

A STUDY ON THE PERFORMANCE OF KHAKI CAMPBELL, DESI AND KHAKI CAMPBELL X DESI DUCKS WITH AND WITHOUT EXTRA FEEDING UNDER RURAL CONDITION OF BANGLADESH

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Summary

Three month old 600 ducklings of Khaki Campbell/KC Desi and KC X Desi were reared for a period of 13 months in the villages surrounding Bangladesh Agricultural University in order to study the economic traits of duck with and without extra feed to scavenging system of rearing. KC attained earlier sexual maturity followed by KC X Desi and Desi ducks and crossbred showed closeness to sire breed for this trait, KC X Desi found heavier and produce more eggs than their parental breeds. KC showed higher hatchability followed by KC X Desi and Desi ducks were more resistant followed by KC X Desi and KC to diseases. Extra feeding were found more beneficial to ducks irrespective of breed and types.

(Key Words : Economic Traits, KC, KC X Desi, Desi)

Introduction

Chickens produce about 76% and ducks produce 24% of total eggs in Bangladesh (Hossain and Chowdhury, 1989). In the development of poultry, a proper emphasis should be given on duck farming. Desi (indigenous) ducks produce egg of large size than Desi hens. Ducks have greater resistance to diseases than the chickens because of their higher scavenging ability and needed less care than that of chickens. Desi ducks in rural areas of Bangladesh are being raised under traditional free range in the house hold of the farmers economy, by exploiting the existing facility like natural feed sources in water logged areas. Though the Desi ducks are poor producers of meat and eggs in comparison with those of exotic breeds, they are also more resistant to diseases under adverse condition.

Upgrading of Desi ducks with Khaki Campbell would possibly combine higher egg production and disease resistance in the upgraded stock. Hamid and Chowdhury (1990) suggesting that Khaki Campbell may perform better than the Indian Runner ducks under Bangladesh condition. But no study has yet taken to evaluate the performance of Khaki Campbell, Desi and their crossbreeds under low input rural management. Moreover,

it is known whether supplementary feeding in addition to scavenging could improve the performance of ducks under traditional free range condition. So the present study envisaged the performance of Khaki Campbell, Khaki Campbell X Desi and Desi ducks under rural condition of Bangladesh with and without supplementary feeding.

Materials and Methods

The experiment was conducted in the villages surrounding Bangladesh Agricultural University (BAU).

Lay out of the experiment:

Three months old 200 Khaki Campbell (40 males and 160 females), 200 Desi (40 males and 160 females) and 200 Khaki Campbell X Desi (40 males and 160 females) ducks were randomly distributed among 120 previously selected farmers at the rate of 1 male and 4 females for each farmer and reared on with and without supplementation of feed for a period of 13 months. Each breed belonging to each feeding regime had ten replications. The breed type was distributed at random to the farmer i.e. one farmer got either of one breed ducks in each groups were identified properly and provided with identical care and management. All ducks were maintained under free range condition. In case of ducks on supplementary feeding they were provided with supplementary feed on scavenging. The feed supplied

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Received May 11, 1994

Accepted April 13, 1995

composed of locally available feed ingredient, about 50 g of wheat per bird per day and occasionally about 20 g of dry fish. Birds of all groups were allowed to obtain their feed by scavenging routine vaccination and deworming programmes were taken for the prevention of diseases. Broody hens were used to incubate eggs collected from the 3 breed types-to record hatchability parameters. The following records were kept during the experimental period to fulfill the objectives :

- (1) Age at sexual maturity determined by the first egg laid by the ducks
- (2) Age at 50% egg production
- (3) Age at peak egg production
- (4) Body weight at sexual maturity, at peak production and at the end of ten months laying period
- (5) Egg production upto 10 months of laying period, daily group wise record
- (6) Hatchability of egg for each replicate
- (7) Mortality was recorded daily for each replication

The data collected on various parameters were analysed for a 3 (breeds) X 2 (feeding) regime, factorial design.

