Comparative Growth Performance in Four Varieties of Native Aseel Chickens Maintained in Pakistan

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Abstract.- The present study was conducted to investigate the growth performance in four varieties of native Aseel Chicken. For this purpose, 96 day-old Aseel chicks, 24 each of 4 different varieties viz. Peshawari, Mianwali, Mushki and Lakha were maintained at Indigenous Chicken Genetic Resource Center, Department Poultry Production, University of Veterinary and Animal Sciences, Lahore Ravi Campus, Pattoki. The experimental birds were kept in cages and placed in a well-ventilated open sided poultry house under similar management conditions up to 15 weeks of age. The birds had free access to clean and fresh drinking water through drinking nipples provided natural day light and were fed a broiler ration ad libitum according to NRC standards. Data were analyzed by ANOVA technique and means were compared by using DMR Test. The results showed that the average body weight (g) in four varieties of Aseel differed significantly (P<0.05) at 4th, 5th, 6th, 7th, 10th, 12th, 13th, 14th and 15 weeks of age. Weekly body weight gain (g) in four varieties of Aseel differed significantly (P<0.05) at 4th, 5th, 6th, 7th, 10th and 9th and 10th weeks of age. Weekly times of weight gain differed significantly (P<0.05) at 3rd, 4th, 5th, 8th, 9th and 10th weeks of age. FCR in four varieties of Aseel differed significantly (P<0.05) at 1st, 4th, 5th, 8th, 9th, 11th and 12th weeks of age. The weekly mean feed intake (g) in four varieties of Aseel differed significantly (P<0.05) during the entire experimental period. Based on the findings of this study it may be stated that Mushki variety of Aseel exhibited better growth rate and FCR than three other varieties, therefore, it may be considered for future breeding programs.

Key words: Aseel, varieties, body weight, weight gain, times of weight gain, feed intake and FCR.

INTRODUCTION

Traditional backyard poultry keeping is in practice since time immemorial. Backyard poultry keeping is an important economic activity carried out by almost 80 percent families in rural areas of Pakistan (Anonymous, 2003) and contributing about 12.76 and 29.23 percent, respectively, of the total poultry meat and eggs produced in the country (Anonymous, 2012). In most of the developing countries, indigenous poultry genotypes constitute about 80 to 99 percent of the total poultry populations maintained in villages (Sonaiya and Swan, 2004). The small flocks maintained in Pakistan mainly comprise of native breeds like Desi (non-descript native chicken), Aseel, naked neck, Lyallpur silver black (LSB) (a breed evolved at University of Agriculture, Faisalabad few decades back) and other exotic breeds such as Fayoumi and Rhode Island Red. Among these, Aseel bears historic importance being native to this country and used in development of many breeds such as Cornish (Dohner, 2001) and CARI-Nirbheek and CARI-Shyama of India (ICAR, 2004).

Rural poultry production is an important sub sector of poultry production in the country, however, very little attention has been paid given to our indigenous poultry which possesses better
disease resistance and adaptability to the local rigorous environmental conditions than the imported commercial strains of chickens. Aseel breed of chicken is considered to be one of the principal ancestors of "Indian Game" originated in Cornwall and is one of the oldest of game fowls of Asia, a handsome, sprightly and shapely bird with an upright and majestic gait and bred for its highly valued meat superior in taste and texture. This breed is close to extinction and is presently being used mainly for cock-fighting (Bhatti et al., 1991; Khan, 2004; Rao and Preetem, 2009; Anonymous, 2009).

The main emphasis has remained on importing and propagating the exotic poultry breeds and little attention was paid towards development/improvement of indigenous chickens. By propagating foreign breeds in our villages and their unchecked mating with the local/indigenous breeds, the pure indigenous germplasm is being depleted rapidly. In this way an excellent genetic resource, if not conserved now, will be destroyed forever. Still some specimen of local breeds like Aseel, Desi and Lyallpur Silver Black are available. Proper conservation and propagation of these local breeds may prove a useful genetic resource for better productive efficiency in terms of egg and meat production.

