

Backyard Poultry Management and Production System at Barlekha Upazila, Moulvibazar, Bangladesh

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Abstract:

Backyard poultry is one of the key sources of protein for the rural people of Bangladesh. This study was carried out in the Barlekha upazila under Moulvibazar district of Bangladesh with the aim of assessing the management system and production performance of backyard poultry. Data were collected from 26 randomly selected households in the Barlekha upazila and analysed statistically. Farmers in the study area were low producers having average flock size of chicken, duck, geese and pigeon were 6.5, 6, 5, and 4 respectively. Most (53.85%) of the poultry houses were made shortly with wood and tin. Litter materials used by the farmers were sand, ash, rice husk and jute bags. About 15.38% farmers did not use any litter materials in their poultry houses. About 38.46% farmers provided boiled rice, rice polish and broken rice. About 15.38% of the farmers provided additional paddy, rice or wheat along that. Pond water, tube well water and water from nearby river and canals were supplied by 46.15%, 30.78% and 23.08% farmers respectively. Almost all the poultry raisers reared their poultry through free-range scavenging system. In 84.62% of the households, women were the main poultry raisers. Most (69.23%) of the farmers did not vaccinate their poultry. Newcastle disease was identified as the major threat to the backyard poultry. Two causes of death of poultry were identified - 76.92% due to different diseases and 23.08% death due to predators. Egg production of chicken and duck were 30-45/year and 60-80/ year respectively.

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1. Introduction

The poultry industry in Bangladesh plays a crucial role in economic growth and generating employment (Das et al., 2008). There are about 275.183 million chicken and 54.016 million duck in Bangladesh (DLS 2017). Poultry is commonly reared in the rural households of Bangladesh (Shanta et al., 2017). In developing countries backyard poultry is an important part of livelihood and social needs of rural families (Sarwar et al., 2015; Weyuma et al., 2015). Indigenous poultry keeping has become a custom in the villages (Barua and Yoshimura, 1997). Indigenous chicken is one of the important sources of protein in developing countries (Mapiye et al., 2008). Almost every rural family has small flocks of indigenous chickens under backyard system (Aini, 1990). Backyard poultry farming requires low input and can be managed easily (Rath et al., 2015). Through the rearing of backyard poultry, village people can fulfill their food demand as well as can get additional profit (Conan et al., 2012). Rural poultry has a remarkable contribution to the development of rural families and overall development of the poultry sector. Traditional family-based production systems still contribute more than 80 percent of the global poultry population (Mack et al., 2005). In small-scale poultry, improvement in food security occurs through contributing to mixed farming practices, contributing to women's empowerment and enabling access to healthcare and education (Wong et al., 2017). Women contribute mainly to the small farm families which are also an employment opportunity to them (Islam et al., 2015). In rural poultry farming, women are mainly owners of the poultry (Okitoi et al., 2007). In Bangladesh, the meat and egg of the indigenous chicken are more preferred resulting a higher market price of it (Islam et al., 2009). Backyard poultry farmers are low producers. They have not satisfactory knowledge of management (Alam et al., 2014). They are not aware of preventive practice (Sultana et al., 2012). Per capita meat requirement in Bangladesh is not sufficient as the growth rate in meat production of poultry is lower. To improve the efficiency of the existing production technologies must be investigated (Begum et al., 2010). There is considerable scope for improving the production performance of scavenging systems with low-cost intervention (Conroy et al., 2005). Improved birds in backyard poultry farming can ensure food security to the needy villagers (Pathak and Nath et al., 2013). On the basis of

needs, extension program should be introduced to farmers to create awareness as well as to focus the sector (Billah et al., 2013). Attention should be focused on backyard poultry by the government and non-government development agencies to meet the demands for 2020 (Rao, 2006)

2. Materials and method

2.1. Study area and period

The present study was conducted at Barlekha Upazila under Moulvibazar district of Bangladesh. Barlekha is located in between 24°36' and 24°50' north latitudes and in between 90°01' and 90°18' east longitudes. Data were collected randomly from a different region of Barlekha Upazila during September to November 2017. In the Barlekha Upazila, there is a tradition of poultry rearing through backyard system.

2.2. Data collection

In the study area, 26 households were selected randomly from different villages. Primary data were collected from the direct observation of housing, feeding and litter management of different poultry houses under the study areas. Data were also collected from the interview of farmers with the help of pre-formed questionnaires. The obtained data were analyzed in accordance with the purpose of the study.

