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Evaluation on growth and meat production performances of four different crosses of chicken in Bangladesh

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ABSTRACT: This study was conducted to know the growth and meat production performances of chickens produced by four different crosses of Male line white (MLW), Female line white (FLW), Male line colored (MLC), Female line colored (FLC). A total number of 193 day old chicks were hatched out through the four different crosses of MLW (♂) × FLW (♀), MLW (♂) ×FLC (♀), MLC (♂) × FLW (♀) and MLC (♂) × FLC (♀). During the experimental period from day old to 42 days of age, *adlibitum* feeds were supplied to birds. One male and one female from each cross were sacrificed to evaluate their meat production characteristics. Commercial Broiler (CB) was used to compare the meat production characteristics of experimental chickens. The body weight at 1, 2, 3, 4, 5 and 6 weeks of age was significantly ($P<0.001$) different in four crosses of chickens. Significantly ($P<0.05$) higher body weight was found in MLW × FLW followed by MLW × FLC, MLC × FLW and MLC × FLC. The weight gain was obtained the similar trend as the body weight. The highest weight gain from 0-6 weeks of rearing was found in MLW×FLW. The 0-6 week weight gain for four line crossed chicken were 693.73, 701.21, 1138.56 and 1179.00g respectively. The body weight and weight gain rate was always higher in male rather than in female. The chicks produced by MLW × FLW were higher in dressing yield than that of other crosses of chickens. The results of the present study implied that the MLW × FLW might be appropriate in our environmental condition for producing white feathered broiler, while the MLC × FLC as colored broiler.

KEYWORDS: Body weight, body weight gain, chicken, meat production traits.

1 INTRODUCTION

Commercial broiler production plays a pro-vital role to meet up the growing demand of high quality animal protein in the human diet in Bangladesh. It is one of the outmost important rapid growing industries for reducing the huge deficiency of animal protein as well as poverty level of this country. Broiler production begets the maximum income within the fact of minimum cost. A small land area is required for commercial broiler farming. Small farmers are easily utilized their available land areas by raising small-scale commercial broiler. Therefore, there is a great scope of broiler farming for proper utilizing the available small land area of rural farmers in our country. However, broiler farmers are faced various troubles to make their farming profitable and sustainable. Farmers are purchased the most inputs like parent chick, feed, vaccine and medicine that are imported from abroad. Bangladesh is spending a lot of foreign currency for buying parent and grandparent stock in each year. 2500 thousand broiler parents and 280 thousand layer parents are imported from abroad by expending the foreign currency of US $10 million in a year [1]. Now-a-days, the price of parent and grandparent stocks is increased more compared to before. Moreover, imported parents and grandparents from foreign countries are not fully adapted to our environmental condition. These might act as a carrier of some exotic diseases that affects the growing poultry industry in the country [2]. That is why, government is searching alternative ways that would be ensured to make more revenue or save some foreign currency for the sustainable development of the poultry industry in this country. For doing this, Bangladesh can

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rear its own broiler grandparents and parents to produce quality day old broiler chicks with reasonable price. However, any kind of good initiatives weren't taken to develop broiler parents from our locally available chicken Germplasms. In a study, [3] stated that the synthetic meat type bird grow almost similar to commercial broilers. But growth rate of Desi (indigenous) chicken is poor and takes long time to attain market weight. Meat of Desi chicken was the best in respect of flavor and taste while synthetic broiler was the best for tenderness and juiciness with best growth and feed conversion ratio reported by [4]. The dressing yield was the best for Desi crossbred i.e. 74.8%. Consumers of our country mostly prefer local chicken despite of higher prices due to its tenderness and special taste.

Now a day, some people pay more to buy colored chicken compared with the rapid growing white feathered broiler because of their watery and soft meat. So, developing colored chicken with somehow tough meat will be more acceptable than that of commercial broilers. The department of poultry science under the faculty of Animal Husbandry, Bangladesh Agricultural University (BAU), Mymensingh has taken an initiative to develop a suitable meat type chicken through poultry breeding program for our country. Development of broiler sire and dam lines from synthetic and available genetic resources would be our own broiler parent stock with better adaptability. At the same time it might protect our poultry industry from endemic disease like avian influenza and other emerging diseases. Hence, this study was undertaken with a view to evaluate growth performance and meat production traits of four different crossbred chickens developed by BAU in Bangladesh.