The basic information about important economic traits of growth performance in different varieties of Aseel is not available. With this background, the present study was undertaken to investigate 15 weeks growth performance of four indigenous varieties of indigenous Aseel breed.

**MATERIALS AND METHODS**

The present study of 15 weeks of duration was undertaken at Indigenous Chicken Genetic Resource Center, Department of Poultry Production, University of Veterinary and Animal Sciences Lahore, Ravi Campus, Pattoki to evaluate the comparative growth performance of four varieties of native Aseel, namely, Peshawari (basic origin is Peshawar, Pakistan. Dark brown neck with light brown plumage color, pea-comb. White circles in plumage), Mianwali (basic origin is Mianwali, Pakistan. Bluish black plumage color. Black circles in the plumage. Pea comb. Small in height. Most aggressive among all local varieties), Mushki (dark black plumage color. Pea comb. Known as "Siyah" created by the Nawab (ruler) of Rampur, white eyes and white shanks, spurs and nails) and Lakha (commonly known as Cheena. White dots on the head and plumage color. Pea-comb.) during the starting and growing phases (Ahmad, 2013).

For this purpose a total of 96 day-old chicks, 24 from each of the four varieties were randomly picked up from the available stock. The experimental birds in each variety were divided into three experimental units/replicates, each comprising eight birds. They were initially weighed and individually tagged for identification and were housed in 12 different cages (each measuring 3 x 2 feet) placed in a well-ventilated open sided poultry house under similar management conditions up to 15 weeks of age. The birds had free access to clean and fresh drinking water through drinking nipples and were provided only natural day light. The experimental birds were fed a balanced ration, formulated according to NRC (1994) standards and recommendations made by Summers and Leeson (2005) for broiler breeder 1 and breeder 2 diets. The growth performance in terms of weekly body weight (g), weight gain (g), times of weight gain, feed intake (g) and feed conversion ratio (FCR) of the different varieties of Aseel birds were studied. The following data were obtained during the experimental period.

**Statistical analysis**

The experiment was conducted according to completely randomized design (CRD) and data thus collected were analyzed using analysis of variance (ANOVA) techniques (Steel et al., 1997) using SAS, 9.1, (2002-03) portable software, assuming following mathematical model:

\[ Y_{ij} = \mu + S_i + \varepsilon_{ij} \]

Where, \( Y \), each observation; \( \mu \), Population mean; \( S_i \), Effect of the treatment; \( \varepsilon_{ij} \), Random error.

The comparisons of means were made using Duncan’s Multiple Range (DMR) test (Duncan, 1955).

**RESULTS**

**Body weight**

The average body weight (g) in four varieties
of Aseel was observed to be significantly differed ($P<0.05$) at 4th, 5th, 6th, 7th, 10th, 13th, 14th and 15 weeks of age (Table I). The maximum mean body weights were observed in Mushki on 4th, 5th, 6th, 7th and 10th weeks (229.6±7.24g), (315.62±11.34g), (408.96±15.7g), (522.5±16.64g), (839.2±24.2g), respectively, and minimum in the same weeks in Lakha variety (202.5±4.29 g), (269.2±6.64 g), (356.5±11.20 g), (462.08±16.52g), (815.4±26.94g), respectively. During 13th, 14th and 15th weeks, maximum body weight was observed in Lakha (1202.22±32.8g), (1304.2±37.8g) (1400.3±43.5g), respectively, however, Peshawari variety showed the minimum body weight (1071.9±31.3g), (1167.5±36.1g), (1249.7±36.7g), respectively on 13th, 14th and 15th weeks.