2.3. Data analysis

Collected data were tabulated and analyzed by descriptive statistics such as average, percentage etc. using the software Microsoft Excel 2010.

2.4. Study objective

This study was conducted with the aim of assessing management practices as well as production performance of backyard poultry in the rural areas. Management practices included housing system, litter system, feeding and vaccination. Problems faced by the poultry farmers were also identified in the study.

3. Results and discussion

Table 1. Average number of different poultry species

| Species | Highest number of bird/house | Lowest number of bird/house | Flock size per household (avg.) | SD |
|---------|------------------------------|-----------------------------|---------------------------------|------|
| Chicken | 15 | 1 | 6.5 | 3.68 |
| Duck | 16 | 2 | 6 | 3.50 |
| Geese | 9 | 1 | 5 | 2.28 |
| Pigeon | 10 | 2 | 4 | 2.33 |

*SD= Standard deviation

Table 2. Materials used in poultry housing

| Housing Materials | Household number | Percentage (%) |
|-------------------|------------------|----------------|
| Wood and tin | 14 | 53.85 |
| Concrete | 6 | 23.08 |
| Earthen | 4 | 15.38 |
| Bamboo | 2 | 7.69 |
| Total | 26 | 100 |

Table 3. Litter materials used in poultry houses

| Litter materials | Farmers number | Percentage (%) |
|-------------------|----------------|----------------|
| Sand | 8 | 30.77 |
| Ash | 6 | 23.08 |
| Both sand and ash | 4 | 15.38 |
| Rice husk | 2 | 7.69 |
| Jute bags | 2 | 7.69 |
| No litter | 4 | 15.38 |
| Total | 26 | 100.00 |

Table 4. Feed ingredients provided by farmers.

| Feed Ingredients | Households number | Percentage (%) |
|--|-------------------|----------------|
| Boiled rice and rice polish | 6 | 23.08 |
| Broken rice and rice polish | 6 | 23.08 |
| Boiled rice, rice polish and broken rice | 10 | 38.46 |
| Boiled rice, rice polish, broken rice and paddy/rice/wheat | 4 | 15.38 |
| Total | 26 | 100 |

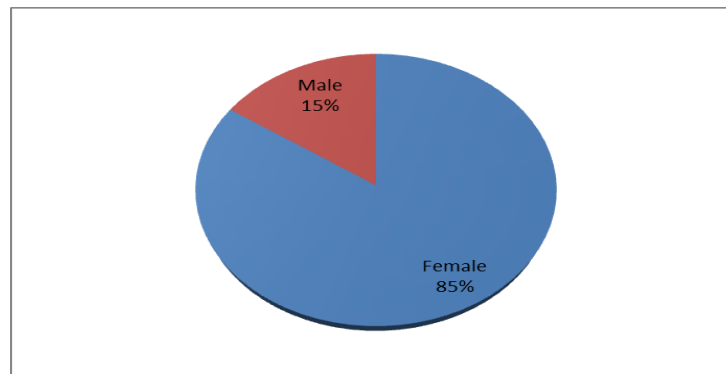


Diagram : Contribution of male and female in poultry rearing

3.1. Average flock size

Farmers in the Barlekha Upazila are the low producer. Average flock size of chicken, duck, geese and pigeon were 6.5, 6, 5 and 4 respectively. The number of chicken and duck were lower than the report of Alam et al., (2014) but agrees with in case of pigeon population. In the study areas, none was found to rear chicken, duck, geese and pigeon together. Rather 88.46% of the farmers reared a single species or two species at a time. Few of the households reared geese and pigeons. During the study period, only 15.38% households were found having geese and 11.54% households were also found having the pigeon.

3.2. Male-female ratio

In backyard system, people usually don't maintain the ratio of male-female poultry. Rather people prefer to keep single or multiple numbers of cocks in their flock at their own choice. In the study, it was found that more than 90% of the farmers kept a single number of cock in their flock for breeding purpose either it was the small or large flock.

3.3. Housing system

There was a close similarity in making poultry houses in Barlekha region. In the study areas, 61.54% of the people made their houses very close to their own residents and 38.46% of the people made completely separated poultry houses keeping a minimum distance. Most (53.85%) of the poultry houses were made shortly with wood and tin. Concrete made house were 23.08%, earthen made houses were 15.38%, and 7.69% houses were made with bamboo, polythene and other materials. Halim (1988) reported in Naogaon district of Bangladesh that 44%, 28%, and 28% poultry were kept in bamboo cages, living house and

earthen house, respectively. Many of the duck raisers had the temporary house made with bamboo under the open sky.