2 MATERIALS AND METHOD

2.1 STUDY AREA

A study was conducted at the Bangladesh Agricultural University Poultry Farm, Mymensingh, for a period of six weeks from July 20 to September 7, 2012. The following experimental lay out was followed during the study period.

Experimental layout

Cross	Age of the birds	Total no. of chicken
MLW × FLC	Day old	55
MLW × FLW	Day old	54
MLC × FLW	Day old	56
MLC × FLC	Day old	28

2.2 RESEARCH FARM MANAGEMENT

Chicks of four different crosses were wing banded, weighed and randomly distributed in various pens in according to genotypes. Brooding of chicks was done with electric brooder up to 3 weeks of age. Broiler starter and grower feed of Nourish Poultry Feed Limited were given *adlibitum* basis to birds from day old to 21 days, 22 days to 42 days of age, respectively. Improved broiler farm management, housing facilities, rearing techniques and farm bio-security were ensured for the better production performance.

2.3 LIGHTING

All chickens were exposed to a continuous lighting. The photoperiod of chicken was 23.5 hours and dark period was 30 minutes. The dark period was provided to the chicken for making them familiar with the darkness during possible electricity failure.

2.4 VACCINATION

The experimental chickens were vaccinated against Ranikhet Disease and Gumboro Disease as per following schedule.

Table 1 Vaccination schedule followed during the experimental period

Age (day)	Name of vaccine	Route and dose of administration
4	BCRDV	1 drop in one eye
12	Gumboro Vaccine (D-78)	1 drop in one eye
18	Gumboro Vaccine (228E)	1 drop in one eye
23	BCRDV (Booster dose)	1 drop in one eye

2.5 SANITATION

Proper hygienic and sanitary measures were taken during the experiment. Feeder and waterer were washed and cleaned daily in the morning before being used. Before entering the experimental room, hands were washed with tap water. Separate shoes were used for entering into the house and feet were dipped in the water bath containing disinfectant solution.

2.6 RECORD KEEPING

The following parameters were recorded throughout the experimental period in accordance to replication separately.

2.7 BODY WEIGHT

Day old chicks were wing banded and the weekly body weights were recorded individually from day old to 6 weeks of age. The birds were weighed in the morning before supply of feed.

2.8 BODY WEIGHT GAIN

Weekly body weight gain was calculated by using the following formula:

Body weight gain= Final weight – Initial weight

2.9 FEED INTAKE

The amount of feeds supplied every day morning was recorded in a record book. Weekly feed consumption along with the leftover was recorded during the experimental period.

2.10 CALCULATION OF FEED CONVERSION RATIO (FCR)

Feed conversion ratio was calculated by using the following formula:

$$\text{Feed Conversion Ratio} = \frac{\text{Feed intake (gm)}}{\text{Live weight gain (gm)}}$$

2.11 PROCESSING OF CHICKEN

At the end of the 6 weeks, one male and one female of nearly similar body weight from each genotype and one male and one female commercial broiler were fasted first. Feed was withdrawn 12 hours prior to slaughtering to facilitate proper bleeding. The initial weight before feed withdrawal and final weight before slaughtering was recorded. Then they were slaughtered, bled, scalded, de-feathered and eviscerated gradually. After slaughtering complete bleeding was facilitated and then the chicken were immersed in pre-warmed water (51–55°C) for 120 seconds in order to loosen the feather of the carcasses. Then feathers along with the head, shanks, viscera, oil gland and lungs were removed. Heart and liver were removed from the remaining viscera by cutting them with knife. As soon as these were removed, the gall bladder was removed from the liver. The gizzard was removed by cutting it loose in front of the proventriculus and then cutting both incoming and outgoing tracts. Finally, the dressed weight of the carcasses was recorded including giblets and dressing percentage was calculated.

2.12 SHRINKAGE MEASUREMENT

After recording weight before and after fasting the shrinkage percentage was calculated from the following formula:

$$\text{Shrinkage (\%)} = \frac{\text{Initial weight} - \text{Final weight}}{\text{Initial weight}} \times 100$$

2.13 BREAST, THIGH, DRUMSTICK AND WING MEAT MEASUREMENTS

After processing the breast meat of left side of each carcass was cut out and weighed. After that meat of left thigh, drumstick and wing was cut out and weighed individually using digital weighing balance along with the individual bone measurement.