**Weekly weight gain**

The average weekly body weight gain (g) in four varieties of Aseel was found to be significantly differed ($P<0.05$) at 4th, 5th, 8th, 9th and 10th weeks of age (Table II). The maximum weekly body weight gain at 4th and 5th weeks was recorded in Mushki (78.54±3.65 and 86.04±4.98g) and minimum was in Lakha (58.54±2.34 and 66.7±3.1g). In 8th and 9th weeks, maximum body weight gain was observed in Mianwali variety, (114.2±5.45 and 112.92±6.05g) respectively, whereas, the minimum (90.42±4.61 g and 94.2±4.6g) was in Peshawari. Lakha and Peshawari had the maximum (134.37±5.35g) and minimum (100.42±7.2g) body weight gain (g) at 10th week.

The average weekly times of weight gain in four varieties of Aseel was significantly differed ($P<0.05$) at 3rd, 4th, 8th, 9th and 10th weeks of age (Table III). The mean weekly times of weight gain was observed to be maximum (1.56±0.02) in Peshawari and minimum (1.48±0.03) in Lakha at 3rd week. In 4th week, maximum (1.52±0.02) times weekly weight gain was recorded in Mushki and minimum (1.41±0.02) in Lakha variety. At 8th weeks of age, Mianwaliand Mushki varieties had the maximum (1.239 ± 0.01) and minimum (1.19±0.01) weekly times of weight gain. At 9th and 10th weeks, Lakha variety had the maximum weekly times of weight gain (1.192±0.01 and 1.20±0.01) while, Mushki (1.156±0.01) and Peshawari varieties had the minimum (1.160±0.01) weekly times of weight gain.

**Feed intake**

The average feed intake (g) in four varieties of Aseel differed significantly ($P<0.05$) during 1st to 15th weeks of age (Table IV). The maximum feed intake (598.72±3.17, 531.85±7.56, 565.39±4.28g) respectively, were recorded in Lakha, Mianwali and Peshawari varieties at week-12 and minimum (99.40±0.60, 102.66±0.60, 105.42±0.59g) at week-1. However, Mushki variety had maximum feed intake (522.2±2.67g) at week-15 and minimum (97.19±0.30g) also at week-1.

**Feed conversion ratio (FCR)**

The average FCR in four varieties of Aseel differed significantly ($P<0.05$) at 1st, 4th, 5th, 8th, 9th and 11th weeks of age (Table V). The higher mean FCR (6.52±0.66 and 6.62±0.43) were observed in Lakha and Mianwali varieties at week-13. However, Mushki and Peshawari had higher mean FCR (6.54±0.6 and 7.70±3.4) at week-2 and 7, while lower mean FCR (3.1±0.16, 2.96±0.2, 2.91±0.13, 3.7±0.32), respectively were recorded at week-1 in Lakha, Mianwali, Mushki and Peshawari, varieties.

**DISCUSSION**

The findings of the present study indicated that the mean body weight (g) of four varieties of Aseel differed significantly ($P<0.05$) at 4th, 5th, 6th, 7th, 10th, 12th, 13th, 14th and 15 weeks of age. The results of this study showing significant ($P<0.05$) differences in body weight in different varieties of Aseel during different age are in close conformity with the earlier findings of Singh *et al.* (1999) who reported higher weights at day-old in Aseel (33±0.30g) and Naked neck (34±0.36g) chicks under farm conditions, whereas, Chatterjee *et al.* (2002) reported lower body weights in Nicobar fowl at 4 weeks of age under backyard (53±1.41g) and intensive system (74±2.32g). In contrary to their findings, Mishra (1983) reported higher body weights at 0, 1, 2, 3 and 4 weeks of age (29±0.26g, 37±0.38g, 58±1.00g, 83±1.69g and 123±2.47g) respectively, in Kadaknath breed under farm conditions.

The average body weights of Aseel at 6, 8, 10
Table I.-  Weekly body weight (g) of four varieties of Aseel for 15 weeks of age (Mean ±SEM).

