Analysis of backyard chicken farmers socio-economic and management practices in District Quetta, Balochistan

Abstract

Socio-economic profile of backyard poultry farmers beside the prevailing management practices and flock profile was studied in nine union councils of District Quetta Balochistan; from November, 2016 to March, 2017. Primary data was collected from 99 households randomly selected from study area by using semi-structured questionnaire, while descriptive statistics were used to conclude the data. Study revealed that women were the only prevailing gender (100 %) involved in rearing of backyard chicken in the area. Maximum (53 %) number of respondents were in the age group of > 40 years, while more than half (58 %) of poultry keepers were illiterate. Backyard poultry farming was much popular (79 %) in house wives, whereas 75 % of them were responsible for primary support of their household. Pashtoon ethnicity was the major (40 %) group of respondents. 58% of the respondents reported a family with 10–20 members. 90 % of the farmers provided shelter to their birds, made from mud and thatch (kacha). 80 % of these birds were fed on kitchen waste and bread remnants. Average flock size was 27 birds, having 48 % Desi (Indigenous chicken), 27 % Fayoumi, 12 % Rhode Island Red (RIR) and 13 % cross bred birds. Flocks were comprised of adult hen (71%), cock (15 %) and chicks (14 %). Annual egg production was 4190±171 eggs with 217±2.4 eggs produced per bird, whereas the average number of eggs consumed per family was 1314±48 eggs. Backyard poultry rearing offers a real opportunity to alleviate poverty and gender empowerment. The farmers should be further trained to improve the current feeding and management practices of these birds.

Key words: Balochistan, Chicken, Rural poultry, Socio-characteristics, Women, Quetta.

Introduction

Backyard chicken rearing refers to rearing of chicks on small scale i.e. 10–12 birds for family use and cash income generation (Qureshi, 1985). Chicken kept on small scale under extensive management system significantly contributes to cash income to most of the rural families in developing countries (Bessei, 1989, Farooq and Mian, 2001, Halima et al. 2007); Prior to establishment of the commercial poultry sector in the country, backyard poultry birds were the major and the only source of eggs and meat supply (Mian, 1994) in Pakistan. Backyard poultry has a proven contribution in the food security of rural masses. In addition, products obtained from poultry have superior quality of protein in terms of their biological value as compared to protein received from plant sources. Consequently, the consumption of these products increases the supply of essential amino acids in the consumers' diet. Poultry industry is one of the main segments of Pakistan's livestock sector and has made a tremendous growth in the past four decades with an annual growth rate of 8–10 %. Globally, country has been ranked 11th with the production of over 1.2 billion broilers annually. It has a contribution of 1.4 % in GDP; while its contribution in agriculture and livestock value addition stood at 6.9 % and 11.7 %, respectively (ESP; 2015-16). Regardless of this remarkable development backyard poultry farming has a vital role in improving economic status of a large number of rural families from lower socio economic background in the rural areas. Backyard chicken farming fulfills a wide range of functions such as provision of meat and eggs, pest control and petty cash availability to the household with minimum. To encourage economic growth of poor household resources in rural areas of District Quetta Balochistan, low input intervention in backyard poultry farming was done by government and non-governmental organizations. Main objective was to create a source of supplementary or full source of income for poor household women population of the district. Poultry birds of Fayoumi and Rhode Island Red (RIR) breeds were provided to these women. Keeping in view its importance for socio economic development of poor rural people, a study was conducted in District Quetta, Balochistan to explore the:

i) Demographic profile of the rural farmers,
ii) Prevailing housing and feeding systems for keeping poultry under village conditions,
iii) Flock composition, egg production and consumption at household level in backyard poultry farming

MATERIALS AND METHODS

Study Area

Balochistan is the southeast province of Pakistan having thirty-two districts and Quetta is its headquarter that lies between 30° 10' 59.7720" N and 66° 59' 47.2272" E absolute locations. It is located on an elevation from sea level of 1682 meters. It has a semi-arid climate with an average annual precipitation of 261 mm. Administratively the district is divided into three sub-units (tehsils) namely Quetta, Khuchlak and Panjpai. Keeping in view the accessibility to the vast, data was collected from purposely selected nine out of thirty-six Union Councils (UCs), which included Chasma Achozai, Rahim Gul, Nohsar, Pashtoonabad, Sabzal, Saraghurgai, Kechi Baig, Khuchlak and Panjpai UCs. These selections were done on the basis of proportional sampling technique. Ninety-nine families already engaged and accustomed to backyard poultry rearing were randomly selected from these union councils.