2.14 STATISTICAL ANALYSIS

The collected and computed data were analyzed using Linear Mixed Model implemented in JMP (Statistical Discovery Software, SAS Institute Inc., USA). Significant differences between genotypes were identified by Turkey's HSD Test.

3 RESULTS

3.1 BODY WEIGHT

Body weight of sex combined crossed progenies in different ages from day old to six week are presented in Table 2. The day old weights were significantly different among the crosses. The higher weight was obtained in MLW×FLW (1164.54±17.01g) compared to the different crosses of MLW×FLC (1100.53±17.16g), MLC × FLC (625.58±24.96g) and MLC × FLW (660.98±17.01g).

3.2 BODY WEIGHT GAIN

The weekly weight gains of line crossed male birds are shown in Table 3. The body weight gain of MLW×FLC was 268.88, 195.68 and 349.00g at 4, 5 and 6 weeks of age respectively. The highest weight gain was found in MLW×FLW from 0-6 weeks of ages. The 0-6 week weight gain in different four line crossed chicken were 693.73, 701.21, 1138.56 and 1179.00g respectively. The weekly body weight gain of line crossed female birds is shown in Table 4. The weight gain of MLW × FLW was 230.20, 174.73 and 293.76g at 4, 5 and 6 weeks of age, respectively. The weight gain of MLW × FLW at 6 week was significantly ($p<0.001$)differed with other three crosses The six week weight gain at 0-3, 3-6 and 0-6 week were highest in MLW×FLW (346.00, 695.81 and 1041g) which was closely similar with MLW×FLC (313.13, 698.70 and 1011.83g) and had significant difference in other two crosses. The weight gain of MLC × FLC and MLC × FLW was same up to 6 weeks of age and MLW × FLC and MLW × FLW grew in same manner up to 6 weeks of age. The body weight gain of sex combined line crossed chicken is shown in Table 5. The weight gain of MLW × FLC was 247, 184 and 318g at 4, 5 and 6 weeks of age respectively that varied from other three crosses. But no difference was observed between the MLC×FLC and MLC×FLW. The trend in weight gain was almost similar in all crosses and significantly differed from each other ($p<0.001$) among the four crosses.

3.3 MEAT YIELD

Meat yield and their quality characteristics of MLW × FLW, MLW × FLC, MLC × FLW and MLC × FLC crossbred chicken were compared with the commercial broiler is shown in Table 6. Among five genotypes edible meat was highest in commercial broiler followed by MLW × FLW, MLW × FLC, MLC × FLW, MLC × FLC and the differences were significant ($P<0.01$). Dressed weight was significantly ($P<0.01$) highest in commercial broiler and lowest in MLC × FLC while the other line crosses MLW × FLW, MLW × FLC and MLC × FLW were similar. The breast meat yield follows similar pattern as dressed weight. It is evident (Table 5) that all of the line crosses MLW × FLW (75.48%), MLW × FLC (74.09%), MLC × FLW (74.95%) and MLC × FLC (73.13%) had higher dressing percentages than commercial broiler (69.35%) though the difference was non-significant ($P>0.05$). Three different parameters were measured of thigh. They were thigh meat, thigh bone and thigh weight. All the parameters differed significantly among different strain and cross. All the parameters were highest in MLW × FLW (55.1, 10.6 and 65.7 g respectively) which was closely similar with the birds bought from market to compare. The highest breast meat yield was

obtained from MLW × FLW. Significant difference in breast meat was observed in MLC × FLW. Performance of the birds of commercial stock bought from market was also almost similar with the birds under study.

Table 2 Sex combined body weight (g) of different line crossed chicken up to 6 weeks of age

Genotype	Age (Week)						
	DOC	1st	2nd	3rd	4th	5th	6th
MLC × FLC	30.80± 0.52[b]	52.88± 1.83[d]	125.80± 3.91[d]	218.23± 6.59[d]	336.84± 11.96[d]	483.07± 17.47[c]	625.58± 24.96[c]
MLC × FLW	37.16± 0.36[a]	60.89± 1.25[c]	146.33± 2.66[c]	243.42± 4.49[c]	372.14± 8.15[c]	509.76± 11.90[c]	660.98± 17.01[c]
MLW × FLC	31.09± 0.36[b]	69.00± 1.26[b]	199.27± 2.68[b]	349.61± 4.53[b]	597.40± 8.22[b]	781.65± 12.01[b]	1100.53± 17.16[b]
MLW × FLW	36.98± 0.36[a]	92.23± 1.25[a]	225.60± 2.66[a]	378.96± 4.49[a]	657.64± 8.15[a]	868.07± 11.90[a]	1164.54± 17.01[a]
LS	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001