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Week-0</th>
<th>Week-1</th>
<th>Week-4</th>
<th>Week-8</th>
<th>Week-12</th>
<th>Week-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakha (n= 24)</td>
<td>30.83±0.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>65.4±1.65&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>202.5±4.29&lt;sup&gt;b&lt;/sup&gt;</td>
<td>570.6±20.25&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1062.5±34.1&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1400.3±43.5&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mianwali (n= 24)</td>
<td>30.66±0.51&lt;sup&gt;b&lt;/sup&gt;</td>
<td>67.29±1.50&lt;sup&gt;b&lt;/sup&gt;</td>
<td>219.79±5.6&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>596.25±15.7&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1074.2±25.42&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>1368.1±33.6&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mushki (n= 24)</td>
<td>30.75±0.41&lt;sup&gt;a&lt;/sup&gt;</td>
<td>65.62±1.4&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>229.6±7.24&lt;sup&gt;a&lt;/sup&gt;</td>
<td>619.2±18.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1088.3± 30.22&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1377.5±44.5&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Peshawari (n=24)</td>
<td>29.9±0.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>61.7±1.72&lt;sup&gt;b&lt;/sup&gt;</td>
<td>210.6±5.9&lt;sup&gt;b&lt;/sup&gt;</td>
<td>556.25±17.5&lt;sup&gt;b&lt;/sup&gt;</td>
<td>997.3±23.9&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1249.7±36.7&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Means with same superscripts in a column do not differ significantly (P<0.05)

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Table II.-  Body weight gain (g) into reference to previous in the four varieties of Aseel for 15 weeks of age (Mean ±SEM).

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Week-1</th>
<th>Week-4</th>
<th>Week-8</th>
<th>Week-12</th>
<th>Week-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakha (n= 24)</td>
<td>34.2±1.57&lt;sup&gt;a&lt;/sup&gt;</td>
<td>58.54±2.34&lt;sup&gt;b&lt;/sup&gt;</td>
<td>108.54±6.5&lt;sup&gt;b&lt;/sup&gt;</td>
<td>127.3±10.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>96.1±11.99&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mianwali (n= 24)</td>
<td>36.62±1.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>64.8±3.3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>114.2±5.45&lt;sup&gt;a&lt;/sup&gt;</td>
<td>114.6±6.2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>93.05±7.3&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mushki (n= 24)</td>
<td>34.87±1.4&lt;sup&gt;a&lt;/sup&gt;</td>
<td>78.54±3.65&lt;sup&gt;b&lt;/sup&gt;</td>
<td>96.7±5.41&lt;sup&gt;b&lt;/sup&gt;</td>
<td>122.71±5.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>96.9±10.35&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Peshawari (n=24)</td>
<td>31.75±1.83&lt;sup&gt;a&lt;/sup&gt;</td>
<td>62.50±3.1&lt;sup&gt;b&lt;/sup&gt;</td>
<td>90.42±4.61&lt;sup&gt;c&lt;/sup&gt;</td>
<td>119.8±5.85&lt;sup&gt;a&lt;/sup&gt;</td>
<td>82.2±3.5&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Means with same superscripts in a column do not differ significantly (P<0.05)

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Table III.-  Body weight gain in terms of fold increase with reference to previous week in the four varieties of Aseel for 15 weeks of age (Mean ±SEM).

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Week-1</th>
<th>Week-4</th>
<th>Week-8</th>
<th>Week-12</th>
<th>Week-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakha (n= 24)</td>
<td>2.12±0.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.41±0.02&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.237±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.13±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.07±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mianwali (n= 24)</td>
<td>2.21±0.06&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.42±0.02&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.23±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.12±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.07±0.005&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mushki (n= 24)</td>
<td>2.14 ±0.05&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.52±0.02&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.19±0.01&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.13±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.07±0.01&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Peshawari (n=24)</td>
<td>2.08±0.07&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.43±0.02&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.20±0.01&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.13±0.005&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1.07±0.003&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Means with same superscripts in a column do not differ significantly (P<0.05)

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Table IV.-  Feed Intake (g) period by four varieties of Aseel from 1 to 15 weeks of age (Mean ±SEM).

