathering on phenotypic characteristics of the mottled native chicken in Davao region; A) Height, B) Body length, C) Shank length, and D) Wingspan quantitative data gathering.

The collection sites were in the province of Davao Occidental, Davao del Sur, Davao City, Davao del Norte, Davao de Oro Province and Davao Oriental in Southern Mindanao were included as sampling sites. The sample was based on the FAO standard measurement. Body size for adult males and female to the nearest 0.5 cm in terms of body length measured by length between the tip of the beak and that of the tail not included the feather the bird's body should be completely drawn throughout its length. Circumferences of the chest were taken at the tip of the hind breast using tape measure. Shank length was taken using tape measure from length in cm from the hock joint to the spur of ethers leg, wingspan length in cm between tips of the right and left wings after both the measurement is taken across the back of the bird. Data on qualitative characteristics were tabulated ac-

ording to provinces and analyzed in terms of frequency and percentages. Significant differences of body measurements were subjected to one-way analysis of variance while within group differences were determined using Tukey's HSD test using the SPSS Version 16 statistical software.

RESULTS AND DISCUSSION:

Phenotypic Characterization

A total of 172 chickens which comprised of 82% female and 18% male. There were 34 chickens sampled in Davao del Sur, 32 in Davao Occidental, 24 in Davao City, 24 in Davao del Norte, 30 in Davao de Oro and 28 chickens in Davao Oriental. Quantitative and qualitative traits of chickens were analyzed separately for each sex and province.



Fig. 2: Mottled native chickens (left to right: hen and rooster) collected in Davao region.

Qualitative Traits

Frequency count of the five qualitative variables (feather morphology, skin color, shank color, comb size and comb type) possessed by male and female

mottled native chickens are presented in **Table 1**. Feather Morphology. As shown in **Table 1**, all of the mottled native chickens collected were in normal type of feather morphology (Ali et al., 2022).

Table 1: Proportion of roosters and hens according to feather morphology, skin color, shank color, comb size and comb type in Davao Region.

	Davao del Sur		Davao Occidental		Davao City		Davao del Norte		Davao de Oro		Davao Oriental	
	Rooster (n=8)	Hen (n=26)	Rooster (n=7)	Hen (n=25)	Rooster (n=2)	Hen (n=22)	Rooster (n=5)	Hen (n=19)	Rooster (n=5)	Hen (n=25)	Rooster (n=4)	Hen (n=24)
Feather morphology												
Normal	8	26	7	25	2	22	4	19	5	25	4	24
frizzle	0	0	0	0	0	0	1	0	0	0	0	0
Silky	0	0	0	0	0	0	0	0	0	0	0	0
others	0	0	0	0	0	0	0	0	0	0	0	0
Skin color												
white	1	7	4	19	2	16	4	13	5	17	4	23
yellow	7	13	3	6	0	6	1	6	0	8	0	1
blue black	0	6	0	0	0	0	0	0	0	0	0	0

others	0	0	0	0	0	0	0	0	0	0	0	0
Shank color												
white	2	10	0	10	0	6	3	8	2	8	1	4
yellow	0	9	0	5	1	12	2	7	3	7	3	8
blue	0	0	0	0	0	0	0	0	0	0	0	0
green	0	0	0	2	0	0	0	0	0	2	0	1
black	6	7	7	8	0	1	0	3	0	8	0	11
brown	0	0	0	0	0	1	0	0	0	0	0	0
blue - black	0	0	0	0	1	2	0	1	0	0	0	0
Comb type												
single	8	26	7	25	2	22	5	19	5	25	4	24
Double	0	0	0	0	0	0	0	0	0	0	0	0

Skin Color

White was the most prominent skin color observed for both male and female of which comprises 67% of the hen population and 30% of the rooster population. The second most predominant color was yellow, 28% and 35% for hens and roosters, respectively. Only hens possessed the blue-black color (4%) and specifically observed in the province of Davao del Sur. Across the region, regardless of sex, each province had similar pattern distribution of which most of the chickens had white skin.