Means in a column followed by the same superscript letters are not significantly different at 1% level of profitability by DMRT. DOC: Day Old Chick, FLC: Female Line Color, MLC: Male Line Color, MLW: Male Line White, FLW: Female Line White, SE: Standard Error, LS: Level of Significance

Table 3 Body weight gain (g) of different line crossed male chicken up to 6 weeks of age

Genotype	Body weight gain (g)								
	0 - 1 week	1-2 week	2-3 week	3-4 week	4-5 week	5-6 week	0 – 3 week	3 -6 week	0 – 6 week
MLC ×FLC	22.18± 2.85[c]	76.81± 4.32[c]	100.72± 8.10[b]	134.27±1 2.26[b]	176.27± 12.20[c]	183.45±1 4.76[b]	199.72±1 0.38[b]	494.00±2 7.14[b]	693.73±31 .72[b]
MLC ×FLW	25.00± 1.93[c]	88.62± 2.92[b]	103.66± 5.48[b]	146.91± 8.30[b]	160.33± 8.26[b]	176.66±9 .99[b]	217.29± 7.03[b]	483.91±1 8.37[b]	701.21±21 .48[b]
MLW × FLC	33.64± 1.89[b]	136.40± 2.86[a]	154.96± 5.37[a]	268.88±8 .13[a]	195.68± 8.09[b]	349.00±9 .79[a]	325.00±6 .88[a]	813.56±1 8.00[a]	1138.56±2 1.04[a]
MLW ×FLW	52.48± 1.59[a]	132.28± 2.42[a]	154.80± 4.54[a]	288.45± 6.87[a]	225.22± 6.84[a]	325.74± 8.27[a]	339.57± 5.82[a]	839.42± 15.21[a]	1179.00±1 7.78[a]
LS	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001

Means in a column followed by the same superscript letters are not significantly different at 1% level of profitability by DMRT. DOC: Day Old Chick, FLC: Female Line Color, MLC: Male Line Color, MLW: Male Line White, FLW: Female Line White, SE: Standard Error, LS: Level of Significance

Table 4 Body weight gain (g) of different line crossed female chicken up to 6 weeks of age

Genotype	Body weight gain (g)								
	0-1 week	1-2 week	2-3 week	3-4 week	4-5 week	5-6 week	0–3 week	3-6 week	0–6 week
MLC × FLC	22.00± 2.12[c]	70.06± 4.41[d]	86.33± 6.13[b]	107.13± 9.69[c]	124.20± 10.05[b]	112.46± 13.32[c]	178.40± 8.12[d]	343.80± 24.29[b]	522.20± 28.41[b]
MLC × FLW	22.78± 1.45[c]	83.06± 3.01[c]	92.15± 4.20[b]	115.06± 9.63[c]	120.59± 6.88[b]	132.12± 9.12[c]	198.00± 5.56[c]	367.78± 16.63[b]	565.78± 19.45[b]
MLW × FLC	41.46± 1.49[b]	125.16± 3.11[b]	146.50± 4.33[a]	230.20± 6.85[b]	174.733± 7.10[a]	293.76± 9.42[b]	313.13± 5.74[b]	698.70± 17.18[a]	1011.83± 20.09[a]
MLW × FLW	59.85± 1.79[a]	135.19± 3.72[a]	150.95± 5.18[a]	262.38± 8.19[a]	185.76± 8.49[a]	247.66± 11.26[a]	346.00± 6.86[a]	695.81± 20.53[a]	1041.81± 24.01[a]
LS	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001

Means in a column followed by the same superscript letters are not significantly different at 1% level of profitability by DMRT. DOC: Day Old Chick, FLC: Female Line Color, MLC: Male Line Color, MLW: Male Line White, FLW: Female Line White, SE: Standard Error, LS: Level of Significance

Table 5 Sex combined body weight gain (g) of different line crossed chicken up to 6 weeks