Results

Age and body weight at sexual maturity, 50% egg production and peak egg production.

Khaki Campbell (KC) reached sexual maturity, 50% egg production and peak egg production at an earlier age followed by Khaki Campbell X Desi (KC X Desi) and Desi ducks respectively (table 1). In all those mentioned parameters birds on feed supplementation exceeded those on scavenging without feed supplementation ($p < 0.05$). The age at sexual maturity, age at 50% egg production and age at peak production were more influenced by the sire breed, KC. Weight gain was highest in KC X Desi followed by KC and Desi ducks respectively ($p < 0.05$). Provision of supplementary feeding increased live weight by about 7% in KC, 14% in KC X Desi and 9% in Desi Ducks ($p < 0.05$). Breed differences in live weight was widened in supplementary feeding ($p < 0.05$) in all these parameters, i.e. breed and feeding regime interacted upon these traits. The crossbred showed heterosis in live weight gain and they exceeded the average of the parental breed in weight gain. Moreover, increase in body weight gain due to supplementary feeding was more profound in the case of crossbred than that in pure breed ducks ($p < 0.05$). The superiority of crossbred over the parental pure breeds for weight gain were found at all stages of growth.

Egg production

KC X Desi ducks laid 64% more eggs than the KC ducks and KC ducks laid 63% more egg than the Desi ducks. An increase of about 51% in egg numbers were obtained from birds receiving supplementary feeding. Egg production in crossbred ducks receiving supplementary feeding were more higher than the parental breeds. Breed and feed acted independently in egg production traits.

Hatchability

Egg hatchability in KC was highest followed by KC X Desi and Desi ducks. Ducks receiving supplementary feed had 3.82% higher egg hatchability. Breed and feed effects were independent on egg hatchability.

Mortality

Mortality of ducks was highest in KC, intermediate in KC X Desi and lowest in Desi ducks. On the other hand, supplementary feeding decreased mortality by about 54.7% on average. Breed and feed were independent in action on mortality.

Discussion

An earlier sexual maturity in KC than Desi ducks and intermediate position of their crossbred obtained in the present study were supported by many other research workers (Hamid et al., 1988; Hossain and Chowdhury, 1989; Mohiruddin, 1983; Mostageer et al., 1969). The crossbred of KC X Desi showed closeness to the sexual maturity of sire breed KC were also observed by Warren (1953). However present data contradicts with the findings of Eswaran et al. (1985) who found earlier age at sexual maturity and age at 50% egg production in Desi followed by KC ducks. Published information on age at 50% production and peak production to compare present data were scanty. However, it maintained same direction as in the age at sexual maturity.

As in this study, a heavier weight at sexual maturity in KC X Desi than parental breeds also observed by Hossain (1990). Lighter body weight of Desi ducks at age at sexual maturity, at peak production and at the end of the study were also in agreement with Hamid et al. (1988) and Mohiruddin (1983). However, findings on the body weight of the crossbreeds contradicts with their findings. Heterosis data obtained regarding the body weight of crossbred contradicts the findings of Warren (1953) who did not find heterosis in crossbred birds.

A higher production of KC than the Desi ducks found in this study were supported by many research workers (Mohiruddin, 1983; Eswaran et al., 1985; Salam, 1981; Hamid et al., 1988). Present findings agreed with the

statement that the average egg production of crossbreeds (Grossman, 1960; Stanphone, 1961; Marias, 1965) and higher egg are higher than either of the parental breeds (Grossman, 1960; Stanphone, 1961; Marias, 1965) and higher egg production of KC X Desi than the parental breeds found