Shank Color

Yellow shank color was observed to be the most prominent comprised 33% of the population sampled. This was then followed by white skin color with a total count of 54 or a percentage of 31%. The third predominant color observed was black, with a total count of 51 or 30%, followed by green (3%), blue-black (2%) and brown (1%). The female native chickens were found to have a predominantly yellow

(34%) skin color, followed by white (33%) and black (27%). Meanwhile, roosters were observed to have black skin color of which comprised of 42% of the total population of roosters. Other colors observed in roosters was yellow (29%) and white (26%).

Comb Type

Native chicken in Davao region possessed single comb type regardless of sex (Table 1). According to Duguma, (2006), single comb was dominant among traditional chicken and it helps reduce 40% of the body heat. This observation supports with the findings of Oñate, (1991) and Roxas et al. (1996) that native chickens found in the Philippines had a single comb rather than rose and pea comb types.

Quantitative Traits

Average body weight measurements of native chickens in Davao region are presented in Table 2. Samples examined and measured for quantitative traits differ from each province and city.

Table 2: Mean average body measurements of native chickens in Davao Region based on location where obtained.

Province	Body Weight (kg) ^{1/}	Body Length (cm) ^{1/}	Chest Circumference (cm) ^{1/}	Shank Length (cm) ^{1/}	Height (cm) ^{2/}	Wing span (cm) ^{1/}
Davao del Sur	1.39 ^{ab}	24.23 ^b	27.15 ^a	8.93 ^{cd}	35.55	40.44 ^b
Davao Occidental	1.16 ^a	21.53 ^a	31.17 ^c	9.16 ^d	36.78	40.69 ^b
Davao City	1.49 ^c	24.79 ^{ab}	30.21 ^{bc}	7.31 ^{ab}	33.10	40.45 ^b
Davao del Norte	1.47 ^c	26.46 ^c	30.54 ^{bc}	7.92 ^{bc}	35.95	40.33 ^b
Davao de Oro	1.21 ^a	21.13 ^a	29.7 ^{bc}	9.58 ^d	34.53	38.66 ^b
Davao Oriental	1.36 ^{ab}	20.96 ^a	28.46 ^{ab}	6.79 ^a	35.93	35.28 ^a

^{1/}Means with common letter superscripts are not significantly different at 5% level, Tukey’s Test; ^{2/}Not significant

Body Weight

Data showed that native chicken in Davao City had the heaviest mean weight of 1.49 kg and is significantly different (P<0.05) to those in Davao de Oro, Davao Occidental. However, mean weight recorded for Davao City is comparable (P>0.05) to those in

Davao Oriental, Davao del Norte and Davao del Sur. Mean weight recorded for roosters in the region is significantly different (P<0.05) among provinces. Roosters in Davao del Sur were significantly heavier among other roosters collected from other provinces of Davao region.

Table 3: Mean average body measurements of mottled hens and roosters in Davao Region.

Sex	Region	Body Weight (kg) ^{1/}	Body Length (cm) ^{1/}	Chest Circumference (cm) ^{1/}	Shank Length (cm) ^{1/}	Height (cm) ^{2/}	Wing span (cm) ^{1/}
Hens	Davao del Sur	1.16 ^a	23.88 ^b	26.38 ^a	8.63 ^{cd}	34.65	39.69 ^b
	Davao Occidental	1.09 ^a	20.80 ^a	29.88 ^{bc}	8.62 ^{cd}	35.84	39.40 ^b
	Davao City	1.43 ^b	24.63 ^b	30.13 ^c	7.15 ^{ab}	32.65	39.59 ^b
	Davao del Norte	1.44 ^b	26.10 ^b	30.31 ^c	7.84 ^{bc}	34.57	39.05 ^b
	Davao de Oro	1.13 ^a	20.92 ^a	29.84 ^{bc}	9.10 ^e	36.08	39.32 ^b
	Davao Oriental	1.27 ^{ab}	20.25 ^a	27.70 ^{ab}	6.56 ^a	34.79	34.41 ^a
Roosters	Davao del Sur	2.12 ^c	25.37 ^{ab}	29.62	9.87 ^{abc}	38.50 ^b	42.87 ^b
	Davao Occidental	1.42 ^a	24.14 ^{ab}	35.71	11.07 ^{bc}	40.14 ^{bc}	45.28 ^{bc}
	Davao City	2.03 ^{bc}	26.50 ^{ab}	31.00	9.00 ^{ab}	38.00 ^b	50.00 ^c
	Davao del Norte	1.59 ^{ab}	27.80 ^b	31.40	8.20 ^a	41.20 ^{bc}	45.20 ^{bc}
	Davao de Oro	1.58 ^{ab}	22.20 ^a	29.00	12.00 ^c	26.80 ^a	35.40 ^a
	Davao Oriental	1.90 ^{abc}	25.25 ^{ab}	33.00	8.12 ^a	42.75 ^c	40.50 ^{ab}