Genotypes	Body weight gain (Week)								
	0-1 week	1-2 week	2-3 week	3-4 Week	4-5 week	5-6 week	0–3 week	3-6 week	0–6 week
MLW×FLW	55.25± 1.23[a]	133.33± 2.14[a]	153.3± 3.4[a]	278.67± 5.59[a]	210.42± 5.80[a]	296.46±7 .83[a]	341.98± 4.47[a]	785.57±1 4.89[a]	1127.55± 16.97[a]
MLW×FLC	37.90± 1.24[b]	130.2± 2.16[a]	150.3± 3.4[a]	247.78± 5.64[b]	184.25± 5.86[b]	318.87±7 .90[b]	318.52± 4.51[b]	750.90±1 5.03[a]	1069.44± 17.13[b]
MLC×FLW	23.73± 1.23[c]	85.44± 2.14[b]	97.08± 3.41[b]	128.71± 5.59[c]	137.62± 5.80[c]	151.21±7 .83[c]	206.26± 4.47[c]	417.55±1 4.89[b]	623.82± 16.97[c]
MLC× FLC	22.07± 1.81[c]	72.92± 3.14[c]	92.42± 5.00[b]	118.61± 18.20[c]	146.23± 8.52[c]	142.50±1 1.49[c]	187.42± 6.56[d]	407.34±2 1.86[b]	594.77± 24.91[c]
LS	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001

Means in a column followed by the same superscript letters are not significantly different at 1% level of profitability by DMRT. DOC: Day Old Chick, FLC: Female Line Color, MLC: Male Line Color, MLW: Male Line White, FLW: Female Line White, SE: Standard Error, LS: Level of Significance

Table 6 Meat production traits of different four line crossed chicken

Genotype	Sex	Weight (g)																Dressing	Shrinkage
		BF	AF	Difference	EM	Giblet	Carcass	BM	TM	TB	Thigh	DM	DB	Drumstick	WM	WB	Wing	%	(%)
MLC × FLC	M	963	950	13	659.0	60.0	719	89.5	45.2	8.7	53.9	33.1	15.2	48.3	26.1	19.2	45.3	75.6	1.3
MLC × FLC	F	865	850	15	598.5	38.5	637	54.3	39.4	7.6	47	37.1	11.3	48.4	22.5	18	40.5	74.9	1.7
MLC×FLW	M	1055	1019	36	720	69.5	789.5	65	51	8.4	59.4	35.9	14	49.9	26.3	18.1	44.4	77.4	3.4
MLC × FLW	F	873	852	21	568	50.5	618.5	49.2	40.6	6.6	47.2	26.6	9.8	36.4	16.3	15.9	32.2	72.5	2.4
MLW×FLW	M	1216	1200	16	860	66.0	926	90.2	55.1	10.6	65.7	42.1	16.2	58.3	28.2	19.5	47.7	77.1	1.3
MLW×FLW	F	1155	1019	136	757.5	71.0	828.5	86.7	36.4	9.1	45.5	41.2	12.7	53.9	28.4	17.5	45.9	81.3	11.7
MLW×FLC	M	1107	1090	17	757.5	66.8	824.3	73.2	52.4	8.9	61.3	39	15.1	54.1	32.1	15.4	47.5	75.6	1.5
MLW×FLC	F	1091	1080	11	758.5	62.0	820.5	81.4	47.5	8.6	56.1	37.5	11.3	48.8	23.1	17.6	40.7	75.9	1.0
Broiler	M	1200	1113	87	758.7	53.5	812.2	88.2	60.2	8.9	69.1	40.7	14.8	55.5	28.1	15.7	43.8	72.9	7.2
Broiler	F	1150	1011	139	672	51.8	723.8	60.6	55.2	9.2	64.4	33.5	15.6	49.1	26.7	15.4	42.1	71.5	12.0

M: Male, F: Female, BF: Before Fasting, AF: After Fasting, EM: Edible Meat, BM: Breast Meat, TM: Thigh Meat, TB: Thigh Bone, DM: Drumstick Meat, DB: Drumstick Bone, WM: Wing Meat, WB: Wing Bone, FLC: Female Line Color, MLC: Male Line Color, MLW: Male Line White, FLW: Female Line White.