Sampling procedure

A pilot study was carried out before actual data collection; based on the observations of this study a planned interview schedule was constructed through participatory method. Primary data was personally collected from ninety-nine female household engaged in backyard poultry farming by using a structured questionnaire based on both closed and open form questions.

Data collection and analysis

The data were collected through face to face interview and by direct observation method, in the farmer's homes or fields from November 2016 to March 2017. Descriptive statistics such as frequency counts and percentages were used to present the data which were further analyzed while using MS excel software.

RESULTS AND DISCUSSION

Socio economic profile of farmers

Age

The data regarding age wise grouping of farmers are illustrated in Figure 1. A significant proportion of the farmers (47 %) were in the age group of <40 years whereas the rest (53 %) were in the age group of >40 years. Our results are in coordination with the findings of Alabi and Aruna 2005, Rawat et al., 2015 who demonstrated that majority of the farmers were in the age group of >45 years above, while in contradiction to those with Bikash et al., 2010, Singh and Jilani 2012 and Ruchi and Jadoun 2014; who reported that majority of the farmers involved in backyard poultry keeping were in the young age groups (<30 years). Anyhow, a significant proportion of the farmers were in age group when they have the ability to understand and participate in various poultry improvement programs. Consequently, they may have an effective contribution in the up-gradation of their small scale holdings. It is needed to create awareness among the younger generation about backyard poultry rearing and to create opportunities for their self-employment. Their inclusion would be more useful, since they have the power to adopt novel / improved technologies.

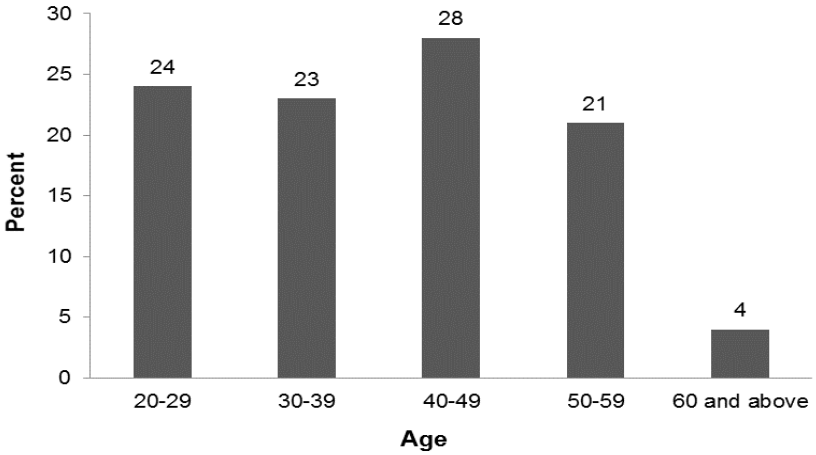

Fig. 1. Age wise distribution of respondents

Education

Education status of respondents is illustrated in the Figure 2. Obviously highest numbers of the respondents (58 %) were illiterate; whereas 33 % of the respondents had formal school education. Only 9 % of respondents had the education level beyond school with intermediate (4 %), bachelor (3 %) or master level (2 %) education. High level of illiteracy among female farmers of the district is due to the prevailing culture in which female education is still considered as a taboo among tribal dwellers of the area, other constraints adding in the female illiteracy include economic weaknesses and the existence of a non-delivering education system at rural level. This study is in agreement with Sonaiya EB. 2000, Mandal et al. 2006, Moges et al. 2010 and Tufail et al. 2012 who reported that majority of the backyard poultry farmers had a low level of education in their study area, which is a major limitation to technology adoption in livestock and agriculture. But it was not in agreement with Balamurugan et al. 2017, who reported that more than 70 % of the farmers were educated in his surveyed area (Theni district, Tamil Nadu); these researchers concluded that high level of education will facilitate the respondent for accessing relevant information that will boost the productivity of their enterprises. This suggests that relatively more efforts would be needed in our surveyed area to prepare the farmers to accept interventions for improvement in farming as compared to farmers who were well qualified and had the ability to understand the technical aspects of interventions in poultry rearing.