^{1/} Means with common letter superscripts are not significantly different at 5% level, Tukey's Test; ^{2/} Not significant

However, it is comparable ($P>0.05$) to those in Davao Oriental and Davao City. The heaviest mean weight of hens collected in the region is in Davao del Norte with a mean weight of 1.44 kg and is significantly heavier ($P<0.05$) than those hens found in Davao de Oro, Davao del Sur and Davao Occidental. In terms of the body weight of collected native chickens, the heaviest was obtained in Davao City with 1.49kg and Davao del Norte with 1.47kg followed by Davao del Sur with 1.39kg, Davao Oriental with 1.36kg and Davao de Oro with 1.21kg. Lightest weight was obtained in Davao Occidental with a mean of 1.16kg. Heaviest Hen was obtained also in Davao del Norte with 1.44kg and Davao City with 1.43kg followed by hens collected in Davao Oriental with 1.27kg, Davao de Oro with 1.13kg, Davao del Sur with 1.16 and the lightest was obtained in Davao Occidental with 1.09kg. Heaviest rooster was obtained in Davao del Sur with 2.12kg and Davao City with 2.03kg followed by Davao Oriental with 1.90 kg, Davao de Oro with 1.58kg, Davao del Norte with 1.59kg and the lowest or lightest body weight was obtained Davao Occidental (Hayle et al., 2020).

Body Length

Mean body length of chicken is statistically significant to all provinces ($P<0.05$). The highest mean body length (cm) recorded is in Davao del Norte, followed by Davao City, Davao del Sur, Davao Occidental, Davao de Oro and Davao Oriental respectively. Mean body length of roosters in the region are significantly different ($P<0.05$) among provinces. Davao del Norte has the highest mean body length among all roosters in the region and comparable

($P>0.05$) to all provinces except in Com-postela Valley, which is relatively shorter in body length. Mean body length of hens was found to be significantly different ($P<0.05$) among provinces. Highest mean body length of hens was observed in Davao del Norte which was significantly different ($P>0.05$) in all provinces in the region except in Davao City and Davao del Sur. Highest body length was obtained in Davao del Norte with the Body Length of 26.46cm followed by Davao City and Davao del Sur, 24.79 and 24.23cm, Davao Occidental with 21.53cm and Davao de Oro with 21.13 cm. The lowest body length was obtained in Davao Oriental. Highest body length in rooster is obtained in Davao del Norte rooster with a mean body length of 27.80cm followed by Davao City, Davao del Sur, Davao Oriental and Davao Occidental with 26.50cm, 25.37cm, 25.25cm & 24.14cm respectively. Lowest body length was measured in Davao de Oro with 22.20cm. Highest Body Length in female chicken was obtained in Davao del Norte with 26.10cm followed by Davao City with 24.63cm and Davao del Sur with 23.88cm. The lowest body length was recorded from Davao de Oro (20.92cm), Davao Occidental (20.80cm) and Davao Oriental (20.25cm).

