

Production Performance of 'Zo ar' a Local Chicken of Mizoram in its Home Tract

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Abstract

The present study was conducted to explore the production performance of the indigenous chicken of Mizoram in its home tract viz. Aizawl and Mamit districts. Data on production performance were collected through a pre-structured interview schedule from a total of 200 randomly selected households (100 from each district). Data collected were subjected to Independent t-test by using the software Statistical Package for Social Scientist (SPSS) for any significant differences between the two districts. The findings revealed that the age at first laying (range), age at sexual maturity (range), average clutch size (average \pm SE) and laying cycle (range) were found to be 6 to 8 months, 5 to 7 months, 4.14 \pm 0.09 eggs and 4 to 5 months, respectively. Self-Broodiness was observed in all the birds. The average number of eggs set per hen was 10.29 \pm 0.13 eggs, with hatchability of 85.00 \pm 0.62 %. The annual egg production averaged as 44.65 \pm 0.40 eggs. No significant difference was observed in any of traits studied between the birds of the two districts, indicating the similarities in their genetic background. The study suggested that the production performance of local chicken of Mizoram was comparable with the other native chickens of other states in India but annual egg production was quite low compared to some other indigenous birds. Genetic improvement programme along with the better management practices will be of immense help in improving the production performance of this local chicken.

Keywords: Age At First Laying, Broodiness, Local Chicken, Mizoram, Production Performance

Introduction

India has about 70% populace living in rustic territories and poultry is one of the quickest developing portions of the farming part in India with around 8% development rate per annum (Chatterjee and Rajkumar, 2015). Country poultry were the significant wellspring of creation of eggs and meat in India around a few decades prior. Lawn poultry cultivating, all around is a low info or no information adventure and is portrayed by indigenous night cover framework, rummaging framework, with minimal advantageous sustaining, normal incubating of chicks, poor profitability of the flying creatures, nearby promoting and no social insurance practice (Mandal *et al.*, 2006). Mizoram is one of the north-eastern hilly states of India covering an area of 21,087 km². It has coordinates of 23.36° N and 92.8° E and 76 percentage of the state is covered by forest. The total poultry population of Mizoram was estimated to be 12,60,298 with a growth rate of 1.49 percentage (Livestock Census, 2012). The estimated egg production in Mizoram during 2016-2017 was 397.908 lakhs of which 265.694 lakhs were from desi type and 132.214 lakhs were from improved variety of chicken and poultry meat production was reported as 2025.94 tons in the year 2016-17 (Economic Survey Mizoram, 2017).

The local chicken of Mizoram is a non-descript type which had been raised or reared since time immemorial. Virtually all Mizo people of Mizoram are meat eaters and poultry rearing is a popular farming activity among inhabitants. Rearing of chicks in the backyard is an aged old practice. It is a tradition of the Mizo people to rear 1-2 pigs along with 5 to 7 local birds adopting free range system. The birds are not properly managed and hence their productivity is low. The indigenous birds of Mizoram are well adapted to the environment and climate, they can produce with irregular supply of feed or supplement, water and with minimum or no healthcare. They play crucial roles in the rural community as a source of good quality animal protein and play an important role in the socio-cultural life of the rural people. Local chicken gangs one of the most significant positive characters such as their toughness which is the capacity to endure cruel natural and atmosphere condition and poor farming practices absent a lot of misfortune underway (Padhi, 2016).

The native chicken of Mizoram is not yet considered as a recognized breed of chickens in the country due to lack of scientific information in terms of its geographic distribution, morphological traits, production system in its native home tract. Therefore, this study was conducted to evaluate the production performance of this local chicken in its native tracts.

Materials and Method

The investigation was done in the province of Mizoram, North East sloping area of India. Two districts *viz.*, Aizawl and Mamit area were utilized for assortment of information. From each district, 10 villages which were having more number of this chicken were chosen. Ten family units were chosen randomly from each village so as to have a solid reliable sample. Information the production performance of the Zo ar chicken was collected from the leader of the family or the poultry ranchers through a pre-structure talk with plan. The data so collected was analysed using Software Package for Social Scientist (SPSS) and Microsoft excel to assess any significant difference between the two districts.

Result and Discussion

The mean production performance of the local chicken “Zo ar” of Mizoram, India is presented in Table 1.

Age at First Laying

In the present study, the average age at first laying of hen was found to be 6 - 8 months, indicating that these birds are of late maturity type. Similar to the present findings, the average age at first laying in Danki and Kalasthi chicken was observed as 6 - 8 months (Yadav *et al.*, 2017). They further reported the average age at first laying in Bursa and Ghagus chicken as 5 - 7 months which was slightly less than the present observation. The birds of the two districts did not show any significant difference in their average age at first laying (Table 1).