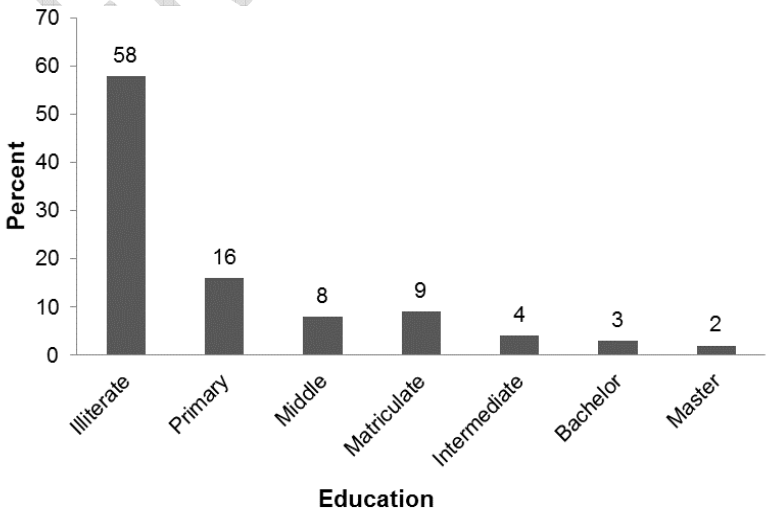

Fig. 2. Education status of respondents

Gender

Women members of the family were the only prevailing gender (100 %) in rearing of poultry birds Figure 3. They were exclusively involved in most of routine works such as feeding, cleaning and collection of eggs etc. It was concluded that male members of the farming family had the role in making arrangements for the procurement of inputs from market; like feed, medicines and vaccines etc. Obviously, backyard poultry keeping offers an opportunity for income generation to such female family members. The results of this study are in line with the findings of Ekue et al. 2002, Dessie and Ogle 2001, Alabi and Isidahome 2004 and Jatto NA 2012. These workers reported that women were the sole persons engaged in backyard poultry production operations. Keeping in view the dynamic role of women in this enterprise it becomes important to ensure their active involvement in the process of improved poultry production operations. Till today, poultry extension workers field is a male dominated area and all veterinary services like disease control measures and vaccination etc. are usually performed by these male workers. In our reported areas contacts between women and male extension workers are again prohibited due to cultural and religious factors. This necessitates planning poultry development projects in such a way that women participation is ensured in poultry extension work. On the other hand, contrary to findings of this study and those reported earlier, some other workers revealed that proportion of female farmers in backyard poultry rearing under their study area were low because of poor labor efficiency (Balamurugan et al. 2017).

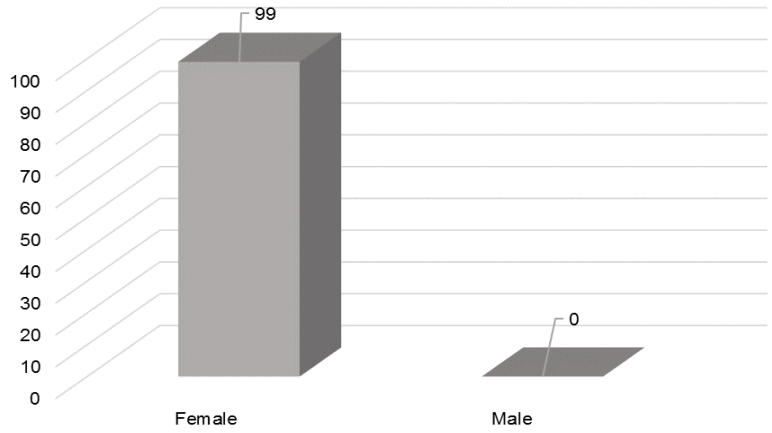

Fig. 3. Gender of the respondents

Occupation

The proportion regarding occupation of respondents is illustrated in Figure 4. House wives (79 %) were the major group involved in poultry farming which was followed by teachers (16 %) and health workers (5 %), respectively. Noticeable majority (79 %) of the respondents were rearing backyard poultry as main occupation whereas the rest (21 %) were rearing backyard poultry as subsidiary occupation to earn additional income, these findings are contrary to those of Bahumguran et al. 2017, who reported that 16 % of the respondents were running the farm as main occupation. The discrepancy found in our study with one reported earlier may be due to the fact that a greater proportion of the respondents in Assam were doing non-farming business than farming activity.

Fig. 4. Occupation of the respondents

Ethnicity

The ethnicity of the respondents is illustrated in Figure 5. Pashtoons were the dominant (40 %), among all ethnic classes followed by Brahvis (28 %), Balochis (22 %) and others (10 %) which included the famers from Hazara, Uzbek, Tajik and other small ethnic classes. Ethnic proportion of these farmers is the representation of the ethnic proportion of population in the district; where Pashtoons have been reported to constitute a major part of the population followed by Brahvis, Balochis and other small ethnic classes mentioned earlier. (Pervaiz S. 2011)