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Week-1</th>
<th>Week-4</th>
<th>Week-8</th>
<th>Week-12</th>
<th>Week-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakha (n= 24)</td>
<td>99.40±0.60c</td>
<td>291.77±2.90a</td>
<td>465.91± 9.46a</td>
<td>598.72±3.17a</td>
<td>530.9±1.77a</td>
</tr>
<tr>
<td>Mianwali (n= 24)</td>
<td>102.66±0.60b</td>
<td>286.69±0.43ab</td>
<td>398.36±4.43c</td>
<td>531.85±7.56c</td>
<td>526.2±2.31ab</td>
</tr>
<tr>
<td>Mushki (n= 24)</td>
<td>97.19±0.30ld</td>
<td>275.16±2.07c</td>
<td>381.82±5.34c</td>
<td>507.71±5.68d</td>
<td>522.2±2.67b</td>
</tr>
<tr>
<td>Peshawari (n=24)</td>
<td>105.42±0.59a</td>
<td>285.94± 1.52b</td>
<td>437.68±5.98b</td>
<td>565.39±4.28b</td>
<td>523.2±2.34b</td>
</tr>
</tbody>
</table>

Means with same superscripts in a column do not differ significantly (P<0.05)

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Table V.-  FCR in four varieties of Aseel from 1 to 15 weeks of age (Mean ±SEM).

<table>
<thead>
<tr>
<th>Varieties</th>
<th>Week-1</th>
<th>Week-4</th>
<th>Week-8</th>
<th>Week-12</th>
<th>Week-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakha (n= 24)</td>
<td>3.1±0.16&lt;sup&gt;b&lt;/sup&gt;</td>
<td>5.2±0.23&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.92±0.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.5±0.46&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.96±0.45&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mianwali (n= 24)</td>
<td>2.96±0.2&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.74±0.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.73±0.25&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.95±0.3&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>6.2±0.43&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mushki (n= 24)</td>
<td>2.91±0.13&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3.84±0.36&lt;sup&gt;b&lt;/sup&gt;</td>
<td>4.23±0.25&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>4.4±0.3&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.30±0.53&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Peshawari (n=24)</td>
<td>3.7±0.32&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.9±0.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.15±0.30&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.00±0.3&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>6.55±0.3&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Means with same superscripts in a column do not differ significantly (P<0.05)
and 12 weeks of age recorded in the present study are higher than those early reported by Mishra (1983) (249±4.03g, 397±5.23g, 555±6.96g and 754±4.72g, respectively), in Kadaknath breed. Whereas, Singh and Singh (1998) also reported body weight as 250g at 8 weeks of age in Kadaknath breed. Singh et al. (1999) reported body weight as 552g at 10 weeks of age in Aseel, whereas, Chatterjee et al. (2002) reported lower body weight as 112±2.45g and 117±3.64g, 183±5.11g and 222±12.60g, and 230±8.54g and 342±6.82g, respectively, at, 6, 8 and 10 weeks of age in Nicobar fowl. The body weight of Aseel at different ages were higher than Kadaknath breed (Chatterjee et al., 2002; Singh and Singh, 2004; Thakur et al., 2006; Anonymous, 2006; Chatterjee et al., 2007), which might be due to difference of genetic makeup of Kadaknath and Aseel, due to large body size of Aseel as compared to Kadaknath (Sharma and Chatterjee, 2006). Similarly many other workers also described the significant effect of genetic group on body weight of chicken at different ages (Mohammed et al., 2005; Devi and Reddy, 2005; Chatterjee et al., 2007).