Table 1: Mean Production Performance of the Local chicken 'Zo ar' of Mizoram

Quantitative traits	District		Overall (200)
	Aizawl (n=100)	Mamit (n=100)	
Age at first laying ^{NS} (range in months)	6-8	6-8	6-8
Age at sexual maturity (males) ^{NS} (range in months)	5-7	5-7	5-7
Average Clutch size ^{NS}	4.16±0.13 (1-7)	4.12±0.13 (1-7)	4.14±0.09 (1-7)
Laying cycle ^{NS} (months)	4-5	4-5	4-5
Average egg set ^{NS}	10.37±0.19 (10-20)	10.22±0.18 (10-24)	10.29±0.13 (10-24)
Broodiness	Self-brooding	Self-brooding	Self-brooding
Hatchability ^{NS} (%)	85.04±0.98	84.98±0.76	85.00±0.62
Annual egg production ^{NS}	44.85±0.58 (32-58)	44.46±0.55 (36-58)	44.65±0.40 (32-58)

n = Number of households; NS = Non significant; Figures within the parentheses are the number in range

Age at Sexual Maturity

The average age at sexual maturity of local chicken cocks of Mizoram was found to be 5 - 7 months which showed that cocks were comparatively lower age at sexual maturity than females (6-8 months). The present estimates were comparable with the reports of earlier workers in Nicobari fowl (Ahlawat and Rai, 1992), Kadaknath chicken (Thomas and Rao, 1988), native fowl of Mizoram (Sharma, 1995; Haunshi and Doley, 2011), Busra (Vij *et al.*, 2009) and Daothigir birds (Vij *et al.*, 2007). Statistical analysis showed no significant differences in this trait between the two districts studied.

Average Clutch Size

The present findings revealed that the local chicken of Mizoram showed an average clutch size as 4.14±0.09 eggs, with a range between 1 to 7 eggs. The two districts did not show any significant difference in their average clutch size (Table 1). Similar to the present findings, average clutch size in Tellicherry hen was about 4-6 eggs (Vij *et al.*, 2008) and in Punjab Brown Birds as about 4 to 5 eggs (Yadav *et al.*, 2017).

Laying Cycle

In the present study, the local chicken of Mizoram had a laying cycle of about 4 to 5 months. The present findings were comparable with that of Kaunayen chicken in Manipur, they reported laying cycle of Kaunayen as about 4 months (Vij *et al.*, 2016). In Tellicherry chicken, observed laying cycle was about 3.7 to 4 months (Vij *et al.*, 2008)

Average Egg Set

In the present study, the average egg set per hen by the farmers was reported as 10.29±0.13. Most of the farmers set only this much of egg to improve hatchability. The farmers expressed that if they set more number of eggs hatchability was reduced which might be due to small size of Zo ar chicken. In Kaunayen chicken of Manipur, average egg set was 12 to 15 (Vij *et al.*, 2016) which is comparable to the present finding.

Broodiness

The present findings indicated that the local chicken of Mizoram possesses the tendency of self-broodiness (100 % hens), thus enabling them to produce their own future generation. The results suggested that the behaviour of self-brooding may be useful for the farmers, who are interested to produce their own chicks. The broody hen is made to sit on the eggs, which are kept on a basket made from bamboo incubating a period of 21-22 days.

Hatchability

In the present study, 85.00±0.61 % hatchability of the eggs set to the brooding hens was observed in local chicken of Mizoram which is in conformation with that of Ghagus chicken having hatchability of 81.36 % (Vij *et al.*, 2006). In Aseel chicken, hatchability of 81.21 % (FES) was reported (Rajkumar *et al.*, 2017). The findings further revealed that the local chicken of Mizoram has better hatchability of eggs as compared to other native chickens, viz., 57.66 % in Naked neck (Faruque *et al.*, 2010), 71.93 % in Danki and 72.14 % in Kalasthi chicken (Vij *et al.*, 2006), 41.36 ± 3.56 % in Assam local chicken (Kalita *et al.*, 2012), 70 to 80 % in Tellicherry hen (Vij *et al.*, 2008), 60 – 85 % in

Bursa breed and 66 % in Aseel breed (Yadav *et al.*, 2017).

Annual Egg Production

In the present study, the local chicken of Mizoram produced on an average of 44.65 ± 0.40 eggs per annum. No significant difference was observed in between the two districts for this trait. The present finding was comparable with Ghagus chicken which produces 45 - 60 egg per annum (Yadav *et al.*, 2017) while 52 eggs per annum in Ghagus breed (Vij *et al.*, 2006). In Busra chicken, 40 - 55 eggs/annum (Vij *et al.*, 2009). However, other native chicken breeds such as Naked neck (Singh *et al.*, 1996), Nicobari fowl (Ahlawat, 2001; Chatterjee *et al.*, 2003), produces more annual egg production than the local chicken of Mizoram. The other native breeds like Danki (32 eggs), Kalasthi (34 eggs) and indigenous chicken of Assam (31 eggs) (Kalita *et al.*, 2012), produced less annual egg production as compared to Local Chicken of Mizoram local chicken. The presence of brooding behaviour might have led for poor annual egg production in this local chicken. Rajkumar *et al.* (2016) also suggested that the prominent brooding behavior in Aseel chicken might be the cause of poor production in native chicken.

Conclusion

The performance of local chicken of Mizoram with respect to production performance are comparable with the other indigenous breeds of in India. They possessed prominent brooding behaviour with high hatchability which is the advantages for the poultry farmers inhabiting in the remote hilly regions to produce their own chicks. Significant improvement can be done in their production performance through proper selective breeding.

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Conflict of Interests

There is no conflict of interest.

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