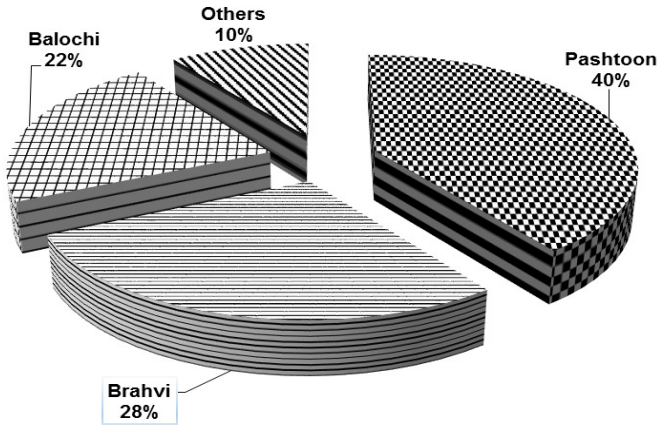

Fig. 5. Ethnic proportion of respondents

Family size

The proportions of the family members of the respondents laying in different age groups are shown in Figure 6. Most families of the respondents were residing in a joint family system. More than half (58 %) of the respondents were from families having a range of 10 to 20 members per family, while 27 % and 15 % belonged to large (> 20 members) and small family (< 10 members) groups respectively. Findings of our study are in agreement with those reported by Tufail et al., 2012, Dakshayani and Gangadhar, 2016 and Bahumguran et al. 2017, these workers revealed that larger family size of above 10 members and / or nuclear family concept were more preferred in their relevant study areas. The large family size will constitute a bulk of family labour supply relevant to family poultry production. However, findings of our study were in contrary to those reported by Singh and Jilani 2005, who stated that majority of the respondents, belonged to medium family size.

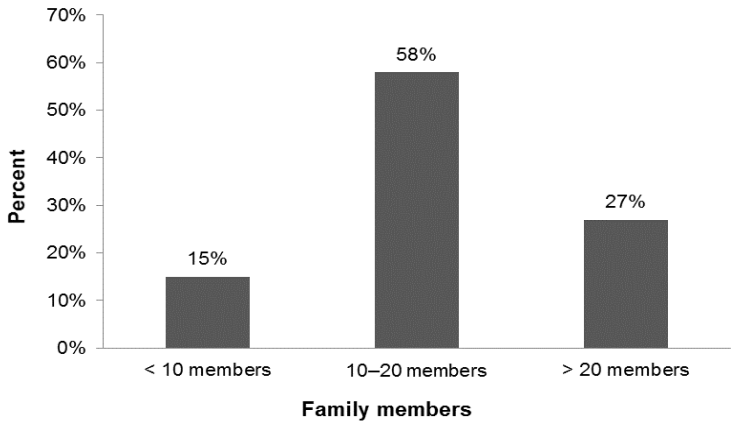

Fig. 6. Proportion regarding family size of respondents

Poultry Birds Housing and Feeding Systems

Poultry housing system

Majority (90 %) of the respondents were providing shelter to their birds, while the rest (10 %) were not providing any formal shelter. The survey indicated that majority (58 %) of the farmers have constructed formal sheds. A larger proportion of farmers did not develop any specific housing facility for their birds, the rest of the respondents have arranged the place for their birds either with available storage rooms (4 %) and / or in other animals' sheds (13 %). Results indicated that majority of the farmers (88 %) maintained their birds in kacha houses (mud and thatch roofs, mud walls and earthen floor) whereas the rest followed partially pucca (10 % - mud and thatch roofs, mud walls and floor paved with bricks) or completely pucca houses with cemented construction (2%). Results of our study are in-line with Rawat et al. 2015 who reported that majority of the farmers were providing mere shelter to their birds, without paying any heed to the specific housing and management requirements for these birds.

Poultry feeding system

Results of the survey revealed that feeding system of these birds was based on the remnants of bread left after domestic consumption. This left over bread was the main item of feeding (80 %) either along with scavenging (52 %), supplemented with cereals (23 %) and with kitchen waste (5 %). Dry bread system was followed by system based on kitchen waste either with commercial feed (7 %) or with kitchen waste with scavenging (6 %). A small proportion (7 %) of the total farmers relied on commercial feed only for feeding of their birds. The frequency at which these supplements were fed varied from farmers to farmers. Feed costs also varied according to the number of birds, and the type and frequency at which these supplements were given. The results of our study are in line with Sonaiya EB 1995 and Rawat et al. 2015, who found that majority (84 %) of the chickens, were kept on scavenging with supplemental feeding including various types of grains in different proportions. However, in our study left over dry bread after home consumption was the main source of feeding with scavenging, cereals and kitchen waste.