Chest Circumference

Mean chest circumference of native chicken across the region were significant ($P<0.05$). In terms of highest circumference, chickens in Davao Occidental with a mean measurement of 31.17 were not comparable ($P<0.05$) to those in Davao Oriental and Davao del Sur. However, it is not significantly different ($P>0.05$) to those chickens in Davao del

Norte, Davao de Oro and Davao City. Collected mottled roosters in Davao Occidental have the highest mean chest circumference of 35.71 cm among the provinces and is not significant ($P>0.05$) among other provinces. Meanwhile, hens in Davao del Norte has the highest mean chest circumference of 30.31 cm and is comparable ($P>0.05$) in all provinces except for Davao City. The highest was obtained in Davao Occidental with 31.17cm followed by Davao del Norte, Davao City, Davao de Oro and Davao del Sur with the mean chest circumference of 30.54cm, 30.21cm, 29.7cm and 28.46cm respectively. Lowest chest circumference was obtained in Davao del Sur with 27.15cm. In terms of Chest circumference in rooster, the highest was obtained in Davao Occidental (35.71cm), followed by Davao Oriental, Davao del Norte, and Davao City (33.00cm, 31.40cm and 31.00cm) respectively. The lowest chest circumference was obtained in Davao del Sur and Davao de Oro (29.62cm and 29.00cm). In terms of Chest circumference in hen, the highest measurement was obtained in Davao del Norte with 30.31cm and Davao City with 30.13cm followed by Davao Occidental with 29.88cm, Davao de Oro with 29.84cm and Davao Oriental with 27.70cm. The lowest chest circumference was obtained from the province of Davao de Sur with a measurement of 26.38cm.

Shank Length

Results showed that the mean shank length of the provinces in Davao region is statistically significant ($P<0.05$), with Davao de Oro having the highest mean shank length observed. Moreover, mean shank length of the province is not comparable ($P<0.05$) to those in Davao Oriental, Davao del Norte and Davao City but is not significantly different ($P>0.05$) to Davao del Sur and Davao Occidental. Hens and roosters in Davao de Oro also obtained the highest mean shank length compared to the other provinces and is significantly different ($P<0.05$). Furthermore, mean shank length of hens in Davao de Oro is significantly different ($P<0.05$) to the mean shank length of hens in Davao Oriental, Davao del Norte and Davao City and not significantly ($P>0.05$) different to Davao del Sur and Davao Occidental. While the roosters in Compostela Valley is significantly different ($P<0.05$) to the roosters in all provinces except in Davao Occidental where it is not significantly different ($P>0.05$). Highest Shank Length was obtained in the Province of Davao de Oro

and Davao Occidental with 9.58cm and 9.16cm. Followed by Davao del Sur (8.93cm) and Davao del Norte (7.92cm) and Davao City (7.31cm). The lowest shank length was obtained in Davao Oriental. Roosters in Davao de Oro obtained the highest shank length with 12.00cm in length followed by Davao Occidental with 11.07cm, Davao del Sur with 9.87 cm and Davao City with 9.00cm. The lowest shank length was obtained in Davao del Norte with 8.20cm and Davao Oriental with 8.12cm in length. Highest shank length for hens was obtained in Davao de Oro with the mean measurement of 9.10cm followed by Davao del Sur with 8.63cm, Davao Occidental with 8.63cm, Davao del Norte with 7.88cm and Davao City with 7.15cm. The shortest shank length was from Davao Oriental with a mean of 6.56cm.

Height

The Table shows that native chickens in Davao Occidental obtained the highest mean body height compared to the other native chickens in the region. However, these differences in mean body height among provinces is not significant ($P>0.05$). The mean body height for hens in the region is also not significantly different ($P>0.05$) among other provinces. Hens in Davao de Oro have the highest mean height and is not significantly different ($P>0.05$) in all provinces. Same as well for the roosters in Davao Oriental, where it obtained the highest mean body weight and is significantly different ($P<0.05$) with roosters in Davao de Oro, Davao del Sur and Davao City. In terms of height, the tallest chicken collected was measured 36.78cm in Davao Occidental, followed by 35.95cm in Davao del Norte, 35.93cm in Davao Oriental, 35.55cm in Davao del Sur and 34.53cm in Davao de Oro. Lowest was measured in Davao City with 33.10cm. The tallest roosters were recorded in Davao Oriental with the measurement of 42.75cm in height followed by Davao del Norte with 41.20cm, Davao Occidental with 40.14cm, Davao del Sur with 38.50cm and Davao City with 38.00cm in height.