3.4. Litter used in poultry house

Different poultry householders used different litter materials on the floor of their poultry houses. It was also found that some of the farmers did not use any litter materials in the poultry houses. In the study areas, 30.77% farmers provided sand, 23.08% provided ash and 15.38% farmers provided both sand and ash, 7.69% farmers provided rice husk and 7.69% farmers provided jute bags. Alam et al., (2014) observed that 67.50% farmers used ash then using sand or paper and ash together as a bedding material in their poultry house. It was found that 15.38% farmers did not use any litter materials on the floor of their poultry houses.

3.5. Feeding system

Backyard poultry raisers usually provide less supplement feed, unlike commercial poultry raisers. Some common feed ingredients were used by the farmers. Only boiled rice and rice polish were used by 23.08% of the farmers. Again only broken rice and rice polish were used by 23.08% farmers. About 38.46% farmers used boiled rice, rice polish and broken rice at the same time and 15.38% of the farmers were found to provide additional paddy or rice or wheat along with boiled rice, rice polish and broken rice. Alam et al., (2014) showed that about 62% of the farmers used boiled rice and rice polish other than using rice, rice polish, paddy, broken rice and wheat bran as feed ingredients for poultry. Due to scavenging system farmers provided the mentioned feed ingredients single time or twice in a day.

3.6. Water management

Backyard poultry farmers were less conscious of good management and sanitation practices. They were not cautious about a water-borne disease. They provided that water which was nearer to them. In the study areas, 46.15% of the farmers supplied pond water, 30.78% of the farmers provided tube well water and 23.08% farmers were found who supplied water from nearby river and canals. Majority of the water sources were found as unhygienic. Weyuma et al., (2015) showed that backyard poultry farmers in Ethiopia supplied river and tap water to their poultry.

3.7. Rearing system

There is a traditional practice in backyard poultry rearing system. Almost all the farmers rear poultry in free-range scavenging system. This result agrees with the result of Dutta et al., (2013) who reported that free-range scavenging system has prevailed in chicken all the year round. In the study areas, only a single household was found to rear their poultry by the semi-scavenging system. In the rural areas, women are the main contributors to backyard poultry farming practice. In the study areas, 84.62% poultry raisers were female where only 15.38% poultry raisers were male. This result agrees with the report of Ogunlade et al., (2013) who described that poultry farming is very popular among the rural women in different countries.

3.8. Vaccination

In the remote areas, people were less aware of vaccination. But in many areas, people were becoming more cautious to reduce mortality rate through vaccination. It was found that only 30.77% farmers vaccinate their poultry and 69.23% usually ignore the vaccination strategy. Alam et al., (2014) found in Mymensingh that 86% farmers didn't vaccinate their poultry. Due to the higher prevalence of Newcastle disease, people mainly immunized their poultry against this disease.

3.9. Diseases of poultry

There are few numbers of diseases in backyard poultry. But some of the infectious diseases cause tremendous mortality of the birds in the rural areas. Among those diseases, Newcastle disease is found as the major cause of death of the chicken. Hossain et al., (2013) reported that ND was of the major infectious diseases that reduces the number and productivity of traditionally managed chickens. During outbreak, avian influenza becomes most devastating for poultry. Other diseases of chicken included fowl pox, fowl cholera, salmonellosis, necrotic enteritis and coccidiosis which cause great economic loss of the rural poultry farmers. In case of duck, farmers mainly faced the problem of duck plague, duck cholera and botulism. This result agrees with the Baki et al., (1986) who mentioned that Duck Plague and Duck Cholera are the common diseases of epidemic nature in Bangladesh. In case of pigeon, diseases which cause mortality and economic losses are mainly Newcastle and pigeon pox.

3.10. Causes of mortality

Two main causes of mortality of poultry were identified during the study period. Death of 76.92% poultry occurred due to different diseases and 23.08% of death occurred due to predators. In the study it was found that mortality by diseases were results from the lack of consciousness about vaccination strategy. Islam et. al., (2015) mentioned that the major cause of death in poultry occurred by Ranikhet disease. Dutta et al., (2013) reported that high mortality of their chicks occur due to Newcastle disease, salmonellosis, gumbo and coccidiosis. Predators which are threat for indigenous poultry are mainly fox, mongoose, kite, jungle cat etc. found in the study area. Islam et. al., (2015) reported that the losses of poultry occurred by predators like snake, rat, dog, cat, fox and bird of prey, were the main causes of bird losses, especially young birds.