Table 1: Backyard chicken housing and feeding systems being followed in District Quetta

Variables	Category	% age
Poultry housing	Poultry shed	58
	Store room	4
	No specific housing	25
	Others	13

Type of housing	*Kacha	88
	**Pucca	2
	***Partially pucca	10
Type of floor	Earthen floor	88
	Brick finished	10
	Cemented	2
Feeding practices	Commercial feed	7
	Dry bread + cereals	23
	Dry bread + scavenging	52
	Dry bread + kitchen waste	5
	Kitchen waste + scavenging	6
	Kitchen waste + commercial feed	7

** Mud + Thatch; ** Mud + Bricks; *** Mud + Bricks + Paved floor*

Flock Size, Flock proportion and Egg Production Status

Flock Size and proportion

Average flock size (Table 2) was found to be 27 birds; flocks were composed of greater number of adult birds than chicks. The flock was composed of hens, cocks and chicks in a proportion of 71 %, 15 % and 14 %, respectively. The highest number of flocks were containing desi / native birds (48 %) followed by Fayoumi (27 %), RIR (12 %), a mixed flock of desi and RIR birds (6 %), desi, Fayoumi and RIR (3 %) a mixed flock of desi and Fayoumi birds (2 %), Fayoumi and RIR (2 %). The highest numbers of flocks containing desi birds were attributed to be due to disease resistance (36 %) and better egg production (34 %) by the respondents (Table 3). Other respondents (Farooq et al. 2004 and Tufail et al. 2012) pointed out that higher number of flocks with desi birds were due to less mortality (9 %) and less care needed (6 %) A considerable proportion (15 %) of the respondents remained inconclusive in relative context.

Egg production and consumption status of a house hold

This study (Table 4) revealed that about 4190 ± 171 eggs were obtained in a year by a household out of which about 32 % were consumed by the household whereas, rest were either sold or kept for brooding or for table purpose. Number of eggs obtained in this study is relatively higher than those reported in some other studies. Such as 1407 ± 5.15 eggs reported by Farooq et al. 2002, from backyard chicken in Charsadda district.

The higher annual household egg production and consumption in villages of Quetta district could be attributed to the awareness of farmers about backyard chicken production and readily available market for eggs due to close vicinity of Quetta city–a metropolitan. The same pattern of domestic egg consumption was also seen by Tufail, et al. 2012 in Tehsil Matta Swat.

Table 2: Flock size of various backyard chickens in District Quetta

Flock Size	**Mean ± SE**
Adult birds	23 ± 0.87
Chicks	60 ± 40

Table 3: Flock Proportion of various backyard chickens in District Quetta

Birds Type	Proportion (%)
Desi	48
Fayoumi	27
RIR	12
Desi + Fayoumi	2
Desi + RIR	6
Fayoumi + RIR	2
Desi + Fayoumi + RIR	3

Table 4: Egg production in backyard chicken in rural areas of District Quetta

Egg Production	Mean ± SE
Total annual household egg production	4190 ± 171
Annual egg production per bird	217 ± 2.40
Total annual household egg consumption	1314 ± 48

Conclusion

From the present study it is concluded that backyard chicken farming is routinely practiced in rural areas of district Quetta. A large proportion of respondents has adopted it as the only occupation; its products are used both for family consumption and income generation. This suggests that backyard poultry production have an important role in the living of such farmers.

In the study area this activity is entirely carried out by women, which implies that while designing poultry improvement programs the participation of women should be the primary focus of the interventions. As far as housing is concerned, majority of the respondents were providing mere shelter to their birds without paying any attention to the specific housing and management requirements of these birds. This necessitates the need to carry out further studies to find the more affordable and effective type of housing chicken while fulfilling the basic needs regarding protection from extreme weather conditions, safety from predators and effective disease control programs. Farmers should then be intervened for the adoption of such practices.

Studies should also be carried out to devise the feeding strategy by including the locally available feed ingredients, bread remnants, kitchen waste and commercial feed to achieve the maximum production from these birds in an economical way.

As far as flock composition is concerned the proportion of chicks in the flocks was surprisingly low, the reasons for which could not be ascertained, further studies are needed in this context to ascertain the actual causes and suggest remedies to increase this proportion. This may improve the turnover rate of these farmers.

Recommendations

- Strains of Desi / local birds should be investigated for their productivity and liveliness at government level and suitable strains be propagated at rural level
- Backyard poultry farmers should be persuaded to keep relatively higher number of high producing chicken strains like Fayoumi and RIR to ensure higher productivity and consequently higher economic return.
- Female respondents should be educated on various chicken production, feeding and disease preventive measures particularly on vaccination program to achieve maximum production.

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