4 DISCUSSION

4.1 BODY WEIGHT

The six week body weight was found higher in MLW×FLW than that of other three crosses. The significant difference was found between the MLW × FLW and MLW × FLC in compared with the MLC × FLC and MLC × FLC line crossed chicken at six week body weight. The finding of the current study strongly supports the findings of Kishore *et al.* (2002) who worked with 498 chicks of a colored synthetic broiler strain to evaluate the inheritance of body weight from day old to 6 weeks of age. Their assumption was the positive significant correlation between the body weights at different ages were influenced by some set of genes and the weights at 6 weeks of age was improved as a correlated response. It also matches with the findings of Haque (2005) who demonstrated that the growth of synthetic broiler in F2 generation is comparable to commercial broilers. The synthetic broiler attained 1459.25 gm body weight at 5 weeks of age which is higher than our findings (1164.54 gm). Pervin (2005) reported initial 1st, 2nd, 3rd, 4th, and 5th week's body weight of synthetic broiler as 48.7g, 134.8g, 391.6g, 697.2g, 1127.0g and 1391.0g respectively which was also slightly higher from the present study. Gueye (2000) reported that the white-feathered broilers are dominating in world poultry meat production owing to their rapid growth and high feed utilization efficiency.

4.2 BODY WEIGHT GAIN

The weight gain were significantly ($p<0.001$) higher between MLW × FLC and MLW × FLW than that of MLC × FLC, MLC × FLW. No significant difference was observed between MLW × FLC and MLW × FLW cross and between MLC × FLC and MLC × FLW cross. It is clear from the present study that the highest body weight was found in white feathered birds of male line rather than colored feathered birds. But white and colored birds provided good result by showing heavier body weight along

with good body weight gain when they were used as female line and crossed with white male line rather than colored male line. The results of sex combined weight gain (g) of different line crossed chicken up to 6 weeks revealed that white feathered male lines with any female line either colored or white feathered female is very much suitable for higher weight gain along with higher body weight. Whereas, the weight gain of colored feather male line with any feather colored male line is not enough to produce a heavier bird up to 6 weeks of age. It is observed from the present study that sex of bird influences the body weight as it was found that the body weight and weight gain rate was always higher in male rather than in female and it was supported by Schmidt *et al*.(2006) who reported that body weight in female lines improved 504, 548 and 587g for strains PP (15), VV (10) and KK (8) respectively and body weight in male lines improved 758 and 408g for TT (10) and ZZ (3) respectively. Siegel (2005) reported that high weight lines gained 26 and 20g per generation for males and female.

4.3 MEAT YIELD

Different parameters like breast, thigh, drumstick, wing and giblet yield were studied for meat yield characteristics of different four crossbred chicken genotypes compared with a commercial broiler bird. All parameters were higher in MLW×FLW crossbred broiler. The result of the present study agrees with the report of Mendes *et al.* (1994) who studied with four broiler strains (Hubbard classic, Synthetic, Arber acres and Cobb) and noted that strain had a significant effect on carcass yield and the percentage of breast meat. All differences between the sexes were significant. Male had higher body weight, eviscerated carcass yield, but the percentage of abdominal fat and breast meat were higher in females. Dressing percentage of the four strains and the commercial broilers were almost similar except the MLW × FLW. This line crossed chicken had the highest carcass yield followed by MLW × FLC, MLC × FLW and MLC × FLC and it was about 81%. The result agreed with Mendes et al. (1994), Pandey et al. (1985) and Orr et al. (1985), who found significant difference among the different broiler strains for carcass yield. Orr et al. (1985) made a study on the carcass parts meat yields and bone of eight strains of broiler. There was no significant difference between the sexes but the differences between the strains were significant. These findings are in agreement with the results of the current research. According to Lagin (1989) the percentage of breast muscle is 27.1 and 29.3 for male and female respectively and this report contradicts with our findings that the highest breast meat percentage in our study was 12.44 for male and10.34 for female. The amount of the considered parameter of MLW×FLC were almost equal with MLW×FLW.

5 CONCLUSION

It may be concluded from the findings of this study that body weight, weekly weight gain and meat production parameters were significantly higher in MLW×FLW rather than other three crosses. The performance of MLW×FLC was almost similar compared with MLC×FLC and MLC×FLW. The performance of colored male line was always significantly lower than the male line white considering all parameters used in the study. Finally, it may be suggested from the result of this study that white male line is most suitable for superior performance than that of any kind of female line either white or colored.

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