Smallest height in rooster was measured in Davao de oro with 26.80cm. In terms of height in hens, Compostela Valley have obtained the tallest height with the measurement of 36.08cm followed by Davao Occidental with 35.84cm, Davao Oriental with 38.79 cm, Davao del Sur with 34.65cm, Davao del Norte with 34.57 and the smallest height was obtained from Davao City with a mean of 32.65cm.

Wing Span

Results showed that the mean wing span of the provinces in the region is significantly different ($P < 0.05$) among each other. Moreover, Davao Occidental has the highest mean wing span recorded among others and is significantly different ($P < 0.05$) to the chickens sampled in Davao Oriental. In addition, the native chickens in Davao Occidental is not significantly different ($P > 0.05$) to the native chickens in Davao del Norte, Davao de Oro, Davao City and Davao del Sur. The mean wing span of hens in the provinces of the region were significantly different ($P < 0.05$) among each other. Hens in Davao del Sur on the other hand obtained the highest mean wing span and is not significantly different ($P > 0.05$) in all provinces except for Davao Oriental where there's a significant difference with their mean wing span. Meanwhile for roosters in the region, there's a significant difference ($P < 0.05$) in their mean wing span. Davao City has the highest mean wing span for roosters and is significantly different ($P < 0.05$) in Davao Oriental, Davao de Oro and Davao del Sur. In terms of wing span, it was recorded and obtained the same measurement in four provinces. Davao Occidental with 40.69cm, Davao City with 40.45cm, Davao del Sur with 40.44cm, Davao del Norte with 40.33cm and Davao de Oro with 38.66cm. The lowest wing span was obtained and measured in Davao Occidental with 35.93cm. Roosters with longest wing span was obtained in Davao City with a measurement of 50.00cm followed by rooster collected in Davao Occidental with 45.28, Davao del Norte with 45.20cm, Davao del Sur with 42.87cm, and Davao Oriental with 40.50cm. In terms of short wing span, it was obtained in Davao de Oro with 35.40cm.

CONCLUSION AND RECOMMENDATIONS:

Mottled native chicken in Davao region are predominantly of single comb, white skin, yellow shank and of normal feather morphology. The white skin color according to Eriksson *et al.* (2008) was originated from the red jungle fowl (*G. gallus*) while the yellow skin color originated from the grey jungle fowl (*G. sonneratii*). Moreover, the diversity of skin color can be due to mode of inheritance, hybridization of parental lineages and mutations (Cabarles *et al.*, 2012). Results obtained in this study is similar to studies conducted in Western Visayas (Cabarles *et al.*, 2012), Palawan (Lopez *et al.*, 2013) and in Bohol (Salces *et al.*, 2015) where white and yellow skin

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colour is most prominent. Native chicken collected in Davao region were mostly poses white and yellow skin. Results in terms of shank colour were comparable to similar studies conducted by Cabarles *et al.* (2012), Salces *et al.* (2015) and Lopez *et al.* (2013) where yellow and white shank colors are known to be the most predominant. However, results were in contrast to a study conducted in Bangladesh by Faruque *et al.* (2010), black shank color in Vietnam (Cuc *et al.*, 2006) and black and white shanks in Nigeria (Egahi *et al.*, 2010). Smyth (1990) pointed out that the diversity in shank color can be due to interactions of major and modifier genes. The homozygosity of black extension factor (E) will express black shank. The addition of carotene-rich feedstuffs to chicken further enhanced the yellow pigmentation of the shank (Onibi *et al.*, 2008). In addition, Cuc *et al.* (2006), the differences in the distribution of yellow shanks is possibly because of genes and selection practices of the raisers. According to Duguma, (2006), single comb was dominant among traditional chicken and it helps reduce 40% of the body heat.