TABLE 1. PERFORMANCE OF KHAKE CAMPBELL (KC), KC X DESI (KC X DESI) AND DESI DUCKS WITH AND WITHOUT SUPPLEMENTARY FEEDING

Parameter	Breed (B)	Feeding regime (F)			SED and level of significance		
		Without supplementary feeding	With supplementary feeding	Mean	B	F	B x F
Age of sexual maturity	KC	182	167.5	174.7	1.9*	1.55*	2.68NS
	KC X Desi	187.5	179	183.2			
	Desi	209	191	200			
	Mean	192.8	179.1	185.9			
Age at 5% egg production (days)	KC	192.5	178	185.2	2.47*	2.02*	3.49NS
	KC X Desi	200	192	196			
	Desi	218	203.5	210.7			
	Mean	203.5	191.1	197.3			
Age at peak production (days)	KC	196	180.5	188.2	2.38*	1.94	3.36NS
	KC X Desi	206.5	196.5	201.5			
	Desi	225.5	208	216.7			
	Mean	209.3	195	202.1			
Body weight at sexual maturity (g)	KC	1,455	1,545	1,500	5.16*	4.22*	7.30*
	KC X Desi	1,425	1,615	1,520			
	Desi	1,385	1,485	1,435			
	Mean	1,421.6	1,548.3	1,485			
Body weight at peak production (g)	KC	1,570	1,660	1,615	5.57*	4.55*	7.88*
	KC X Desi	1,557.5	1,775	1,666.2			
	Desi	1,465	1,590	1,527.5			
	Mean	1,530.8	1,675	1,602.9			
Body weight at 465 days (g/duck)	KC	2,245	2,445	2,345	2.04*	1.66*	2.88*
	KC X Desi	2,185	2,555	2,370			
	Desi	2,135	2,350	2,242.5			
	Mean	2,188.3	2,450	2,319.1			
Egg production upto 300 days	KC	67	92	79.5	6.12*	5.00*	8.66NS
	KC X Desi	110	166	138			
	Desi	41	71	56			
	Mean	72.67	109.67	91.1			
Hatchability (%) of eggs on total eggs	KC	66	68	67	0.54*	0.44*	0.77NS
	KC X Desi	61	63	62			
	Desi	56	59	57			
	Mean	61	63.33	67.17			
Mortality (%) upto 465 days	KC	17	11	14	0.81*	0.66*	1.15NS
	KC X Desi	11	7	9			
	Desi	6	4	5			
	Mean	11.33	7.33	9.33			

NS = Not Significant.
*p < 0.05.

in this study corresponds with the findings of Hamid and Chowdhury (1990), but contradicts with the findings of Mostageer et al. (1969), who found intermediate egg production of KC X Pekin than their parental breeds.

Higher hatchability in KC ducks eggs found in this study were supported by the findings of Salam (1981) and Hamid et al. (1988) but contradicts with the findings of Reddy et al. (1979), Mishra et al. (1985) and Nanda and Sharma (1987) who found higher hatchability of Desi duck eggs than those of KC ducks eggs. An intermediate hatchability of KC X Desi eggs found in the present study favoured by the statement of Byerly et al. (1934) and Funk (1934) "crossbreeding improve hatchability" but contradicts with the findings of Saha and Hamid (1983) who found lowest hatchability in KC X Desi duck eggs than either of the parental breeds.

Least mortality in Desi ducks found in this study was in agreement with the findings of Hamid et al. (1988) but contradicts with the findings of Mohiruddin (1983) who found lowest mortality in KC followed by Desi and Indian runner ducks. An intermediate mortality in crossbred found in the present study compared to parental breed supported by Hamid et al. (1988).

Except for body weight, breeds and feeds effect independently for other traits observed. Age at sexual maturity, at 50% egg production and at peak egg production were influenced by sire breed KC irrespective of feeding regimes. Heterosis were observed in body weight of crossbred ducks. From the result it appeared that KC X Desi had the advantage of larger body weight and precocity of KC and resistance to diseases of Desi to perform satisfactorily under rural free range management. The KC X Desi crossbred performed better than their parental breeds in terms of growth and egg production under village condition irrespective of feeding management. This implies that upgrading of Desi with KC may be an important mean of duck egg production in Bangladesh. Supplementary feeding to the ducks reared in free range may gain boost up their growth and production performance.

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