3.11. Production performance

The production performance of backyard poultry is much lower than the commercial poultry. Age of sexual maturity varies according to the management, particularly on the availability of feed in the villages. Egg production in 80% of the chickens ranges from 30 to 45 per year. This result conform with the report of Das et al., (2008) who showed that egg production of indigenous birds was 35 to 40 per year. In 80% of the ducks, egg production per year ranges from 60 to 80. This finding agreed with the report of Hoque et al., (2010) who described that the traditional household duck production in Bangladesh was 79 per year. The farmers of the study area use fertile eggs as table purpose and also for incubation. Broody hens were used mainly for incubation of both chicken and duck eggs. The number of eggs set for incubation ranges from 10 to 15 per hen. Body weight gained in matured hen mostly ranges from 1-1.5 kg that also used as meat purpose.

4. Conclusion

Malnutrition is an existing ailment in Bangladesh, particularly in many rural areas. There is still the deficiency in the production of eggs and meat in Bangladesh. To eliminate this situation there should be emphasized on poultry production. As low investment and quick profit in the poultry sector, people should be encouraged in poultry farming. Rural people need support from the government as there is crisis in the vaccination, veterinary services and

marketing facilities. Training and other extension programmes should be carried to encourage farmers. Improvement in the poultry sector can ensure better contribution to the national economy of Bangladesh.

References

- Adebayo, S.A., Ogunlade, I. and Fayeye, T.R., 2013. Scope and Common Diseases of Rural Poultry Production by Rural Women in Selected Villages of Kwara State, Nigeria. *International Journal of Poultry Science*, 12(3), pp.126-129.
- Aini, I. (1990). Indigenous chicken production in South-east Asia. *World's Poultry Science Journal*, 46(1), pp.51-57.
- Alam, M. A., Ali, M. S., Das, N. G. and Rahman, M. M. (2014). Present status of rearing backyard poultry in selected areas of Mymensingh district. *Bangladesh Journal of Animal Science*, 43(1), pp.30-37.
- Baki, M. A., Sarker, A. J. and Mondal, M. M. H. (1987). Pathological investigation on the mortality of ducks in Bangladesh. In Workshop on Bangladesh Agricultural Research Progress, Mymensingh (Bangladesh), 4-5 Oct 1986. BAU.
- Barua, A. and Yoshimura, Y. (1997). Rural poultry keeping in Bangladesh. *World's Poultry Science Journal*, 53(4), pp.387-394.
- Begum, I. A., Buysse, J., Alam, M. J. and Van Huylenbroeck, G. (2010). Technical, allocative and economic efficiency of commercial poultry farms in Bangladesh. *World's Poultry Science Journal*, 66(3), pp.465-476.
- Billah, S.M., Nargis, F., Hossain, M.E., Howlider, M.A.R. and Lee, S.H., 2013. Family poultry production and consumption patterns in selected households of Bangladesh. *Journal of Agricultural Extension and Rural Development*, 5(4), pp.62-69.
- Conan, A., Goutard, F. L., Sorn, S. and Vong, S. (2012). Biosecurity measures for backyard poultry in developing countries: a systematic review. *BMC veterinary research*, 8(1), pp.240. <https://doi.org/10.1186/1746-6148-8-240>
- Conroy, C., Sparks, N., Chandrasekaran, D., Sharma, A., Shindey, D., Singh, L.R., Natarjan, A. and Anitha, K., 2005. Improving backyard poultry-keeping: a case study from India. Overseas development institute (ODI). Agricultural research & extension network (AgREN).
- Das, S. C., Chowdhury, S. D., Khatun, M. A., Nishibori, M., Isobe, N. and Yoshimura, Y. (2008). Poultry production profile and expected future projection in Bangladesh. *World's Poultry Science Journal*, 64(1), pp.99-118.
- DLS (2017) Annual Report of Department of Livestock Services (2016-2017), Bangladesh.
- Dutta, R.K., Islam, M.S. and Kabir, M.A., 2013. Production performance of indigenous chicken (*Gallus domesticus* L.) in some selected areas of Rajshahi, Bangladesh. *American Journal of Experimental Agriculture*, 3(2), pp.308-323.