This observation supports with the findings of Oñate (1991) and Roxas *et al.* (1996) that native chickens found in the Philippines had a single comb rather than rose and pea comb types. In general observations and analysis of the data collected the mottled native chicken poses dominant white and yellow skin colour were found across the Davao Region with the combination of mottled black white plumage colour, mottled brown white plumage colour and mottled red white plumage colour were the shank colour most prominent was yellow shank 33% of the total population followed by white shank colour 31%, black shank colour 30% and green shank colour 3%, blue black 2% and brown shank colour 1%. Heaviest weight of native chicken recorded was in Davao City, longest body length and chest circumference were in Davao del Norte, longest shank length in Compostela Valley and tallest height and longest wingspan were recorded in Davao Occidental. Moreover, differences in all morphometric characteristics across region is significantly different ($P < 0.05$) except for body height where it is not significantly different ($P > 0.05$). It is evident that hens in Davao del Norte has the heaviest weight, longest body length and chest circumference recorded. While hens in Compostela Valley have the longest shank length and tallest height recorded and hens in Davao del Sur have the longest wing span recorded.

Furthermore, differences in all morphometric characteristics of hens across region is significantly different ($P < 0.05$) except for body height where it is not significantly different ($P > 0.05$). Roosters in Davao del Sur seemed to be the heaviest among the roosters in other provinces. Moreover, the roosters in Davao del Norte has the longest body length recorded, Davao Oriental for tallest height, Compostela Valley for longest shank and roosters in Davao Occidental have highest chest circumference and wing span recorded. All morphometric characteristics of roosters is significantly different ($P < 0.05$) across the region except for chest circumference. Heaviest body weight of rooster found in Davao del Sur with mean average of 2.12 kg. this possibly associated to the type of chicken the rooster reared for, and prepare for the future cockfighting activities most rooster groomed for cockfighting and usually feed with commercially prepared feedstuff, supplemented with hormones, vitamins and vaccinated with well confined shelter and proper management (Duguma, 2006 & Kibrit, 2008.) and poses heavy body weight, wingspan and body circumference compared to the female chicken which mostly intended for egg laying and reared in backyard where they find their food scavenge around the yard. Hence, rooster have higher feed conversion ratios than those hens which are left to scavenged on available food in free range production system (El Safty, 2012; Dorji *et al.*, 2012). In comparison of both sexes (rooster vs hen **Table 2**) and ranking of morphometric value (highest to least values) across provinces revealed that male collected chicken in Davao de Oro Provinces exhibit the highest value in terms of shank length (36.08 cm) While, chicken from Davao Oriental manifested the tallest height (42.75 cm). The results of the present study show that there is a variation in the morphological characteristics of the native chicken in Davao region.

Moreover, the differences in the body measurements recorded among the provinces may due factors like geographical location, feeding practices, genetic makeup and practices. Significant correlation between Body weight and wingspan and body length this indicates that the highest body length and wing-span leads to increase in body weight. The results on this study found that collected native chicken in Davao del Norte obtained the wingspan of 40.33 cm similar to other provinces in the region and Body length 26.46 cm results to heavy weight 1.47 kg. This fin-
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ding agrees the positive significant correlation between, body weight with body length, breast girth, and wingspan, shank length and comb length suggest that selection of any of these body parameters will cause direct improvement in body weight. Similar reports have been reported by Mbapn & Zaker, (2000) and Okpekr *et al.* (2003). This study had only focused on the results of the phenotypic characteristics of native chickens in Davao region, thus it is recommended to incorporate the results from the genetic characterization of mottled native chickens in Davao region to further determine its diversity and lineages. Moreover, it is also recommended to include drumstick diameter, shank diameter, thigh length, egg weight, hatch-ability, and mortality these parameters determine also the productivity of the chicken and weight. In qualitative traits comb type, iris color, meat water holding capacity and earlobe color of the mottled native chickens in the region. This also measures the quality of meat and characteristic of chicken present in the region.

ACKNOWLEDGEMENT:

Special thanks to my colleagues in the workplace who were there to help me in every moment of this huge work for the successful study.

CONFLICTS OF INTEREST:

The author(s) declares that there is no potential conflict of interest.

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Citation: Clapano MB, Fuentes AE, Nadela HD, Maravillas RC, and Desucatan MA. (2022). Phenotypic characterization of mottled native chicken in Davao region, Philippines. *Am. J. Pure Appl. Sci.*, **4**(4), 55-64.
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