The average weekly mean body weight gain (g) in four varieties of Aseel significantly (\(P<0.05\)) differed at 4th, 5th, 8th, 9th and 10th weeks of age during this study. The findings of present study are in line with those of Singh et al. (2003) who reported body weight gain of Kadaknath was the highest between 8 to 12 weeks of age, which indicated the gain in body weight of Aseel was still better at older ages. The highest gain in body weight at 15th week of age in both Kadaknath and Aseel was also reported. Sahota and Bhatti (2001) observed lower body weight gain in Desi birds in comparison to Rhode Island Red and White Leghorn chicks at 8 weeks of age. The difference in growth rate of different breeds of chickens could be attributed to interplay of multiple genes which could be improved through genetic selection (Chambers, 1990). The results of this study showing variation in body weight gain among different varieties of Aseel are also in agreement with those of Yakubu et al. (2006) who reported strain variation (\(P<0.05\)) in body weight gain in broilers at the age of 4-week. The similar strain variation in body weight gain in Japanese quail at different ages has also been indicated by Jatoi (2012).

The weekly mean feed intake (g) in four varieties of Aseel differed significantly (\(P<0.05\)) during entire experimental period. These results are in line with those of Mahmood et al. (1984) who indicated that Fayoumi birds exhibited significantly higher feed intake and lowered feed efficiency than recorded in Lyallpur Silver Black breed. Similar findings was also recorded by Iqbal et al. (2012) who reported a significant difference in daily feed intake of the four varieties of native Aseel chicken during week-3 (\(P = 0.0081\)) and week-4 (\(P = 0.0336\)). On an overall basis, daily feed intake per bird (Mean±S.D.) remained 77.5±13.5g for Lakha, 81.8±10.9g for Peshawari, 68.5±7.5g for Mushki and 59.1±15.0g for Mianwali Aseel. The results of this study showing variation in feed intake among different varieties of Aseel are in agreement with those of Joya et al. (1979); Proudfoot and Hulan (1987); Leeson et al. (1997); Jatoi (2012) who reported significant strain variation on feed intake in chicken and Japanese quail. Similarly, earlier findings also report significant effect of genotype on feed intake. Scheideler et al. (1998) found significant differences in feed intake among Dekalb Delta, Babcock B-300 and Hy-Line W-36. Similarly, Gunawardana et al. (2009) found significant differences in seven commercial leghorn strains and Singh et al. (2009) found significant difference in Lohmann White, H&N White, Lohmann Brown and noncommercial cross between RIR and Barred Plymouth Rock.

The results of this study showed that the mean FCR in four varieties of Aseel differed significantly (\(P<0.05\)) at 1st, 4th, 5th, 8th, 9th, 11th and 12th weeks of age. The findings are supported by those of Jain and Chaudhry (1985), who indicated significantly different FCR in White Leghorn, Rhode Island Red and Desi breeds. Similarly, Khantaprab and Tarachai (1998) reported that feed conversion ratio (FCR) in 8 weeks-old ducks were significantly (\(P>0.05\)) different between breeds. Hassan et al. (1962), observed better feed efficiency in Rhode Island Red than Fayoumi breed, whereas, poor feed efficiency in LSB has also been observed by Ahmad et al. (1972). Bokhari and Chaudhry (1972) reported less feed consumption in White Leghorn than Lyallpur Silver Black. The difference
in FCR between different breeds of chickens could be attributed to genetic variation between different breeds (Chambers, 1990).

CONCLUSIONS

The results of the present study show better growth performance in Lakha, Mianwali and Mushki varieties than Peshawari variety of native Aseel, however, the first three varieties differed non-significant. Mushki variety exhibited better feed conversion efficiency than other three varieties. Based on the findings of the present study, it may be stated that Mushki variety of Aseel possessed better growth performance; therefore, it may be considered for future breed improvement programs.

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REFERENCES


IQBAL, A., AKRAM, M., SAHOTA, A. W., JAVED, K., HUSSAIN, J., SARFRAZ, Z. AND MEHMOOD, S., 2012. Laying characteristics and egg geometry of four
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