- Halim, A. (1988). Institutional reports on farming system research with particular reference to activities on livestock and poultry, Livestock Component of Farming System Research in Bangladesh. 21st December 1988 Agricultural Research Council, Dhaka, Bangladesh.
- Hoque, M. A., Skerratt, L. F., Rahman, M. A., Rabiul Alam Beg, A. B. M. and Debnath, N. C. (2010). Factors limiting traditional household duck production in Bangladesh. *Tropical Animal Health and Production*, 42(7), pp.1579–1587. <https://doi.org/10.1007/s11250-010-9609-z>
- Hossain, M. B., Islam, M. Z., Bari, M. S., Torab, M. A. and Mondal, M. A. H. (2014). Seroprevalence of Newcastle Disease virus in backyard chickens at Gazipur district of Bangladesh. *International Journal of Natural Science*, 3(1-4), pp.22-25.
- Islam, M. A. and Nishibori, M. (2009). Indigenous naked neck chicken: a valuable genetic resource for Bangladesh. *World's Poultry Science Journal*, 65(1), pp.125-138.
- Islam, M. S., Begum, I. A., Kausar, A. K. M. G., Hossain, M. R. and Kamruzzaman, M. (2015). Livelihood improvement of small farmers through family poultry in Bangladesh. *International Journal of Business, Management and Social Research*, 01(02), pp.61-70. <http://dx.doi.org/10.18801/ijbmsr.010215.07>
- Mack, S., Hoffmann, D. and Otte, J. (2005). The contribution of poultry to rural development. *World's poultry science journal*, 61(1), pp.7-14.
- Mapiye, C., Mwale, M., Mupangwa, J. F., Chimonyo, M., Foti, R. and Mutenje, M. J. (2008). A research review of village chicken production constraints and opportunities in Zimbabwe. *Asian-Australasian Journal of Animal Sciences*, 21(11), pp.1680–1688. <https://doi.org/10.5713/ajas.2008.r.07>
- Okitoi, L.O., Ondwasy, H.O., Siamba, D.N. and Nkurumah, D., 2007. Traditional herbal preparations for indigenous poultry health management in Western Kenya. *Livestock Research for Rural Development*, 19(5), p.2007.
- Pathak, P.K. and Nath, B.G., 2013. Rural poultry farming with improved breed of backyard chicken. *J. World's Poult. Res*, 3(1), pp.24-27.
- Rao, S.V., 2006. Research Priorities and Policy Options for Backyard Poultry Development to 2020. *Poultry Research Priorities to 2020*, 122, p.244.
- Rath, K. R., Mandal, K. D. and Panda, P. (2015). Backyard Poultry Farming In India: A Call for Skill Upliftment. *Research Journal of Recent Sciences*. 4, pp.1-5
- Sarwar, F., Usman, M., Umar, S., Hassan, M., Rehman, A. and Rashid, A., 2015. Some aspects of backyard poultry management practices in rural areas of district Rawalpindi, Pakistan. *International Journal of Livestock Research*, 5(5), pp.14-20. <http://dx.doi.org/10.5455/ijlr.20150215090127>
- Shanta, I.S., Hasnat, M.A., Zeidner, N., Gurley, E.S., Azziz-Baumgartner, E., Sharker, M.A.Y., Hossain, K., Khan, S.U., Haider, N., Bhuyan, A.A. and Hossain, M.A., 2017. Raising backyard poultry in rural Bangladesh: Financial and nutritional benefits, but persistent risky practices. *Transboundary and emerging diseases*, 64(5), pp.1454-1464.

- Sultana, R., Rimi, N.A., Azad, S., Islam, M.S., Khan, M.S.U., Gurley, E.S., Nahar, N. and Luby, S.P., 2011. Bangladeshi backyard poultry raisers' perceptions and practices related to zoonotic transmission of avian influenza. *The Journal of Infection in Developing Countries*, 6(02), pp.156-165.
- Weyuma, H., Singh, H. and Megersa, M., (2015). Studies on management practices and constraints of back yard chicken production in selected rural areas of Bishoftu. *British Journal of Poultry Sciences*, 4(1), pp.01-11.
- Wong, J. T., de Bruyn, J., Bagnol, B., Grieve, H., Li, M., Pym, R. and Alders, R. G. (2017). Small-scale poultry and food security in resource-poor settings: A review. *Global Food Security*. <http://dx.doi.org/10.1016/j.gfs.2017.04.003>

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